

The Economic Club of New York

487th Meeting
111th Year

Kenneth Frazier
Chairman and Chief Executive Officer
Merck & Co.

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Interviewer: Clifton Leaf
Editor-in-Chief, *Fortune*

Introduction

Chairman Marie-Josee Kravis

I just want to welcome everyone to our 487th meeting of the Economic Club. I am Marie-Josee Kravis, the Chair of the Economic Club and a Senior Fellow at the Hudson Institute. And, as you know, the Economic Club is the leading national nonpartisan forum for speeches and conversations on economic, political, and social issues. And we've been doing this for 111 years and have been able to host above 1,000 speakers.

I want to recognize some of the members of our Centennial Society that are seated at the front of the room. We have 270 members of our Centennial Society and their support ensures the financial backbone and stability of the Club so I thank you very much. And we're also delighted to welcome some of the Economic Club Class of 2018 Fellows who are in attendance today. And we are making available online, applications for the 2019 program. So perhaps some of you might want to consider nominating a talented next-gen leader from your organization to participate. And I also want to welcome graduate students from the New York Stern Business School.

Those who follow the Club know we've been trying to diversify our programming and membership and bring a broader representation of different industries, and healthcare, of course, is one of those industries. We're delighted today to have Ken Frazier, the Chairman and Chief

Executive of Merck, a leading, global biopharm company which operates in over 140 countries. Ken grew up in inner city Philadelphia. He attended Penn State, received a JD from Harvard, and he joined Merck in 1992. Served in various positions after having had, continued in the legal department but had had, prior to joining Merck, an illustrious career in law. So he joined Merck in 1992 and in 2011 became Chairman and CEO of Merck. And under his leadership, Merck has been delivering innovative and lifesaving medicines, vaccines, antibodies, and I might say that he's doubled the value of the stock. Now, interesting, because Ken says as important as that metric is, it's not the only metric that directs his activities and his actions in the company. And the two metrics that a long-time mentor instilled in him are very telling. How many people do we help? And how much help do we give them? And as he said, the stock price is only a reflection of that. It's a lagging indicator, not a leading indicator.

Merck's investment in research, including early research has led to the growth of key products that do help more and more people in more and more ways. But under Ken's leadership, Merck is also engaged in much more active philanthropic activities and, in fact, he launched the \$500 million initiative to help fight maternal mortality. Ken's contributions in the legal, business, and humanitarian fields have been widely recognized and he sits on the board of Pharma, Weill-Cornell Medical, Exxon, and Cornerstone Christian Academy in Philadelphia. He's a member of the American Academy of Arts and Sciences, the American Philosophical Society, the Business Council, the Council of the American Law Institute, and the American Bar Association.

Our format today is going to be a conversation and we're delighted to have as our interviewer, Clifton Leaf, the Editor-in-Chief at *Fortune*, where he directs the editorial content and brand strategy across all of *Fortune's* platform. A special thanks to the members who took the time to share questions for our speaker today, and Cliff has told me that he's incorporated a number of those questions in the conversation that he is going to have with Ken. So, Ken and Cliff, if you could both come forward, take your seats, and let the conversation begin. (Applause)

Conversation With Kenneth Frazier

Chairman And Chief Executive Officer, Merck & Co.

CLIFTON LEAF: Well, that was the perfect introduction. And I'm going to actually start with one of those metrics that Marie-Josée mentioned, you know, specifically with the rise in market cap for your company since you took the rein. You began with a modest-sized \$111 billion company and turned it into a \$190 billion market cap company, so that's roughly \$80 billion in increase, in gain since you took over. But that doesn't include the \$41 billion in dividends that were paid out during all this time. So we calculated that your annualized rate of return, total return to shareholders during this time annualized is 13.2%. That's not a bad record there since you started in January 2011. A lot has happened since then.

KENNETH FRAZIER: Yes, a lot has happened. So, first of all, I want to thank everyone for having me here today, and I hope the conversation is enlightening. I'm going to try to make it

interesting. I think one of the interesting things about being a CEO of a company like Merck is that there's a little bit of the narrative fallacy when people say this is what you did. The reality of the world is Merck is an extremely complex, interdependent company and you need a team of top people across the company who make the company successful.

CLIFTON LEAF: So my job is to overcome your modesty. So I'm going to spend the next hour or so probing and seeing if I can't, and you're famous, you're famously modest here. But the next question really speaks...

KENNETH FRAZIER: I don't know, my wife says that I need to be treated for what she calls chronic high self-esteem.

CLIFTON LEAF: Is that right? Okay. So if there is a pill for that, I'm sure that will be a great new drug in the pipeline. So, one of, you know, if you think about Merck, for those who know this company, you think about the great Roy Vagelos' era. Follow that, it was Ray Gilmartin and Dick Clark and now Ken Frazier. And really the Frazier era is really competing with the Vagelos' era in terms of the reputation for the company as a science-driven company. One of the things that just happened in the news is that the board asked you to stay on past mandatory retirement age, which is something they didn't even do for Roy Vagelos. This is kind of an extraordinary thing. It really, it brings us to a point in history where does age matter anymore? Should that even be a factor for determining who has the chops and skill set and inner strength

and vision to run a company?

KENNETH FRAZIER: So, taking an aside from my own personal case, I actually think that age limits probably aren't a great idea for a number of reasons. I think, first of all, people feel much younger than they did at this stage. I also think in industries like ours, when changes are happening over defined periods of time, it's really probably a little artificial to stop somebody in the middle of the momentum that's been created. So I think age limits are probably not a great idea. Having said that, I think there's wisdom in the term limits that we have in our democracy. And I think that, while it's important to have in certain periods, continuity, but at other times you want to make sure that there's vibrancy and fresh ideas. And so I was honored. I told my colleagues at Merck when I was asked to stay, I considered it an honor that the board asked me to stay, but I also think it's really important to recognize that this is a moment in time, that Merck has tremendous momentum right now. We believe we could continue to maintain that momentum over time. We have a senior team that has a united point of view about how to maintain that momentum over time. And, you know, at some point I think, and hopefully it's not too far in the distant future, we do need new thinking and fresh blood and all those kinds of things. So, it's one of those things that frankly over time I don't think age and a birthday should necessarily be the dividing line. I think it really is what's happening in the company? What is the rhythm of the company at a particular point in time?

CLIFTON LEAF: Speaking of time line, one of the challenges in the business that you run is that

the bets that you're making are 15 years out into the future. And, in fact, they're even longer than that because you think about all the science and the understanding of biology that have to go into it even before you've even placed your first bet on a new molecule. You know you might be patient and your shareholders might be patient and your board might be patient, but the challenging environment is such that, you know, things are constantly going away. Things don't work when you test them sometimes. How do you convince your stakeholders, your multiple stakeholders to have that long-term view?

KENNETH FRAZIER: Well, I always say that what we need in this business is patient capital. We need a lot of capital to put at risk for a long period of time. Because you know that in our business it's mostly about failure. Probably 90% of the things that we originally thought were really good ideas turn out not to be good ideas in practice. But the difference between successful companies and unsuccessful companies is what do they focus on? Where do they put their focus-effort, their focus-exploration, their focus-execution? And I think that really comes down to who you have in charge of your scientific enterprise. You mentioned that this era has been stronger than maybe some of the prior eras. You know when Merck was at its height...

CLIFTON LEAF: I'm sensing a modesty alert...okay, go ahead...

KENNETH FRAZIER: Well, you know, I'm actually saying what I actually truly believe. When Merck was at its height in the year 2000 or so, the company was largely a company whose

composition of matter was either vaccines or small molecules. There happened around that time to be a transition in the scientific leadership, a generational shift, if you will. And for the next ten years, I think we struggled a little bit. We hired a very good head of research named Roger Perlmutter, who came back five years ago. And I think what's happened to Merck in the last five years is in large part because we had the right leader at the right time with the right expertise focused on the right issues. So, again, I think in this business when you're sitting in my seat you have to recognize that so much of the most important decisions are being made there. You know I'm not going to quote Roy Vagelos over and over again but he used to say to me a head of research has to have good taste, good taste in picking targets and good taste in picking talent. And he always said if you have good taste in picking talent, you don't have to pick all the targets. So the success of a business like Merck really comes down to what areas are you going to focus your resources, your talent, and your ability, your execution ability?

CLIFTON LEAF: So Roger Perlmutter, who you brought back, who had been at Merck, who left to go to Amgen, and you went and you talked to him about the kind of leader you were looking for, for the scientific enterprise, for the R&D. And as you're going along, you realize Roger's the guy. How did you convince him to come back?

KENNETH FRAZIER: Well, so Roger was one of many people that I used as a consultant as I tried to figure out what we wanted to do in research, and together we worked on this for over a year. And I think everyone was getting frustrated, what's taking so long? And we had a couple of

ideas. They didn't exactly pan out. And Roger and I were having a rather pretty tough conversation one afternoon where he was frustrated that I was not going in the right direction that he thought I should go. And I said to him, you know, it's not as though you're prepared to help here. And he said, well, you know, if it's really this bad, maybe I will help. And, you know, I'm very fortunate that he had enough concern for the scientific enterprise of Merck to leave his family in Santa Barbara, California, which is a lot more beautiful than Rahway, New Jersey and come back and assume the responsibility.

CLIFTON LEAF: So you shamed him, in short? You basically said, well, if you're not going to help me?

KENNETH FRAZIER: I'd like to say I encouraged his pre-existing affection for Merck.

CLIFTON LEAF: Ah, there you go. That's perfect. You know, and then you proceeded to go on a really big bet on this immuno-oncology. Now those who have been following the news of Nobel laureates of late understand that Jim Allison and Tasuku Honjo just won the Nobel Prize for their work on immuno-oncology, in particular releasing the power of the immune system to better target tumors within the body. And really there were two real targets on this.

KENNETH FRAZIER: CTLA-4.

CLIFTON LEAF: CTLA-4, which Jim Allison worked on, he was the pioneer. And then the other one, PD-1 and PDL-1, which Honjo worked on. And you basically bet on this idea, this checkpoint inhibitor, the idea that there was an emergency brake on the immune system and you could release the emergency brake and suddenly the body would do its own great job of being a sentry, a bodyguard for the mob.

KENNETH FRAZIER: So, first of all, I think one of the things about this is it took decades of basic research before we could even start to think about the translational effort that we're now seeing brought to bear. And it's making a huge difference on people's lives and the survival of cancer patients. But, yes, you're right. When we were faced with an array of possibilities in our pipeline, very quickly as we went through them, and again, I'm going to make it really clear, Roger was the person who seized upon this, he said, I think we should devote a substantial amount of our resources to this program. It was then generically known as the anti-PD-1 antibody program. Nobody knew the name Keytruda then. And we just focused a lot of our...

CLIFTON LEAF: Didn't you have a cute nickname for the program, like Project...

KENNETH FRAZIER: No, we didn't. We focused a lot of energy around it. We were behind some competition, pretty substantially behind some competition. And again I want to go back to the whole issue about how important teams are. A lot of people would say Merck has done a great job executing on Keytruda given the competitive landscape that we have. What that really

comes down, that word execution, behind it is the clinically trial expertise that was brought into the company, specific expertise around oncology – clinical design, clinical operations, biostatistics. We made some decisions early on about this. Not only are we going to put a lot of money and a lot of effort and go as fast as we can, but we chose different avenues to study this drug. So I'll give you a couple of them. One was we really wanted to understand fundamentally how the mechanism worked on a molecular level. And so we decided to pair our drug with a biomarker that would help us identify the patients most likely to succeed. Now, that makes a lot of sense for a lot of reasons, but there were people who said that's a mistake because you're narrowing the group of patients who will get your medicine in the first instance. Another example that Roger felt very strongly about was since chemotherapy was the dominant way in which these people were being treated, that we needed to explore what the additional benefit of Keytruda with the leading chemotherapy was. A lot of people said that, you know, frankly that wasn't the right way to study the drug, you should combine it with another immuno-oncology agent. It turns out that that's actually a very beneficial way to do it. Why am I telling that story? I want to go back to the point that it really matters who you have in your key jobs. Because if you're the CEO, you don't make that judgment about whether it's going to be chemo and Keytruda. That's being done by a bunch of highly experienced oncologists. And I'll make just one more point very quickly. In this business, there are a lot of really smart people. They have a lot of innate skills. They bring a great knowledge base. But what's important is experience. It's the experience in the industry that allows people to make the judgments about how to proceed with a clinical trial, one way versus another way. And we were really lucky in some ways and

we're very humble about the fact that we've learned as we've gone along. But I just want to make the point again that the success of a company like Merck is based on the team of people that you have around you.

CLIFTON LEAF: But I want to really frame, for this group here, how radical a departure it was to go into oncology, and not just oncology but a completely new science in oncology. I mean Merck had no history...

KENNETH FRAZIER: We had no history in oncology.

CLIFTON LEAF: You had no history here. I mean, you know, you had cholesterol medicines and heart medicines and arthritis medicines and diabetes medicines. But you were not here. And all of a sudden, you put a huge amount of resources, a lot of bets, on this type, this approach to cancer. How did you get, I mean did you have to go to the board and talk to them about this?

KENNETH FRAZIER: Absolutely. So, first of all, the history of Merck, Merck has tended to be a pioneering company. So before Keytruda, our biggest drug was Januvia. Before Januvia, we had no presence in diabetes either. So the history of Merck or the ethos of Merck is that we want to follow the science, right? We don't want to say we're in this therapeutic category or that therapeutic category. We want to take advantage of where the most important breakthroughs are in basic science and where we think we can translate those into meaningful vaccines or

therapeutics. So we made the decision very early on, the senior team, that we had an opportunity with Keytruda. We went to the board. And what that really meant was that we needed the resources and we had to stop doing a lot of other things. And I've got to tell you that's really controversial because other people in the labs working on other things think their project is the project. But we needed to put significant focus behind Keytruda and we had to go fast and we were very successful because of that.

CLIFTON LEAF: You talk a lot about, I heard in other interviews, about your job as capital allocator. You know that you really have to think about, all right, I've got three good ideas, or I've got 1,000 good ideas and I've got three that are great. And you have to figure out what those three are. But you're, interestingly, not a scientist and you're not the other sort of route that go to the CEO of a pharma company – a salesman. You're a lawyer.

KENNETH FRAZIER: Right. In a pejorative sense of the word.

CLIFTON LEAF: I'll let the audience decide that. But, no, but it's interesting because you've spent, but you're also an insider and you spent, I guess 18 years before you were at Merck, before you were CEO. If you count all the time you served as outside counsel at Drinker Biddle for the company, you've now been at Merck, I'm going to tell you this, 40 years. I mean if you think about all the time you were outside and inside. And yet, so you've been able to pick up, really make judgments about the science as a person whose got extraordinary experience within

the drug company, running different divisions there, but also from an outside perspective too.

Talk a little bit, if you will, about what that not being a scientist helps to bring to the table.

KENNETH FRAZIER: Well, I think, you know, when you're a non-scientist, you're initially at a real disadvantage because obviously this is an area where deep subject matter knowledge, both on the basic science side as well as on the clinical side is really important. I think for a CEO of a drug company, at the end of the day what you want to be able to do is listen carefully to what your scientists are saying, and I'm not shy about saying say that again, slowly, in words that I can understand. But the other thing is fundamentally you talk about capital allocation, I think a CEO has three fundamental jobs. One is to set the strategic direction of the company. And for us, it was really we are going to be an R&D-based company. We're going to really focus on R&D. We're not going to compromise about scientific standards. We're going to follow the science, etc. Then the second thing you do is you allocate capital. And in this case, we spent between \$6 and \$7 billion a year on our R&D at Merck. And then the third thing, which I think is the most important thing and it gets back to the capital allocation is you have the position to put the right people in the right jobs. So ultimately, with respect to how we allocate capital in R&D, we have a group of us who sit around – our CFO, our head of commercial, Adam Schechter, our head of manufacturing, and Roger Perlmutter – and we talk about the opportunities that we have. But sort of in the final analysis, as I use the example of Keytruda, a lot of it depends on making sure you have the right person in the key job. And I would say to you that as I think about the future and I think about the sustainability of this company going forward, a lot of it has to do with how

do we execute on the opportunities that are right in front of us over the next five years. But longer term, the sustainability of this company really comes down to ensuring that you have the right talent at every level and, most importantly, the right leadership that's going to make those judgments. Because a lot of science is changing. We have things like stem cell therapies. We have gene therapies. We have new ways of, new tools, I'll say, for dealing with disease. We want to make sure that we have the people with the skill sets to help us decipher where the best opportunities are.

CLIFTON LEAF: You know, I want to talk about your background a little bit later, but one thing that I know is important, you idolized your dad. He raised you after your mom died when you were just 12 years old. He later got Alzheimer's disease and died. And I know that you have had another high profile failure on the Alzheimer's front with verubecestat. This has been a challenge for the entire pharma industry, not just Merck. Every one has been chasing, or most everyone has been chasing a thesis that a protein called amyloid, beta-amyloid, kind of just fills up in the brain and that drugs that can target and remove that, essentially buildup of trash, if you will, in the brain will clear out the neurons enough so that you can reverse the early signs of Alzheimer's. So many people have bet on this thesis and everybody has been wrong. I mean, you know, this has been a horrific...

KENNETH FRAZIER: Sort of a trail of tears...

CLIFTON LEAF: A trail of tears across pharma here. How do you break out of the mind set that virtually all of pharma has, and probably many of your scientists, because your drug in particular followed the same thesis?

KENNETH FRAZIER: So, I think, so first of all when we use the word failure, we learn from every one of those failures. And science is iterative and we learn from our prior experience. We look at the data, and we haven't been able to present it fully in a scientific context, I think there are a lot of issues that people still are going to ask about the amyloid hypothesis. Even though we thought we had a drug that was very good and targeted at that, one of the remaining questions is frankly how early does one have to intervene to be able to save the neurons? It may not be that the drug is not, that the pathway is the wrong pathway, we may have to find the right subset of patients before too much destruction of the neurons has occurred. Right? So, we don't know. But certainly I think after that study, I think a lot of people quite rightly asked the question whether the plaques are actually the cause of the death of the neurons or whether they are associated with an upstream disease process that both kills the neurons and causes the plaque?

CLIFTON LEAF: You talk about, you know, learning from failure. It's a very Silicon Valley idea. But their spin on the idea is you fail fast. And in the drug world, you fail slowly. You fail really slowly in many cases.

KENNETH FRAZIER: No, you better fail fast at 90% of your failures. Otherwise, you're out of

business. Right? So it's really important which molecules, which things we take into the clinic because the real expense in this business is clinical trials. And, you know, we spend a fair amount of money on early research, but compared to large clinical trials, it's actually a relatively small amount. So we want to fail fast on those things that are not promising and we want to be very careful at each stage gate before we decide to allocate lots of money to clinical trials.

CLIFTON LEAF: You know one of the areas that you've had a lot of success in is in vaccines. And, you know, you and I were talking earlier, we were actually joking about the fact that everybody said stay away from vaccines. They're incredibly expensive to do the trials on. You've got to do hundreds of thousands or tens of thousands of people. And the threshold for what is an acceptable side effect is very, very low. Very, very low as you're giving a drug to essentially healthy people. And yet, so talk a little bit about the McKinsey guys that came in here. Do we have any McKinsey guys?

KENNETH FRAZIER: So, you know, one of the things that I was sharing was the first time I ever had experience with the Merck senior leadership team was in the mid-80s when I was in private practice and I was essentially the lawyer for the Vaccine Division of Merck which is my background. And we were in a meeting, I was called into the meeting because there was a consultant's report that was made that said essentially that Merck should get out of the vaccine business for two reasons. One, all the vaccines were commodities and you weren't making a lot of money. And number two, you got sued all the time. It was before the Congressional Vaccine

Victim's Compensation Act gave you an administrative procedure. And both of those conclusions were pretty sound and based on evidence. And I remember the CEO then, Roy Vagelos, polling his team and saying do you think that that's the right way to go? And I think everybody agreed with the analysis. And he then said something that I'll never forget. He said, that's right as far as the analysis goes, but it doesn't take into consideration what recombinant DNA technology can do in the future for vaccines. And that's in the mid-80s. And in the mid-2000s, you get a vaccine like Gardasil, and I don't want to be a shill for Gardasil but you might have seen it in the *New York Times* this morning, the very exciting news that came out of Australia. And Australia decided in the early 90s that they would vaccinate all the girls in their schools. And now, as a result, the reduction in cervical cancer is so substantial, it's reduced by almost 80% in Australia. Now, that combined with screening, they are now saying in the next 20 years that they can effectively eliminate cervical cancer in Australia.

CLIFTON LEAF: And this is a vaccine that protects against HPV virus.

KENNETH FRAZIER: Correct.

CLIFTON LEAF: Human papillomavirus, which is also indicated in esophageal cancer and nasal pharyngeal cancer and other cancers as well. So sometimes...

KENNETH FRAZIER: So boys should get it too.

CLIFTON LEAF: So boys should get it. But the idea is sometimes you think you've got a target for one disease, like cervical cancer, and yet it could have an impact in other areas too. But what people don't think, I don't think people realize is that you had \$6 billion in sales on all your vaccine business last year.

KENNETH FRAZIER: Yes, that's a huge bet.

CLIFTON LEAF: It's a big bet.

KENNETH FRAZIER: And it's growing nicely.

CLIFTON LEAF: And you've got also vaccines against pneumonia and rotavirus and shingles and I know that GSK, of course, has a new one on shingles as well.

KENNETH FRAZIER: It's a very good vaccine against shingles.

CLIFTON LEAF: But the challenge is, is again this idea of clinical trials, which is the sort of, the great barrier to putting great ideas in the bench and testing them in real-life situations in human beings. And the level of failure is so extraordinary still. I don't think people realize that only 5% of drugs that go into human trials actually get a marketing approval.

KENNETH FRAZIER: And they don't all make back their cost of capital.

CLIFTON LEAF: Right. So, how do you get better at that? What are the tricks that you're doing to improve or lower the failure rate?

KENNETH FRAZIER: So, I would say that's the most exciting thing when I think about the future of Merck and the momentum that we see. I think most people will focus on the late stage pipeline and we have great opportunities and avenues available with things like Keytruda. The real exciting things that are happening are happening much earlier in the process. So, when we are working in basic research, and by basic research at Merck we don't mean pioneering breakthrough academic research, we mean the beginning of our translational process. A couple of things are happening that I think are really exciting. First of all, I mentioned before Merck was generally a small molecule company. Now we have, in a very short period of time, changed the exploratory focus to one that's much broader around antibodies and nanobodies and proteins and peptides and therapeutic vaccines and all of those kinds of things. So the amount of tools that we have to go after molecular targets have expanded. I think the other really, really exciting thing, when I talk to the people who are working in these basic sites, is that the insights around human biology are much greater than they used to be. A lot of people make the joke that if you study a drug in a dog and it works, then you know it's a good drug for a dog. But we used to do that to try to figure out whether a drug was a good drug for a human. Now that we understand much more about human biology, we think, and we're starting to see that the failures, for example, for

toxicology, are lower than they used to be. And when you see that kind of thing, then you can project out into the future. You don't see it today because you're still in the early stages of discovery and pre-clinical. But when you start to see that you're able to predict toxicology failures with a greater precision, that actually augurs well for the research process down the line.

CLIFTON LEAF: And you're using artificial intelligence and machine learning.

KENNETH FRAZIER: All of those things. Exactly.

CLIFTON LEAF: I mean this is kind of, it's wild to see this, you know, when you're going, sorting through trillions of potential targets and compounds, how that new tool can help.

KENNETH FRAZIER: Absolutely. You know, one of the things that I think, as you listen to the young – I shouldn't say young because it sounds like I'm being age...– I like to call them early career scientists – is that some of the traditional barriers between like the technology you're talking about, between biology as a concept, between chemistry as a separate, it's all coming together now, to help us have greater insights into how we can find better medicines.

CLIFTON LEAF: You mentioned obviously vaccines. One of the newer vaccines, an experimental vaccine, now is against the Ebola virus. And it's being actually put to the test in the Democratic Republic of Congo.

KENNETH FRAZIER: There's a young woman back there who was part of that. Raise your hand.

CLIFTON LEAF: Congratulations. The World Health Organization and the local governments there and a lot of NGOs worked together to create what they call a ring vaccination around an area with known infections of Ebola. And they were very clever about giving this vaccine to anyone who had been in contact with or those who had been in contact with those who had been in contact. And it was extraordinarily effective. It actually shut down the epidemic in that first region.

KENNETH FRAZIER: In that first instance. Right.

CLIFTON LEAF: Now, of course, it's spread to a war-torn region in Kivu and one of the challenges you have is that all the science in the world isn't enough because you can't get the health workers there to vaccinate people. You know, that is a problem. It's been a problem with just getting good drugs that we know work to people who need them, and without, or people who don't take their drugs in the right way or people who don't fully take their regimes of drugs. I mean this is part of the challenge for you is that you can't, once it leaves your vial, you don't even know what happens with it.

KENNETH FRAZIER: So, you know, we study these drugs under more or less ideal conditions

that don't take into consideration the diversity of the human experience, the complexity of the human interface, so to speak. And you're talking to that. So, in the case of Ebola in the second region, because it is a war-torn region, it's really hard to get this vaccine to people in the way that we did in the first region where it was a much more orderly thing. And I think the other issues around how drugs are not being used by people. Let's talk about HIV. We are working in HIV now because while we have relatively good drugs, they have to be taken on a daily basis by people. And you don't want resistant forms of HIV to occur. So we are very excited by these new opportunities we have to create much more potent versions of drugs and new drugs that can be delivered through devices that will allow, for example, like some of the contraceptive devices that are placed under the skin, someone to not have to take a drug every single day. Those kinds of breakthroughs, so we no longer just think about the composition of matter, the chemical that's going to help the person. We have to think about a delivery system. And to your earlier comment, we need partners. It can't just be a drug company. When Merck decided back in the late 80s to give away Mectizan for river blindness, that was one pill per person per year. And we realized that we needed lots of help to get that one pill per person per year to the people who needed it in sub-Saharan Africa. So, these kinds of public/private partnerships are going to be critical going forward.

CLIFTON LEAF: You know one of the challenges you mentioned, you know, about resistance. Antibiotic resistance has become a massive problem. And yet, we don't, we have fewer and fewer companies actually making antibiotics for the very same reasons you mentioned before

about the commoditization and the difficulty, there's very little return on investment, you can only charge so much for these drugs. So, do we need a different business model?

KENNETH FRAZIER: We absolutely do. We absolutely do. And, you know, there is a real, real scary concept out there about resistant bacteria and the problem that we're having out there. You know, I've seen things that say by 2050, 10 million people will die from drug-resistant bacteria every year. That's a lot of people. Not to mention the infection rate that can occur later on. So, to your point, I think we do need different incentives. I think we need incentives for more companies to engage in early research, whether they're grants or things like that. And also when you're successful, we have to think about the right kinds of incentives that actually de-link the volume from the reward. Because actually if you come up with these new antibiotics, the right thing to do from an antibiotic stewardship standpoint is to not use them until you need them. They should be the last line of defense. Well, the current business model is based on how much of a drug you sell. And so, we have to think about ways, and there are discussions that are going on about means that you could do this. For example, you could give people additional exclusivity. You could give them vouchers that allow them to move other things through the FDA faster. We have to find ways of de-linking volume from reward.

CLIFTON LEAF: So, it's interesting because, you know, your role as CEO is different from the role of a CEO of a widget company or whatever. You are now squarely in the sort of national conversation about drug pricing, about new business models for antibiotics, about a lot of stuff.

It's a challenge to actually be forced into a social role.

KENNETH FRAZIER: It really is. And I think this issue that you just talked about with respect to drug pricing is an example of that. Because, look, the reality of the world is for many people the affordability challenge is a very substantial challenge. We talked about, for example, the fact that people won't take their medicines. Well, they can't take them if they can't afford them. So we have to find better ways of helping people in a market-based system to develop better ways to pay for medicines. And we have to, frankly, find a way for customers to take advantage of the negotiated discounts that are already occurring in the system. You know, one of the challenges we have as an industry is that our list prices are very transparent. The *New York Times* can write an article tomorrow with the list price of Keytruda in it. It doesn't then talk about all the discounts and rebates that occur to net pricing, and it's not a secret because we publish this in our securities filings. For Merck right now, across our entire US portfolio, the discount rate is about 50%. So we get \$0.50 and \$0.50 goes into the supply chain. And we have to really ask ourselves what kind of system really makes sense? Where are the incentives? And how do we pass on more of those savings to the person at the point of sale?

CLIFTON LEAF: So why is it so opaque? I mean obviously you list your retail prices, as you mentioned. But the system of pricing within the supply chain itself is incredibly opaque. Most people have no idea what their hospitals pay for the tools and drugs that they deliver. They don't know what the drugs are being sold to, to those providers.

KENNETH FRAZIER: And there's a markup there.

CLIFTON LEAF: There's a mark...They don't know anything about what the PBMs, the Pharmacy Benefit Managers have added a whole new level of complexity and opacity. Why do we have such a crazy system?

KENNETH FRAZIER: I wish I knew why. I mean I inherited it when I took this job. You know, it's grown up over many, many years. And I think that, you know, one of the things that the Trump administration really is focusing on is trying to break down some of that opacity and to actually say, okay, we've got a bunch of people who are participating in this. They all have different roles. What's the relative value that different people bring? And I think at the end of the day, I'll just be blunt here, I just don't understand why we live in a world where 50% of the value goes into the supply chain. And I think that you've seen disintermediation happen in other industries. You could actually look at the cable industry at one point where the content providers, if you were Disney you had to pay a lot of money to get your content to the people on the other side. I think that's going to happen in this area. And I mean no disrespect to anyone else in the supply chain, but I know how hard it is to make my \$0.50 on the dollar. I have to invent something that never existed in the history of the world and I have to ask my shareholders to be patient with their capital. I think that system has to change.

CLIFTON LEAF: Who do you see as your stakeholders?

KENNETH FRAZIER: So I would say that I have multiple stakeholders. You know, in the introduction the comment was made about the two metrics. I think in Merck's history, you know, every Merck employee knows the George Merck quote which was, "Medicine is for the people, not for the profits." And the more we've remembered it, the profits have always followed. And that has always been our view of the world which is if we are meeting the needs of patients and physicians and society, then the profits will follow. So our first stakeholders have to be the patients, because when we think about allocating capital to go after a disease, we're really talking about unmet medical need. At the same time, and it's getting really, really critical that we are able to show investors that we can provide a consistent and attractive rate of return. You go back to this business about only 5 out of 100 or so succeed, well, if they can't get a great rate of return on a Keytruda, then it's going to be very hard for them to put up that capital and take that risk over a long period of time. So, another extremely important constituency for us obviously is our shareholders because they have to have an attractive rate of return. But I think it's really important to balance those things at the end of the day. A company like Merck that's existed for over 125 years has existed because it has a fundamental value for society, which is bringing forward medically-important therapeutics and vaccines.

CLIFTON LEAF: So you have about 69,000 employees or something in that area?

KENNETH FRAZIER: Yes, somewhere in that area. By the way, it was 100,000 when I started. So one of hardest things in my whole role was presiding over that decline in the employee

census.

CLIFTON LEAF: And I won't try to guess the number of outstanding shareholders, but I imagine it's a lot.

KENNETH FRAZIER: It's a lot.

CLIFTON LEAF: A lot of institutional ones. But I want to get back to those other stakeholders. Last summer you did something. After the riots in Charlottesville, you resigned from President Trump's Council, his Advisory Council. And in many ways, people said that that was, it was a brave choice. It was an unusual choice. But it was really about representing other kinds of stakeholders. Tell us a little bit what was going through your mind when you did that.

KENNETH FRAZIER: So I would say, first of all, as it related to that one situation, there's a comment that I want to make before I get to your question. And that is that I don't see it as my role as the CEO of Merck to tell people, including my employees, what to think about political issues. That's just not my role. But when the thing happened in Charlottesville and the President then made his comments, I felt very strongly that, frankly, that if I didn't take a step there, my inaction would be viewed as a tacit support for what the President's initial comments were. And I will just say, by way of background, when I went on the President's Council, I got a lot of criticism from many of my employees. That's how divided our country is. I mean we have such

deep divisions in our country that we can't remember what our common issues are anymore. But, anyway, to answer your question, when the statement was made, I went home with my wife that evening, and I always tell the story because, you know, one of my constituencies are my two children – my daughter who is an engineer out in San Francisco and my son who came home from college. My son drove home from Lehigh University, which is not far from our house, to pose a very precise question to me about the whole aftermath of Charlottesville. And here's what he said to me, he said, Dad, what's up? Dad, what's up? Which was his way of saying, you know, all those years you told us that we had to take a stand for principle. We're watching you. And I felt very strongly that this was a moral issue. You know I've said to people before that the one thing that makes us Americans is that we believe in a series of ideals. We all look different. We come from different places. But those ideals are ones that we claim to believe in. And I happen to think that when people are carrying flags with swastikas on, it should not be hard to say that we don't stand for that. The good news for me was that I picked up the telephone and I asked for a telephonic board meeting because I did think about my institutional role. I mean the government is a very large customer of our companies. I was working very closely with the administration on healthcare issues. And I wanted my board to know two things. Number one, as a person of conscience, I felt like I had to step down. But I also wanted them to know that I would prefer to say that I was doing it on behalf of my personal values and the company's values, but if they didn't want me to speak to Merck at all, I was willing just to speak to my own personal values. And I have to say I was very pleased that my board unanimously supported me speaking on behalf of the company.

CLIFTON LEAF: Were you aware at the time that the President had a Twitter account?

KENNETH FRAZIER: Yes, I knew that. (Laughter)

CLIFTON LEAF: And when he responded to you personally, what was that like?

KENNETH FRAZIER: You know, I'll be honest. You know you don't want to do anything that hurts your company, right? And in the first couple of hours, it was not clear what the sequelae of this were going to be. And, you know, I didn't have a lot of people rushing to my defense in the business community. But over time, I think people were willing to take a position. I think in the business community and outside the business community, I think a lot of people thought that the position we took was really the right one. And I'm actually proud that the company allowed me to take it in that way.

CLIFTON LEAF: It's interesting, because we're seeing a change in the way CEOs view their role in society as both leaders that people look up, as people who have multiple stakeholders. You know, we saw Ed Bastian at Delta and Chip Bergh at Levi Strauss take on the gun violence issue. We've seen Marc Benioff at Salesforce take on the bathroom issue in Indiana. We've seen a lot of these kinds of...

KENNETH FRAZIER: Climate...

CLIFTON LEAF: Yes, climate, many CEOs taking that on directly. It's a brave new world for CEOs here.

KENNETH FRAZIER: I think that's right. I think that the old-fashioned concept of the CEO as only focusing on a couple of constituencies, I think it's just outdated now. I think your customers, your employees actually expect you to take a position on certain issues. And again, I want to repeat what I said. It's not my job to tell people what to think about political issues, but there are certain issues that go beyond politics. I'd like to believe that our view on the Nazis is not a question of whether we are a registered Democrat or a registered Republican. So many Americans died on the battlefields of Europe fighting against what that swastika stood for. And if we can no longer say without equivocation that we are opposed to what they stand for and we're opposed to group supremacy, then I think we're a different country.

CLIFTON LEAF: You know, Ken Chenault stepped down from American Express after a distinguished career. Marvin Ellison just left J.C. Penney. Ursula Burns is gone from Xerox. That leaves two African-Americans – am I missing something?

KENNETH FRAZIER: Yes, because Ellison went to Lowe's.

CLIFTON LEAF: Oh, that's right. That's right. Okay. So we still have three. Okay. But Roger Ferguson at TIAA-CREF, you, and Marvin. It's a small community and it seems as if it's been

getting smaller. If you look at women, last year *Fortune 500*, the list that *Fortune* puts out obviously, we had, I think 34 women on the *Fortune 500*, CEOs. We now have about 22, I think, which is a big drop. And, you know, we seem to be suffering from a pipeline, if you will, in diversity and inclusion. How do you see your role as a leader of a major company? One, do you see yourself having a role in that diversity and inclusion at all? And how do you, beyond just being a sort of a personal charismatic and successful leader, how do you start to communicate the changing practices that will bring a diverse workforce into the C-Suite?

KENNETH FRAZIER: Okay, so let me be clear. I think I have an important role as it relates to diversity, particularly in my company, and I want to make sure that we have a highly talented and diverse board, senior management team, and at all levels of the company. I think that's my first and foremost responsibility. The reality of the world is, as an African-American CEO, everywhere I go I get asked questions about diversity because I'm an African-American CEO.

CLIFTON LEAF: I waited 30 minutes.

KENNETH FRAZIER: I was just, you know, it's just an observation. And I think that what I can share with people are a couple of experiences that I've had in this country. So, first of all, not to be too autobiographical, but my younger sister and I were the two youngest of my father's children. And we came along at a time when the social engineers in Philadelphia believed in bussing for desegregation. So we did not go to our neighborhood schools. We were put on buses.

We had to ride 60 to 90 minutes. And we went to schools and we felt like foreigners in those schools. But looking back on that, I got a rigorous education that my next oldest sibling did not get just by accident of geography. So there's a huge difference in opportunity in this country. And I know that, I don't want people to think I'm blaming anybody. I'm not saying that there's no meritocracy in this country. But I am saying that there are opportunity gaps for certain people in this country. The second reason I'm sitting here today is that there's often another gap when you go inside a company, which I call the access gap. So, throughout my career, there were people who were mentors and sponsors to me. I've mentioned Roy Vagelos several times. His mentoring to me actually closed that gap. So one of the things I try to do is to help other people remember how important it is if you're an insider to reach out to the presumptive outsiders because that's not something we automatically think of. We're all comfortable with people who like us and who are like us. But we have to extend beyond our comfort zone if we're actually going to bring our companies to a position where we have the maximum talent. I think it's ridiculous that women are more than half the population and we only have 25 women CEOs. Somewhere I saw a statistic saying there are more CEOs who have the first name Michael than there are women CEOs.

CLIFTON LEAF: Yes, yes. No, it's true. You know what people may not know about you is that you went to South Africa to train lawyers, that you actually worked to free a man named Bo Cochran who was on death row and was unjustly accused of a crime, and you actually got him off of Death Row and eventually, after four re-trials, free. He died a free man. And part of that is

your commitment to reaching out in places where you're needed. You know I can't help but think that this was influenced by Thurgood Marshall, one of your heroes. And I would love to just, if we could just close, there are a couple of quotes here and I would love to just get your thoughts on them. So let me just say, in recognizing the humanity of our fellow beings, we pay ourselves the highest tribute. What does that mean to you?

KENNETH FRAZIER: Well, I think that, you know, so first of all, when you're born on the other side of the tracks and you get to migrate to the other side of the tracks, you realize how much mythology there is about the people back where you came from. I think one of the challenges that we have in our society is there are huge differences of race and class and gender and political philosophy, but we have sometimes to remember that we have common humanity. And we should be able to have hard discussions, tough discussions, disagree, but we must remember our common humanity and honor people's humanity.

CLIFTON LEAF: This one is very relevant for today or these times. The measure of a country's greatness is its ability to retain compassion in times of crisis.

KENNETH FRAZIER: Yes, I think that's absolutely true. I think when we are fearful, when we are angry, we are less kind to our fellow humans. And I think there's a huge amount of anger out there in our society, and I hope that as business leaders we take the role of helping people see the future that we can have together to help bridge a lot of those gaps of misunderstanding. And in

my own particular field, I think there are huge disparities in healthcare that we can play a major role in solving.

CLIFTON LEAF: Where you see wrong or inequality or an injustice, speak out because this is your country. And I think you spoke to that earlier with Charlottesville. But this last one, and we'll close with this one is interesting. Sometimes history takes things into its own hands. What do you think the judge meant by that? Justice, I should say.

KENNETH FRAZIER: Well, I think, so I wasn't exactly sure what he meant by it, but I know how I think about that quote. And that is that over time sometimes events force things that, you know, otherwise would not happen. And I think right now we're about to have an opportunity as a country to take some positions on what's been happening and I hope that history will look at us, and without regard to partisan politics, say that we decided to be a kinder, more tolerant, more open, and rational people.

CLIFTON LEAF: Ken Frazier, it's been an honor to speak with you. (Applause)

CHAIRMAN MARIE-JOSEE KRAVIS: Thank you Cliff and Ken. I could hear a pin drop in the room, and I know that we could have gone on and on and on. But thank you so much, Ken, for not only sharing some personal philosophical views, but also giving us a better understanding of the complexity of a CEO's job in today's world. And I say the world because you really do

operate globally. And also for reminding us that science is a continuum, that going from bench to bed is a very complicated process and you and Merck play a key role in that, and I really want to thank you for sharing with us. Just to remind everyone that on October 9, we'll have Robert Kaplan, the President and CEO of the Federal Reserve Bank of Dallas. And then October 10, we have Reid Hoffman...I'm sorry, Ian Read, the Chairman of Pfizer. And on October 11, Reid Hoffman. And then October 16, Barry Diller. So I will not go through the rest of the month of October, but at least for the next week or so, your calendars are very busy and we'll have very interesting conversations with a broad array of speakers. So, thank you and enjoy lunch.