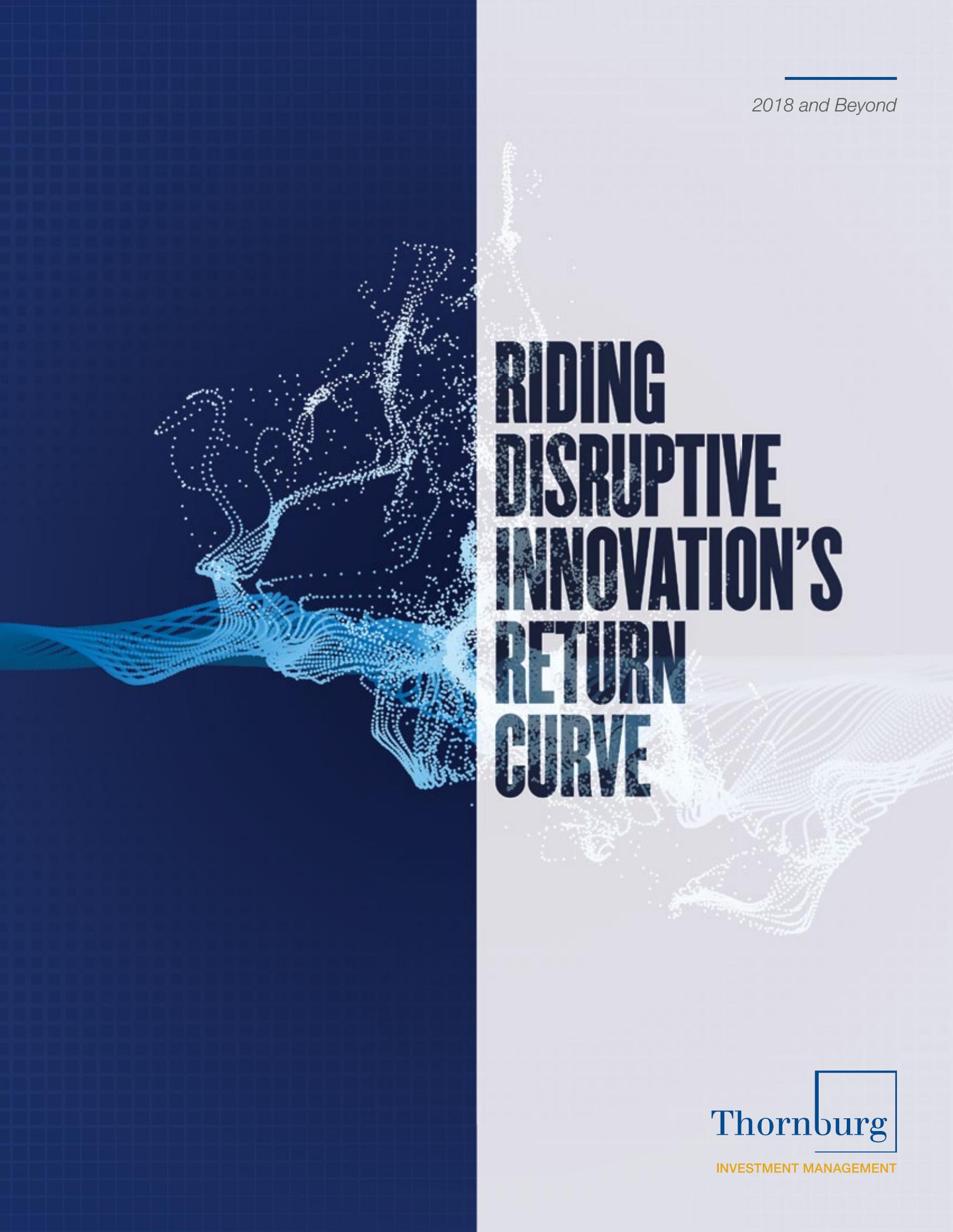

2018 and Beyond



RIDING DISRUPTIVE INNOVATION'S RETURN CURVE



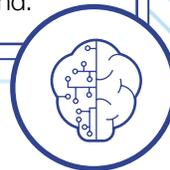
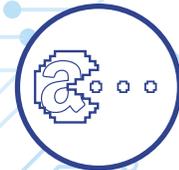
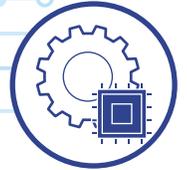
Innovation has always changed how people live and engage in commerce. But technological revolutions have been coming at an ever-faster pace. The digital revolution now underway is transforming the way businesses operate across all sectors of the economy.

From big data and cloud computing, to artificial intelligence and machine learning, from cryptocurrencies and blockchain, to robotics, automation, and self-driving electric vehicles, digital technology is reshaping the world. It's driving efficiency and productivity up and, in myriad products and services, pushing costs down. Companies that don't keep up will be disrupted out of business, while those leading the changes and their shareholders stand to benefit.

Identifying the winners from the losers will be pivotal for investors working to capitalize on the unfolding opportunities. So will astutely assessing the winners' growth prospects and a reasonable, if not attractive, price for their stocks and bonds. However, standard valuation measures may startle traditional value investors, as high double- or even triple-digit price-to-earnings ratios aren't uncommon among companies at the cutting edge of disruptive innovation. Many of these new technology-driven trends are incipient, with years of high growth ahead of them. Those disruptors that can generate high barriers to entry and take dominant market shares should merit the high multiples at which they currently trade. Investors who genuinely think about and focus on the long term can get comfortable with those metrics.

They can also take advantage of the inevitable market volatility, bumps, or setbacks along the way, understanding that today's high multiple and, at times, volatile price performance may well be worth the future return. Some companies may mistakenly be thought vulnerable to disruption, or adapt to disruptive threats, and present attractive investment opportunities along the way.

Investment professionals at Thornburg weigh in on the disruptive trends and on many of the companies at the forefront of them. They also consider how these firms can profit from helping consumers spend more efficiently and from supporting corporate clients to better analyze their own data, power their websites and mobile apps, reduce operating expenses, and improve their products, output, and services. These trends will gain speed in 2018, and beyond.





New FAANG'led Disruptors

Connor Browne, cFA, is portfolio manager of Thornburg Value Fund and Thornburg Long/Short Equity Fund.

Q: *Google and Facebook disrupted traditional print media companies. Amazon upended the retail sector. Apple and Samsung hobbled the Nokias, Motorolas, and BlackBerries of the world. These incumbent disruptors generate huge profits, invest aggressively in research and development (R&D) and acquire innovative and potentially disruptive smaller companies, widening their respective moats. Google, for example, purchased YouTube, while Facebook bought Instagram, WhatsApp, and Oculus. Have these cash-rich, mega-cap tech giants cracked the code of continuing to grow without being disrupted? Are their most plausible future opportunities and threats among each other, say Amazon vs. Google in cloud and digital content streaming?*

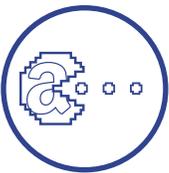
CB: This is an important question to wrestle with as we think about what will happen in equity markets globally over the next five to 10 years. At the time of this writing, FAANGs (Facebook, Amazon, Apple, Netflix, and Google/Alphabet)

comprise over 11% of the S&P 500 Index. Add in Microsoft and you get almost 15% of the index. The stock prices of these companies have risen with good reason, in our view, as each company has established leadership positions in a number of the most important secular growth areas of the economy today—smartphones, offline retail to online, traditional advertising to digital, cloud-based computing, etc. It used to be the case that the information technology sector was generally the most susceptible to disruption. But the current management teams in the space, especially at Facebook, Google/Alphabet, and Amazon, have grown up in an age of disruption.

And the companies have managed through massive disruption already. At the time of Facebook's initial public offering in 2012, the company was generating nothing in advertising revenue from mobile devices. Today, more than three-quarters of Facebook's revenue comes from mobile devices. Facebook's prescient acquisition of Instagram kept a

start-up social media company from eating its lunch. Today, Instagram's stories feature seems to be winning against the new, cool kid on the block, Snap. Is Facebook today at a scale with sufficient network effects that it is much harder to challenge? Perhaps. Further, as we move toward artificial intelligence and machine learning, data becomes a key competitive advantage. Who out there processes more data every second than Google, Facebook, or Amazon?

That said, size creates its own problems. Yes, these companies are competing head to head with each other more often. Also, as your power and influence grow, you attract increased attention and scrutiny from politicians and regulators. Especially as details of foreign ad buying during the 2016 U.S. presidential election have emerged, the risks for bad regulatory outcomes for these companies has increased significantly. Not yet enough to keep them from being good investments, in our opinion, but well worth monitoring closely.



Valuing Amazon

Greg Dunn is portfolio manager of Thornburg Core Growth Fund and Thornburg International Growth Fund.

Q: *How do you value Amazon? Its main end-markets—e-commerce and cloud computing—are enormous, yet have even bigger growth runways into the future. Optically, it has low profit margins, but it reinvests substantially, including in other businesses, such as consumer electronics and now even a movie studio. Its forward price-to-earnings ratio routinely runs in the triple digits, although its sales growth, at a five-year compound annual rate of 24%, is staggering. Before it broke out its Amazon Web Services (AWS) business in earnings reports in 2015, it tended to trade on a forward price-to-sales (P/S) multiple of about 1.6x. Since then, its forward P/S has risen to 3.0x, and averaged 2.6x over the last three years.*

Are there any particular metrics or multiples that suggest overvaluation?

GD: Over Amazon's nearly 20-year history as a public company, it has never looked "cheap" by traditional measures. These value a company on what it is doing today or in the near future, but they don't capture the value of the longer-term opportunity. Amazon is a unique case because it has been a multi-decade disruptor of a huge market. It has been clear for a long time that Amazon's mission wasn't just to sell books online in the United States, but to sell everything it could online to everyone in the world. Amazon has grown to be the largest retailer in the world, but its opportunity is still very large. Amazon enjoys a 15%

share of global e-commerce, but only a 1% share of total global commerce.

Amazon has always invested heavily in its business to meet and stimulate demand, which depresses near-term earnings. Given the long-term opportunity, this has been the prudent choice. When we first invested in Amazon several years ago, we went through an exercise of mapping out what Amazon might look like in 10 years, what that would imply for its market share, and if it went ex-growth—mature, with gross margin leveling off—what normalized margins and earnings would look like at that point. We still do that today, and it still points to a business that can be much larger in the future than it is currently, not just based on its global

e-commerce business, but also its fast-growing AWS cloud business.

Through market cycles, sentiment toward Amazon can move from euphoric to



Near-Death by Amazon

Jeff Klingelhofer, CFA, is portfolio manager on a number of strategies in Thornburg's global fixed income group.

Q: *In the wake of several bankruptcies in the brick-and-mortar retail sector, the mere threat of disintermediation by Amazon has exerted downward pressure on the stocks and bonds of entire subsectors. But not all companies—say, in the medical equipment, pharma supply chain, or business-to-business subsectors—may be vulnerable to Amazon's expansion. Some have focused on niche products, boosted customer service, or to degrees matched delivery options. Are you finding opportunities in such companies, the bonds of which, unlike perpetual equities, have set maturities?*

JK: While the world is fast evolving, it is important to remember that the vast majority of purchases still happen in brick-and-mortar establishments. Additionally, certain products and brands are well positioned to compete in the increasingly complex and fierce landscape that Amazon is impacting. With the

negative and back to euphoric again. We keep that in mind and pay attention to where Amazon is trading relative to historical valuation ranges, and also how it is tracking in relation to the long-term

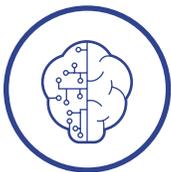
markets concerned over the challenges ahead, we have found a few opportunities to add the bonds of companies we feel are well insulated from the pressures of the disruptors, such as Amazon and others.

Two examples come to mind. First, a global toy manufacturer, with long licensing contracts in place, allows it to exclusively produce branded products with Disney, DC Comics, and other sought-after, iconic toys. While the way in which these toys are distributed may get a little more challenging (given, for example, the Toys "R" Us bankruptcy), we feel confident the contracts with major branded labels will allow the company to succeed despite the challenges that Amazon may bring. The second, a suburban grocery chain we recently purchased had been punished on the news that Amazon was moving into the food retail business. But this grocery store generally operates in rural locations

opportunity, and we manage our position size accordingly.

where it is the only available option. Additionally, the company owns the majority of its locations, which provides for substantial assets to bondholders, helping limit downside if its business does deteriorate. As Amazon expands its footprint, it is unlikely to focus on rural locations for some time to come, allowing us to add these bonds and feel confident they will mature long before any disruptive potential starts to materialize.

Additionally, it is important to recognize that as the world shifts and evolves, there are opportunities in companies and stories that thrive as Amazon's influence grows. Our purchase of Whole Foods Market prior to the acquisition by Amazon is one example of this. Other examples in our portfolios include technologies that streamline the retail experience or facilitate the move toward an online retail environment.



Artificial Intelligence

Di Zhou, CFA, FRM®, is portfolio manager of Thornburg International Value Fund.

Q: *Artificial intelligence (AI) and the machine learning methods by which computers effectively train themselves in complex pattern recognition involving large data sets have future applications well beyond more precise targeting of advertisements for e-commerce, fraud detection in online credit-card transactions, or Facebook algorithms that recognize faces in photos and personalize users' newsfeeds. Smart personal assistants employing advanced speech recognition and translation algorithms promise to open huge markets with the advent of "smart homes." AI will transform transporta-*

tion with autonomous driving and the sharing economy, as Uber and Lyft are fast demonstrating. Its use in medical research and applications, such as disease detection, is advancing rapidly. Where are you finding the most attractive investment opportunities involving AI?

DZ: In earnings calls, more often than not you will hear management teams mention AI, machine learning, "deep learning," or big data. While it's still in the relatively early days, corporate executives clearly believe AI will benefit their companies, across industries and geographies. And we

agree. For many companies, AI could in the short- to medium-term meaningfully drive sales, decrease operating costs, and improve customer engagement. For others, AI could become a disruptive force, enabling new business models.

While we are just scratching the surface of what AI will do down the road, some of the current mainstream uses include chatbots and digital virtual customer service agents for basic customer support and service, as well as robo-advisors at retail wealth management firms. From there it can get more sophisticated and involve customer analytics or health care

diagnosis, as you mentioned. AI is fast becoming integral to complex automation, robotics, machine vision for inspection tasks, and predictive maintenance, all with improving efficiency, accuracy, and quality control. In the transportation sector, far beyond the sharing economy, AI is being used in logistics and fleet management. Unsurprisingly, given the high-profile data thefts in recent years,

it's also being deployed to prevent cyber security breaches.

Applications, software platforms, IT services, and hardware are the key components of expanding corporate budgets for AI. Vendors in those categories stand to benefit. Companies such as Amazon, Microsoft, Google, Alibaba, Baidu, and IBM should profit from

increasing demand for AI PaaS (platform-as-a-service). SAP, Oracle, Salesforce.com, and Microsoft should gain from increasing enterprise software spending. Companies involved in the industrial IoT (internet of things), including Siemens, GE, PTC, SAP, Keyence, and Omron. As for IT services, Accenture, IBM, Capgemini, Atos, and Cognizant are all well positioned.



Robotics

Lei "Rocky" Wang, cFA, is portfolio manager of Thornburg International Value Fund.

Q: *Robotics is quickly changing the way manufacturing and warehouse management take place, given the scale and efficiency with which robots can perform repetitive tasks. Amazon is a leader in warehouse automation and has seen a significant decline in its associated warehouse and fulfillment expenses. But according to Morgan Stanley, just 1% of U.S. warehouses are automated, suggesting the growth runway for robotics applications is huge. Indeed, it goes far beyond warehouse automation and automobile supply and assembly chains to customized 3D printing, or "additive manufacturing." What should we expect out of this space in the years ahead, and how do you view the investment opportunities?*

LW: They're significant, and fascinating. A recent video from Boston Dynamics shows a robot performing a backflip off a raised platform, sticking its landing perfectly and raising its arms in the air as if to celebrate. Now Elon Musk can issue doomsday warnings about the accelerating pace of development in robotics and AI and argue that humanity may be threatened by unintended consequences. But you also have to look on the bright side. Many people suffering from Parkinson's disease already benefit from pace-maker-like devices; the computer chip implants emit electrical jolts to specific parts of their brains and help relieve their symptoms. In medical fields alone, robotics and AI hold great promise for disease treatment and management. Ray Kurzweil, Google's director of engineering, is an optimist. In his book, *The*

Singularity Is Near, he predicts that AI will reach human-level intelligence by 2029 and expects both will actually merge by 2047, magnifying our own intelligence by billions or trillions of times to very positive effect. Those timelines are beyond the typical investment horizon for us. As an investor, I expect that as technological evolution accelerates, the relevant investments will generate an exponential return curve. Meantime, we're happy to follow the debates between the futurists.

But we will assess the investment prospects along the way. So the total addressable market of global industrial machinery is approximately \$250 billion in sales per year, and industrial robotic penetration is merely 2% to 3% of that. There is a long growth runway for robotics, not to mention 3D printing, which enables the manufacturing of three-dimensional physical objects from digital models. Japan is the largest global supplier of industry robots with a 52% market share. There is also consumer robotics for households. Japan is really a highly "robotized" country, where even robots are assembled by robots. We own Omron, which is one of the leading global robotics companies, in several of our strategies.

China is also one of the most exciting places for robotics. Its economic growth is slowing, in part due to a labor pool that is no longer cheap. So to sustain productivity and efficiency gains, there's state support to accelerate the adoption of robotics. Given that China is the world's

largest industrial manufacturing base, it has accumulated massive industrial processing data, which should offer fantastic business opportunities for data storage, analytics, and cloud computing. And these, in turn, will foster investment and facilitate the adoption of automation and robotics.

The market loves buzz words like AI, AR (augmented reality), VR (virtual reality), IoT, etc., all of which are integral parts of robotics. But let's not forget the common thread: data. Think about how much data is generated by Chinese consumers. The penetration of mobile devices nearly matches its total 1.4 billion population, generating a massive amount of consumer data. That's part of the reason we own Alibaba in a number of strategies, and BABA also operates China's largest cloud.

Data can be sliced into building blocks: from data creation to data storage, data transmission, and data analytics. There are a lot of exciting companies along the data food chain, including semiconductor makers. We have investments in AMS, an Austrian firm that is a 3D sensing technology leader, as well as in Infineon, which is a leading automotive semi-chip and sensors producer. It is ideally positioned for supplying advanced driver-assistance systems (ADAS) and driverless cars, wireless and wireline infrastructure in telecom, and for data centers, otherwise known as server farms. Data is a crucial component in the robotics story.



Cryptocurrencies and Blockchain

Sean Sun, CFA, is portfolio manager of Thornburg International Growth Fund.

Q: *We hear an increasing amount about blockchain, the architecture supporting cryptocurrencies such as Bitcoin. Blockchain's distributed ledger technology (DLT)—the open-source public network in which a majority of participants or "nodes" simultaneously effect and document transactions without any central, governing authority or registry—could disrupt intermediaries in a broad swath of commerce and society. Such "smart contracts" are expected, according to DLT platform proponents such as Ethereum Enterprise Alliance, whose founding members include JPMorgan, BNY Mellon, UBS, Credit Suisse, ING, CME Group, Intel, and Microsoft, to revolutionize back-office operations. In the financial sector, for example, Accenture expects billions of dollars in lower costs for trade clearing, settlement, reconciliation, and the like. Goldman Sachs and JPMorgan recently completed a six-month trial of blockchain-based equity swap contracts that included subsequent stock splits, dividends, etc., with a "100% success rate." And in mid-2017, IBM was selected by a consortium of banks, including Deutsche Bank, HSBC, Societe Generale, and Unicredit (among others) to construct a new open-source, DLT trade finance platform. What do you think about the advent of blockchain, its practical timeline, and the investment*

implications, particularly with respect to the payments subsector?

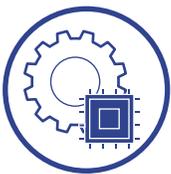
SS: There is healthy debate regarding the underlying intrinsic value of cryptocurrencies, which represent a major evolution in the construct of money that blockchain has enabled. But what appears more certain than their estimated exchange value for fiat currencies like the dollar is the technology underpinning them. Blockchain will spread into areas of finance, payments, and beyond. Much like the advent of the internet, which ushered in a host of new and disruptive companies and business models, we see long-term value in blockchain and think companies must evolve and adapt to this rapidly changing digital landscape.

Although many companies are experimenting with the technology, the most promising and innovative among them are private. Few public companies currently derive a meaningful amount of revenues from the crypto wave. Over time, we should see more investable opportunities, with companies poised to benefit likely in the software, IT services (as enablers and consultants to larger companies), and in the exchanges space. CME and Chicago Board Options Exchange recently announced futures products tied to Bitcoin, liquidity in which has increased to billions of dollars

traded per day. The exchanges stand to benefit regardless of the direction in which Bitcoin's price is moving.

One area in which we would be incrementally cautious is semiconductors, in particular companies that sell GPUs (graphics processor units) or customized ASICs (application-specific integrated circuits) used for cryptocurrency mining. The current consensus mechanism relies on a PoW (proof of work) approach. But given the vast electrical needs and some scaling limitations, we will likely see these networks evolve toward a proof of stake approach that is less reliant on raw computing power.

Within the payments subsector, high transaction costs for many cryptocurrencies are currently an impediment toward broader adoption as a medium of exchange, especially on smaller transaction sizes. However, we envision that over time certain parts of the payments ecosystem, such as cross-border P2P (peer-to-peer) transactions, will benefit from key features that blockchain offers, including the elimination of the double spending problem. The likely winners in the payments space will be those companies that employ a hybrid approach of existing infrastructure alongside optimizations to take advantage of blockchain.



Chipmakers

Miguel Oleaga is an associate portfolio manager at Thornburg Investment Management.

Q: *Among the key supports for the development of AI, robotics, cloud computing, IoT, and blockchain are semiconductors, with the chipmakers specializing in greater memory/storage and computing speed particularly well-positioned to benefit. Yet historically, the chipmakers have tended to oversupply the market when demand turns up, only to see the feast turn to famine as chip prices plummet amid the surge in supply. Is this time different?*

MO: Is this time different? I don't know. I do believe this time will certainly be better profit-wise than in the last cycle. The memory market is a high capex and high fixed-cost industry that brings on capacity in steps rather than linearly. The reality is the chip manufacturers may mistime capacity additions or end-market demand may be softer than expected for a number of quarters, potentially leading to semiconductor price volatility.

But volatility should not overshadow the fact that these are strong franchises that are improving through-cycle profitability, cash generation, and returns on capital. Demand in many end markets is structural, and in recent years supply has consolidated down to a handful of players that are attempting to be profit maximizers. Technology constraints have further limited supply growth, particularly in DRAM (dynamic random-access memory) chips.

Historically, the memory market would lose money and burn cash flow when the cycle turned negative. As the market fundamentals have improved over the last number of years, the profits at the bottom of the cycle have also improved. For example, the DRAM industry generated a negative gross margin of 28% in the 2009 downcycle, a positive 8% gross margin in the 2012 downcycle,

and a positive 39% gross margin in the 2015 downcycle.

The industry and our favorite pick in the space, Samsung, are still solidly profitable at the bottom of a cycle. With robust structural demand and tightening supply growth, it's likely the industry repeats or even improves upon its trough earnings level at the next down cycle. Hence, the industry may not necessarily be differ-

ent—it's still a cyclical industry—but it's materially improving through-cycle profits. Our exposure to Samsung allows our strategies to participate in many powerful and disruptive trends in computing via a security trading at an attractive relative and absolute valuation to other technology names with similar exposures. That increases our margin of safety and provides an attractive risk/reward skew.



Energy Revolution

Lon Erickson, CFA, is portfolio manager on a number of strategies in Thornburg's global fixed income group.

Q: *One industry-shaking disruption outside the world of information technology has been hydraulic fracturing. "Fracking" opened up previously inaccessible oil and gas reserves through the breaking of rock beds with pressurized liquids and reversed a two-decade decline in U.S. crude production. As a result, U.S. crude output nearly doubled from roughly 5.0 million barrels a day in 2008 to 9.7 million b/d in mid-November 2017, making the United States, along with Saudi Arabia, one of the world's two swing producers. Given the rebound in global growth, how do you view the year-ahead outlook for U.S. energy producers, and what are we to make of the price dispersion in 2017 between high-yield energy sector bonds and stocks?*

LE: Let's tackle the second question first. I think the divergence between high-yield energy stocks and bonds' performance in 2017 reflects the end of 2016 run-up in WTI (West Texas Intermediate) coupled with the tendency for bond performance to

be less volatile than stock performance—though the first half of 2016 gave both stock and bond energy investors quite the ride. Following the late 2016 increase in crude oil prices, U.S. operators increased their drilling activity, and fears of oversupply drove oil and stock prices lower. High-yield energy bonds actually had a negative return for the first six months of 2017, just much less than the stocks. Oil prices, stock prices, and bond prices began to tick up in the second half as operators slowed their drilling activity with many companies focusing on returns rather than production growth.

So, yes, stocks were down and bonds were up for the year. However, they really showed similar directional price movement in the period. The magnitude of the movements, or volatility, also isn't that far out of line from what you would expect, given the different risks inherent in the two asset classes. And while bond prices were down a little on the year, the income led to a positive total return thus far.

For 2018, better global economic conditions should result in higher energy usage and more demand for oil, as well as other types of energy. If U.S. producers and OPEC (Organization of Petroleum Exporting Countries) can remain disciplined around supply, as they are suggesting, then oil prices should remain strong, resulting in solid earnings and cash flow. Moreover, geopolitical risks—particularly in the Middle East—may also put upward pressure on oil prices. However, as we saw in the first half of 2017, the old saw applied: "nothing cures high oil prices like high oil prices." Should U.S. operators get greedy and ramp drilling again or OPEC producers cheat on their agreed quotas, there could be a supply effect that drives oil prices lower and causes stock and bond prices to retreat once again. For now, the environment appears pretty supportive for oil prices, but recent history tells us to tread lightly.



Electric Vehicles

Jim Gassman, is portfolio manager of Thornburg Better World International Fund.

Q: *Tesla's share price soared in 2017, along with those of lithium miners and battery makers amid forecasts that battery electric vehicles (EVs) could comprise 25% of all cars on the road globally by 2025. And by 2040, EVs are expected to number anywhere from 260 million to 530 million. How do you*

assess opportunities in the developing EV supply and production chains?

JG: I assess the opportunity the same way we look at all companies. Is there a strong moat in place? Do they allocate resources wisely, and generate good returns on invested capital? Do they

treat minority shareholders well? The electric vehicle industry clearly has growth, so that's not the issue. The question is how much money firms in the space will be making during the journey, especially at the more mature phase. If barriers are initially low because it is a new industry and compe-

tion is fierce, which is often the case, then the journey will be heavily loss making. This is where Tesla is and has been, and it will have to be funded by financial markets. Capital markets have been known to close down from time to time for companies and even for sectors as a whole. This is very problematic if your debt is coming due. Meanwhile, as they get to the mature phase, accurate assessments of key considerations and metrics, such as the prospective market structure and level of profitability, are crucial. The range of outcomes here is extensive and hard to predict.

As for battery materials like lithium, copper, nickel, and cobalt, there is no doubt that demand will grow. Some are

scarce like cobalt and copper, while lithium is abundant. The challenge for an investor is rarely do these companies compound value; they are subject to boom/bust profit cycles. You tell me when the next recession hits, and I'll tell you when to sell your lithium stocks!

At the level of the battery makers, you have the Chinese competing against the Koreans and Japanese, where Panasonic has teamed up with Tesla. It's far from clear that any of them has a best-technology or a strong moat. The competitive set here is intense. The same goes for the automakers: traditional car makers in the United States, Europe, and Japan are pursuing EVs, just as China's are, and none at this

point can claim any kind of competitive moat. Moreover, it's not clear how quickly EVs will be cost-competitive with internal combustion engines and without state subsidies. The subsidies won't be sustainable when EV production and sales start ramping, pressuring government budgets.

It's an exciting space that we're following. But the risk/reward propositions up and down the supply and production chain are far from clear and quite hard to assess. *Caveat emptor* for those jumping in. We'll pick our shots when we find a favorable risk/reward proposition and good long-term thesis. ■

Fund Holding Weights as of 8/31/18

Investment Income Builder Fund: ING Groep NV, 1.27%; Samsung Electronics Co. Ltd., 0.50%.

Global Opportunities Fund: Alphabet, Inc., 5.82%; Facebook, Inc., 4.82%; Samsung Electronics Co. Ltd., 4.18%; Baidu, Inc., 3.48%; ING Groep NV, 1.48%.

International Value Fund: Infineon Technologies AG, 3.41%; SAP SE, 2.16%; Omron Corp., 1.68%; AMS AG, 1.18%; Alibaba Group Holdings Ltd., 1.03%.

Better World International Fund: ING Groep NV, 2.86%; Alibaba Group Holdings Ltd., 1.51%; SAP SE, 1.33%.

International Growth Fund: Alibaba Group Holdings Ltd., 2.49%; Baidu, Inc., 1.80%.

Developing World Fund: Alibaba Group Holdings Ltd., 5.19%; Samsung Electronics Co. Ltd., 3.73%; Baidu, Inc., 1.77%; Facebook, Inc., 0.93%.

Value Fund: Alphabet, Inc., 4.06%; Apple, Inc., 2.33%; Alibaba Group Holdings Ltd., 1.99%; Facebook, Inc., 1.76%; Cognizant Technology Solutions Corp., 1.48%.

Core Growth Fund: Amazon.com, Inc., 4.15%; Alphabet, Inc., 3.13%; Facebook, Inc., 2.77%; Alibaba Group Holdings Ltd., 1.95%; Apple, Inc., 1.95%; Netflix, Inc., 1.62%.

Long/Short Equity Fund: Alphabet, Inc., 3.03%; Alibaba Group Holdings Ltd., 3.01%; Cognizant Technology Solutions Corp., 2.53%; Facebook, Inc., 1.76%; Amazon.com, Inc., 1.04%. Companies mentioned in the article but not listed above were not held in the above-mentioned Thornburg funds as of 8/31/18.

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Investments carry risks, including possible loss of principal. Additional risks may be associated with investments outside the United States, especially in emerging markets, including currency fluctuations, illiquidity, volatility, and political and economic risks. Investments in small- and mid-capitalization companies may increase the risk of greater price fluctuations. Portfolios investing in bonds have the same interest rate, inflation, and credit risks that are associated with the underlying bonds. The value of bonds will fluctuate relative to changes in interest rates, decreasing when interest rates rise. This effect is more pronounced for longer-term bonds. Unlike bonds, bond funds have ongoing fees and expenses. Investments in mortgage-backed securities (MBS) may bear additional risk. Investments in lower rated and unrated bonds may be more sensitive to default, downgrades, and market volatility; these investments may also be less liquid than higher rated bonds. Investments in derivatives are subject to the risks associated with the securities or other assets underlying the pool of securities, including illiquidity and difficulty in valuation. Investments in the Funds are not FDIC insured, nor are they bank deposits or guaranteed by a bank or any other entity.

Upside/Downside Capture Ratio – A ratio that shows whether a given fund has outperformed—gained more or lost less than—a broad market benchmark during periods of market strength and weakness, and if so, by how much.

Multiple – A valuation multiple reflects an investment's market value relative to some key metric. Price to earnings ratio (P/E) is a commonly used multiple. It's calculated by dividing a stock's price by the company's earnings per share.

P/E – Price/Earnings ratio (P/E ratio) is a valuation ratio of a company's current share price compared to its per-share earnings. P/E equals a company's market value per share divided by earnings per share. Forecasted P/E is not intended to be a forecast of the fund's future performance.

Price/Sales – A ratio for valuing a stock relative to its own past performance, other companies or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

West Texas Intermediate (WTI) – A grade of crude oil used as a benchmark in oil pricing.

The S&P 500 Index is an unmanaged broad measure of the U.S. stock market.

The performance of any index is not indicative of the performance of any particular investment. Unless otherwise noted, index returns reflect the reinvestment of income dividends and capital gains, if any, but do not reflect fees, brokerage commissions or other expenses of investing. Investors may not make direct investments into any index.

Before investing, carefully consider the Fund's investment goals, risks, charges, and expenses. For a prospectus or summary prospectus containing this and other information, contact your financial advisor or visit thornburg.com. Read them carefully before investing.