Jacob Bourne, and Gadjo Sevilla

The Daily: Nvidia (the largest company in the world you may never have heard of) and can Mr. Musk's xAI compete with OpenAI?

Audio

In today's episode, we discuss how Nvidia became the largest company in the world, what might slow them down, and which company is most likely to come for its AI crown. In Other News, we talk about whether Elon Musk's artificial intelligence company xAI can compete with OpenAI. Tune into the discussion with analysts Jacob Bourne and Gadjo Sevilla.

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Episode Transcript:

Jacob Bourne (00:02):

But the thing to note here is that these big tech companies are some of Nvidia's biggest customers. So if they start relying more heavily on their own in-house chips and less on Nvidia's, then that could really be a huge blow to Nvidia's bottom line.

Marcus Johnson (00:23):

Hey gang, it's Monday, July 1st. Jacob, Gadjo and listeners, welcome to the Behind the Numbers daily, an EMARKETER podcast. I'm Marcus. Today I'm joined by two folks. Let's meet them. We start with our tech analyst who is based on the West Coast. His name is Jacob Bourne.

Jacob Bourne (00:39):

Hi Marcus, pleasure to be here.

Marcus Johnson (00:41):

Hey fella. We're also joined by someone else who covers Connectivity and tech rights for that Briefing. He's based on the other coast in New York City. We refer to him as Gadjo Sevilla.

Gadjo Sevilla (00:51):

Thanks for having me back.

Marcus Johnson (00:52):

Hey chap, of course. You said like you got banned for six months. We lifted the ban, he's home. We start with the fact of the day, how fast you have to go to escape Earth's gravity and travel to another moon or planet. So it's also known as escape velocity. Do you guys know how fast you have to go? I feel like it'd be weird if you knew this. Do you guys know?

Jacob Bourne (01:18):

Yeah. I mean you're asking for a number, so that's-

Marcus Johnson (01:21):

Give me, yeah, miles per hour how fast do you think you have to go? Four kilometers if you're feeling European, is fast, is though the answer. It's seven miles or seven miles per second. That's too many miles per second. Okay. I don't understand how that works.

Jacob Bourne (01:36):

So what's works the mile per hour?

Marcus Johnson (01:38):

25,000 miles per hour. So if you think about what it's like to go 100 miles per hour, which I may not have done, I don't know what that's like, but I can imagine it. 100 miles an hour it's pretty fast, times that by 2,500. That's how fast you have to go. Who's doing that? Who is signing up to that?

Jacob Bourne (02:00):

Astronauts?

Marcus Johnson (02:01):

Astronauts is the answer, yeah. That's the exclusive answer. No, I did the cyclone of Coney Island. It was screaming, so no thank you. Anyway, today's real topic, the largest company in the world you might never have heard of.

(02:25):

In today's episode first I believe we'll cover that very company we're talking about, largest company in the world and why they are that, how they got there. And then we will speak about whether Elon Musk and its AI company can compete with OpenAI for in other news. But we'll start gents with the lead. So a company you may not have heard of is worth $2 trillion more than Google or Amazon, wrote Whizy Kim of Vox. That was in March of this year. 12 weeks later, and Nvidia became the world's most valuable company at basically three and a half, $3.3 trillion. That's 20 times more than what it was before the pandemic hit. Founded in 1993, the company started with a mission to improve computer graphics for gamers, and now they are the largest maker of AI chips and software. Gadjo, I'll start with you. How did Nvidia become the biggest company in the world?

Gadjo Sevilla (03:23):

I think it was at the right place at the right time. It was focusing on GPUs, which were already a hot commodity, not just for gamers but for mining crypto and for very intensive computing tasks.

Marcus Johnson (03:39):

And these are graphics processing units for folks who unfamiliar with the acronym.

Gadjo Sevilla (03:42):

Right, GPUs. So for the most part, they're the only ones that do it at the scale that can cater to emerging industries like generative AI. Everyone else is way behind in terms of the capabilities as well as their roadmap.

Jacob Bourne (04:02):

Just to add to it, I think in addition to the fact that their GPUs just happened to be really great for AI model training, Nvidia also very strategically built this concept called CUDA, a software platform that's become an industry standard for AI model training. So if you're training AI models, you need to code a certain way in order to optimize the hardware that you're using. So that's really locked in a lot of AI developers globally into using the Nvidia's hardware versus the competitors. And it's really made it really hard for companies like AMD and others to really break in.

Marcus Johnson (04:40):

Yeah. A huge part of this does seem to guide you to what you were saying at the very beginning, good fortune. The Economist noting that GPUs do the computational heavy lifting needed to train and operate large AI models. But this isn't what they were designed for. The initials stand, as I mentioned for graphics processing units, because such chips were originally designed to process video game graphics, and it turned out that fortunately for Nvidia, they could be repurposed for AI workloads as well. So regular computer chips process one thing at a time. GPUs can run thousands of versions of the same simple task at the same time. Good for gaming, also turns out good for AI. And they also benefited massively from the launch of ChatGPT and the subsequent GenAI boom since OpenAI launched ChatGPT 18 months ago and folks saw what gen AI could do, Nvidia's stock price is up over 600%. So a lot of their rise is tied to the launch of ChatGPT.

Jacob Bourne (05:41):

Right. And I think that ChatGPT and the AI models that built that were possible by the advances that you have with AI hardware from Nvidia. So it's a mutual benefit there.

Marcus Johnson (05:54):

They now have a lock on the market. They control about 80% according to some estimates. Some varies from 70 to 90, but the one that kept popping up was they control 80% of the high-end AI chip market. And they make money in a whole bunch of different ways. So today,

data center processors for analytics and AI have quickly become Nvidia's largest source of revenue. There's a Visual Capitalist piece pointing this out. 80% of the money comes from that from data center processors for analytics and AI. So 80% there and that surpassed the company's historically largest source of revenue, which is GPUs, graphic processing units, now 17% share. And then the final few percent is money from selling GPUs for 3D visualization, the automotive sector, drivers cars things like that and crypto mining as well, I think as Gadjo, as you mentioned. But gents, this 80% lock on the market I mean, who else is really in this game? Who are some of the competitors who might start to try and rival Nvidia at some point?

Gadjo Sevilla (06:56):

Amazon has actually started building processors for their AI servers, but these are super specific niche hardware that's designed to run on Amazon servers. It's not going to compete at the scale that Nvidia can offer. Who else is in the mix? I think Jacob mentioned AMD. Intel isn't really known for GPUs, but they are becoming a foundry, so they could be developing something in partnership with other companies.

Jacob Bourne (07:30):

I think what we're seeing is that all these companies now that they're seeing that this is really such a focal point for the global market is that they're really trying to increase their AI chip development to rival Nvidia. And what they're really going for, especially companies like AMD and Intel is they're going for price. So more competitive. The same type of performance, same type of efficiency at a more competitive price point than the Nvidia chips which were very expensive and they run up to $40,000 per chip. Intel does have a bit of an advantage because it also manufactures its own chips. And then of course you have the big tech companies like I mentioned that are developing them in-house, not necessarily to compete with the Nvidia on the commercial sale of these chips, but the thing to note here is that these big tech companies are some of Nvidia's biggest customers. So if they start relying more heavily on their own in-house chips and less on the Nvidia's, then that could really be a huge blow to Nvidia's bottom line.

Marcus Johnson (08:28):

That's a great point. These folks, according to market research company, Motley Fool they had one estimate, 40%, of Nvidia's net sales driven by four major tech companies, Alphabet,

Amazon, Meta, and Microsoft, all of which are working, as you mentioned, on their own data centers with their own in-house AI chips that would turn them from Nvidia customers to competitors quite quickly, potentially. So it seems like we've got a couple of other groups here. We've got the vets, as you mentioned, AMD, Intel, Qualcomm, they make chips and are building software platforms to rival Nvidia's CUDA platform as Jacob mentioned. Then you've got the big tech folks. Google has developed its own tensor processing units, TPUs. Amazon, Meta and Microsoft have also got their own custom chips for cloud-based AI. OpenAI plan to as well. And industry analysis firm TechInsights estimated that Google became the third-largest designer of chips for data centers in 2023 after Nvidia and Intel. So pretty big.

(09:22):

And then you've got the startups as well. I can't pronounce most of these names, but Cerebras, Grok, MatX, Halo, Talas, TenStorrent, Graphcore, a whole bunch of companies who are trying to get into this space. Gents, there was one comment in an Economist article noting that these Nvidia competitors, particularly the startups, might be positioning themselves as acquisition targets instead of trying to compete with Nvidia they might be looking to tech companies to say, buy us.

Gadjo Sevilla (09:48):

Yeah. That doesn't make sense because it's going to take a lot of money for R&D and development and years of product cycles to be able to compete with Nvidia. So you can expect these smaller startups to maybe specialize in certain processes, certain units, and hope that they become attractive targets for acquisition.

Marcus Johnson (10:12):

So companies trying to get into this game to rival Nvidia, but I mean, aside from a company blowing up and designing a chip that really captures the market's attention, what else might slow Nvidia down?

Jacob Bourne (10:26):

Well, Nvidia has seen a little bit of slowdown I mean it fell by $500 billion last week, which actually having risen to this distinction of the most valuable company in the world and actually also earned the company with the biggest three day valuation loss ever.

Marcus Johnson (10:46):

Wow.

Jacob Bourne (10:49):

Nvidia is a dominant player, but it's also, it's facing a huge amount of vulnerable just because of its position.

Marcus Johnson (10:59):

What do we make of that drop? Why did that happen?

Jacob Bourne (11:02):

Yeah. I think it was maybe a few reasons that I don't think or mean anything dire for the AI industry or Nvidia. So there was a planned internal sell off of shares by Jensen Huang and also other employees that really had nothing to do with the performance. It was just something that was prearranged.

Marcus Johnson (11:23):

Trying to make more available.

Jacob Bourne (11:24):

So I think that maybe signaled a more broader sell off. But I think there's also definitely some overvaluation going on here as well. I mean, there's just so much excitement over this one company in this one subsector generative AI that it gets overblown at times. So I think there's a natural correction that we see and we'll continue to see it, but I don't necessarily think that it means that a bubble is about to burst necessarily.

Gadjo Sevilla (11:55):

It reminds me a lot about Cisco. So you remember during the dot-com boom, Cisco became the dominant networking company. Everything ran on Cisco, all the services, all the search services. So they were similarly the only game in town. But as that market expanded as well, so did the massive stock prices for Cisco. And then you had a bubble and it burst and took a lot of value from Cisco with it. In the case of Cisco though, they're pretty much, they were a one-trick pony at that time. They just did networking. So I think and they're just more diversified, they could probably find new business opportunities. And I'm sure I've read that they're already investing in various other areas.

Marcus Johnson (12:48):

Nvidia.

Gadjo Sevilla (12:48):

Yes.

Marcus Johnson (12:50):

Yeah. Building the new age data centers they call AI factories. So we're already focusing on some other business lines.

Jacob Bourne (12:57):

Yeah. I mean, I think we're going to continue to see some strong quarters from Nvidia into next year when it releases its Blackwell chips. And I think its biggest threat is its biggest customers, big tech. How much are they going to still want to continue to buy these expensive chips? I think it just depends on how well and how fast Nvidia can continue to innovate.

Marcus Johnson (13:21):

They're going to want to make their own chips to replace the expensive Nvidia ones. But also we're trying to see if consumer demands is going to meet the industry excitement. Jacob, I think something you were touching on, Dan Gallagher, The Wall Street Journal was thinking that the big risk for Nvidia is if the GenAI services being propagated by folks like Microsoft, Google, Amazon, Meta-platforms and Adobe see tepid demand from consumers and business customers as well. Part of the problem here is what's the business model? Asa Fitch of The Wall Street Journal pointing this out saying, "Despite the power and promise of AI, startups are struggling to come up with a business model that can recoup the massive investment in hardware the technology requires." Sequoia Capital estimated in March that the industry put $50 billion into Nvidia's chips to train large language models, but GenAI startups had only made 3 billion in revenue. How big of a concern is that the industry hasn't figured out how to make money yet despite all this investment?

Gadjo Sevilla (14:17):

Yeah. That and also the fact that all these companies are trying to go for on-device AI functionality. So they're trying to rely less on the cloud and more on the devices that they want to productize and sell around that AI halo.

Jacob Bourne (14:34):

I mean, I think that the AI demand is going to continue. The real question is how to make it more cost-effective, and it does come back to the chip. Where efficient chips that cost less in the compute and electricity, the power standpoint will make generative AI cheaper to sell, to make available to consumers. Remember so much of this is driven by enterprise demand, and I think enterprise demand is only growing and eventually consumers are going to adopt it whether they realize they're using generative AI or not.

Marcus Johnson (15:08):

Yeah. Mr. Fitchard, The Wall Street Journal also saying that companies might look for ways to build and deploy smaller models that can be effective for specific tasks and don't require as much computational firepower that depends on Nvidia's chips. So you might see that shift as well. Gents, let's end by discussing the leader of this company. One of the folks who started this company, Jensen Huang. So born in Taiwan, left when he was five. Age nine his family moved to the West Coast in the US. He graduated as an electrical engineer from Oregon State University. Got his masters from Stanford and then went on to work at US chip firm AMD before co-founding Nvidia in '93. They started making chips, the process graphics particularly for computer games now focusing on AI. Any thoughts on the leader of now one of the most important and valuable companies in the world?

Gadjo Sevilla (15:59):

Yeah, I can start. I think he's a rare character that he stood with the company all this time. He didn't acquire a company, he built this company. So it's almost similar to a Bill Gates, Steve Jobs like relationship that he is the company in so many ways.

Marcus Johnson (16:18):

Interesting.

Gadjo Sevilla (16:18):

So when you have that singular figure to steer you throughout the tougher times and into the profitable times, it gives you that confidence that this is a company that's been built thoughtfully. So I think he become the AI hardware icon of the age. So that's why a lot of business leaders tend to listen to him and try to follow whatever roadmap he puts forth.

Jacob Bourne (16:51):

I think it's definitely in keeping with this trend we see of this archetype of a very visionary Silicon Valley, CEO. And I think he's become somewhat of a hero among AI developers. And I think it helps Nvidia in the long run because not only do you have AI companies that are loyally purchase Nvidia's products, you have them locked in by the CUDA platform. But then you also have this personality that they're drawn to that I think just helps keep the sector gold.

Marcus Johnson (17:26):

So I just want to end the lead by helping to quantify Nvidia for folks. We talked about them where they came from, some of their competitors. But their meteoric rise despite being a company that's been around for three decades is quite remarkable. One point here the speed of the market cap growth. So for context, it took Apple and Microsoft about five to six years each to go from 1 trillion to 3 trillion and took Nvidia a year. Nvidia is worth more combined in terms of market cap, more combined than the eight other leading chip companies. So Taiwan Semiconductor Manufacturing, ASML, Samsung Electronics, AMD, Qualcomm, Micron, Intel and SK Hynix. And Tripp Mickle and Joe Rennison of The New York Times were noting just 12 companies have led the S&P 500 by market valuation since the index was created 100 years ago. And some of those are AT&T, Apple, Cisco, who Gadjo mentioned, ExxonMobil, et cetera, Walmart, and now Nvidia joins one of the 12 companies to have led the S&P 500.

(18:31):

Finally, the amount of money they're making is just extraordinary. Their revenue in the quarter, last quarter ending in April was up 262% year-on-year. And net income was up over 600%. So in Q1 of this year, Nvidia had a higher net income, $15 billion than Amazon, Bank JPMorgan Chase or Warren Buffett's holding company giant Berkshire Hathaway. That 15 billion is 20 times higher than the same period for them two years ago. Each of the last two years the company's made just under 30 billion, expected to double that this year. So just extraordinary. Hard to wrap your head around growth. But that is all we have time for the lead. We'll leave Nvidia there.

(19:15):

Time now for the fourth quarter of the show today in other news. Just the one story, can Elon Musk's, xAI take on OpenAI. Can Elon Musk's AI company, xAI take on OpenAI, the makers of ChatGPT? This is a question in a recent article in The Economist. Well, the valuation and

dollars raise put xAI in the big leagues. If you're looking at those two metrics, valuation and dollars raised as of May, 2024, xAI was the second-highest valued AI startup far behind OpenAI, but still second and ahead of Anthropic. And it also had raised the third most capital with over half as much as OpenAI, and three quarters that of Anthropic according to PitchBook and company reports. But Jacob, can xAI compete with the AI superstars in your opinion?

Jacob Bourne (20:10):

Yeah. I mean, yes and no. On the yes end of things I would say that Elon Musk certainly has the means to track the necessary financial and human resources that you'd need to take on a company like OpenAI that has a lot of experience and certainly a big head start on this front. On the no end of things though, I'd say that Musk is very overextended with numerous other business commitments, in addition to the fact that he has ongoing controversies, both personal and professional. And I think all of that will ultimately detract from his efforts here.

Marcus Johnson (20:46):

Yeah. I mean, Gadjo to hammer home Jacob's point in terms of him having a lot on his plate, what being one reason why he can't. As well as xAI, his AI company, he's got to keep his eye on Tesla, SpaceX, The Boring Company, Neuralink and X, formerly Twitter. So a lot going on. What do you think? Do you think his company can play in the big leagues, xAI, that is?

Gadjo Sevilla (21:06):

I think they have the funding clearly, but they do not have the brain trust. OpenAI was started by data scientists and they had a vision for how to get to responsible AGI. xAI was a knee-jerk reaction because he felt slighted and he wanted to have a competing product. It's as simple as that. So you have the money, but do you have the time and the talent?

Jacob Bourne (21:37):

They were talking about a frontier technology, unexplored. And they're really working towards this artificial general intelligence. It really takes a strong T, not just individual smart people.

Gadjo Sevilla (21:47):

And part of AI development is you have to have a team that can say no to a lot of things. And as we've seen from Elon Musk's company, they're his companies, there's not just enough of that because either it isn't allowed, it isn't welcome. And I think that in the long run could be a huge issue.

Marcus Johnson (22:09):

Yeah. And you've seen that in OpenAI with folks like Ilya Sutskever, one of the folks who helped get that company off the ground and was integral in making sure that AI was being developed safely, he left and now starting his own company called Safe Superintelligence Inc. And on whether he can compete side of things. He did co-found, Musk did co-found OpenAI before having a disagreement with Sam Altman and leaving. But he's just one individual and to a point, Gadjo takes a lot of folks particularly in the data science realm to compete in this space. That's what we've got time for this episode. Thank you so much gents for a wonderful conversation, and thank you to, Gadjo.

Gadjo Sevilla (22:46):

This was great. Thanks again.

Marcus Johnson (22:47):

Thank you to, Jacob.

Jacob Bourne (22:48):

Thanks, Marcus. Thanks, Gadjo. Thanks for having me.

Marcus Johnson (22:50):

And thank you to Victoria who edits the show. Stuart who runs the team and Sophie does our social media. Thanks to everyone for listening in. We hope to see you tomorrow for the Behind the Numbers daily, an EMARKETER podcast.