Calamos Advisors LLC Investment Commentary



BY STEVE KLOUDA, CFA, SVP, SENIOR STRATEGY/SECTOR ANALYST

Investing in Innovation: Growth Opportunities in Technology

It's a now-familiar story: A technology company that few of us have heard of creates a new product or service and its founders become billionaires overnight. But beyond the headlines of today's "hot new thing," technological innovations have wide-ranging implications for corporations, customers and the global economy.

Businesses become more efficient, transactions are completed more quickly, errors are eliminated, costs are reduced, and consumers are more widely entertained. In short, technology is one of the main drivers of economic growth.

The technology sector also epitomizes the creative destruction that economist Joseph Schumpeter espoused. Many firms that created once-revolutionary technologies lost their competitive advantages and are long since gone. Recently, a columnist for *The Wall Street Journal* looked back on 20 years of writing consumer technology reviews.¹ Among the companies he listed that had produced "game-changing products" were CompuServe, Prodigy, U.S. Robotics, Netscape, Palm, and Handspring. Not exactly tech bellwethers today.

At a recent conference, the chairman of Google made a striking claim. He believes that every two days, we now create as much information as we did from the dawn of civilization up until 2003. Unquantifiable hyperbole? Perhaps. But the world is changing, and there is no mistake that the rate of change is increasing as well.

All this has major implications for the way we invest in the technology sector at Calamos. Our job as analysts is to be on the lookout for changes on the horizon and then find and research companies that will be able to capitalize on them. While there are many opportunities in the rapidly evolving technology sector, there are several trends that we believe are particularly exciting. Across the Calamos portfolios, we're seeking companies that are participating in these growth trends.

Big Data = Big Opportunities

According to the McKinsey Global Institute, a midsized business with 1,000 employees now stores more data than the U.S. Library of Congress.² To keep up in today's competitive environment, firms must transform data into market intelligence, revenue and profit. Moreover, it is not just a company's own data that needs to

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be collected. Information from suppliers, customers, and even macroeconomic data must be incorporated into the decision-making process. These sets of unstructured data have become so large that they cannot be handled by traditional storage devices, databases, and software tools. Welcome to the era of big data.

We believe data will become more and more important, across all sectors of the global economy. The ability to collect, analyze, and incorporate large amounts of data across day-to-day operations will be a key competitive advantage for companies. In some cases, the benefits are obvious. Companies can track the behavior of visitors on their web site and craft strategies to turn them into customers. Managers with global sales forces can respond in a timelier manner if they see their teams are having difficulties closing deals.

From an investment perspective, there are several industries that benefit directly from big data.

But just about any enterprise can use big data to its advantage. Retailers can adjust prices in real time and modify purchase orders to optimize inventory on hand. Energy companies now explore for oil and gas in "digital oilfields," using seismic data to increase the probability of successful drilling projects. A firm that specializes in genomic research developed a predictive test that could identify coronary disease in its earliest stages. To do this, the researchers had to comb through more than 100 million gene samples to ultimately identify the 23 predictive genes for coronary heart disease. None of this could have been achieved without technology innovations designed to address the challenges and opportunities of big data.

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FINDING THE BEST OPPORTUNITIES

When we evaluate growth potential in the technology sector, we do so with the goal of also actively managing downside risk. We look at many factors, including:

Balance sheet strength. This is of paramount importance. Many technology firms operate in very cyclical markets and they must be able to withstand future downturns in the economy and product cycles.

Prospects for future innovation. We gauge not only the rate at which companies invest in research and development, but also the quality of those expenditures. Firms with a poor track record of creating new products and technologies from previous R&D costs will have a much tougher time keeping up with those competitors that have set the stage for continued innovation.

Customer concentration. Just as it is prudent for investors to diversify their portfolios, we look for companies that have mitigated the risk of being overly dependent on a single customer.

Product diversification. Companies that have a broad-based portfolio of products will be better able to withstand the inevitable disruption from new technologies.

demand storage appliances they already produce. Software companies are also breaking new ground, with virtualization software that promises even greater efficiencies in the storage of big data. Software developers and database management companies are creating tools that allow customers to analyze data and employ it in highly specific ways, such as those noted earlier. The growing field of analytics is a result of big data as well.

Big data has put strains on the underlying networks carrying data and technology, due to the volume and complexity of data being transmitted. Cisco Systems forecasts that we are in the middle of a five-year period where Internet data traffic will grow at a 32% annualized rate. Just as companies have sought better ways to collect and store big data, companies need more bandwidth and tools that offer faster access to this information.

Technology companies are stepping up to address this need. For example, in a globally connected economy, delivering data at a high rate of speed is important, but it must be done so on a consistent basis as well. One way to accomplish this is with the help of a device known as an application delivery controller (ADC). The ADC is essentially a traffic cop that wants you to speed. It manages the flow of data traffic by analyzing user requests and looking across multiple application servers located in various data centers.

The ADC then routes the request to the source that will fulfill the demand quickly and reliably. The end goal of this device is to move customer requests for information along at ever increasing rates of speed without having data traffic grind to a halt. If only we had such devices for the morning rush hour commute! Companies that make products like ADCs as well as other optimization devices such as session border controllers will benefit not directly from the storage of big data, but from increasing the efficiency of it.

Investing in Connectivity

Long-time Calamos clients know that one of the key secular themes we have focused on is the concept of "access to anything, anytime, anywhere." No sector provides more ways to take advantage of this theme than technology. The most obvious example is the seemingly never-ending increase in smartphones, tablets, and personal digital assistants. The popularity of these devices is well known, and the secular tailwind pushing it shows no sign of abating. In addition to investing in the companies that produce these devices, another way for us to potentially profit from this trend is to invest in companies that supply the makers of the end products. This includes makers of components such as processors, memory chips, touch screens, and high resolution displays as well as contract manufacturers and telecommunication providers.

Conclusion

These are just a few of the trends and innovations that are occurring in technology. If history is any indication, there will be many more to follow. As we have over the past decades, we look forward to seeking out the pioneering firms that are leading the way with ground-breaking advancements.



ABOUT THE AUTHOR

Steve Klouda, CFA, SVP is a senior strategy/ sector analyst with portfolio management and research responsibilities. He has 18 years of investment industry experience.

Technology is considered to be a high-risk investment. Concentrating a portfolio in a specific sector may carry a higher degree of risk due to lower diversification and sector-specific risks. Companies in the information technology sector could be affected by, among other things, overall economic conditions, short product cycles, rapid obsolescence of products, competition, and government regulation and therefore carry more risk than other sectors.

¹ Walt Mossberg, The Wall Street Journal, "Dialing Up 20 Years of Gadget Reviews," November 2, 2011.

² McKinsey Global Institute, Brad Brown, Michael Chui and James Manyika. McKinsey Quarterly, October 2011, "Are you ready for the era of 'big data'?"

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Calamos Investments LLC 2020 Calamos Court Naperville, IL 60563-2787 800.582.6959 calamos.com Calamos Investments LLP No. 1 Cornhill London, EC3V 3ND, UK Tel: +44 (0)20 3178 8838 calamos.com/global

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