

THE ECONOMIC CLUB

O F W A S H I N G T O N, D. C.

**Samsung Electronics Co. Vice Chairman & CEO Dr. Oh-Hyun
Kwon Discusses the Company's Mission and the Changing
Technology Industry**

**Dr. Oh-Hyun Kwon,
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MR. RUBENSTEIN: I'm going to introduce our speaker. He's going to make some remarks, and then we'll go to a question and answer interview format.

Samsung is an incredible success story. As you heard, it was started in 1969. It now has a market capitalization of \$350 billion. This year it will have revenues in excess of \$200 billion. And this quarter, just reported for last quarter earnings of \$12.8 billion, which was a record for the company. The company has roughly 325,000 employees around the world, about 17-to-18,000 or so in the United States.

Dr. O.H. Kwon is a native of South Korea. He got his undergraduate degree in electrical engineering at Seoul National University and he got his master's degree in Korea. But he then got his Ph.D. in electrical engineering at Stanford University in 1985. And in 1985, he joined Samsung and worked his way up to be the head of the semiconductor division, which is by far the most profitable part of Samsung. And he is the CEO and the vice chairman of the board. And as you may have read, recently he announced that he would be stepping down next year. So we will talk a little bit later about why somebody with these incredible numbers wants to step down at the top. But among other reasons, you know, he's got an incredible success story in building Samsung to – with the help of many others – to this incredible point that it's now reached.

So, without any further ado, let me ask Dr. Kwon to make opening remarks, and then we'll have a question and answer format. Thanks. [Applause.]

DR. OH-HYUN KWON: Thank you, David. I really appreciate the chance to be here with you and the distinguished guests today. I want to take a few minutes to talk about Samsung Electronics. Samsung Electronics was founded in 1969, the same year when Neil Armstrong set foot on the Moon. The start was a small step for the company, just making black and white TVs. Since then, the company has made a tremendous giant leap to contribute to Korea's economic growth, as well as to the world IT industry. In the early '70s, Samsung Electronics quickly expanded its product lineups to include refrigerators, air conditioners and washing machines. We were a mere local player in Korea until the beginning of the memory chip business in the early '80s.

Entering the memory chip business was not easy at first. We faced negative press and skepticism from the industry, both domestic and foreign. Even people within the company had strong doubts and concerns. But we pressed on to open a new chapter in our history under the determined leadership of Samsung's founder Byung-Chull Lee and his successor Kun-Hee Lee. The road was bumpy and rough in the '80s. However, we made a relentless effort to overcome our disadvantages. We all shared a clear common goal, that is to become a global leader in the semiconductor industry. By the early '80s – '90s, the founder's strong commitment and the employees' dedication finally made it possible to compete with the top players in the industry.

In the following two decades, our success in the semiconductor business had a positive impact on other business in Samsung, including flat-panel displays, TVs, and handheld phones. It created the virtuous cycle that has driven the growth the Samsung Electronics so far. Now the

IT industry is entering a new era of breath-taking innovations, such as AI¹, IoT², cloud³, and 5G⁴. All these technologies will have a profound impact on our lives and our society. Individuals, businessmen and government will experience productivity innovations enabled by artificial superintelligence. Consequently, long-term social societal goals, such as health, environment, programs to improve our quality of life, will be attained.

In these momentous times, Samsung Electronics will continue to fulfill these societal needs by leveraging our core capabilities. Samsung's technology leadership in semiconductors and displays will drive innovations in data centers, autonomous vehicles, and industrial IoT. In addition, the company's ability to integrate hardware platforms with software can deliver value to customers who aspire to change the world. Samsung is ready to shape the future in collaboration with others. The history of the company is a series of fundamental, determined efforts to overcome different changes.

With the arrival of AI, IoT, cloud and 5G, Samsung Electronics is about to face yet another set of changes ... That is why last week I announced early retirement, to give them a chance for the next leadership. *[With]* new leadership at Samsung, we'll continue to make a full effort to achieve our missions, to inspire the world, and create the future. Finally, I would like to conclude by saying that I couldn't be more honored to speak here today and to have a discussion with David. Thank you.

MR. RUBENSTEIN: So normally if somebody has a record quarter, \$12.8 billion in a quarter, of earnings, they would say, I'll stay a few more years and reap the benefits of that. So why are you leaving?

DR. KWON: Actually, the Koreans have an old saying – it's the best time to leave when you are in the peak.

MR. RUBENSTEIN: OK. All right. So what are you going to do when you retire?

DR. KWON: It's a secret. Actually, until next March I'm staying in Samsung to take care of ... *[to serve as a]* board membership and *[oversee]* operations. But after March, who knows? Samsung is – actually, it's a very dynamic society. So, I think I have a plan. My personal plan is to support the young guys that are starting, as a mentor. But if there is another mission of the Samsung group, *[then]* I should leave; that is Korean culture.

MR. RUBENSTEIN: So let's talk about your businesses. One of them -- I'll get to the semiconductor one in a moment – one of them is, the smartphone business. You're the biggest manufacturer of smartphones in the world, is that right?

¹ Artificial Intelligence

² IoT is the "Internet of Things" -- the network of physical devices, vehicles, and other items embedded with electronics, software, sensors, actuators, and network connectivity enabling these objects to collect and exchange data.

³ The cloud is a network of servers, with each server dedicated to a specific function.

⁴ 5G is the 5th (or next) generation of mobile networks and wireless systems.

DR. KWON: True.

MR. RUBENSTEIN: So, like, I have an iPhone here.

DR. KWON: It's OK. (I don't want it?).

MR. RUBENSTEIN: You know, now, are you allowed to –

DR. KWON: It's OK, because in the iPhone – there are a lot of Samsung components in there.

MR. RUBENSTEIN: OK. All right. OK, so what kind of phone do you have?

DR. KWON: Of course I have a Samsung, right? Because I receive a salary from Samsung Electronics, I should use this phone.

MR. RUBENSTEIN: Is that better than this?

DR. KWON: It's taste – depending on personal taste. Maybe some guys prefer Samsung, some people prefer iPhone. But I think both phones are great.

MR. RUBENSTEIN: Now, like, for example, you have a daughter, if your daughter bought an iPhone, what would you say?

DR. KWON: It's OK. But fortunately, she bought Galaxy.

MR. RUBENSTEIN: So what is the advance in semiconductors in iPhones – or, in your kind of phone, Samsung phone, that will revolutionize this business in a year or two? In other words, what new advances can there be?

DR. KWON: I think this topic, growth in technology – I have a background in engineering technology. But whenever time goes by, our engineers have developed quite enormous things. So, when I say, 10 years ago, oh, that's impossible, they made it. So ... some guys are making unexpected technologies. That's what we want. I think it'll help customers and society.

MR. RUBENSTEIN: All right. Let's talk about flat-screen TVs. You're the biggest manufacturer of flat-screen TVs in the world. Is that right?

DR. KWON: Not right now... *[the]* amount, volume-wise, unit-wise, I think all the Chinese manufacturers *[produce]* more –

MR. RUBENSTEIN: Who is?

DR. KWON: Chinese manufacturers.

MR. RUBENSTEIN: OK.

DR. KWON: Combined together.

MR. RUBENSTEIN: OK. Now, if somebody wants to buy a regular TV, an old-fashioned TV, a big, thick – you don't – you can't buy those anymore? They're gone?

DR. KWON: No. I think recently the TV market is shrinking because everybody is watching – rather than TV, watching their smartphone rather than TV. So, I think there may be some change in *[the]* TV market to combine with the new technologies – AI or something like that.

MR. RUBENSTEIN: But do you worry that the whole flat-screen TV business will go away and everything will just go to computers?

DR. KWON: No, I don't think so, because even TV itself has some functions. And I guess ... even though shrunken, I think still there's a market. Still, though, we have shoes, right?

MR. RUBENSTEIN: Now, it used to be that Sony had a very popular TV called the Sony Trinitron. Then, I guess that isn't made anymore. Is Sony a competitor of yours in TVs, or do you make Sony's TVs?

DR. KWON: Sony's recovering recently, I heard ... actually, 10 or 20 years ago Sony was ... number one; a unique one. But ... Sony was missing the flat panel display at the time. So, it's a downturn, but recently I heard that they are recovering a little bit.

MR. RUBENSTEIN: Now, in South Korea are people worried about Kim Jong-un?⁵ Are you worried? I mean, people in the United States are worried, but whenever I go to South Korea they don't seem as worried as people here are. Why is that?

DR. KWON: I personally worry about him because – and Koreans – they worry about him, and the world worries about North Korea's situation. But the last, more than 50 years, we are always threatened by North Korea ... So, I don't know. I think we are worried about the situation, frankly. The problem is, I have no influence with him, right?

MR. RUBENSTEIN: Now, is that haircut of his – is that a Korean thing, or what is that?
[Laughter.]

DR. KWON: No, it's a quite unique style. I don't know. It's quite strange.

MR. RUBENSTEIN: OK. That's not a Korean thing, it's just it's –

DR. KWON: Oh, no. I think it's his own hairstyle, I guess.

MR. RUBENSTEIN: So, let's talk about semiconductors for a moment. Now, you know how to design a semiconductor, right?

⁵ Kim Jong-un (or Kim Jong Un) is the Chairman of the Workers' Party of Korea and supreme leader of North Korea.

DR. KWON: Mm-hmm.

MR. RUBENSTEIN: So that is your expertise. You're a semiconductor engineer. So how long does it take to design a semiconductor for, let's say, a smartphone?

DR. KWON: There are so many kinds of semiconductors... But usually from the start – concept to design and manufacture and testing and delivery to market – I think usually two or three years, from start to end product.

MR. RUBENSTEIN: And who is your biggest competitor in making semiconductors today?

DR. KWON: There are different areas. For memory ... there are two kinds – DRAM⁶ and flash. DRAM is, of course, Korean SK Hynix.⁷ And then flash⁸ is the Japanese maker, Toshiba.⁹ And for logic, there are so many companies. So, it's very difficult to say.

MR. RUBENSTEIN: Right. Now, in the United States you have, I think, 17-or-18,000 employees, something like that. Is that right?

DR. KWON: Yeah. Yeah.

MR. RUBENSTEIN: So your biggest facility is your semiconductor manufacturing facility in Austin, which you've said you've invested about \$17 billion in. So is that where you make – manufacture most of your semiconductors used in the United States, in Austin?

DR. KWON: Actually, in Austin, we are making the logic chips... and the majority are used in U.S. companies.

MR. RUBENSTEIN: I see. And today, what percentage of your business is in Korea? What percentage is in the United States? What percentage is in other countries?

DR. KWON: Samsung Electronics' domestic portion is very small, below 10 percent. And the other areas are well-balanced. U.S. may be around 30 percent. And Europe is also below 25, something like that. And China is 30 percent... So, I think it's a real balance, regional-wise.

MR. RUBENSTEIN: Now, the vice chairman of Samsung, a member of the family that started Samsung, was convicted recently. And he's in jail for five years, appealing that. So has that affected your company? It doesn't seem to have. You're doing pretty well. But what's the impact on your company of having a grandson of the founder in jail?

⁶ DRAM is dynamic random-access memory, a type of random-access memory that stores each bit of data in a separate capacitor within an integrated circuit. DRAM is volatile memory (vs. non-volatile memory), since it loses its data quickly when power is removed.

⁷ SK hynix Inc. is a South Korean memory semiconductor supplier of dynamic random-access memory chips and flash memory chips.

⁸ Flash memory is an electronic (solid-state) non-volatile computer storage medium that can be electrically erased and reprogrammed.

⁹ Toshiba Corporation, commonly known as Toshiba and stylized as TOSHIBA, is a Japanese multinational conglomerate headquartered in Tokyo, Japan.

DR. KWON: It's a kind of tragedy. And it's underway, so I cannot comment on the situation. But I think ... businesswise, we do well as you take up the index. But Samsung Electronics has planned every year – from a short-term plan to a long-term plan. So ... Jay Y. Lee¹⁰ is in jail; the business itself is going well today. So, the thing is, in the short term, it will not have a big impact. But long term ... as organic growth-wise it is okay. But if *[we were to]* move to another inorganic growth target, we *[would]* need some advice, some chairman group's advice. So in a sense, we are sort of handicapped right now.

MR. RUBENSTEIN: So who is going to pick your successor? Are you the person picking the successor?

DR. KWON: The board members ... I delivered a message to board members in advance. The board members will select my successor, but I *[will]* recommend who is the right guy ... It will be decided by them, by board members, not by me. I'm just *[making a]* recommendation.

MR. RUBENSTEIN: So if somebody wanted to know where the consumer electronics industry was going to go in five or 10 years, what do you think are the most important new developments we're likely to see in consumer electronics the next five or 10 years?

DR. KWON: Tough question. If I knew it, I'd do it right now. I think ... There *[is room for improvement]* with all electronic devices. I mentioned TV. I think it's combined AI or IoT, that will provide another value. The *[next two waves I see are related to the smartphone ... Samsung considered a kind of venture into health care]*; another one is the automotive industry. They're sort of the big thing – big wave ...

MR. RUBENSTEIN: So, today, as you look at your job over the last number of years, what has been the biggest challenge you have faced in running Samsung?

DR. KWON: Because, as you know, the IT industry, more than, of course, every other industry, is changing so fast, nobody can expect what's going on in next 10 years. So that means *[we need to think about]* how to prepare our company to sustain – that means the important thing is how to change our corporate culture and the mentality and how to educate the talent. That is the most – the focus.

MR. RUBENSTEIN: OK. Now, you got your undergraduate degree in electrical engineering in Korea but your Ph.D., as I mentioned, here. Were there many Korean Ph.D. students in electrical engineering in 1985 in Stanford?

DR. KWON: Not much. Not much. A few.

MR. RUBENSTEIN: And so when you told people you were going to go back and work in Korea were people surprised? Or that was what you always wanted to do, was go back to Korea?

¹⁰ A South Korean court convicted Jay Y. Lee guilty of bribery, embezzlement and perjury in August 2017.

DR. KWON: Well, actually, that is more than 30 years ago – more than 40 years ago. When I went to the U.S. to study, my first dream was to become a professor, frankly speaking. But at Stanford, as you know, the university environment is quite different from Korea's. So I changed my mind. Because at the time, early '70s in Korea, Ph.D. guys had no job except at a university, because the industry level was so low. There's no R&D¹¹. There's no reason to go into industry. But when I arrived in the U.S., wow, there were so many opportunities, especially at the time that Silicon Valley was booming. So, I decided to join the industry rather than academia.

MR. RUBENSTEIN: Have you ever thought if you stayed in Silicon Valley you could have started your own company, you could have built your own Samsung Electronics, or something like that. No?

DR. KWON: No. I think that – it was one of my best decisions to join Samsung, because there were a lot of opportunities for me ... it is possible to *[gain a lot of experience and have a lot of opportunities and trials with]* big companies. So, I enjoy it.

MR. RUBENSTEIN: Now, when you joined Samsung in 1985, it was a modest company compared to today. And it was one of many chaebols¹² in South Korea. There were a number of them, and there still are. But Samsung zoomed past everybody else and became so much bigger. What was the reason? Was it harder work? Smarter people? What was the reason?

DR. KWON: Maybe all combined, together. But I think, in my opinion, it's our founder. He started his business in the 1930s, something like that, started the trading business. But he always focused on the talent first. He recruited people and educated *[them]*. ... Secondly, he invested a lot in technology. He invested in the talent and the technology. And he provided all kinds of resources and opportunities ... so all the people – employees - worked very hard to achieve some goals. That is why *[his company was different]* in Korea compared to other companies.

MR. RUBENSTEIN: OK. And today, as you look at the future of Samsung, where do you think its future – is it going to be more in semiconductors or smartphones or TVs, computer screens? Where do you think the greatest profitability in the future is?

DR. KWON: I don't mention that, because it's top secret. Because some companies follow the Samsung style. Frankly speaking, what we are focusing on right now – I mentioned the next big thing is a kind of IoT-led project that *[is health care related]*. And another thing is automobile-related parts ...

MR. RUBENSTEIN: Now, have you ever thought that when you leave Samsung that if you joined a private equity firm you could start a technology company and you would get 20 percent of the profits. At Samsung, you don't get 20 percent of the profits. So have you ever thought of starting your own semiconductor company or doing something on your own with some private equity money backing you? You wouldn't do that?

¹¹ Research & Development

¹² In South Korea, a large business conglomerate, typically a family-owned one.

DR. KWON: It's a tough question. But I think the semiconductor industry is a very technology-oriented industry. It's very tough to develop the new technology. Second . . . it's a very CAPEX¹³-intensive industry. . . Starting *[another]* company, is very tough, in my opinion. So maybe the semiconductor industry is already fixed. And still there are families' companies to consolidate. Still, because there are so many R&Ds, nobody can handle that.

MR. RUBENSTEIN: So you don't want to do that? So, what about – what do you do for relaxation? Are you a golfer or a runner? What do you do?

DR. KWON: I play golf. It's not good golf, but I'm okay.

MR. RUBENSTEIN: Your handicap is what?

DR. KWON: It's another top secret. I mean, I enjoy the golf, but . . . I told my staff to *[take up]* many of the same hobbies as your spouse – either your wife or husband – because that is – I'm pushing my wife to play golf, because it's possible to practice in *[later years]*. So, another *[thing I do is]*, I go to sea with my wife. And other hobbies are listening to music together and going to museums . . . with my wife.

MR. RUBENSTEIN: You showed me earlier you have pictures of your grandchild. You have one grandchild. And how old is –

DR. KWON: Just one year old. Just past one year old.

MR. RUBENSTEIN: And she speaks English and Korean and –

DR. KWON: No language yet. She is quite open to speak any language . . .

MR. RUBENSTEIN: So your goal for Samsung after you leave is to continue to be the most valuable technology company in the world. Is that your goal for the company?

DR. KWON: I hope so. Why not? Because I think in Samsung . . . I think we have two missions as a CEO. How to survive, because the IT industry is very tough. Second is, how to sustain the company . . . So, I think, like all the creatures it's the same; it's survival and sustain. So I always think about maybe how to survive in top industry, how to sustain the industry. But the base is technology. So there it is.

MR. RUBENSTEIN: So what is more important to the future of Samsung? Is it the business in the United States or the business in China?

DR. KWON: I think both, because the China market itself is big. But all the innovations, new ideas, in my opinion, come from the U.S. The U.S. and China are the most important markets, I guess.

¹³ Capital expenditures

MR. RUBENSTEIN: So today, as you look at the other companies you compete with, who are the competitors who you most admire?

DR. KWON: Actually, Samsung is a quite unique company covering components to devices. So sometimes we are competing or sometimes we are partners. And so, in some sense, in the semiconductor *[arena]*, we admire ... Toshiba, Qualcomm – there are so many companies. And at the device level, yeah, of course, Apple is one of them. Sony, we admire. But the problem is in the IT industry – so many new companies coming out. We should carefully watch out for who will be our other competitors. Yeah, maybe in the garage, I'm not quite sure.

MR. RUBENSTEIN: Now, if somebody said to you, look, I'm going to buy a new phone today. It's going to be either an iPhone or a Samsung, what is the best argument for buying a Samsung over an iPhone? Why is your phone better than this phone?

DR. KWON: Decide for yourselves. I think ... each phone has its own strong points and weak points. I think a Samsung phone is, hardware-wise, one of the best. But for service, in some sense, I think the Apple is a little better. So, it depends on your taste. Don't ask me which one is better. Is it the American-style – the sushi or kimchi? I don't know, it depends on your taste.

MR. RUBENSTEIN: All right. So let me ask you a final question. So as you look back on your career at Samsung, what are you most proud of what you have achieved?

DR. KWON: When I joined Samsung, I mentioned, it's a local company. Nobody knows Samsung, except in Korea. And we started the semiconductor *[business]* ... I *[led]* it because nobody believed in it. And there were some rumors in Korea at the time, OK, Samsung will collapse pretty soon. But we caught up. And it took more than 30 years. Right now, it is very close to being in the number-one position in the semiconductor *[industry]*. *[Back then,]* I was just starting my career in semiconductors and this year it becomes number one ... lucky anyway. So ... it's time to retire. I'm quite proud *[to be part of the group that]* ... achieved that kind of position.

MR. RUBENSTEIN: OK. Well, it's a very impressive achievement. I think if you had joined a private equity firm, you would have made a little more money, but but money isn't everything, right? So thank you very much for your time. Thank you.

DR. KWON: OK. Thank you.

MR. RUBENSTEIN: Thank you very much. Appreciate it.



Dr. Oh-Hyun Kwon
Vice Chairman and CEO of Samsung Electronics Co., Ltd.

Dr. Oh-Hyun Kwon was officially appointed Chief Executive Officer of Samsung Electronics Co. by the company's Board of Directors on June 8, 2012.

As well as overseeing the company in his role of CEO, the Vice Chairman continues to lead the Device Solutions Division of Samsung Electronics, which consists of the three component businesses: Memory, System LSI and LED.

Since Dr. Kwon joined Samsung Electronics' Semiconductor Business in 1985, he has played a pivotal role in Samsung Electronics' rapid advance in the semiconductor industry. He successfully led the development of the industry's first 64Mb DRAM in 1992, and was promoted to Vice President of Samsung's Memory Device Technology unit three years later. In 1998, Dr. Kwon was appointed Senior Vice President and head of System LSI Division's ASIC business. In 2000, he became Executive Vice President and head of LSI Technology. In January of 2004, Dr. Kwon was appointed President and General Manager of the System LSI Division. During his 10 years at the System LSI Division, Dr. Kwon gained special recognition for achieving top market shares of display driver ICs, application processors and CMOS image sensors. In May of 2008, Dr. Kwon was appointed President of Semiconductor Business (now Device Solutions). In December of 2011, he was promoted to Vice Chairman of Samsung Electronics.

Dr. Kwon has published numerous papers at conferences and symposiums including ISSCC, VLSI Symposium, and IEDM. He has also contributed his expertise to a number of technical journals on semiconductor related topics.

Dr. Kwon has a B.S. in Electrical Engineering from Seoul National University, a M.S. in Electrical Engineering from KAIST (Korea Advanced Institute of Science and Technology), and a Ph.D. in Electrical Engineering from Stanford University.