

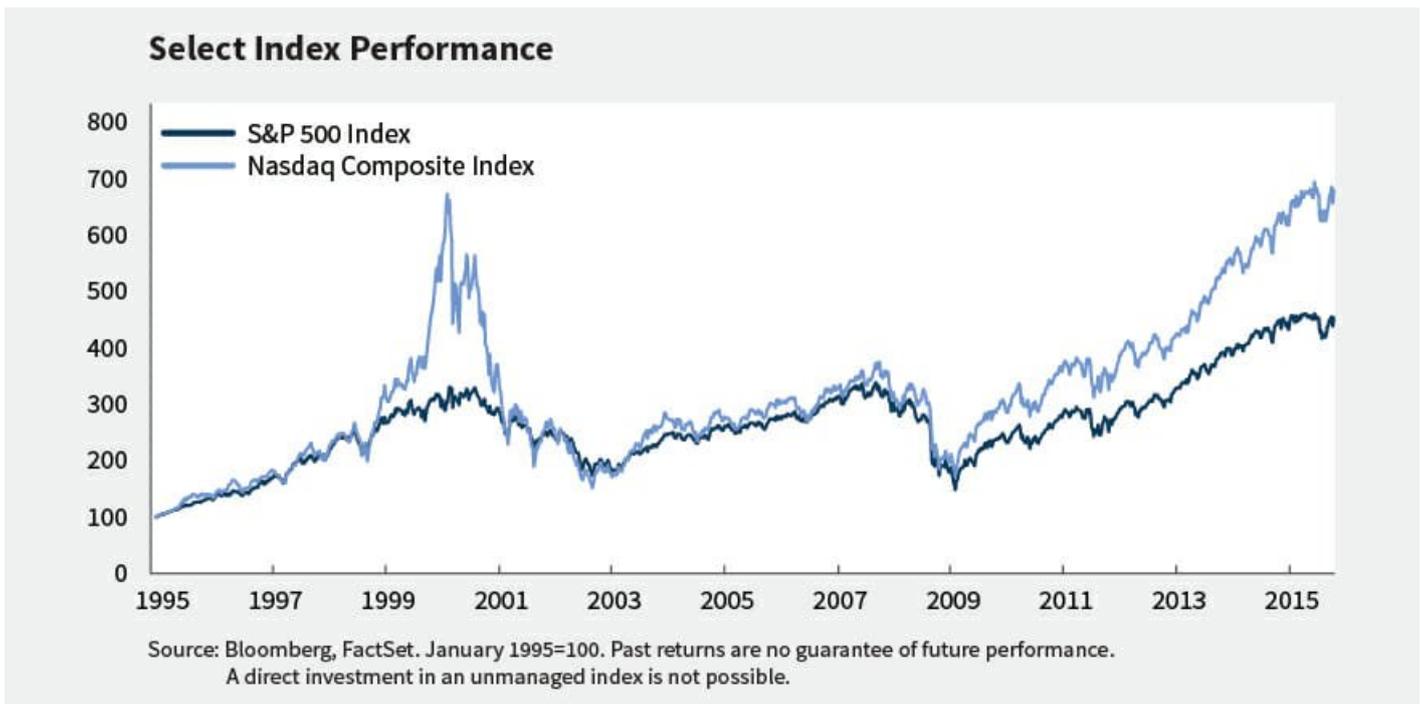


No Hype, No Hoax: It's in the Cloud

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There is no area more prone to hype and hoax than the technology sector. We saw this clearly in the dot-com era of the late 1990s leading into the crash of 2000. In this era, the Nasdaq Composite Index led the U.S. market and has been leading again over the past five years. We observe this in terms of returns as well as corporate performance, as technology companies continue to deliver strong operating margins.

The chart below shows select U.S. index performance since 1995. In August 1995, Netscape went public, with more than 40 million global online users, which seemed massive. But by the height of the dot-com madness in 2000, that number had grown to 400 million, and the market seemed fully saturated. Today, it is projected that there will be 4 billion global online users by 2020. To put that in perspective, the global population is only 7 billion.



So, the world will be nearly completely connected by 2020. More importantly, we will be connected with devices that are at least 300 times more powerful than those used in 1995. We expect these trends to continue, and we believe they will continue to change the nature of corporate performance.

In particular, cloud Solutions are leading to more computing power at a lower cost. The venture capital firm Andreessen Horowitz, according to an 8/20/11 article in *The Wall Street Journal*, says that software is eating the world in terms of its importance, and we believe there is truth in this. We would put mobile computing in the same realm.

Last year was interesting in terms of growth and scaling. The fastest-growing technology company ever at the enterprise level is a cloud-computing platform that is rapidly growing its top line at 80% and by its own estimates is projected to reach \$10 billion next year.

The significance cannot be overstated as cloud computing is allowing scalability within technology that we have never seen before. This scalability drives a higher growth and return profile not just for the company offering the cloud-computing platform, but more importantly for users more broadly, and it changes the rules of the game. The multiplier effect of technology will be more evident as cloud computing continues to gain share across industries and begins moving across countries.

How does this scalability benefit the individual? In 1995 or 2000, the cost of launching an Internet start-up was about \$5 million. Today, using cloud computing, the cost is \$5,000—99% less than 15 years ago.

We have seen, and will continue to see, a rapid change in the nature of scaling. WhatsApp, the mobile messaging app, is an interesting example. There are 20 billion SMS messages sent via global telecommunications systems, versus 30 billion sent via WhatsApp. The fact that WhatsApp handles this volume with only 24 employees is remarkable.

The beneficiaries of this scalability are not found only in technology. It is almost trite now to talk about what

online retailing is doing for consumer convenience, but the impact on consumer prices is also significant.

Although technology will continue to be a beneficiary of scalability, it is not all positive. The impact technology is having, though broadly positive, is also clearly negative in parts of the economy. In our opinion, it is no coincidence that for some time we have seen the decline of traditional booksellers, Walmart numbers have been weakening, and Nordstrom's sales have been decelerating.

But from an investment perspective, we believe technology is the most important and enduring theme in the global capital markets. We believe that technology can continue to proliferate because it is scaling faster and further than ever before. We have moved from an environment in which assets were based on hard goods to an environment in which software, data analytics, artificial intelligence, and deep learning dominate. This will continue to radically change return profiles, not just in technology, but in every industry. The scalability of technology will create havens and have nots at both the corporate and geopolitical level.

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