An Artful Pursuit

FOUNDERS CAPITAL MANAGEMENT
2016 ANNUAL REPORT

Investing for the Long Term. Every Day.

An innovative money management firm investing in publicly traded equities and fixed-income securities. A deep base in business management with a truly global perspective. A drive to identify true fundamental value. A commitment to buy carefully and hold for the long term. A passion to provide customized investment solutions tailored to each client's financial goals and risk tolerance.

This is Founders.

Founders Capital Management, LLC

2016 Annual Report:

"An Artful Pursuit"

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PRINCIPALS' LETTER
From: Founders Capital Management

2016: An Artful Pursuit

For most investors, 2016 was a year of surprises that kept the adrenaline flowing. Brexit, the U.S. presidential election, the Middle East's economic encounter with low oil prices, Japan's continued monetary challenges, and China's slowing growth and mounting debt all led to investor uncertainty and market gyration over the past 12 months. Throughout the year, countless U.S. investors remained in suspense and ultimately mirrored their British counterparts that had voted to divorce themselves from the European Union in June—"I want to remain in for money, but am opting out for politics, and don't want any more surprises." Surprise! In both the U.S. and U.K., individuals got what they voted for—a complex exit from the market that will tax returns over the long term, along with a difficult decision about when and how to reengage in the future. Individuals that decided to exit to the sidelines watched the market do the opposite of what many financial industry analysts had forecasted: *Rise.*

The Standard & Poor's 500 (S&P 500) total return, including dividends, increased 12% in 2016. Despite the positive results, investors that stayed in the market now have more to worry about. Anxious investors are contemplating taking money off the table before the world "falls apart at the seams," or in anticipation of a market sell-off. Their view of pending macroeconomic and political cataclysm makes them skeptical about the potential for achieving future returns, and they are inclined to protect their money while they can.

What is the right decision—should investors maintain their market position during this period of macroeconomic and political uncertainty, or place their money in the bank (where it will earn near-zero interest) while they wait for greater clarity before re-entering the market?

As they ponder this question, many investors are like the "deer in the headlights," paralyzed by the bewildering macroeconomic and political events taking place throughout the world. It seems to be human nature to attempt to prognosticate how stocks in the broader market will be affected in 2017 following the elections of 2016—backward down a path of despair, or forward down the path of prosperity.

As usual, we will not offer an opinion about macroeconomic forecasts or the future impact of this year's surprising political outcomes. We remain tightly focused on the long-term growth of our businesses in the global economy as well as our businesses' underlying strategies, growth in market share, and improving positions within their respective industries. As detailed in last year's letter, we continue to believe that we are on the path to prosperity. This positive view is not based on political outcomes or beliefs, or on a futile prediction of the market's future price movement, but rather on the prospects for the great companies we own that make up the Founders portfolio.

As context for this year's letter, it is important to note that the economic recovery since the 2008 financial crisis continues, even though the pace has slowed over the past few years. During this temporary slowdown period, we are interested to see that many investors continue to seek returns through speculation. In contrast,

we remain disciplined in "not following the crowd's money" and focused on managing our investments in a challenged investment environment. We are confident in our investment approach during this time of economic and political uncertainty and explain the rationale for our long-term positive view in this year's letter.

The theme of our 2017 letter is "An Artful Pursuit," and our topics include:

- A Macro vs. Micro Viewpoint
- Developing Insight
- Art & Science: A Framework That Counts
- What Can and Can't Be Taught

* * *

A Macro vs. Micro Viewpoint

> **"If you owe your bank manager a thousand pounds, you are at his mercy.**
> **If you owe him a million pounds, he is at your mercy."**
>
> ***—John Maynard Keynes***

Since there's been a lot of news this past year about the impact of macroeconomic policies proposed by newly elected heads of state, we thought it would be a good idea to explore how enacted plans would influence the market's future.

Before we start, we should define what we mean by the terms "macroeconomics" and "microeconomics."

Macroeconomics entails the study of how economic growth is impacted by broad changes in areas such as unemployment, interest rates, inflation, international trade, and national income. Of course, any severe alteration of these variables could have a large effect on a country's economic growth. For example, in the U.S., any severe restrictions on immigration or global trading partners, or a precipitous increase in interest rates—to name just a few items that have been in the news—could negatively influence future U.S. economic growth (and would likely impact global economic growth, since the U.S. is a large purchaser of overseas goods).

In its modern form, the history of macroeconomics was introduced by John Maynard Keynes, the famous English economist from the University of Cambridge. Through the publication of his 1936 book, *The General Theory of Employment, Interest and Money,* Keynes provided an explanation for the fallout from the Great Depression, when goods remained unsold and countless workers unemployed despite extensive efforts to stimulate the economy.

Prior to the publication of Keynes' *General Theory,* economists held the belief that a "natural state of balance" existed in economics, whereby the needs of consumers always exceeded the capacity of producers (manufacturers)—and therefore, everything that was produced would be sold and consumed at some level of price, even if this meant at a very reduced price. Along came the Great Depression, and this old theory was thrown out the window as the consumption and price of goods both moved precipitously downward.

After the advent of the depression, Keynes' theory replaced mainstream thinking about macroeconomics with a better understanding of broad problems like unemployment. For example, Keynes thought unemployment was not the result of character flaws such as laziness, but the result of an imbalance in consumer demand and whether the economy was expanding or contracting. Keynes argued that because there was no guarantee that the goods businesses produced would be met with demand, unemployment was a natural consequence of an economy undergoing contraction.

When faced with a depression (or recession), Keynes saw the economy as unable to maintain itself at full employment and proposed that it was necessary for the government to step in and put underutilized savings to work through government spending. Government actions, via lowered interest rates and infrastructure

spending, would stimulate employment and create economic growth. Today, this type of government intervention in the economy during recessions is referred to as Keynesian economics.

Now that the U.S. elections are over, many financial analysts are anticipating specific items to be on the "policy agenda." Since we already have low interest rates (that will likely rise over time), it is expected that large infrastructure spending will be proposed in the upcoming months, coupled with an incentive that provides corporations an opportunity to repatriate overseas earnings back to the U.S., along with adjustments to taxes on the wealthy (i.e. lower aggregate taxes, but a closing of loopholes like carried interest). It is also likely that we may see changes to healthcare legislation (i.e., the Affordable Care Act, also known as "Obamacare").

Note that we are not stating that we believe all these activities will take place. However, several of these agenda items that both U.S. presidential candidates endorsed throughout the election season offer an opportunity for the Democrat and Republican parties to work together to "kick-start" economic growth in the U.S. Thus, we are rather positive in this area, and not in the economic "doom and gloom" camp. Nevertheless, nothing works out perfectly. Potentially tougher immigration and trade policies could strain international relationships—we are mindful of Newton's Third Law of *(e)*Motion: For every action, there is an equal and opposite reaction. In addition, the possibility of greater government control over the Federal Reserve could have negative consequences, especially if U.S. interest rates rise too quickly in an interdependent global economy, and the "spread" between our government bonds vs. other countries' government bonds greatly widens—Germany and Japan are experiencing "close-to-zero" 10-year government bond yields.

A note about John Maynard Keynes that many do not know: He was a well-known and accomplished value investor. The summer 2016 issue of Harvard's *Business History Review* featured an article on John Maynard Keynes' management of a portion of King's College Endowment Fund that had been invested in U.S. equities from 1930 to 1945. Over this period, through investments in various U.S. companies, Keynes achieved an approximate 13.6% annual return compared to the general U.S. market return of 8.4%—an outperformance of 5.2 percentage points. Even more interesting: For the eight years preceding this period, Keynes had "guessed" at the momentum of various stocks and had consistently failed to outperform the market with this strategy. Only when he practiced fundamental value investing did he begin to beat the market.

Macroeconomics' close cousin—**microeconomics**—is the branch of economics that studies the behavior of individuals and businesses making decisions about how to allocate a defined set of resources. For example, a car manufacturer may undertake a microeconomic study to determine what to expect if prices were raised on certain automobiles. Would consumers then purchase fewer cars? If so, how many fewer? Another microeconomic scenario might focus on how a reduction in oil production by an integrated oil company might impact oil pricing in the marketplace.

In essence, macroeconomics is more broadly focused than microeconomics—for example, measuring the economic impact of increased or decreased government spending and how this may affect areas such as unemployment or inflation. Microeconomics is more specific—for example, evaluating changes in consumer and company behavior and the economic impact on individuals, companies, and/or an industry.

How does this all fit with investing and prognosticating the movement of the stock market? From our vantage point, we believe there is little value in basing investment decisions about individual companies or markets on macroeconomic forecasts. Our attempts to predict short-term economic growth (or decline) based on forecasting changes in broad and general aspects of the economy such as government spending, unemployment, and inflation would produce results similar to those of the expert economists that are making these projections—we would be wrong more than 50% of the time!

According to Jan Hatzius, the chief economist of Goldman Sachs, the U.S. government produces approximately 45,000 economic indicators each year, and private data providers produce more than four million indicators. William Sherden, author of *The Fortune Sellers,* conducted a study involving a review of leading research on economic forecasting spanning the years 1979 to 1995. The study showed that the majority of economists were unable to predict *any* turning points in the economy and, of 48 predictions made by economists, 46 missed the turning points. In addition, Sherden's study found that the world's best economists had only forecasted two of the past 60 recessions that had occurred a year in advance. (We can't help but mention that large numbers of individuals made investment decisions based on the prognostications of

professional polling organizations during the recent U.S. presidential election—all of which got it wrong.) If professional inaccuracy seems to be the rule rather than the exception, how can we presume to credibly evaluate the many variables that impact the future economy? We are not that smart—and, it seems, neither is anyone else. Therefore, we stay away from basing *any* decision about investing in companies or in the markets on macroeconomic forecasting.

Microeconomics, on the other hand, interests us a great deal. Studying specific industries, and the companies that participate and compete in an industry ecosystem, can be advantageous to an investor. We believe that investment success and failure do not stem from forecasting about the macroeconomic future, but rather from an ability to distinguish between what is knowable and unknowable about the companies that compete in a specific industry. In other words, by studying various industries, and the many companies that compete for customers, we seek to develop *insight* that could provide us an *investment competitive advantage.*

Developing Insight

> **"Insight is the first condition of art."**
> ***—George Henry Lewes***

Most investment professionals receive extensive training in evaluating market trends, as well as the sectors and companies that make up the market environment. These experts might employ different strategies when allocating capital, tailored to the circumstances. For example, their approaches could include a heavy bias for fast-growth businesses or out-of-favor companies, or intuitively guessing the momentum movement of particular stocks using charts—what is referred to as "technical analysis." Regardless of approach, investment professionals are taught to use "surface information," or "initial-level thinking" to make a good guesstimate as to what companies might be a promising investment.

We have come to believe that this initial-level thinking may be a necessary but insufficient exercise when evaluating the prospects of a long-term investment, based on some setbacks we encountered years ago that provided a business education seldom taught in business schools. We had allocated money to a promising undervalued company and expected to witness an ever-rising stock price. To our shock and astonishment, the stock price moved down—and then down more—and then down a lot. Left scratching our heads, it finally came to us that the company was involved in lower-quality businesses, applying a business model that may have looked decent when we made our purchase but had since become flawed, resulting in the erosion of its business position. This is a common trap for value investors.

In last year's letter, we cited Valeant Pharmaceuticals, a company that had attracted many high-profile value investors over the previous few years. After the company's events of 2016, it's time for an update: You may recall our emphasis that value investors love companies that produce a lot of cash, and Valeant Pharmaceuticals' business model was set up to gush money by exploiting an outdated pharmaceutical company business model. The "old-school" pharmas typically invest approximately 15% of revenues into research and development to ensure an ongoing pipeline of new drugs. Valeant's business model was to acquire these outdated pharmaceutical "dinosaurs," eliminate the acquired company's R&D operations, and raise the prices of their existing drugs. Voilà—Valeant turned into a cash cow, with financial analysts forecasting rising profits as far as the eye could see. Eventually, some were forecasting that a company like Valeant might be able to take over a large portion of the pharmaceutical industry with this new business model. That is, until the government stepped in and questioned the practice of Valeant's aggressive drug price increases, and prudent investors questioned how a company would be able to produce a pipeline of future drugs without making a significant investment in R&D.

So, what happened with Valeant in 2016? We mentioned in last year's letter how Valeant's stock price rose from $50 per share in 2011 to more than $250 per share in August 2015, only to fall more than 60% in the following five months. A great debate then ensued among prominent investors about Valeant's "true worth," with many deciding to increase their positions significantly by purchasing ever-more stock toward the end of 2016. Well: These investors lost 85%+ of their stock value over the past 12 months. As we outlined in last year's letter, instead of "doubling down" and losing big on the company's business model over the past year,

these investors could have avoided allocating capital to Valeant if they had focused instead on understanding what is *knowable and certain*, as opposed to what is *unknowable and uncertain*. It was not hard to see that Valeant's business model was far from rock-solid. It was our opinion (and still is) that Valeant's way of operating is not economically feasible or sustainable for a pharmaceutical company. Valeant's vaunted "recipe for success" is a model that could be easily duplicated by other drug companies—and likely would be if it were viable.

This situation is not uncommon, and so it is important to point out that successful long-term investing requires higher-level thinking and, in particular, an understanding of human behavior. For example, a first-level thought on evaluating an existing investment might be, "This business has encountered pricing pressures that will inhibit growth in sales and profits. So let's dump the position, because it's going nowhere." This kind of thinking is natural and has likely led many investors to respond with a knee-jerk reaction, selling their holding in anticipation of a lower stock price. However, at that point, one should rationally question whether the information regarding lower profits is known by all investors and is already reflected in a lower value of the company's market price. "Second-level thinking" requires the investor to remain calm and to think at a deeper level, questioning the permanency of the price reduction in this company's products and how this will impact profitability over the long term. In addition, second-level thinking includes ascertaining the long-term demand for this company's products, as well as its future pricing power. Finally, second-level thinking would question how management is allocating capital to take advantage of a possible long-term product demand increase and, in the short term, allocating capital to maximize shareholder value via increased dividends or—better yet—through repurchasing stock at a depressed value. Investors should use second-level thinking prior to taking decisive action.

The highest level of thinking requires the investor to go one step further—and this can be the most challenging part. "Third-level thinking" involves understanding an industry structure, the disruptions facing the industry ecosystem, and how competitors are positioning themselves on a long-term basis in the face of industry change. This highest-level thinking entails not just the study of the industry and its business participants, but also of interconnected industries and companies that may influence or interrupt the industry's ecosystem.

Investors get "better with age" after reading countless industry articles and company annual reports. This "institutional knowledge" accumulated over years allows the investor to develop in-depth knowledge about specific industries and their participant companies. Experienced investors begin to recognize patterns more quickly, enabling more sound decisions based on accumulated knowledge that allows them to become more "instinctive" as an investor. This is not to say that one should invest based on instinct, but rather that developing a deep reservoir of knowledge about specific types of businesses and patterns over many years of study minimizes investing errors.

Art & Science: A Framework That Counts

> **"Chess is a unique cognitive nexus, a place where art and science come together in the human mind and are then refined and improved by experience."**
>
> ***—Garry Kasparov***

When analyzing several investment errors we'd made in our very early investing years, we vowed never to repeat the mistakes we had made based on initial-level thinking. We realized that our blunders were not made in our fundamental valuation of companies at the time, nor in questionable accounting (e.g., failing to recognize fraudulent enterprises). In our self-evaluation, we grew to appreciate the fact that nearly 100% of our investment errors occurred in two areas:

1. The first culpability was not fully understanding an industry's changing structure, or recognizing a company's strategic position in a shifting industry ecosystem. Although we had studied a company's financial situation thoroughly, our incomplete consideration of a company's ability to adapt in a changing industry environment led us to kiss several company toads. We thought our kiss would magically transform the stock price, but after a while we noticed a wart developing in our portfolio as

the company's position in a changing competitive landscape eroded. Unfortunately, we only recognized these challenges after we had begun to croak on this poor allocation of capital.

2. The second area of mishap is related to the first: Not recognizing poor management quickly enough. Many think that poor management is easily recognizable when evaluating a company, but this is not the case. Poor management does not normally appear on the surface through dictatorship-like behavior or through a display of apparent business incompetence. Most leaders of organizations have had years of executive training and prepared for the CEO role through experiences gained in crucial areas throughout the organization. Moreover, it is our experience that poor management actually "creeps up" on an organization, similar to the "boiling frog syndrome" named from a 19th century science experiment: Researchers discovered that when they placed a frog into a pan of boiling water, the frog would quickly hop out. When they placed a frog into tepid water and then brought it to a boil, however, the frog did not move. This provides a good metaphor for appraising management—incompetence gradually surfaces and usually goes unnoticed until well after an investor has made a commitment to the company.

Given the difficulty of recognizing poor management in a timely way, how can an investor detect tepid management water before it is reaches a boiling point? For the most part, it is impossible to fully identify negative management behaviors before they surface. Nevertheless, certain clues can raise a cautionary flag for investors. We will discuss the clues about management competence in the upcoming section, "What Can and Can't Be Taught."

The Art

Technical investors believe that successful investing involves the art of intuitively knowing the near-term direction of the stock market or a company's stock price and taking action on this "gut feel." On the opposite side of the fence, fundamental investors divorce themselves from any intuition and rely heavily on financial information to dictate their investment decisions. Essentially, their focus is on comparing a company's true worth to its stock price and cashing in on any disparity between these two criteria. In a bullish scenario, the fundamentalist believes that the higher per-share intrinsic value of a company and its lower stock price will eventually converge, providing a profit on the transaction if one purchases the stock. Each of these investor types is attempting to make money—the first by using intuition, and the second by removing intuition from the investment decision. In essence, the intuitive investor could be considered to use "art" in his approach to allocating capital, while the fundamental investor relies more on "science." Many value investors would scoff at the idea of using any art in their capital allocation decision-making, likening the intuitive nature of allocating capital to fortunetelling. If investing were all about the science of analyzing numbers, however, most value investors would be rich—and this is not the case. There is usually a good reason why the fundamental valuation of a company seems out of sync with its market price—and, in many instances, the perceived undervalued business can be deemed overvalued upon reflection due to its deteriorating position in the marketplace. Many lose sight of the fact that numbers reflect the results of a business operation, but not the business itself. This all suggests that intuition must play a role in successful value investing—but where?

We have compared investing to the game of chess in the past, and it is useful to do so again: Adriaan de Groot was a Dutch psychologist and chess master who conducted various experiments in the cognitive processes of a strong chess master compared to lesser opponents, including amateurs. Surprisingly, when evaluating differences between chess masters and weaker players, de Groot was unable to find any major statistical variances in their thought processes, including the number of moves considered, the search for an optimal move, etc. His study found that chess masters evaluate about the same number of possibilities as weaker players. However, chess masters were very good at distilling information and coming up with the "right" moves for further consideration—in other words, they were better at identifying the best options.

Experiments about short-term memory have revealed another intriguing difference between chess masters and weaker players: Chess masters showed a remarkable ability to reconstruct a chess position almost perfectly after viewing it for only five seconds, in sharp contrast to players below the master level. Yet this result was not attributable to the chess masters' generally superior memory abilities, for when chess positions were constructed by placing the same numbers of pieces randomly on the board, the masters could then do no better

in reconstructing them than amateurs. Apparently, chess masters were constrained by the same severe short-term memory limits as everyone else.

It turns out that the key to a chess master's superior gamesmanship lies in the ability to perceive structure and patterns that have been cognitively encoded through many games played over time—a chess master usually plays about 10,000 games before achieving "master" status. The greatest chess masters demonstrate a further competitive advantage through pattern recognition—for example, Bobby Fischer used to study index cards at the Marshall Chess Club in New York that had recorded moves from matches played more than 150 years ago.

There are more than nine million possible positions after the first three opening moves in a game of chess—essentially, chess is a mathematically infinite contest. The stock and fixed-income markets bear a similar characteristic—there are more potential moves in both games than there are stars in the universe. The stock and fixed-income markets are made up of thousands of participants reacting to thousands of variables introduced continually by companies, economists, and investment analysts. The investment evaluation process could paralyze any investor wishing to place money in the market. It is therefore important for the investor, like a chess master, to deliberate at the highest possible level and to envision the whole industry (chessboard), that consists of many moving companies (chess pieces). Investing is anything but a static game in time that allows for extensive deliberation, however. Investing can even be more challenging than chess because the companies (chess pieces) either die or evolve and grow to survive in an ever-changing industry ecosystem. This concept forces an investor to think logistically in "chunks," recognizing that all moving securities (chess pieces) are interconnected in an ever-evolving industry and marketplace. This thought may be daunting, but from our vantage point, rather than think about the many moving parts that impact prices, it is essential to focus instead on eliminating extraneous variables in our evaluation and seek a framework that provides 90% of the information needed to make knowledgeable long-term investment decisions.

An investment framework begins with the study of various industries, as well as the companies that participate within particular industry ecosystems. It is necessary to continuously learn an industry and its participating companies to fully understand the industry structure, economics, and changing dynamics. A regimented process of "doing one's homework" over time allows an investor to develop a deeper understanding of the undercurrents of a given industry, including disruptive events and how particular businesses are adjusting to an ever-evolving market. By "learning to learn," patterns begin to emerge and become more recognizable when an investor asks key questions about a company's customers, product turnover, capital intensity, distribution and supply channels, and competing business models. Mapping an industry, the changing position for each company, and evolution of various business models allows the investor to measure whether the business moat of a particular company is expanding or contracting. When new patterns and business models develop in an industry, a studied investor can be in a better position to judge the rate of business change as well as the length of time it could take for a new pattern to form.

In summary, the artful pursuit of investing is like the quest of the chess master: One should practice adaptive thinking and observe structure and patterns within an industry, and seek optimal options by deciphering the changing position of each company that is making short-term trade-offs that will lead to a long-term benefit for their business. The investor must also search beneath each competitive move of an industry's business participants and holistically evaluate the impact on the industry ecosystem, looking for any interconnections that could present challenges or disruption.

The Science

Of course, relying too much on art when investing can lead an investor to become too reliant and steadfast on their "story," disregarding the economic fundamentals that are necessary to generate long-term returns. Like any good tool, an investor can get carried away with creative "adaptive thinking," and the evolving story becomes the reason to invest: *"The company may not make money today, but it will change the industry and become a monopoly, generating billions for owners in the future."* We can see that artful investment requires a corresponding set of "hard" investing rules. This is where the science of investing comes into play.

In last year's letter, we discussed the "science" of estimating the worth of a business, which we define in this way: The intrinsic value of a business is equal to the discounted value of the cash that can be taken out of a business over its remaining life—without affecting its need for capital to grow. We pointed out various

formulas and methods for figuring intrinsic business value and attempted to illustrate this well-known concept using a straightforward calculation.

Regardless of the formula an investor applies, our conclusion is that an important hard-and-fast rule of investing is to figure out an approximate fair-value range for the business one is purchasing. Pay too much, and returns are lower. Purchase at a discount, and ultimate returns are higher. Looking at it this way, price is what you pay, and value is what you receive. Thus, a business can be viewed like a goose that lays an ever-increasing number of golden eggs, and the investor's job is two-pronged: To evaluate the goose's ability to continue producing golden eggs, and to predict the number of eggs that goose will produce many years out. The objective to investing is correctly figuring out today's value of the golden eggs produced over the life of the goose—and then acquiring the goose at a discounted price when compared to the value of the golden eggs that it will yield. As a general rule, an intelligent investor tries to pick up $1 of today's value for the price of 65 cents.

In last year's letter, we outlined a number of variables that can impede the investor's ability to rely on this core investment concept. Any given group of professionals tasked with individually evaluating the details of a business will invariably reach different conclusions about a company's valuation based on several factors, including different estimates on future profits, capital requirements, interest rates, and projected growth rates. Annual profits (and cash flows) "bounce around" and cannot be projected with great accuracy. We also pointed out how the ebb and flow of interest rates, which are used in part to calculate today's value of business profits generated years from now, can have a large impact on valuations. Finally, we deliberated on the valuation folly of attempting to forecast cash that can be removed from a business over its "remaining life"—very few businesses last forever.

What is interesting is that some professional investors attempt to defuse the impact of these challenges by adding more variables and statistically calibrating their numbers to obtain a more "perfect business valuation." Our take on this: The exercise of adding complexity to a given investment tool can lead to investment insanity—you end up doing the same thing over and over while expecting a better result. Eventually, you convince yourself that the precise values placed on an increasing set of variables are in aggregate correct—not realizing that the added complexity positions them to being very wrong.

Rather than rely on one "perfect valuation tool," we believe it is advantageous to take a multidimensional view of value. A second way to ascertain value is by looking at what we refer to as investment value. This is accomplished by evaluating "yields and spreads"—i.e., estimating the current owner-earnings yield on a potential investment and the growth in this yield over time, and relating this yield to alternative returns, such as the yield obtained on U.S. Treasury bonds. The alternate approach of looking at an investment in a business as an *equity bond* incorporates the concept of value being "relative," so one must be comfortable with thinking in relative terms. Important ingredients to this analysis:

- **Investment yield:** The current cash produced from the investment compared to its present price
- **Growth of the investment yield:** The money plowed back into the investment, with an anticipated return
- **Anticipated investment period:** The duration of the holding period
- **Future expected price:** The future cash created from the investment compared to its expected price
- **Opportunity cost:** Comparison of the anticipated return against yields on alternative investments, especially the risk-free, 10-year U.S. Treasury bond
- **Anticipated investment return:** The value of our expected investment

We have used this example before, and it is worth repeating: Suppose we own Candy Co., which currently produces $2 per share of cash, and the current per-share price of the investment (stock price) is $30. The entry *investment yield (*or *owner-earnings yield)* on Candy Co. would be around 6.7% ($2 cash ÷ $30 stock price). If Candy Co. produced earnings of $3 per share and obtained a return of 25% on each $1 it retained in the business, the investment would grow slightly more than 8% per year—the equation [($1 kept within the business ÷ $3 earnings = 33.3% of earnings retained) x 25% return] = 8.33%. This is the approximate *growth of the investment yield.* Let's assume that Candy Co. is a stable business and can repeat this same performance over the next 10 years *(the anticipated investment period)*. If this is the case, we could project that our investment would produce approximately $4.45 in cash in a decade ($2 cash growing at 8.33% per year over

10 years). The final question to ask is: How much would a stable investment be worth in 10 years if it produced $4.45 of cash for investors? If the 10-year U.S. Treasury bond is at a 6% yield in 10 years *(our opportunity cost),* then our investment in Candy Co. should be conservatively equal to this rate in one decade ($4.45 ÷ .06 = $74 per share). Ultimately, if we were able to purchase Candy Co. at $30 per share today and keep it for 10 years, when it is selling at approximately $74 per share, the annual *anticipated investment return* would be roughly 9.4%, plus any dividends that Candy Co. provided to shareholders.

Evaluating an investment in this way complements the measurement of a company's intrinsic value, especially when recognizing the latter's shortcomings as we have discussed. First, valuing an investment like an equity bond allows the investor to "stay grounded" and emphasizes a measure of safety. In the preceding example, if the current 10-year U.S. Treasury bond is at 2.4%, an entry investment yield (or equity bond yield) of 6.7% on Candy Co. offers the investor an upfront 4.3 percentage point spread *(6.7% investment yield on Candy Co. minus 2.4% yield on a current 10-year government bond—in financial circles, this initial spread would be referred to as 430 basis points).* Clearly, a larger difference (or spread) between the entry investment yield on Candy Co. and a current risk-free 10-year government bond rate provides an investor a "margin-of-safety" if interest rates suddenly rise. We have stated in the past that rising interest rates act as an anchor on the investment returns of all assets. Given the possibility of future rising interest rates, we should have a desire to purchase an investment where our initial entry yield grows over time. In the previous case, the entry yield of 6.7% will likely grow at 8.3% per year over a 10-year period. If the stock price for Candy Co. stayed the same, at $30 per share, our investment yield (or equity-bond yield) would be around 14.9% in 10 years. At this point, one might ask specific questions about the value of this investment: What is the likelihood of Candy Co.'s per-share stock price staying stagnant at $30 over a 10-year period? Inverting this question: What is the probability of the 10-year U.S. Treasury bond yielding near 15% in 10 years (under a scenario of high inflation)? If the answer to this question is that the probability of a 10-year Treasury bond being 15% in 10 years is low, then one must ask at what price a business is likely to trade at under the circumstance that the 10-year U.S. Treasury yield is much less than 15%, but likely higher than the current 2.4% (perhaps under a scenario of prolonged lower inflation). Using this thought process, an investor can attempt to project likely returns on an investment under expected (or unexpected) scenarios of inflation.

Why is the above analysis important? *To produce real returns!* We can't help but interject a thought here about inflation and its psychological impact on investors to illustrate why looking at a business investment as an equity bond, along with measuring investment spreads, is important. In the book *Misbehaving,* author Richard Thaler, a professor of behavioral science and economics at the University of Chicago Booth School of Business, recounts a time that students in his class had received an average exam score of 72 points out of a possible 100. They were not happy with this result, even though their final grades would not be affected due to his use of "grade curving," whereby only a small fraction of the students would receive a C grade. When he announced that any grade above 80 would receive an A or A-, the students were still unhappy. To address their dissatisfaction, on the next exam, Professor Thaler changed the scale and made the total number of potential points 137 instead of 100. The students' average score on this exam was a 96 (equivalent to around 71 on a 100-point scale). Even though the results for the second exam were similar to the first exam, and no one's final grade was impacted via the point-scale change due to grade distribution, students were much more satisfied. Given that the mathematics of each scenario is near-equal, students still preferred the higher grading scale because it made them "feel better." This concept is similar to investors dealing with the concept of inflation, which acts as a tapeworm on investment returns. If investors are offered two options over 10 years—one in which the portfolio achieves a 15% annual return and inflation is set at 10%, or an alternative in which inflation is set at 2% and the portfolio annual return is 7%, which would they choose? Most likely, investors would choose the former portfolio represented by higher returns, as it makes them "feel richer," even though their real economic returns would be the same. It is our opinion that valuing an investment has an equal place to valuing a business as it allows the investor to appraise the consequences of inflation, ensuring a margin-of-safety and maximizing real returns over time.

In summary, the art and science of investing are interdependent, and one should not be valued over the other. In our experience, investment success is obtained by connecting all the dots through second- and third-level thinking as well as utilizing various tools in the investment toolbox to judge value. Of course, even with experience and knowledge, mistakes are unavoidable—this is part and parcel of investing. The key is to minimize mistakes that may cause permanent damage to a portfolio.

What Can and Can't Be Taught

> **"Some lessons can't be taught, they simply have to be learned."**
> ***—Jodi Picoult***

In the previous section, we pointed out the investor pitfall of not recognizing poor management quickly enough. Unfortunately, poor management at the top is initially not very recognizable, even though leaders of organizations typically have had years of experience running crucial aspects of companies. Why is the transition to CEO so challenging? Surprisingly, many CEOs are elevated to this leading position without the complete training necessary for success. Although the CEO may have prepared for the top job over many years, it is still a difficult jump to the organizational "conductor" role. Imagine a talented musician who is moved throughout an orchestra, playing many different instruments over time in preparation for taking over the conductor's role. We can see that mastering various instruments does not fully prepare this person to become a great orchestra leader. The CEO and orchestra conductor's positions are very similar—each sets the organization tempo, the strategic course for the players, the phrasing and cultural tone, and guides the various players through a complex symphony. The CEO conductor's job is extremely difficult and requires training beyond the experience of managing siloed components of the organization. The only way to obtain this training is to lead the business, and if the skill set needed to conduct the organization is absent, the organization slowly begins to play out of sync—and a poor performance begins to emerge. Like the boiling frog syndrome, once evidence of poor management emerges, it is incumbent upon the board of directors to make sure the CEO (and company) is taken out of hot water. Unfortunately, in most cases this is done too late.

What does an "out of sync" organization look (sound) like? In Berkshire Hathaway's 2014 Annual Report, which celebrated 50 years of shareholder partnership, Warren Buffett outlined the required characteristics of future Berkshire CEOs. One particular strength was the CEO's ability to fight off the ABCs of business decay—arrogance, bureaucracy, and complacency. Mr. Buffett stated that once these corporate cancers metastasize, the strongest of companies can falter. He cited previous "top-of-their-industry" companies that became victims of these destructive behaviors—General Motors, Sears Roebuck and U.S. Steel.

How can one recognize the signs of destructive behaviors by top management before it leads to portfolio devastation? We don't have a comprehensive answer or an "early detection system" for identifying the negative ABC attributes identified by Mr. Buffett, and so we attempt to seek positive ABC elements of business ascension—attention, building, and creation:

- A CEO that displays rigorous *attention* to the business—especially to caring for the customer and to developing its greatest resource, employees (through tailored training)—tends to avoid arrogance.
- When the CEO emphasizes *building* value(s) and character throughout the organization, bureaucracy tends to take a backseat to a higher goal. For example: Ed Catmull, the head of Pixar and Walt Disney Animation Studios, was asked in an interview for *McKinsey Quarterly*: "As you look ahead, what worries you?" His response is interesting and drives home the point about building value and character into an organization:

> *"Everybody talks about succession planning because of its importance, but to me the issue that's missed is cultural succession. You have to make sure the next level down understands what the actual values are. For example, Walt Disney was driven by technological change and he brought that energy into the company. This was sound and color in the early days of the film industry. Then, in the theme parks, he used the highest technology available to create experiences and animatronics.*
>
> *But after he died, the people left didn't fully understand how he thought. So it fell away from the company, and it didn't come back until Walt's nephew, Roy Disney Jr., used his authority to reintroduce the concept. He insisted on getting into a contract with Pixar, over the objection that our software wouldn't save any money. He said, "no, I want it because it will infuse energy into animation." He was very explicit about it—he understood better what Walt was doing.*

> *The question is, if Walt understood it, why didn't the other people understand it? They just assumed that he was a genius, without thinking about what he was actually doing. Thus, the value wasn't passed on. Today, much of our senior leadership's time is spent making sure our values are deeply embedded at every level of our organization. It is very challenging—but necessary for us to continue making great movies."*

- A CEO's focus on *creation* by emphasizing the importance of transferring knowledge throughout the organization, as well as driving key initiatives that keep the organization edged, avoids complacency.

In our experience, if arrogance, bureaucracy, and complacency surface in one of our invested companies, it is usually too late. By constantly watching the CEO's displays of attention, building, and creation (even when setbacks occur in the business), we remain comfortable that the organization's tempo, the strategic course for the players, and the phrasing and cultural tone will remain intact—in other words, that leadership will capably guide the company's players through a complex but synchronized symphony.

Simply put, we can boil our investment and business leadership questions down to:

- *Investment:* What do we think we know that others may not know?
- *Business Leadership:* Would we want the CEO to marry into our family?

These two question can solve a lot of investment challenges. If answers to these questions are "we are not certain we know anything different from others," and "we would not want this CEO to marry into our family," then we will pass, even though the company may be selling at a discount to its value. It is far better to invest in something that you have studied and believe you know something that others may not have recognized. Correspondingly, it is far better to make a proposal and marry a company that is fairly valued that has qualities that you would want to bring into your family than to marry a company that has no appreciable value system in place.

Clearly, successful investing is an artful pursuit wherein emotional intelligence and scientific rationality must prevail equally. At Founders, we attempt to fully understand the businesses we own, including their unique positions in ever-changing industries and how they are being led by the CEO and management team.

In our management summary, we will outline the characteristics of the businesses we own that we believe have both a competitive advantage and leadership that give us confidence in their future, regardless of their prices in the short-term stock market.

* * *

MANAGEMENT'S DISCUSSION & BUSINESS UNIT REVIEW

Equity Holdings: 2016 Highlights

The intrinsic value of our overall equity holdings increased during 2016. We remain positive about our capital allocations, including expected returns over the next 10 years—despite any short-term economic and political challenges that may arise.

We'd like to reiterate some points about our core holdings:

- **We are confident in the high character displayed by the leadership of the companies in our portfolio** and believe that the companies are managed in a flexible manner that allows them to adapt in changing times.
- **We believe that we are business partners in actual companies that are focused on increasing long-term profitability,** as opposed to being members of a group of shareholders that are interested only in a rising stock price that is divorced from a commensurate movement in business value.
- **We believe that we own a collection of business that fall into the "valuable" and "invaluable" categories and that their increasing intrinsic business value will be realized over time.**
- **Our invested companies have business models that are durable, support a long-term competitive advantage in their respective industries, and have earnings capabilities that are predictable and sustainable over the foreseeable future.**

As long-term investors, we wake up each morning knowing that the wonderful businesses we own—PepsiCo, Coca-Cola, United Technologies, Lockheed Martin, CSX, Johnson & Johnson, DaVita, Microsoft, Intel, IBM, Walgreens, Home Depot, Disney, AT&T, Berkshire Hathaway, American Express, Chevron, and our other holdings—continue to strengthen their long-term enterprises independent of any short-term gyrations in their stock prices.

Following is a summary of business highlights from our portfolio companies during 2016, along with our expectations for 2017.

CONSUMER GROUP

While our primary consumer holdings—Coca-Cola and PepsiCo—continued to grow their global franchises during 2016, each of these entities reported slow growth in per-share earnings due to a U.S. dollar that continued to strengthen. Principally, aggregate reported profits were relatively flat due to translating large overseas sales into higher-valued dollars—the strengthening dollar impacted sales. In addition, these consumer businesses are currently facing challenging economic conditions outside of the U.S. Nevertheless, we expect our consumer group to produce positive results in 2017 as the current currency headwinds dissipate somewhat and the European economy slowly recovers. We continue to believe that the intrinsic value of these two consumer-driven companies is higher than the calculations of financial analysts due to the multi-decade opportunity to grow consumption of their products throughout the global marketplace.

Why are we optimistic about the long-term prospects of our global consumer franchises—Coca-Cola and PepsiCo?

1. An estimated 58 billion servings of non-water beverages are served each and every day around the globe. Coca-Cola and PepsiCo supply approximately 2.5 billion (4.3%) of these "other than water" beverage servings, and their volume keeps growing at the steady pace of about 2%-3% per year. Although the total consumption of Coca-Cola and Pepsi beverage products equates to around 125 annual servings per person on earth, there is a lot more room for grabbing market share. It is our opinion that these big companies can become much larger in the future as gigantic markets like China and India continue to develop—these two countries are projected to have a combined middle class population of 1.5 billion by 2030, up from approximately 225 million today!

2. Coca-Cola and PepsiCo are not "just carbonated beverage companies." Between the two companies, hundreds of well-known beverage brands are served in more than 200 countries, including water; ready-to-drink tea and coffee; and fruit, vegetable, and sports drinks. If the world desires a new type of drink—for example, health-conscious beverages—it is likely that one or both of these companies will offer it—in many varieties. In addition, PepsiCo is the largest snack-food company in the world, with a global product offering that exceeds its beverage counterpart.
3. Both Coca-Cola and PepsiCo have vast, impenetrable distribution systems. For example, Coca-Cola's $50+ billion supply-chain network, established between the company and its principally segregated bottling system, is one of the largest and most complex of any organization on earth. Coke and its 250+ partner bottlers use well over 500,000 vehicles to distribute its beverage products through 16+ million outlets every day. PepsiCo's beverage and snack delivery system shares a similar complexity. These juggernauts' distribution components may be their most important hidden competitive advantage. When Coca-Cola or PepsiCo introduces a new product or acquires a complementary brand, they can immediately put this merchandise through their tremendous distribution networks and introduce them throughout the world.

Coca-Cola and PepsiCo are in our "extremely valuable" business category—enterprises that can grow far into the future and stand the test of time. Their consistent brand development, product diversity, global distribution strength, and cultural depth provide investors the ability to forecast the future with a high degree of probability. It is highly likely that each business will substantially penetrate developing markets over the next 10 to 30 years, and the accumulated potential growth of these businesses cannot be fully assessed using traditional valuation models—in other words, each of these businesses possesses superior intrinsic value, underscored by their long-term value-creation potential.

Coca-Cola

In 2016, The Coca-Cola Company maintained its status as a large holding in our portfolio, and one that we have held since Founders Capital Management was formed. Despite the trend regarding a move from sugary, carbonated drinks, we have no intention of selling (or cutting back on) our position. Although Founders is a relatively small holder of Coke's overall stock, we are now among the top 500 reported shareholders of this great company—we have moved up the shareholder ladder a few notches over the past few years, from 575 two years ago, to 520 last year, and now at an official 497. This is due not to our adding to our position, but rather is mainly the result of Coke's ongoing share repurchase program—net share repurchases were around $2 billion in 2016. We point this out to showcase the "hidden" ownership impact of share repurchase programs, and how we continue to obtain a slightly increased share of the earnings of this great company.

During 2016, The Coca-Cola Company grew its overall case volume by approximately 1%–2%. Over the past three years, case volume increases remained slower than the annual 4%-5% annual growth achieved prior to 2013. In addition, the company's revenue progression has been temporarily obstructed by a negative 3% currency headwind along with acquisition, divestitures, and restructuring charges of 5%. As a result, Coca-Cola's total revenue declined around 5.7% in 2016, to approximately $41.7 billion. When the negative currency and one-time charges were stripped away, however, Coke's annual revenue increased approximately 4%.

Coke's revenue declines over the past few years make it important to explain some dynamics behind the company's reported sales that also explain the complexity of this industry. Ten years ago, Coca-Cola began working with its bottling partners to develop a business model that served the changing consumer landscape. As consumers' beverage preferences were evolving from carbonated drinks to noncarbonated drinks, Coke faced requests by bottling and distribution partners for Coke to invest vast sums in their businesses to bottle both types of beverages. (Since the water temperature requirement for producing each beverage is different, additional machinery was needed for developing noncarbonated drinks.)

In 2010, it made sense for The Coca-Cola Company to better control the production and distribution of both types of beverage products to manage the consumer taste evolution. As such, Coca-Cola decided to acquire the North American territories of Coca-Cola Enterprises (the North American bottler and distributor for Coca-Cola products) and make the necessary capital investment to deliver the beverage choices consumers demanded.

The upside of consolidating bottling and distribution for all Coke's products in North America was that the company now has the flexible production and delivery systems required for a changing beverage industry. The downside to bottling and distribution consolidation was increased capital intensity for Coca-Cola's beverage business—which lowers returns on capital. The end result: Revenues increased significantly with this transaction, but profits grew slightly.

Fast-forward to today: Coca-Cola has accelerated the implementation of its new business model by strategically investing in its bottling system, customer service, and product supply and has developed a common technology platform. Now that the required changes to the bottling and distribution business have been completed to meet consumers' diverse and changing tastes, Coca-Cola has decided to sell back the controlled North American bottling and distribution system to other bottling partners through refranchising arrangements. This "reverse move" lowers revenues as deconsolidation takes place but increases the company's financial flexibility by reducing capital intensity. As of the third quarter of 2016, Coke had reached definitive agreements or signed letters of intent to refranchise territories that account for approximately 65% of total U.S. bottler-delivered distribution volume.

This repositioning of Coca-Cola is allowing the company to evolve from a primarily carbonated beverage-associated company to a "total beverage" company serving all consumer tastes. Few people realize that The Coca-Cola Company now controls almost half of all non-alcoholic brands worldwide that generate more than $1 billion in annual revenue. In addition, the company sells more than 1,000 varieties of juice drinks, including Simply Beverages™, Minute Maid®, Fruitopia®, Hi-C®, Fuze® and Odwalla®. Coca-Cola also still sells beverage brands such as Glacéau Vitaminwater®, Dasani® water, Honest Tea®, and Powerade®.

In summary, Coke's currency exchange challenges due to a strengthening dollar, along with its ongoing refranchising program, have temporarily stalled the company's earnings growth. In 2016, the company will report approximately $1.91 per share in adjusted earnings, showing little change over the past five years.

Despite the slower growth in volume of the past several years, coupled with currency headwinds and a reset of the company's distribution system, we remain sanguine about Coca-Cola's long-term growth prospects for a few reasons:

1) Coca-Cola is half way toward its goal of making core investments of $30 billion in various markets around the globe by 2020. The company is aggressively allocating capital to high-population regions such as China and India, a strategy that will support future annual volume growth to meet Coca-Cola's 4%–5% targeted range.

2) The Coca-Cola Company has been implementing a productivity plan that is projected to result in more than $3 billion in annual savings by 2019. This includes a sustainability goal to return 155 billion liters of water to communities and nature—an equivalent amount of water to what Coca-Cola currently uses in producing its beverages.

3) Coca-Cola continues to make strategic investments to support the expansion of its (currently) 500 beverage products that are served in more than 200 countries. Japan serves as an example for the future of The Coca-Cola Company's breadth, where one million vending machines account for 50% of all vending machines in a country that is the second-largest market for Coca-Cola products. Ironically, the company's namesake drink—Coca-Cola—has low sales in Japan. The Coca-Cola Company produces 850 different beverages for Japanese consumers, including brands that produce over one billion dollars a year – Georgia® canned coffee, Aquarius® sports drinks, I LOHAS® bottled water, and Ayataka® green tea.

We believe that Coca-Cola is on track to address the two billion additional people around the world that are projected to join the middle class by 2030, and we like the latest initiatives that will renew Coke's volume growth in the future while further increasing the company's intrinsic business value.

We anticipate that The Coca-Cola Company will produce approximately $8 billion of cash for shareholders in 2017 and that owner cash production will remain static as the company continues to reposition itself for future growth. Coke currently pays an annual dividend of $1.40 per share, which represents an approximately 3.4% yield, and we believe that the company will increase its dividend approximately 7% in 2017—to around $1.50

per share. It is our estimation that Coca-Cola will also repurchase approximately $2.5 billion of stock during 2017. The combined dividend and stock repurchases currently provides shareholders an approximate 4.7% pass-through yield at Coke's year-end price, compared to a 2.4% yield on a 10-year U.S. Treasury bond. The higher yield offered by Coca-Cola, as well as future growth projections, provide us an opportunity for long-term returns on an investment in this company. *NOTE: "Pass-through earnings/yield," and "owner-earnings/yield" should be evaluated by the investor. "Pass-through earnings/yield" are determined via actual cash earnings distributed to shareholders, whereas "owner-earnings/yield" is cash earnings available for distribution to shareholders. Companies may choose to "pass through" extra money to shareholders beyond their cash earnings by issuing additional debt and/or by selling off assets—or they may decide not to pass through all cash earnings, opting instead to allocate a portion of these funds for future investment or to pay down debt.*

PepsiCo

PepsiCo may be Coca-Cola's largest competitor in the beverage space, but this company does not have the exact same business "profile" as Coke. Like Coke, PepsiCo owns a stable of diverse brands, but Pepsi has an alternative distribution system and a different global footprint (PepsiCo has a lower international presence vs. Coke, with 60% of sales generated in North America). Let's further clarify the differences between these two businesses:

1. PepsiCo's product line is not a mirror image of Coke's—PepsiCo is much more than a pure beverage company, with a dominant share of the snack-food industry. Its mainstay global snack business, which represents approximately 53% of PepsiCo's revenues, generates more than 60% of the company's operating profits. PepsiCo's snack-food business holds an estimated *tenfold* relative global market share advantage compared to its closest competitor, with prospects for long-term future global growth.

2. Due to its more diverse product line, PepsiCo's retail distribution system necessitates a different approach than Coke's. For example, PepsiCo uses direct store delivery (DSD) systems to deliver beverage and snack products to retail stores, where products are merchandised by both employees and bottlers that "dual-display" snacks and beverages for maximum visibility and appeal. For products that are less fragile and perishable and have lower turnover, PepsiCo products are delivered directly from manufacturing facilities and warehouses to customer warehouses and retail outlets. In addition, PepsiCo leverages synergies when food service and vending sales forces can work jointly to deliver food, snacks, and beverages to third-party food service and vending distributors.

We point out these differences to highlight that there is little overlap between our investments in Coca-Cola and PepsiCo. In fact, we would like to see the differences widen, and we look for PepsiCo to build on its snack-food stronghold to increase the intrinsic value of its businesses.

Over the past few years, PepsiCo's management team has been taking steps to accomplish this goal, including:

1. Renewing the company's investment in high-profile beverage and snack-food brands
2. Focusing on better capital allocation to core businesses that deliver higher returns
3. Further diversifying the company's broad portfolio to gain a greater share of the beverage and snack-food industries
4. Concentrating growth efforts in emerging overseas markets, where future sales reside

As a result of PepsiCo's concentrated efforts, the company's growth has improved—organic growth was approximately 4% in 2016, and profit margins continue to widen. Through ongoing productivity improvements, the adjusted return on invested capital that grew from approximately 16% in 2012 to approximately 19% in 2016 could continue to increase over the next five years—producing more cash (and value) for shareholders.

In the meantime, PepsiCo continues to increase its return to shareholders, raising the annual dividend 7.1% in 2016, from $2.81 per share to $3.01 per share. We expect PepsiCo to raise its dividend to approximately $3.20 per share in 2017, which implies an approximate forward dividend yield of 3% at the year-end stock price. In

addition, we anticipate that the company will repurchase an additional $2.5 billion of stock during 2017. This action adds another 1.7% return to shareholders, reflecting a 4.7% pass-through yield. In 2017, we expect PepsiCo to earn around $5.15 per share.

In summary, we like the long-term potential and economics of the beverage and snacks business and think there is a multi-decade growth opportunity for dominant companies in these businesses. PepsiCo has a large and growing position in these business segments and will remain a long-term holding in our portfolio.

INDUSTRIAL GROUP

Our primary industrial and transportation holdings—CSX, United Technologies Corporation (UTC), and Lockheed Martin—represent unique businesses that we believe will grow as economies develop around the globe. These businesses are somewhat capital-intensive and sensitive to the economic cycle, however, which subjects them to setbacks when tougher economic conditions emerge from time to time. This happened in 2015 and 2016—the slowdown in the global economy negatively impacted our transportation and industrial group results. We are somewhat encouraged, however, as a renewed commitment to U.S. infrastructure investment will assist these businesses to gain traction in upcoming years. In addition, an improvement in the European and Asian economies, followed by support for anticipated overseas infrastructure investment, should allow these businesses to make further advances over the next decade.

Our industrial group is composed mostly of highly networked, infrastructure-related businesses that are focused on product innovation. Each of our infrastructure businesses offers high-end products and/or services that are extremely expensive to produce and have a slow replacement rate—attributes that normally would be detrimental to a business' profitability. We have explained in the past how UTC and Lockheed Martin initially contract to sell their products at a low profit margin and then strike high profit-margin contracts to service the products over their long lifespans. Today, these companies are taking their networking capability one step further, by providing software that consistently monitors their installed products, which increases customer productivity and efficiency (and loyalty). These tie-in arrangements cement the customer relationship, making it nearly impossible for a new competitor to enter the market. As a result, oligopolies are the norm in these industries, where two to three competitors tend to dominate. As globalization continues, the consolidation of purchased infrastructure goods is a natural development, with the result that fewer companies are positioned to provide the breadth of products and services customers need. Thus, the trend is for these companies to become ever more entrenched, expanding their competitive advantage—and profitability—in the process.

Our railroad investments have comparable advantages. It has taken nearly two centuries to build the U.S. railroad infrastructure, and it would take an extraordinary amount of time and capital to create a business transportation system that competes with railroads such as CSX, Union Pacific, and Burlington Northern (which is owned by Berkshire Hathaway). Although the railroad business is very capital-intensive, certain attributes make this type of investment attractive in any economic environment. In challenging economic conditions—due to either lower sales and decreasing prices in deflationary circumstances, or due to exponentially increasing costs in an inflationary environment—all companies seek to run more efficiently. Moving greater amounts of goods over a fixed-rail infrastructure instead of via higher-cost trucking enables companies to lower costs and achieve large gains in productivity. Since rail transportation is approximately three to five times more fuel-efficient than truck transportation, it is likely that railroads will play a larger role in the transportation of goods throughout the U.S. in the future. The growing use of rail, along with the expansion of railroad services via "double track" (vs. single track) and "double stacking" of containers, will continue to drive a large increase in railroad use, revenues, and profits.

CSX Railroad

CSX is one of the nation's oldest railroads, with roots in the Baltimore & Ohio (B&O) Railroad—the nation's first common carrier (that serves the public at large) when it was chartered in 1827. The rail industry has undergone consolidation over the past 185+ years, resulting in the 1980 merger of the Chessie System and Seaboard Coast Line Industries, forming what we know today as CSX.

As one of two major north/south railroads, CSX provides an important link to the transportation supply chain through its approximately 21,000 route miles of track that serves major population centers in 23 states east of

the Mississippi River, the District of Columbia, and the Canadian provinces of Ontario and Quebec. The company is large, with almost 4,500 locomotives and nearly 85,000 freight and container cars that provide access to more than 70 ocean, river, and lake port terminals along the Atlantic and Gulf coasts, the Mississippi River, the Great Lakes, and the St. Lawrence Seaway. CSX also has an intermodal business that links customers to railroads via trucks and terminals.

During 2016, CSX generated approximately $11 billion in revenue—6.3% less than in 2015, due to a continuing economic slowdown that has weakened the import and export of goods over rail. As a result of the revenue decline, CSX's operating income and net profit declined by approximately 8.5% and 12.9% respectively. Despite the lower profits generated by CSX in 2016, we remain sanguine about our ownership position in this on-of-a-kind railroad. CSX's ongoing share repurchase activity is pushing us up the shareholder ladder—we are now among the top 205 reported shareholders of this great railroad (up from position 225 at the time of our initial purchase in 2013). Ultimately, we own a greater portion of the company's earnings today compared to four years ago, and we expect our share of this company's earnings to increase over time, since we have no plans to reduce our holding in CSX. As such, a detailed summary of CSX's three business segments during 2016 is warranted:

1) The **merchandise business** shipped an estimated 2.8 million carloads (down 2% year-over-year) and generated 64.5% of total revenue and 43.5% of volume. The company's merchandise business is its most diverse and transports aggregates (which includes crushed stone, sand, and gravel) as well as metal, phosphate, fertilizer, food, consumer (manufactured goods and appliances), agricultural, automotive, paper, and chemical products. The lower year-over-year carloads were largely due to a decline in agriculture and food volume (5%), metals and equipment (9%), and chemicals (4%). On the positive side, carloads from the automotive segment increased 7%.
2) The **coal business** shipped 838 million carloads (down from 1.1 million carloads in 2015), accounting for around 16.5% of revenue and 13% of volume—a decline from 19.5% of revenue and 15.7% of volume in 2015. The reduction in coal revenue represents over 60% of CSX's total revenue decline during 2016. Over the past six years, the company's coal has declined approximately $2 billion, yet total revenue for CSX remained stable—growth in CSX's merchandise and intermodal businesses made up for ground lost in the coal segment. The good news is that the declining coal business is expected to have bottomed out in 2016, and we expect coal volume and pricing to stabilize during 2017. In fact, in 2018, the decline in coal volume and revenues of the past few years may reverse and begin to grow at a moderate rate. We expect coal to remain a strong category for CSX as the company continues to transport domestic coal to electricity-generating power plants, steel manufacturers, and industrial plants over a great part of the U.S.
3) The **intermodal & other business** accounts for approximately 15.5% of revenue and 43% of volume. Intermodal volume decreased 1% year-over-year due to the slower-growing global economy. We expect that the intermodal line of business will resume its growth as global economies recover. CSX's intermodal segment combines the superior economics of rail transportation with the short-haul flexibility of trucks and offers a competitive cost advantage over long-haul trucking. Through a network of more than 50 terminals, CSX's intermodal business serves all major markets east of the Mississippi and transports mainly manufactured consumer goods in containers, providing customers with truck-like service for longer shipments.

Although CSX fortunes were heavily tied to the price of coal in the past, the company has become significantly less reliant on this business segment with the growth in other energy industries. For example, prior to 2014, the ongoing decline in coal volume in the U.S. was largely offset with gains in other oil and oil-related shipments. As the U.S. oil business experienced a renaissance due to new technology that allowed for the cost-effective removal of oil and gas, oil companies drilled new wells in places ranging from Pennsylvania and Ohio in the northeast to Mississippi and Louisiana in the south. However, during the past three years, a glut of oil hit the market due to an increased supply driven by excessive drilling. Oil prices then plummeted, and the number of oil rigs used to drill new wells in North America declined from more than 1,500 in 2013 to around 577 in the final week of 2016—a 61.5% reduction that closely parallels the approximate 50% decline in oil prices over this same time frame. This decline in oil business was a double-whammy to railroad companies, which provide

not only outbound service for companies that transport oil from shale wells, but also inbound transportation of drilling supplies (i.e., sand and chemicals) used to drill wells. Over time, we expect the oil sector to recover as oil prices increase and drilling resumes (in fact, by the end of 2016, the North American rig count had begun to increase as oil prices began to slowly rise). Given that the U.S. has reemerged as a global oil producer, we believe that oil and oil-related shipments will develop positively over the long term—though not in a "straight line"—as America's oil production continues to develop.

Despite the decline in 2016, we believe that CSX has a tremendous growth opportunity in the intermodal business that may offset some of the anticipated slowdown in the merchandise business during 2017. It is our opinion that this business segment will continue to grow over the long term because CSX's southern and southwest rail networks are perfectly aligned with the Panama Canal expansion that was inaugurated in June 2016. We have mentioned in the past few annual reports that the Panama Canal was building a third set of locks. This doubling of capacity was designed not only to increase the throughput of the canal but also to accommodate significantly larger vessels. Prior to the expansion, the Panama Canal was one of the most notorious bottlenecks in global trade, with a particular class of ship—the Panamax—designed specifically as the largest vessel that could fit through the canal's narrow locks. The expanded canal changes global freight movement by enabling container ships larger than the Panamax to pass through the canal. Previously, these larger ships could not reach the U.S. East Coast from Asia without a lengthy diversion around the tip of South America or through the Suez Canal. Because of the Panama Canal bottleneck, West Coast ports in the U.S. accepted 75% of Asian traffic, and this freight was sent on Class I railroads such as Union Pacific and Burlington Northern to reach the U.S. Midwest.

The newly expanded Panama Canal nearly triples its former capacity, increasing the maximum vessel size from 5,000 TEUs to 13,000 TEUs (a TEU, or 20-foot equivalent unit, is about the size of one intermodal container). This means that larger, more cost-effective vessels will be calling on U.S. East Coast ports, allowing import freight to bypass the transcontinental trip on western U.S. railroads. Of course, it will take time to ramp up, but as the new Panama Canal operates more efficiently and ports on the U.S. East Coast finalize buildouts to accept larger ships entering their waters, it is expected that 20%–35% of West Coast freight volumes will eventually transfer to East Coast ports such as Houston, Charleston, Virginia, and New York. Although the movement of freight flow from West to East will progress slowly, this story bodes well for CSX, as its rail network is directly connected to U.S. East Coast ports.

During 2016, CSX passed more than $1.7 billion of cash over to shareholders in the form of dividends (around $680 million) and share repurchases (another $1.05 billion). In 2017, we expect CSX to distribute an additional $1.7 billion to shareholders through a combined dividend and stock repurchase program. This provides shareholders an approximate 5% pass-through yield at CSX's year-end price, and we believe that this yield will grow over time as freight traffic increases over CSX's fixed-rail network.

In summary, we think our investment in CSX is an opportunity to participate in the growth of the U.S. economy, which may accelerate in the next few years due to infrastructure investment, and that the growth in CSX's freight volume will endure over the upcoming decade and perhaps increase a lot more than many analysts expect. Furthermore, we expect CSX to continue to execute a plan to lower the company's expenses and improve its operating ratio an additional five percentage points within the next four to five years. (The operating ratio is an important measurement in the railroad industry, representing the percentage of revenue used to operate the railroad—the lower, the better.) The projected recovery and growth in freight volume, coupled with lower expenses, will leverage CSX's income and cash available for shareholders. We remain excited long-term owners of CSX, which occupies an important position in our portfolio.

United Technologies

United Technologies Corporation (UTC) produces products such as Otis elevators, Carrier air conditioners, and Pratt & Whitney jet engines. Each one of UTC's subsidiary companies has achieved leadership and powerful market entrenchment in its respective area of expertise. The company also has tremendous global reach in each of its business units, and its products are highly complementary. In last year's annual letter, we highlighted UTC's dual product sales to the Midfield Terminal of Abu Dhabi International Airport—one of the largest airport construction projects in the world. When it opens in December 2017, this airport will be completely equipped with Carrier air conditioners as well as Otis elevators and escalators. In addition, products

from Otis elevators and Carrier air conditioning, along with products from Edwards Signaling, Kidde, and Automated Logic (units of UTC's Climate, Controls and Security Division) have been chosen for New York City's landmark Hudson Yards project, the largest private real estate development in U.S. history. Now that is business synergy!

In addition to building and industrial systems, UTC is heavily involved in providing commercial and military applications, parts, and services. From 2015 to 2020, Pratt & Whitney (part of UTC Aerospace) is projected to double engine production, and by the end of this decade is expected to be producing engines at rates not seen since the early 1980s, when the company was a dominant jet engine producer. From large and small commercial jets to smaller business jets, Pratt & Whitney is delivering next-generation engines that will power flight for years to come. The company is also the sole engine provider for the F-35 fighter jet—with more than 3,000 expected jet deliveries in the coming decades.

In last year's annual report, we emphasized the competitive moat surrounding the innovation stage of Pratt and Whitney, and it is useful to do so again. The investment cycle in researching and developing an aircraft engine product line is long and complex. Pratt & Whitney estimates that its new engine technology overall will require about $10 billion in research and development. On average, Pratt & Whitney loses about $1 million on each new engine during implementation. The company expects to generate a loss of about $1 billion from new jet engine sales between 2016 and 2019. Although this is disheartening, the payback period on jet engines is very long and comes with solid returns, because Pratt & Whitney will enjoy a lucrative aftermarket revenue stream for the next 30+ years—this is where the real money is. Few competitors and potential new market entrants have the financial strength and endurance to undertake the significant up-front requirements of the jet engine market—billions of dollars of investment to build a better product coupled with many years building a reputation for safety and quality—all the while enduring significant initial losses, regardless of ability to secure eventual orders.

UTC's business model is to focus on the development and installation of large, complex infrastructure products and then derive much of the company's future revenue from servicing agreements. Aftermarket services currently generate more than 40% of the company's $57 billion in revenues. In addition, these services are always in high demand because UTC's products are extremely expensive and are used in critical, heavy-wear applications—one cannot have elevators, security systems, building air-conditioning units, or jet engines failing.

Although the slowing global economy continued to hamper UTC's growth in 2016, we remain optimistic given the cash annuity stream associated with long-term servicing agreements. In 2017, we expect UTC to produce an adjusted $6.10 per share in cash. When comparing the forward owner's cash stream of $6.10 per share to the company's year-end stock price of $109.62 per share, investors are receiving an entry owner-earnings yield of 5.5% on their UTC investment—and we expect this per-share cash yield to grow over the next decade, especially with company's ongoing share repurchase plan. We remain very patient and enthusiastic owners of UTC and believe we are receiving a very good return on our ongoing investment in this terrific company.

Lockheed Martin

Lockheed Martin is a 100-year-old global defense company with revenues of $47 billion. The majority of Lockheed Martin's business is with the U.S. Department of Defense as well as U.S. federal government agencies.

During the past few years, the defense industry faced current and future budget reductions, but with renewed interest in bolstering national defense capabilities, this situation could change in the future. Regardless of alterations to the future defense budget, certain companies will maintain a strategic advantage in delivering "next-generation" defense products in the coming decades. We believe that Lockheed Martin is in an envious position based on the company's missile defense advanced aircraft products. Lockheed now owns Sikorsky, developer of the Black Hawk helicopter, and is contracted to supply the U.S. military with the F-35 fighter jet. The F-35 program remains the largest defense project in the U.S., aimed at replacing the aging fleet of Air Force F-16, Navy F/A-18, and Marines AV-8B aircraft. This project will deliver more than 3,000 aircraft to eight countries around the world over the coming decades and is worth up to $1 trillion—encompassing $300

billion in new equipment and $700 billion in maintenance contracts. As with UTC, large aftermarket sales should also provide predictable ongoing earnings for Lockheed Martin.

In addition, Lockheed is focused on the future of defense. The company is successfully developing laser weapon systems that can protect our military forces as well as critical military infrastructure. For example, the Advanced Test High Energy Asset (ATHENA) prototype system can burn through an engine manifold in a matter of seconds from more than a mile away. This system is also capable of continuous fire, with fully integrated power and cooling systems, that provide the ability to down small unmanned aerial vehicles at long ranges. Although these thoughts are unpleasant, future defensive weapon systems are likely required to protect U.S. citizens from drone aircraft attack.

Lockheed Martin produced approximately $12.04 per share in adjusted earnings during 2016 and distributed approximately $4.0 billion to shareholders through dividends and share buybacks. Lockheed Martin currently pays an annual dividend of $7.28 per share (up 10% from 2015), which represents a 2.9% yield at the company's year-end stock price. Lockheed's dividend, coupled with its ongoing share repurchases, provides shareholders a 5.4% pass-through yield at the company's year-end stock price. The company's pass-through yield remains a better-than-fair return in today's low interest-rate environment, and until this equation changes, our plan is to remain invested in Lockheed Martin.

HEALTHCARE GROUP

Our primary healthcare holdings—Johnson & Johnson and DaVita Healthcare Partners—moderately grew their businesses during 2016, and we expect these healthcare concerns to continue growing in 2017.

We have stated in previous letters that over the past several years, the healthcare industry has been a bull's-eye for government intervention, including the enactment of healthcare reform legislation—the Affordable Care Act (ACA) (also known as "Obamacare") as well as ongoing wrangling between government and industry parties over drug pricing and the long-term impact of increasing healthcare costs. We are likely to look back on these developments as just the beginning, given an incoming presidential administration with the stated intention of overturning the recently executed healthcare legislation and reversing a large portion of healthcare benefits that have been implemented since the ACA became law in 2010.

Where do we stand on this? Our view remains pragmatic: We believe in balance, and a complete unwinding of the recent healthcare reforms seems overaggressive as well as difficult to execute. On the other hand, modifications to the ACA seem inevitable, regardless of whether a Republican or Democratic administration holds sway. For example: According to the current healthcare law, every American is required to be covered with healthcare insurance—or be subjected to a penalty. In 2015, the tax penalty for an average 25-year-old that did not comply with the healthcare law was $325, or 2% of household income. If that 25-year-old had a household income of $60,000 in 2015, the penalty for not having health insurance (or being self-insured) translated to $1,200. Considering that the annual cost for health insurance was approximately $2,400 in 2015, many young adults understandably opted to pay the penalty instead of the more expensive cost of obtaining health insurance that they may or may not end up needing. How many 25-year-olds believe they are going to get an illness in the next year that will require comprehensive healthcare coverage—especially a under a policy that includes a deductible of $5,000! (At 25, we don't remember having the thought of going to see a doctor even for a checkup, let alone going to the hospital for a lengthy stay.) Unfortunately, insurance is driven by a pooling mechanism that requires individuals who have a lower probability of getting sick to contribute to the pool of funds that will cover the burden of older individuals that are more likely to need coverage. If younger people don't participate in the program, the system becomes heavily weighted with individuals who need coverage but don't contribute enough to cover the cost of their medical needs. The lack of youthful participation results in an underfunded pool. In 2016, the penalty for noncompliance under the ACA rose to $695, or 2.5% of household income—once again, an amount that was unlikely to draw full participation—leaving a coverage gap for those with "total" healthcare insurance needs.

Potential cures for this particular problem with our healthcare law might include higher tax penalties for younger uninsured citizens and/or raising insurance rates exponentially for older individuals who need coverage. Yet the latter solution also has the potential for the insurance pool to remain underfunded due to middle-aged participants potentially opting out. The bottom line is that the reality of insurance companies not

receiving enough premiums to cover their insured population is resulting in these businesses dropping out of offering ACA healthcare coverage. Flaws in the current healthcare legislation will need to be remedied.

What We Do and Do Not Know

We know that the gap in healthcare revenues vs. costs needs to close, and that some reformation of the current healthcare law will take place. While we do not expect the “baby to be thrown out with the bathwater” with a complete repeal of the ACA, we do not know exactly how the various issues related to healthcare legislation and rising Medicare and Medicaid costs will be resolved. We believe that these challenges will continue to be a major focal point for U.S. government intervention, but we choose not to prognosticate on potential outcomes—the issue is too big to tackle, and too difficult to “call.”

What we do know, on the other hand, is that we are at the precipice of delivering the greatest medical miracles in human history. New types of drugs will manage or eradicate debilitating diseases such as cancer, diabetes, and Alzheimer’s and reduce human suffering. The cost of ongoing research and development needed to push these drugs forward is enormous, as is the cost of patient care for those inflicted with intractable diseases. In many cases, the high cost of curing these diseases is surpassed by the even higher cost burden associated with chronic patient care. Nevertheless, we also know that the companies that research and develop promising new drugs are undergoing financial stress. A report published in 2016, “Strategic Trends in Private Equity and Venture Capital Funding for Healthcare,” states that although the life sciences industry remains an attractive investment area, the healthcare sector has actually seen a decline in venture investment—particularly in early-stage ventures—as pricing pressures, stringent regulations, rising development costs, reimbursement issues, and declining R&D productivity present significant barriers.

Global healthcare private equity deal values experienced a negative compounded annual growth rate of 11.8% from 2010 to 2015, with 2010 recording a total of $33.9 billion, falling to $18.1 billion by 2015. At the global as well as domestic level, the continuing decline in R&D productivity is one of the most important challenges the healthcare industry faces. Blockbuster therapies have become increasingly rare, and many drugs continue to face reimbursement challenges in key markets, resulting in declining revenues for companies. Government barriers, such as overregulation and excessive interference in healthcare, present a crucial problem that must also be addressed.

On the other side of the coin, we also know that people have a natural desire to monitor their health and are willing to adjust their lifestyle to remain healthy—hence the success of “wearables” such as Apple Watch® and Fitbit®. Continuous "passive" health monitoring will clearly become the norm in the (near) future, a development that will eventually benefit the healthcare industry’s skyrocketing costs as “high tech” health consciousness capabilities begin to improve people’s long-term health. Just imagine the day when any alteration to your body’s normal biological functioning is immediately detected. Then add genomic data to the mix. As the body of information grows from advanced data analytics and monitoring capabilities and people gain a better understanding of real-time body function, drugs and medical devices will be developed that are tailored to individual patients and their health conditions, addressing the intractable challenges of today. Healthcare companies will evolve from reactive to proactive companies that provide opportunities for early detection of disease, along with interventions that improve patient outcomes and how healthcare is delivered.

In addition, healthcare companies that act as intermediaries and focus on value-based reimbursement are positioned to become dominant entities over the next five years. Value-based reimbursement, where Accountable Care Organizations (ACOs) share financial risk in delivering savings in patient care, will accelerate the introduction of new care models and bring new capabilities to the healthcare system. The more the system moves to value-based reimbursement and risk-based models, the faster solutions will be deployed to more effectively manage patient populations in new and different ways. In other words, the patient and the healthcare provider will all be rewarded for improving care through effective monitoring and efficient intervention. Many think this is all science fiction or won’t happen soon, but these types of developments are beginning to emerge in the marketplace.

With all the churn in the healthcare space due to the implementation of the ACA, new drug development, and advances in technology, it has become increasingly difficult to predict the future of companies in healthcare-related fields. Thus, we continue to emphasize great care when selecting companies in which to invest in this sector of fast-developing information, moving parts, and rapid transformation. We believe that the uncertainty

that characterizes the healthcare industry also provides opportunity to own the "right" kinds of healthcare companies—those that do not carry the typical high risks associated with this sector but are positioned to provide many of the solutions we mentioned and contribute to healthcare cost reduction. Johnson & Johnson and DaVita HealthCare Partners are two companies that fit our long-term healthcare investment criteria: Each company is adapting to healthcare disruption and is positioning for the future in this dynamic industry.

Johnson & Johnson

Johnson & Johnson (J&J) is a large healthcare organization with more than 250 operating companies located in 60 countries. J&J is also product-diverse, generating sales in various healthcare segments—45% of sales from pharmaceuticals, 36% from medical devices, and the remaining 19% from consumer brands that we are all familiar with: BAND-AID®, Tylenol®, Neutrogena®, Listerine®, and Johnson's® Baby Shampoo, to name a few.

Such a large, decentralized, diverse organization can generate complex management challenges—but J&J maintains a decentralized organizational structure that allows each business to operate as an entrepreneurial company. Each J&J business puts a heavy emphasis on growth, but the most important focus is on delivering the best, most cost-effective healthcare to its core customer base—hospitals, physicians, and patients around the globe. Shareholder returns are mentioned last in the "J&J Credo"—the company believes that it will be profitable as long as it pays attention to patients, healthcare professionals, employees, and the community first. This value system has been hardwired into J&J's DNA since the company's founding.

A rigorous focus on research and development, maintaining reasonable prices, supplying prompt service, allowing distributors and suppliers to make a fair profit, respecting the dignity of employees, and ethical management has made J&J the largest healthcare company in the world. Given the unprecedented aging rate of the world's population, coupled with a growing global middle class, we believe that J&J has a tremendous future, despite its large size.

Over the past 10 years, through economically and politically challenging times for healthcare companies, J&J increased sales by more than 35% and profitability by approximately 71%—from $11 billion in 2006 to $18.8 billion adjusted earnings in 2016. During this same time frame, J&J has supported its organic growth through internally generated funds and invested around 30% of free cash flows to mergers and acquisitions. J&J has returned approximately 70% of its free cash flow to shareholders in the form of dividends and share repurchases since 2006. Historically, about half of J&J's growth has come from mergers and acquisitions, while the remainder has come from internal product development. J&J expects this trend to continue in the future.

In 2016, J&J will earn approximately $6.73 per share of adjusted earnings and is projected to grow core earnings at 6% in 2017, to $7.05 per share (the recent strength of the U.S. dollar continues to create currency headwinds for this global company). The company generated around $16.5 billion of adjusted owner-earnings in 2016 and returned a large portion of this cash (approximately $8 billion) to stockholders through continual share repurchases along with $8.6 billion of dividends (an approximate 2.8% dividend yield at the year-end stock price). J&J will remain a core position in our portfolio due to its premier status in the global healthcare market.

DaVita HealthCare Partners

Three years ago, we made a large commitment to another healthcare company, purchasing DaVita HealthCare Partners. DaVita HealthCare Partners is one of the largest companies administering kidney care and dialysis services throughout the U.S. and also manages and operates medical groups, a network of primary care physicians, urgent care centers, and ambulatory surgery centers.

DaVita's kidney dialysis division represents 72.5% of the company's business and is one of the two largest dialysis providers in the U.S., along with Fresenius Medical Care AG & Co. DaVita's U.S. dialysis and related lab services businesses operate through a network of more than 2,300 outpatient dialysis centers located throughout the U.S. These centers serve approximately 199,000 patients, representing an estimated 37% market share of the U.S.-based dialysis business. DaVita is also growing internationally, with 139 outpatient dialysis centers located in 11 countries outside of the U.S.

The dialysis business is predictably steady due to a stable patient base, which we believe will expand based on a growing need for dialysis services. The U.S. dialysis patient population is growing at a rate of approximately 4% annually and, given the aging population and increasing prevalence of diagnosed diabetes, DaVita expects the annual growth rate to continue at 4% through the near future. In addition, since DaVita is on the forefront of developing relationships with referring physicians—as well as offering quality clinical care that will lead to reduced patient mortality rates—the company's size and broad patient services capabilities position it to grow further and to consolidate the industry through the acquisition of new dialysis centers.

DaVita also owns HealthCare Partners (HCP). HCP is a patient- and physician-focused, integrated healthcare delivery and management company that has been providing coordinated, outcomes-based medical care in a cost-effective manner for nearly three decades. Through capitation contracts with some of the nation's leading health plans, HCP currently has some 750,000 patients under its care in California, Nevada, New Mexico, Florida, Colorado and Washington. Although the HCP division represents a smaller part of DaVita's total business, this segment offers tremendous opportunity in the future. We mentioned in our Healthcare Group introduction that over the next five years, healthcare industry intermediaries will emerge that focus on value-based reimbursement, sharing financial risk in delivering savings in patient care. HCP is heavily involved in the emerging risk-sharing model: Under the terms of HCP's managed care-related administrative services agreements with hospitals, HCP is entitled to receive a percentage of the institutional capitation revenue received from healthcare plans that exceeds institutional expenses. On the other hand, HCP agrees to be responsible should the third party incur institutional expenses that exceed the institution's capitation revenue. These positive-negative reinforcing agreements provide an incentive for HCP to accelerate the introduction of improved care models as well as monitoring and intervention methods that lead to more cost-effective healthcare and improved patient outcomes.

In summary, the stability of DaVita's dialysis business due to recurring revenues from ongoing patient visits contributes to strong margin performance and robust cash-flow generation. We expect that DaVita will continue to grow through investments in new dialysis centers as well as modest-size acquisitions. The HCP business represents a tremendous growth opportunity for the future of this company as healthcare practices consolidate over the coming decade to deliver high-quality patient care. HCP is one of the best physician practice platforms in the country, with a model that stands to benefit from the long-term shift that is under way in healthcare reimbursement from traditional fee-for-service to incentives for quality and cost control. Combining the steady growth and cash generation of the company's core dialysis business with the best physician practice management asset in the country, DaVita HealthCare Partners can be considered a valuable franchise that is positioned at the forefront of a long-term shift in healthcare delivery and reimbursement as healthcare reform is implemented.

In 2016, DaVita is expected to finish the year with revenues exceeding $14.7 billion, up 7% year-over-year. Operating income of approximately $1.9 billion in 2016 will be equal to 2015 due to the higher costs associated with serving the company's patient population. In the meantime, DaVita repurchased approximately $750 million of stock in 2016, providing investors a 5.9% pass-through yield at the year-end stock price. We believe that this yield will grow significantly as DaVita HealthCare Partners continues to expand its franchise in the evolving healthcare industry.

TECHNOLOGY GROUP

We have said it before, and we'll say it again: Of all the industries represented in our portfolio, the information technology (IT) sector is still the toughest to call—continual business disruptions are the norm and, therefore, companies and investors can never rest on past successes. During 2016, the technology sector underwent change at a breakneck pace as device miniaturization continued, cloud computing flourished, and software enhancements allowed artificial intelligence to gain further traction in the technology marketplace.

The inherent disorder and warp-speed change of the IT sector continues to make it extremely difficult to determine which companies will succeed or fail. A few years ago, the iPhone® and iPad® products positioned Apple as a primary technology disrupter. That technology cycle has passed, with "copycat" Apple products developed by hungry competitors gaining market share. Disruption is now taking hold as more innovative devices enter both the consumer and commercial markets. In addition, exponential growth in cloud-based

services continues in both the consumer and commercial markets. Amazon.com—the well-known disrupter of retail (and many other industries)—is also leading technology disruption with its cloud service business, Amazon Web Services (AWS), which is used by companies such as Netflix to store and stream content. Other large organizations such as GE Oil and Gas and the city of Chicago also utilize AWS applications to improve their operations. AWS is now producing more than $12.5 billion of revenue, up 59% from last year's red-hot growth. This advance is not going unnoticed, with both new competitors and existing technology companies chasing the growing cloud business opportunity.

Computer miniaturization and the emergence of the "big data era" are driving a new generation of products and services that empower individuals to be interconnected, entertained, and informed 24/7 via cloud computing. Technology companies that have yielded powerful computers that fit into the palm of one's hand or on one's wrist, the ability to track one's activity and fitness at every step, and the power to capture and retain health data in the cloud continue to produce new types of devices, high-speed connectivity, and fast-changing information services. These rapid advances continue to present a challenge for old-fashioned computer companies that primarily rely on sales of previously popular hardware devices such as PCs. The "new space" companies competing to provide personal interconnectivity, cloud-based networking technologies, and advanced interface and mobile technologies include names like Arista, Veeva Systems, EPAM Systems, Synaptics, and Synchronoss. Apple, Fitbit, Samsung, Facebook, Twitter, Amazon.com, Salesforce.com, IBM, Google, Cisco, Oracle, and Microsoft are also in the fray, remolding their organizations to keep pace with the evolving technology ecosystem.

Which companies gain competitive control in the "new" IT ecosystem continues to be anyone's guess. But we remain committed to the belief that wherever investors are tossing aside "traditional" companies in favor of emerging enterprises popularized by technology advances and the latest social media craze, an investment opportunity exists. The difference between price and value is rather wide with certain traditional technology companies that are maintaining a strong competitive position in the evolving technology landscape. Even so, we are unable to point to any one company in this industry that could be placed in the "guaranteed invaluable business basket"—there is too much disruption, which makes it difficult to call.

We can, however, point to several traditional companies that provide infrastructure that supports emerging new information technology companies. Some of the large players in this space may not be as "consumer-facing" and may not be upstarts, but are nevertheless positioned to play an increasingly important role in this rapidly changing industry. With this perspective, we have focused our IT investments in what we believe to be undervalued technology companies that are providing core technology that all IT companies need. Our technology holdings include Microsoft, IBM, and Intel—three companies that we believe are well positioned to play a major role in the development of the new technology infrastructure.

Microsoft

During 2016, Microsoft remained on its new mission to empower every person and organization on the planet to "achieve more" through the company's "increase productivity initiative," which has shifted Microsoft 180 degrees from its focus on Windows and Device just three years ago. In 2013, technology experts were describing Microsoft as a "lost organization" that was not keeping up with new technology that was overtaking the company's Windows franchise. In fact, we had lost some confidence in Microsoft and had become concerned about the growing uncertainty regarding the company's market position. At that time, we believed that Microsoft could still adjust to the new technology environment but saw the "windows closing" on the company's previous business model. Thus, we decided to reduce our holding in Microsoft as the company's core products seemed less dependable and defendable, as well as less predictable and protected. Making matters worse, as the Windows market dominance seemed to erode, Microsoft made an aggressive move toward consumer devices. The company attempted to become "more like Apple" and decided to purchase Nokia's phone business for $7.2 billion in late 2013—a highly competitive arena that included Apple, Samsung, LG, and many others.

Just as Microsoft's ill-adapted business model seemed to threaten the very viability of the company, Microsoft's board, influenced by Bill Gates, made a crucial management change in 2014, choosing Satya Nadella to lead the company. Applying his background in cloud and enterprise computing, in 36 short months, Mr. Nadella led Microsoft back to the forefront of technology change. The organization turned on a dime,

shifting its primary focus away from Windows and devices to provide enterprise applications and cloud-based services to small, medium, and large businesses.

In previous letters, we have discussed the emergence of cloud computing—the delivery of computing as a service instead of as a product. Using cloud computing, customers share resources, software, and information that is provided to personal computers and other devices as a metered service over the Internet. Cloud computing is analogous to an electric utility, whereby the power station delivers power to the electrical grid, and consumers draw down on that power as they need it—and are charged based on their usage. The infrastructure that supports cloud computing comprises large data centers (i.e., server farms) that are owned and operated by companies such as Microsoft, Google, IBM, Rackspace, and Amazon.com. Obviously, cloud computing offers businesses an opportunity to reorganize their IT infrastructure and decrease their reliance on corporate servers—resulting in overall savings in their IT spending budgets.

This is an area of the IT business that is very "sticky," because corporate customers are not as fickle as retail consumers, who change products at a heartbeat. The "utilitization" of the enterprise cloud segment of the business is very attractive, as well as potentially very profitable, due to its tentacle-reaching and long-term annuity-like attributes. Organizations such as Boeing, Land O'Lakes, and others are using Microsoft's data management, machine-learning analytics, and cognitive services to infuse intelligence into their business applications. The far-reaching applications of Microsoft's "intelligent" cloud business include cognitive applications such as vision, speech, and text, as well as facial and emotion detection. We can see that this business has unlimited future potential, and Mr. Nadella is committed to staying at the forefront of this technological revolution.

Microsoft had excellent business results in 2016, and we are excited about the company's prospects in 2017. Microsoft's adjusted calendar earnings are expected to be $2.91 per share in 2016 and could reach $4.00 per share by 2019—an annual growth of more than 11% for the next three years. During 2017, Microsoft will generate approximately $26 billion of owner-earnings and will return this cash to stockholders through net share repurchases of $15 billion and around $11 billion of dividends (an approximate 5.4% pass-through yield at the year-end stock price). With a consistent return of cash to owners and an excellent position in the technology industry, Microsoft will remain a long-term position in our portfolio.

IBM

IBM remains one of the oldest and largest—and currently one of the most controversial—technology companies in the IT field. "Big Blue" has evolved through (and survived) many technology disruptions over the past century—and is contending with another industry disturbance. The stagnation of the company's stock price over the past few years calls for an explanation of our current position in this company.

In 1911, the precursor to IBM—the Computing-Tabulating-Recording Company (CTR)—was formed from the merger of four companies. CTR manufactured a variety of products, including employee timekeeping systems, weighing scales, and punched card equipment. Thomas Watson, Sr. became president of CTR in 1915 and cultivated a unique culture in the company, including the famous "THINK" slogan. Being ahead of his time, Watson also introduced several employee initiatives that demonstrated a steadfast faith in the people at CTR. He hired the company's first disabled worker in 1914 and formed the company's first employee education department in 1916. Watson had an "open door policy," encouraging any employee with a concern to directly approach him or any other company executive. In addition, Watson always made sure that meeting the customer's needs was at the center of the company's focus. In 1924, the company's name was officially changed to International Business Machines, and the culture established by Watson remains at the core of the company's DNA today—with an emphasis on developing employees, along with a relentless focus on meeting the customer's needs. This embedded culture is ultra-important, as it has allowed IBM to survive more than a century of disruptions in the technology industry.

IBM's first disruption occurred during the Great Depression. Thomas Watson, Sr. took a counterintuitive approach to the economic decline and decided to keep his manufacturing facilities going, despite the lack of customer orders. Of course, with all this internal investment, Watson was betting on the future—this marked IBM's first "bet the company" gamble. IBM's factories ran at full throttle for six years with little to no market to sell to, creating a huge inventory of unused tabulating equipment. To meet its cash needs, in 1933 Watson

sold off the Dayton Scale Division (the food services equipment business). Then the Social Security Act of 1935 came to fruition, and "the biggest accounting operation of all time" came up for bid. IBM was the only company with the equipment required to execute the government contract to maintain employment records for 26 million people. IBM sold its tabulating equipment inventory and thrived after the depression.

IBM faced another disruption after Watson, the company's founding father, died in 1956, forcing the company's first leadership change in more than four decades. The head position at IBM fell to Watson's eldest son, Thomas J. Watson, Jr., and the new CEO faced a daunting task. The company was in the midst of a period of rapid technological change, with emerging computer technologies including electronic computers, magnetic tape storage, disk drives, and computer programming creating new competitors and market uncertainties around the company's sophisticated tabulating business. Operationally, IBM was both large and bureaucratic, exacerbating the difficulty of shifting its business emphasis to the new technology required for the company's survival. Watson, Jr. and his senior executives wondered if the new generation of leadership was up to the challenge of managing the company through this tumultuous period. At the time, one executive wrote, "We are in grave danger of losing our eternal values that are as valid in electronic days as in mechanical counter days."

Like his father, Watson, Jr. decided to "bet the company." He expanded IBM's physical capabilities, launching a storage development laboratory in San Jose, California (where Silicon Valley is today) that pioneered the development of disk drives. IBM also built major facilities in other areas including Rochester, Minnesota; Greencastle, Indiana; Kingston, New York; and Lexington, Kentucky. In 1957, Watson, Jr. ended an intense internal debate about computer architecture: "It shall be the policy of IBM to use solid-state circuitry in all machine developments. Furthermore, no new commercial machines or devices shall be announced which make primary use of tube circuitry." In addition, Watson, Jr., continued to partner with the U.S. government to drive computer innovation. The emergence of the Cold War accelerated the government's understanding of the potential applications of digital computing and led to the U.S. Department of Defense awarding major development projects to IBM throughout the 1950s. By 1961, five years after the passing of Thomas Watson, Sr., IBM had literally destroyed its old tabulating business, replacing it with a business fixated on computerization. During this time, the company grew two and a half times larger, and its stock quintupled. Of the 6,000 computers in operation in the U.S. at the time, more than 4,000 were made by IBM—that's market share!

Understanding how IBM's management has handled industry disruption in the past provides important background for assessing the company today. IBM is once again facing a challenge to its business, and its survival is once again on the line. Rather than stand still and continue selling traditional hardware and software, or evolving to lead the "next wave" in computing, the company has opted to repeat its past approach to major industry disruption: Destroying its previous business, "betting the company," and rapidly moving to the next level of technological breakthrough—cloud computing, data analytics, and artificial intelligence.

The advent of cloud computing has greatly impacted IBM's old-line, direct-sale hardware and software businesses. Realizing that the virtual and cognitive computing businesses are the future core of the technology industry, IBM decided to sell off its old-line PC and midsize hardware businesses. The company has quickly adjusted its direct hardware and software product lines to offer governments and corporations hybrid cloud services through more than 50 dedicated enterprise datacenters. IBM's government and large corporate enterprise cloud computing and service business is still emerging, however, and the company's loss of revenue and profitability from its previous mainstay direct-sale hardware and software businesses is not yet fully replaced by new service revenue from the growing enterprise cloud segment. Due to this challenging transition, and the unknown ability of IBM to succeed in the new technology environment, the company remains severely out of favor with investors. In fact, many analysts are questioning the company's ability to survive the shift from a seller of integrated hardware and software products to a flexible, service-based technology company.

In addition, many technology industry analysts believe that the service-based technology segment is a "commodity" business and the profit margins will be narrow, with hundreds of competitors seeking to gain scale in this easy-entry area. We disagree—we believe that private and hybrid enterprise cloud computing and services—as opposed to pure public cloud computing services that many companies are focused on—is a different ballgame. We believe that the highly fragmented, networked technology infrastructure segment will eventually consolidate among a few dominant players. Why?

information technology market. IBM has invested more than $4 billion into Watson Health by acquiring four healthcare IT companies: Phytel, a population health management company; Explorys, a healthcare data analytics company; Merge Healthcare, an imaging platform company; and Truven, a health data analytics company. Collectively through these acquisitions, the company has 100 million patient records, millions of images, and 200 million patient claims records, making IBM the largest non-government repository of healthcare data, with 600 petabytes of information covering 300 million patients. Using Watson, IBM will add an analytics layer to interpret and transform its stockpile of patient data and images to generate insights that will drive new drug discovery, provide clinical decision support in oncology and genomics, accelerate and improve the accuracy of disease diagnosis by improving medical image analysis, and deliver solutions for currently intractable chronic diseases.

IBM's healthcare industry plan would position the company at the forefront of a new market. IBM's goal in this area is not just to collect data, but to analyze, predict, and speed treatment recommendations through Watson, which will also learn from important medical literature published from all over the world. Watson's cognitive solutions will be the largest differentiator for IBM's future healthcare business. IBM will not be just a company that amasses the largest datasets, but an organization that serves as the platform of choice upon which other companies will develop applications, through distributed intelligence to local devices (fog computing).

From working with physicians at Cleveland Clinic and Memorial Sloan-Kettering Cancer Center to diagnose diseases and assess the best "personalized medicine" treatments for patients, to helping countries in Africa with ongoing challenges in healthcare, economics, and education, IBM's Watson Group is working to make the dream of cognitive computing a reality.

We think the opportunities in the cognitive computing field are boundless and that IBM has a leading position in developing and executing this "disruptive" innovation. Despite questions about IBM's ability to transition successfully to a new era in computing, the company is still demonstrating an ability to generate meaningful earnings (and cash). During 2016, IBM distributed approximately $8.8 billion to shareholders through $5.3 billion of dividends and $3.5 billion of stock repurchases. This represents an approximate 5.6% pass-through yield at the year-end stock price. We remain pleased with IBM's current returns to shareholders and optimistic about the company's long-term prospects in the new technology era.

Intel

Intel is a leading designer and manufacturer of advanced integrated digital technology platforms. An Intel platform consists of a microprocessor and chipset that may be enhanced by additional hardware, software, and services. Intel sells technology platforms primarily to original equipment manufacturers (OEMs), original design manufacturers (ODMs), and industrial and communications equipment manufacturers in the computing and communications industries across the computing continuum—in desktop, laptop, tablet, and mobile phone devices as well as servers and the "Internet of things" (IoT). (The IoT is the concept of a network of Internet-connected entities such as electronic devices, vehicles, buildings, kitchen appliances, etc. that are able to collect and exchange data using embedded sensors, empowering real-time computing in digital surveillance, new in-vehicle experiences, advancements in industrial and office automation, new solutions for retail and medical industries, etc.)

Intel holds a dominant market share in many of its product categories. Despite this dominance, however, technology disruption is impacting even Intel as consumers rapidly transition from primarily using desktop and laptop computers to primarily using smaller tablet and mobile devices. On top of the shift from midsize to smaller devices, the growth in cloud-based computing based in large data centers is replacing the need for people to acquire and maintain "home-based" personal computing capabilities. Due to this double-whammy technology shift, Intel's mainstay platform sales to the midsize, local computing segment (i.e. PCs) recently slowed and are now in decline. Thus, Intel is facing a challenging period, and the company is adjusting its business model to meet the growing demand for integrated digital devices and cloud computing products—areas in which Intel has had a minor presence in the past.

So, why are we maintaining a large position in Intel, as the company contends with a disruptive period that has created additional business uncertainty?

We believe that Intel has embarked on a promising strategy (encompassing both hardware and software) that will solidify its position in the new era of computing that is interconnected and distributed across a variety of platforms. The company offers enhanced energy-efficient performance, connectivity, and security and provides platform solutions that now span the computing continuum—from high-performance computing systems running trillions of operations per second to embedded applications consuming milliwatts of power.

As the boundaries of computing expand, with billions of devices connected to the Internet and to one another, Intel is placing its products close to the customer—where computing is becoming increasingly personal and enhancing nearly all aspects of life. The company refers to this evolution as the "personalization of compute." As personalization of compute develops, Intel has identified the following three key assumptions as central to its strategy:

- **Sensification of compute:** As computing becomes increasingly personal, users will demand that it capture the human senses such as sight, sound, and touch
- **Smart and connected:** More and more devices will be able to process data and connect to the cloud, other devices, or people
- **Extension of you:** Increasingly personal digital devices and their many form factors will become even more ubiquitous in our lives

These assumptions are driving Intel to develop complete and connected platform solutions that will maximize the user experience. These assumptions are also driving synergistic growth among Intel's business groups: Data Center Group, Internet of Things Group, and Non-Volatile Memory Solutions Group.

Intel's microprocessors form the backbone of the Internet and cloud-based computing. Data Center Map (a web service that serves as a liaison between providers and buyers of data center services) states that approximately 4,045 co-located datacenters in 116 countries (41% located in the U.S.) make up what we can call the "global computing platform." These data centers collectively contain more than 65 million computer servers, most of which are running on Intel products. Although this is a large number, a 2016 research report by MarketsandMarkets projects that data center server sales will grow at a compounded rate of nearly 20% between 2016 and 2021, from $36.5 billion to $90.5 billion. Intel is at the forefront of providing technology that will help this network operate successfully.

We are witnessing Intel transform and broaden its scope as the Internet of Things develops. As more devices become "smart" and connected, the demand will grow for data centers not only to connect these devices but to capture and analyze the data they create. In addition, improvements in memory technology are enabling faster and more efficient microprocessors. Intel calls the cycle of growth that results from the synergistic interaction of these three market segments the "Virtuous Cycle of Growth." As the company executes its networked, integrated product strategy, these market segments will continue to have greater impact on the company's results and further widen its competitive advantage.

In summary, Intel is managing the current technology disruption well, and the company is positioning itself for the next generation of computing. We believe Intel will play an important role in the utilization of computing and will obtain a terrific revenue and profit annuity stream in future years through its multi-product offering in both high-end and low-end computerization.

Intel will earn approximately $2.72 of adjusted earnings per share in 2016 and is projected to grow its adjusted earnings per share 3% in 2017, to $2.80 per share. We expect the company to continue its growth in future years as it further penetrates the cloud computing sector and works toward developing a profitable foothold in new business segments such as the Internet of Things. In 2017, we expect Intel to generate approximately $11.5 billion of owner-earnings and return approximately $8.5 billion of cash to shareholders through dividends of $5 billion and share repurchases of approximately $3.5 billion, respectively—Intel's dividend yield is approximately 2.9% at the year-end stock price, and the expected pass-through yield (including share repurchases) is approximately 4.9%. We consider Intel a well-positioned technology company and a good investment given its optimistic future.

FINANCIAL SERVICES GROUP

Berkshire Hathaway

Berkshire Hathaway remains our largest financial services holding as well as our largest overall position. Berkshire Hathaway experienced an approximate 8% growth in per-share book value during 2016, an increase from the 6.5% growth in per-share book value achieved in 2015. This year's per-share book value growth was positively impacted by the 20% increase in the stock price of Kraft Heinz Foods (Berkshire owns 26.8% of this company), but this gain was offset by the lackluster performance of other large holdings such as Coca-Cola and Wells Fargo. It is our estimation that Berkshire's overall equity portfolio increased by about 12% this past year—in line with the overall market. More important, Berkshire's wholly owned companies continue to perform well and add to book value, despite slow growth in the U.S. economy. We expect Berkshire's businesses to perform even better in the future, given the possible increase in infrastructure spending in the U.S. that would have a positive impact on Berkshire's industrial holdings, including Burlington Northern railroad, Precision Castparts, and Lubrizol.

Despite our continued use of Berkshire's growth in per-share book value as a measurement of its growth in intrinsic value, we should be careful about placing too much weight on this value as an accurate reflection of Berkshire's true increase in value as a company. Warren Buffett explains the ever-increasing difference between Berkshire's book value and intrinsic value in the company's 2015 annual report:

> *Over the last 51 years (that is, since present management took over), per-share book value has grown from $19 to $155,501, a rate of 19.2% compounded annually.*
>
> *During the first half of those years, Berkshire's net worth (book value) was roughly equal to the number that really counts: the intrinsic value of the business. The similarity of the two figures existed then because most of our resources were deployed in marketable securities that were regularly revalued to their quoted prices (less the tax that would be incurred if they were to be sold). In Wall Street parlance, our balance sheet was then in very large part "marked to market."*
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> *By the early 1990s, however, our focus had changed to the outright ownership of businesses, a shift that diminished the relevance of balance-sheet figures. That disconnect occurred because the accounting rules that apply to controlled companies are materially different from those used in valuing marketable securities. The carrying value of the "losers" we own is written down, but "winners" are never revalued upwards.*
>
> *We've had experience with both outcomes: I've made some dumb purchases, and the amount I paid for the economic goodwill of those companies was later written off, a move that reduced Berkshire's book value. We've also had some winners—a few of them very big—but have not written those up by a penny.*
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> *Over time, this asymmetrical accounting treatment (with which we agree) necessarily widens the gap between intrinsic value and book value. Today, the large—and growing—unrecorded gains at our "winners" make it clear that Berkshire's intrinsic value far exceeds its book value.*

This explanation highlights that the value of many of the businesses Berkshire has purchased over the years has increased enormously, but accounting for those 100%-owned entities does not allow for these businesses to be marked up to reflect their increase in value on Berkshire's balance sheet. For example, Berkshire purchased Burlington Northern Santa Fe railroad (BNSF) in early 2010 at an equity value of approximately $34 billion (a note to finance aficionados: This acquisition added around $14.8 billion of goodwill to Berkshire's balance sheet). Seven years later, however, the equity value of BNSF is likely in the range of $80 to $85 billion. The approximate $50 billion increase in BNSF's equity value is not reflected on Berkshire's balance sheet, because the company is no longer a marketable security that trades on the exchange; rather, BNSF is now a wholly owned subsidiary of Berkshire. Standard accounting practices do not permit Berkshire to mark up BNSF to reflect its increasing value in Berkshire's balance sheet, however, which has contributed to a widening of Berkshire's book value vs. intrinsic value over time. This is also the case for the other wholly owned companies Berkshire has acquired over the years—as these companies have grown in value over time, the disparity between book value and intrinsic value increases. This anomaly will continue into the future (and

likely continue to widen) as Berkshire's wholly owned businesses grow in value and Warren Buffett makes outright purchases of additional businesses, adding them to the company fold.

Adding insult to injury on the book-to-market value measurement of Berkshire's worth, a proposed upcoming change to the U.S. tax law that would lower the corporate tax rate would add to Berkshire's net worth with just a stroke of the pen. In our 2012 annual letter, we cited one accounting entry that contributes to the difference between Berkshire's book value and intrinsic value: A deferred tax liability on its balance sheet that is recognized as a liability but, in fact, a portion could theoretically be considered an asset. A reminder: a deferred tax liability occurs when taxes are owed but have not yet been paid. In Berkshire's case, a considerable amount of the company's approximate $75 billion deferred tax liability is represented by capital gains embedded in securities owned by the company, that Berkshire will eventually have to pay taxes on when sold. In Berkshire's case, however, a large share of this deferred tax liability is associated with gains on companies such as Kraft Heinz, Coca-Cola, American Express, and Wells Fargo stock. It is highly unlikely that Berkshire will ever sell its position in these companies—arguably making their percentage of the deferred tax liability an asset. As a deferred tax liability represents anticipated payments to government entities in the event of a sale of these securities, a change to the U.S. tax law that lowers the corporate tax rate reduces the deferred tax liability represented on Berkshire's balance sheet. If a lower corporate tax rate is passed in the future, an accounting adjustment would be made that lowers the deferred tax liability on Berkshire's balance sheet—raising the book value of Berkshire by up to $20 billion.

An obvious question: Would this accounting change that results from a reduced corporate tax rate increase the value of Berkshire's holdings in Kraft Heinz, Coca-Cola, American Express, and Wells Fargo if Berkshire never had an intention to sell those securities? The technical accounting answer is "yes" but, in reality, this accounting adjustment would not have an impact on Berkshire's intrinsic value if the company never intended to sell those positions. (Also note that lowering the corporate tax rate would increase the intrinsic value of Berkshire, because a lesser portion of its future earnings would be subjected to taxes—increasing both earnings and cash flow for owners.)

Ultimately, book value serves as a fair proxy for Berkshire's value creation but is losing its luster as time progresses and the company pursues full ownership of businesses. At the year-end 2016 stock price, Berkshire's market value is approximately 1.46 times its book value. We estimate that trading at approximately one and a half times its liquidation value (without allowing for any adjustments for wholly owned companies that have increased in value), Berkshire's intrinsic worth is higher than its current market price.

Berkshire did not consummate any significant deals during 2016, after completing the largest acquisition in the company's history in 2015—picking up Precision Castparts Corp. for an aggregate consideration of approximately $31.7 billion. Instead of impatiently allocating capital and overpaying for additional assets in 2016, Berkshire reloaded its acquisition gun as it waits for its next opportunity, while accumulating around $85 billion of cash and cash equivalents on its balance sheet. We will see what happens in 2017!

Berkshire keeps growing and effectively allocating capital, creating greater intrinsic value for shareholders. Berkshire continues to flex its financial muscle, producing long-term value from a well-established financial business that consistently generates a low cost of borrowed customer funds (less than zero). The float produced by Berkshire's insurance subsidiaries "sticks" within the company for many years—i.e., Berkshire gets to maintain premiums paid by insurance customers for years prior to paying out claims. Berkshire primarily generates its float by providing insurance directly to individuals (through GEICO) as well as by providing coverage to other insurance companies against very large catastrophic-loss events, such as hurricanes and earthquakes (this is called "reinsurance").

With the long length of time Berkshire holds customer funds, the company benefits from the ability to investing "float" with a long-term horizon—to obtain a highly probable rate of return on this money. Berkshire invests the funds in understandable assets and, in many cases, in wholly owned businesses that will remain a part of Berkshire indefinitely.

In summary, Berkshire's business model pivots on making investments in and/or buying good companies at attractive valuations with low-cost insurance funding. Mr. Buffett is continually buying businesses that generate very high levels of cash flow that accumulates over time—and then effectively reallocates this cash to

ever-increasing opportunities. We remain enthusiastic owners of this valuable company, and we look forward to Warren Buffett's future allocation decisions as he continues to build this great business.

American Express (Don't Leave Home Without It)

Our second-largest financial services investment is American Express Company (Amex). Most people are familiar with this company but may not be fully aware of its business. For example, many know that the American Express's principal products and services include charge and credit payment card products as well as travel-related services offered to consumers and businesses around the world. The company's full range of products and services go well beyond charge and credit card products, however, including network services; merchant acquisition and processing, servicing, and settlement; marketing and information products and services for merchants; fee services, including fraud prevention services and the design and operation of customer loyalty and rewards programs; expense management products and services; merchant financing products; travel-related services (including traveler's checks); and stored-value/prepaid products. American Express products and services are sold to diverse customer groups that include consumers, small businesses, mid-size companies, and large corporations.

American Express is truly a one-of-a-kind company that enjoys a unique credit and charge business based on its "closed-loop system." The simplest way to explain Amex's closed-loop system is to describe the opposite—i.e., an "open-loop system," which is how Visa and MasterCard operate. Visa and MasterCard clients are primarily banks and financial institutions, known as issuers, which issue cards to their customers bearing the Visa or MasterCard logo and bear all risks for extending credit. When a cardholder uses a Visa card to purchase goods or services from a merchant—let's say a store—information is sent via Visa's network to the merchant's bank, known as an acquiring bank. The customer's card-issuing bank pays the merchant's bank through the network, which then pays the merchant. The card-issuing bank then sends a monthly statement to its customer for all charges incurred during the period and may earn interest from the cardholder on any outstanding balance the customer does not pay immediately. The issuing bank may also charge the customer a fee for the use of its credit card. In addition, the issuing bank earns an interchange reimbursement fee from the merchant's bank, which charges a merchant discount fee for handling the merchant transaction. Visa participates in this network exchange by charging data processing fees and service fees to its financial clients but is not involved in lending money. Thus, unlike an issuing bank, Visa is not exposed to any credit risk and earns revenue on the volume of transactions carried out through its associated cards. Leaving aside all this transaction complexity, all we need to remember about the open-loop system business model is that it involves five separate parties that all receive a financial benefit for each transaction.

On the other hand, using its closed-loop system, American Express acts as both the issuer and the acquirer by issuing its own cards through its banking subsidiaries. The company's primary source of revenue is the discount fee it charges to merchants that accept American Express cards (Amex's merchant fees are usually higher than other financial institutions, and we will explain why later). These fees are charged as a percentage of the charge amount processed for the merchant and account for around 65% of the company's revenues. American Express may also generate revenues from interest on loans that are issued to cardholders, from cardholder membership fees, and from travel services. Unlike the Visa and MasterCard model, the American Express revenue model does not depend on the volume of transactions processed but focuses on the total amount spent by each customer. Thus, American Express employs a "spend-centric" business model, attracting affluent customers who are likely to spend more than average (the average payment volume per transaction for an American Express card is more than $100 higher than Visa's).

The American Express Competitive Advantage

In addition to its use of the closed-loop system, American Express processes a dominant market share of the travel and entertainment expenditures of major corporations. This requires explanation and demonstrates how the closed-loop system plays a crucial role.

Large corporations like United Technologies bid out the management of their travel and entertainment budgets to travel management companies, and American Express is by far the largest in the world. Amex supplies travel and entertainment management systems to its large corporate customers that include travel planning software as well as travel and entertainment payments, including expense reporting. As part of its travel policy,

United Technologies employees are required to charge all their business-related travel and entertainment expenses on their corporate-issued American Express cards. Because American Express has a dominant market share of travel management systems used by major corporations, travel and entertainment establishments such as restaurants, hotels, car rental companies and airlines that wish to server corporate clients must accept the American Express card. Imagine a UTC salesperson taking prospective customers out for dinner and presenting a corporate-issued American Express card for a large bill—and being told that the restaurant does not accept the American Express card. For obvious reasons, this scenario is a rarity. American Express leverages this advantage by charging merchants more for accepting the American Express card. This situation is a longstanding "bone of contention" between merchants and American Express—but a very difficult one for merchants to negotiate, since American Express dominates the corporate travel industry. Now that is a business.

American Express developed the closed-loop system to optimally serve its base of corporate clients that require effective management of large corporate travel and entertainment budgets. The American Express travel and entertainment expense management system collects all travel and entertainment information and allows American Express and its corporate customers to jointly negotiate discounts for air fares, hotel and car rental rates, etc.

In summary, American Express' competitive advantage lies in the company's unique ability to assist the corporate customer segment with a travel and entertainment expense management system that is unmatchable. The company's wide-ranging closed-loop network in this area is unique and will continue to serve as a competitive advantage as social media evolves and targeted advertising to corporate customers in a mobile world becomes more prevalent. This one-of-a-kind business model will continue to serve a broad-based platform for consumers, merchants, and future partnerships like no other product.

The benefits of Amex's closed-loop system are not limited to providing major corporations exceptional management of travel and entertainment expenses. This special business system also serves small and midsize companies by providing a different and unmatchable supply-chain management-expense control system. The American Express OPEN product leverages the closed-loop system to tie in a company's suppliers (for inventory and payables) as well as its customers (for receivables). The way it works: American Express has an extended merchant network that includes many different suppliers and small businesses that purchase from each other, which then sell to large corporations that are already part of the Amex network. Deploying emerging data analytics and artificial intelligence technology, American Express is able to provide a unique capability to match suppliers to corporations as well as assist in inventory management and cash management—offering additional terms, as well as benefits, to suppliers and corporate customers. Amex can also leverage the knowledge/information generated by its extended network to negotiate discounted rates on various supplies that small companies may not be able to achieve on their own.

So, why has American Express' stock price been under pressure over the past 24 months, and why accumulate it now?

In 2016, American Express broke off its partnership card with Costco. The American Express Costco card was exclusively accepted at Costco and represented approximately 10% of American Express' business. But during the partners' renegotiations, American Express allowed the relationship to terminate based on its assessment that Costco was demanding an excessive share of profit.

This split may diminish returns and shareholder value in American Express in the short term. The takeaway for American Express regarding future merchant partnerships is to co-brand only with companies that fit the American Express image. Association with price-sensitive merchants (or consumers) will ultimately lead the high-end Amex brand to be compromised and commoditized. The Costcos and similar price-sensitive merchants of this world are built to achieve scale and eventually leverage down their partners.

It is our opinion that American Express is not (and never has been) just a "card company" that serves the masses. The chase for low-producing, price- and credit-sensitive consumers will likely be left to banks that are not brand-sensitive but have a desire to create scale primarily by lending to lower-quality, fickle consumers (most consumers in this segment seem to trade credit cards like we use to trade baseball cards).

We believe that American Express has an ongoing opportunity to cross-sell and increase its share of customer wallet through additional cards issued in the growing high-end consumer segment. This niche opportunity will continue to develop for many decades as the percentage of "wealthy consumers" grows globally—and the Costco loss will engage the American Express organization to passionately plan, innovate, and adapt to find ways to replace this revenue stream at a higher value to shareholders.

During 2017, American Express is expected to produce around $5.0 billion of earnings, or $5.62 per share. More important, the company is distributing 100% of its earnings through dividends of $1.2 billion and share repurchases of nearly $4.0 billion—representing a pass-through yield of 7.7% at the year-end stock price. With American Express' tremendous future in a global marketplace where cash sales are diminishing, higher-income consumers are growing, and corporate productivity pressures are mounting, we are enthusiastic owners of this great franchise.

RETAIL GROUP

Our major retail holdings—Home Depot and Walgreens Boots Alliance—enjoyed another year of expansion in 2016, with retail purchases growing again at both specialty businesses. Year-over-year sales increased by approximately 10% for these combined entities in 2016, and our expectations are that their combined sales growth will exceed 10% in 2017—quite a feat for large retailers. The expanding intrinsic business value of Home Depot and Walgreens Boots Alliance in 2016 was not reflected in the growth of their stock prices, but we remain fervent owners of these great businesses and are confident that the growth of intrinsic value will be reflected in these organizations' stock prices in the future as they continue to execute the four essential elements of retail success:

1. **Excellent customer service:** If individuals walk into your store and get a whiff of poor customer service, they will likely turn around and shop elsewhere. Customer service is paramount in the retail business, and not something any retailer can compromise on.
2. **Product selection and superiority:** A retailer must constantly ensure that it is offering the right selection of products at the best possible price. You can provide a great service to your customer with attentive associates and a wonderful retail atmosphere, and then deliver a disservice by stocking the right products at the wrong price, the wrong products at the right price, or—worse yet—the wrong products at the wrong price.
3. **Value creation:** It is tough—perhaps very tough—to make money in retail. A robust understanding of product turnover, day-to-day revenue and expense management, and long-term capital allocation decisions all play into successful value creation.
4. **How to blend one's "bricks and mortar" offering with the new "online channel":** Interconnected retail continues to be a growing dimension of this industry. Successfully integrating the in-store and online customer experience is essential to creating customer and company value.

We have stated several times in the past how retailing has many moving variables that require tending each and every day. Inattention to any of these details leads to self-destruction—as examples, Sears and JCPenney continue to struggle in one or more of these areas, resulting in sales and profitability challenges.

Our interest is in large, industry-specific retailers that gain economic value as their industries consolidate over the long term—Home Depot and Walgreens Boots Alliance continue to fit our perfect retail description. These retailers are adding value as their specialty segments continue to undergo consolidation and small competitors fall by the wayside, a dynamic that accelerates during slow economic growth. The retail areas in which we are invested focus on a couple of two-horse races—between Home Depot and Lowe's in the home improvement market, and between Walgreens Boots Alliance and CVS in the retail pharmacy market. All four are continuing to gain ground in the difficult retail spaces in which they participate and will likely gain further ground in upcoming years. We have not changed our view: Our retail enterprises are extremely valuable, and it is virtually impossible for new competitors to gain a foothold in these specialized retail segments that require substantial infrastructure and real estate development.

Home Depot

Home Depot had another fantastic year, with some 2,280 stores increasing same-store sales 5% and gross margins hovering around 34.2%—higher sales coupled with a high profit margin in this space leads to maximizing shareholder value. In 2016, Home Depot's sales of "big ticket items" such as appliances, lumber, and flooring increased—an indication that housing continues its recovery throughout the U.S. and that consumers are willing and able to invest in their property. Home Depot is thriving and will continue to prosper as the company relentlessly focuses on providing the best of the four "great retailer" legs outlined previously.

Home Depot's customer experience initiative remains anchored on the principle of "customers first." During 2016, the company continued its focus on providing customers a seamless and frictionless shopping experience in stores, online, on the job site, and in their homes. For example, this year Home Depot rolled out a complete redesign of its website and mobile app to optimize the customer's online experience across all devices—desktop, laptop, tablet, and mobile. The website redesign included an enhanced "buy" box that makes it easier for customers to select their preferred fulfillment option at checkout. In addition, the company enhanced the dynamic estimated time of arrival (ETA) feature for online purchases. Dynamic ETA provides a more timely and accurate estimated delivery date, which leads to increased customer satisfaction and usage. Home Depot's "Customer First" and "Localization" (to create a product assortment that is tailored to each local market) initiatives enhance customer service and provide greater product selection targeted to specific customers.

Home Depot continues to embark on other initiatives to further grow its product selection and create value for customers and shareholders. Home Depot's 2015 acquisition of Interline Brands for $1.6 billion has reached its one-year anniversary, and the large wholesale distributor of maintenance, repair, and operations products for non-industrial businesses is being fully integrated into Home Depot's business. Home Depot is creating a one-stop shop for Interline customers, including the sale of items such as flooring, countertops, electrical, janitorial, plumbing, and security supplies to property managers and institutions such as hospitals.

Home Depot is committed to improving the efficiency of its supply chain through a multi-year program called Project Sync, which the company is rolling out gradually to suppliers across its Rapid Deployment Centers. This initiative will allow Home Depot to significantly reduce average lead times from supplier to shelf, reduce transportation expenses, and improve inventory turns. As the company rolls out Project Sync, it plans to create an end-to-end solution that benefits all participants in the supply chain—from suppliers to transportation providers; to distribution centers to store associates; and, finally, to customers. Project Sync takes efficiency to the next level as Home Depot enhances its integration of "bricks and clicks"—i.e., directly delivering goods from local stores to customers that order online. The "buy online, deliver from store" program improves inventory turn and lowers fulfillment costs and in-stock inventory. Home Depot can now ship directly to 90% of its customers within two business days.

These initiatives are expected to further drive Home Depot's sales and profitability over the next several years, and likely many years into the future. Even though Home Depot is large, it has a lot of room for future growth—the company estimates that it has a 27% to 28% share of the "do-it-yourself" (DIY) market, and only a 10% to 12% market share of the professional contracting business (PRO).

We expect Home Depot to earn approximately $7.17 per share in calendar 2017 (up 13% from 2016) and to increase earnings another 13% in calendar 2018—to approximately $8.10 per share. By staying focused on the four-legged stool of retail success, Home Depot continues to produce significant amounts of cash that is being distributed to shareholders. The company will generate nearly $9 billion of owner earnings in 2017 and will return this cash to stockholders through share repurchases of approximately $5.5 billion and $3.5 billion of dividends (a 5.5% pass-through yield at the year-end stock price). We remain delighted with the company's ongoing focus on customers and shareholders and plan to remain long-term owners of this one-of-a-kind, specialty retailer that is sidestepping the retail disruption of online-focused e-tailers such as Amazon.com.

Walgreens Boots Alliance

Walgreens Boots Alliance is another one-of-a-kind, specialty retail firm that is focused on the healthcare segment—and Walgreens continues to gain strength as the company increases its domestic and global market share. Walgreens has put the pedal to the metal on growth, having executed on its plans in 2015 to become a global entity through its second-stage acquisition of Alliance Boots, the leading pharmacy-led health and

beauty group in Europe. Now that this unification has taken place, the new management team under the leadership of Stefano Pessina is successfully integrating and transforming the traditional drugstore and creating a company platform for selling and distributing healthcare products to more than one billion people located in 11 countries through 13,200 stores and more than 390 wholesale distribution centers. Walgreens Boots Alliance has an integrated, global drug distribution platform that is unmatched—providing this company a "first mover global advantage." The combined company is one of the largest purchasers of prescription drugs in the world, giving it substantial leverage in negotiating lower-cost prescription drugs for customers.

Pushing the pedal *through* the metal: Walgreens Boots Alliance is nearing the final stages of its $17.2 billion acquisition (including debt) of Rite Aid Pharmacy in the U.S. The $9.4 billion paid to Rite Aid equity holders will be completed via a cash payment from Walgreens Boots Alliance, which eliminates dilution to current Walgreens Boots Alliance shareholders—a feature that is extremely important to us. After the acquisition is completed in 2017, Walgreens will become the undisputed leader in retail pharmacy products in the U.S. through a combination of Rite Aid—the third-largest drugstore chain in the U.S., with 4,561 stores —plus Walgreens' current U.S. store base of 8,175 locations (Walgreens and Rite Aid have so far agreed to sell 865 stores to win U.S. regulatory approval).

We are looking for Walgreens Boots Alliance to continue increasing in value as the company takes advantage of industry consolidation while maximizing productivity efficiencies and emphasizing unmatched customer and patient healthcare services. The combined global entity will continue to expand product selection at affordable prices and interconnecting the global in-store and online retail experience to create a specialty healthcare business that is different and unmatchable. We believe that the Walgreens Boots Alliance of the future is shaping up to be much more than a typical retail pharmacy. The company's planned evolution to offer global consumers a more integrated package of healthcare services promises to create significant value for shareholders.

Walgreens Boots Alliance produced positive results in 2016, with U.S. same-store sales growing by approximately 3.8%. The company had adjusted earnings of $4.59 per share in its fiscal year-end, August 2016, and should grow earnings at approximately 10% in fiscal 2017, to $5.05 per share. We continue to be excited owners of this emerging global healthcare franchise and expect terrific results in the future.

MEDIA & COMMUNICATIONS GROUP

The media and communications business continues to be a challenging investment area—the industry remains extremely competitive and dynamic due to its reliance on changing technology infrastructure, including internet and cable. Due to the vast and growing number of channels available for content distribution and the multiple mediums through which consumers can access entertainment, it is paramount that media companies create and distribute "great content" to attract customers and advertisers. We know of no other business in which a customer or advertiser can switch loyalty as quickly as in the media business. And a migration in advertising revenues to new emerging media companies continues to accelerate due to the disruption in this industry. As a result, several legacy content providers that mostly rely on advertising revenues to drive profitability continued to struggle with a loss of revenue and earnings in 2016. Clearly, it is important to choose media companies that have a special grip on the marketplace by producing exceptional content that attracts various advertisers despite the disruption created by services such as Netflix and Amazon Prime. In this category, we continue to hold what we consider to be the best media business in the industry: Disney.

Walt Disney Company

Disney is the one business that we can place in the "invaluable" category due to its unique franchise. The invaluable nature of Disney is based on its different and unmatched content (films, characters, etc.) that is analogous to an oil well that keeps producing indefinitely after incurring an initial development expense. Each time the company develops an animated or iconic film, much of the film development is expensed at the time of its introduction. In future years, when the company re-launches these classic films in updated formats (DVD, 3D, and soon: virtual reality), Disney attains additional revenues and profits without incurring the original development expense. We refer to these re-launches from the company's film library as "accessing the Disney vault." That the content of this vault consists of gooses rather than golden eggs is an important

investment point—the magic gooses keep laying golden eggs—e.g., *Snow White and the Seven Dwarfs, Pinocchio, Bambi, Cinderella, Alice in Wonderland, Peter Pan, The Little Mermaid, Beauty and the Beast, The Lion King, Aladdin, 101 Dalmatians, Frozen, Inside Out, The Good Dinosaur, Finding Nemo, Finding Dory,* and—Disney's most recent animated production—*Moana.* We can envision our grandchildren's grandchildren watching many of these classic Disney films in the new millennium, no matter what future medium the content is delivered on. The value of the Disney vault is incalculable due to the ongoing annuity associated with reissuing previous iconic films as novel delivery mediums emerge, as well as depositing future iconic films in this Disney vault.

Disney's current CEO, Bob Iger, and his management team continue to do a remarkable job creating shareholder value. Mr. Iger has maintained the company's culture and focus while expanding Disney's invaluable content library, broadening its distribution network, and embracing new technologies that complement and enhance the Disney experience. In addition, under his leadership, new film franchises (i.e., golden gooses) are being added to the Disney vault through the company's creative team, which is unmatched in both animated and unanimated film. During Disney's 2017 fiscal year, the company is adding to its Star Wars franchise with the recent release of *Rogue One: A Star Wars Story*—the film produced $155 million in its first weekend. In December 2017, Disney will launch *Star Wars: Episode VIII—The Last Jedi,* which will likely be a billion dollar-plus blockbuster. In 2017, Disney is also scheduled to debut three live action films: *Beauty and the Beast*, *Guardians of the Galaxy 2*, and *Pirates of the Caribbean: Dead Men Tell No Tales*. We expect these franchise extensions to do very well at the box office.

Mr. Iger is committed to staying in the leadership position at Disney through 2018, and we are confident that the company will find a talented successor. We believe that Disney has stronger long-term growth prospects than most investors realize due to the company's highly competitive position in the media and entertainment industry. Disney's broad range of content and growing international presence (Shanghai Disney Park opened to large crowds in 2016) will allow the company to extend its global reach for many years to come.

Disney earned $5.73 per share in its fiscal year-end September 29, 2016 (up 17% from the previous year) and should grow earnings at approximately 5% in the next fiscal year, to $6.00 per share. The company will generate more than $9 billion of owner earnings and is expected to return a large portion of this cash to stockholders through share repurchases of approximately $7 billion and dividends of $2.5 billion. We remain enthusiastic owners of Disney as the company continues to expand its global franchise, adding value for shareholders.

AT&T

Over the past three years, we built a rather large position in AT&T. A lot has happened at AT&T this past decade as the company reinvents itself as a global Internet Protocol (IP) networking provider dedicated to delivering powerful networks, applications, and capabilities to business, government, and consumers. Far from its old days of offering phone service, today's AT&T provides sophisticated communication services, including wireless technology, broadband, and Voice over Internet Protocol (VoIP) for consumers and businesses. And AT&T continues to evolve at a rapid pace in the disrupted media and communications industry.

In 2015, AT&T expanded its communication capabilities by completing a $48.5 billion acquisition of DirecTV. DirecTV is a leading satellite broadcast provider of digital television entertainment in the U.S. and Latin America. Satellite broadcasting is an alternative to cable service. During 2016, the combination of AT&T and DirecTV has enabled these companies to leverage their unique capabilities to exploit a global communications opportunity. AT&T's expertise and offerings in networking, wireless, broadband, and IP, coupled with DirecTV's satellite broadcasting network, has created a powerful platform for AT&T to develop globally—and that expansion is quickly taking place.

Not to rest on its laurels: In October 2016, AT&T and Time Warner announced that they have entered into a definitive agreement under which AT&T will acquire Time Warner in a stock-and-cash transaction valued at $85.4 billion. This deal will bring AT&T into the world of content. Time Warner is a global leader in media and entertainment with a terrific portfolio of content creation and aggregation that includes iconic brands across video programming and TV/film production. Each of Time Warner's three divisions is an industry

leader: HBO, which consists of domestic and international premium-pay television and streaming services; Warner Bros. Entertainment, which consists of television, feature films, home video, and distribution (the Warner Bros. film franchises include Harry Potter & DC Comics, and its produced TV series include "Big Bang Theory" and "Gotham"); and Turner broadcasting consists of U.S. and international basic cable networks, including TNT, TBS, CNN, and Cartoon Network.

While there are regulatory hurdles to be cleared for this deal to be consummated, we believe that the opportunity to create a different and unmatchable company is worth AT&T's pursuit of Time Warner. By combining Time Warner's vast library of content through HBO, Turner Broadcasting, and Warner Brothers, the new AT&T would have the ability to create new premium content that connects with audiences around the world through the company's extensive customer relationships, largest global pay-TV subscriber base, and leading TV, mobile, and broadband distribution scale.

In summary, AT&T represents a valuable company with growing global reach that offers customers a combination of data and video on all devices and, possibly, content in the future. We believe that AT&T is a dynamic enterprise that is creating incremental intrinsic value for shareholders. In 2016, AT&T produced approximately $17 billion of owner-earnings, and the company's approximate 4.6% year-end dividend yield is among the highest of large companies. We remain excited owners of AT&T and believe that this evolving franchise is adapting to disruption taking place in the media and communications industry and represents a fantastic investment today, along with an opportunity for growth in the global media and communications market.

COMMODITY-BASED HOLDINGS

Our commodity-based holdings include Chevron and several smaller positions in other oil companies. We have now held commodity-based positions for some 12 years, primarily through an investment in integrated oil companies. At the time of our initial commodity-based purchases, we were concerned that higher oil prices might occur as a result of the possible deterioration of worldwide currencies, given governments' historical propensity to print money to stem the impact of any financial crisis in their countries. Of course, a financial crisis did occur in 2008-2009 and, since then, we have been facing an ongoing financial predicament as governments work themselves out of the global financial quagmire, largely by printing money.

Although the price of oil climbed from around $45 per barrel from our initial purchase to more than $145 in mid 2008, our thesis for higher oil prices has not panned out over the past few years. Since the 2008 financial crisis, the per-barrel price of oil has plummeted to the point that we can consider this commodity to have crashed. From December 2013 to December 2015, the price of West Texas Intermediate crude oil nosedived from approximately $100 per barrel to $37 per barrel. At the end of 2016, we decided to reassess the long-term opportunities in our commodity investments and concluded that our opinion has not changed much since 2004: We remain concerned about the global financial system that is contending with ongoing challenges related to growing debts and imbalanced currencies, while long-term demand for oil continues to rise—these circumstances are interrelated.

The price of oil is volatile and difficult to predict. In 2013, industry analysts had predicted that the per-barrel price of oil would be around $100 at year-end 2104—so much for that prediction, as the per-barrel price of oil ended at around $53 that year. The U.S. Energy Information Administration (EIA) forecasted a $68 average worldwide price per barrel of oil in 2015. That was incorrect—the per-barrel price ended the year under $40. At the end of 2015, experts were forecasting that oil would trade between $27 and $37 per barrel throughout 2016, with several analysts predicting that the per-barrel price of oil would ultimately settle below $20—these projections were mistaken as well, as the WTI (the "West Texas Intermediate" benchmark for oil pricing) per-barrel price of oil ended the year at $53.72.

This brings us full-circle to a point we made at the beginning of this letter, where we discussed forecasting: The majority of experts are likely to be wrong. All this forecasting still seems silly to us, since many variables continue to impact the short-term price of oil, including short-term imbalanced trends in supply and demand, a fluctuating dollar (oil trades largely in U.S. dollars), shifts of distillate processing from one region to another, and "controlled production measures" currently taking place among OPEC's 13 member countries as well as non-OPEC nations such as Russia.

More important than focusing on the oil price decline (or recent increase) is the need to evaluate the domino impact that low oil prices can have on the global economy, which has reverberated throughout the global financial system:

- Reduced revenue greatly impacted deficits and currencies for countries that are reliant on oil sales, such as Russia and Saudi Arabia—this was a reason to agree on controlled production in 2017
- Reduced investment in oil drilling has had an impact on U.S. oil company earnings and energy employment—however, with controlled production announced by OPEC and non-OPEC nations resulting in recent higher oil prices, U.S. oil production is likely to pick up in 2017
- Inexpensive gasoline is increasing fuel consumption, leading to purchases of larger automobiles and a delay in developing more energy-efficient transportation infrastructure
- Banks and investors that have lent money to oil development businesses, as well as emerging market companies that borrow in U.S. dollars, are encountering loan stress that may impact borrowing in the future
- While growth has slowed due to short-term global demand for oil and short-term supply remains plentiful, new drilling in the U.S. declined over the past two years—large, integrated oil companies have made decisions to curtail capital expenditures for new drilling projects to preserve cash and wait for a future opportunity to produce oil at higher prices

When considering the current global supply/demand equation, the EIA measurement of worldwide oil consumption was around 95.4 million barrels per day in 2016—representing an approximate 1.5% year-over-year increase—and forecasts a growth of another 1.5% in 2017, to 96.9 million barrels per day. Oil production, on the other hand, had increased to 96.1 million barrels per day by the end of 2016 to meet growing oil demand and is expected to be around 97.4 barrels per day in 2017. It is clear that the global oil supply continues to remain ahead of demand and will take some time to balance out. This is beginning to take place, as OPEC recently agreed to a 1.2 million-barrels-per-day cut in production beginning January 2017, and the 11 non-OPEC nations (which includes Russia) agreed to a production cut of up to 600,000 barrels per day in 2017. In the past, these types of agreements to reduce oil production have often proved illusory and difficult to manage—we shall see what happens this time.

Where is Founders on all this?

We continue to believe that a long-term imbalance continues to grow between the current "easy" oil supply and global demand. We still believe that long-term oil demand is rising, and that worldwide oil consumption will break through the 100 million-barrels-per-day mark in the next 20 years. Considering the ongoing growth in demand, we are well on our way to this figure. It is our opinion that "safe" worldwide oil production capabilities are about equal to current demand. We believe that the future oil needed to meet rising demand is going to be "less easy" and more expensive to get out of the ground. The future oil supply to meet growing demand will come from further fracking in the U.S., tapping oil sands in Canada, and deep-water drilling in the Gulf of Mexico and Arctic Circle. With the ongoing oil price crash, many projects in these areas are now officially mothballed. In essence, the effects of ultra-low oil prices on companies such as Chevron and other large oil companies caused a reduction in capital expenditures, placing future production projects on hold. The impact of a delay in future oil exploration and production is yet to be determined—the length of time these complex projects take to reinstate is not widely appreciated. We stated in the past that surprises in the energy industry are the norm, and that mothballing complex projects needed to produce future oil to meet energy demand could have a domino impact that we may not expect—such as a long period of higher oil prices as rising demand eventually becomes more difficult to fill.

In the meantime, our combined oil holdings continue to produce cash for shareholders—the average dividend being paid by our oil company investments is approximately 3%. Given the higher-than-normal rate of return received through shareholder dividends on our oil company investments, we can afford to be patient and wait for higher oil prices brought about by the mix of increasing global demand and higher-cost oil production from difficult-to-produce oil fields.

FIXED-INCOME INVESTMENTS

The Barclay's U.S. Aggregate Bond Index, which represents the broad debt market, experienced a 2.65% gain in 2016. This increase follows an average annual bond index gain of approximately 1.45% over the previous three years. We have emphasized in the past few years that the heyday for high fixed-income returns has passed, and that investors pouring money into bond funds since the financial crisis of 2008 were likely to be disappointed. Unfortunately, many individuals missed the current opportunity for financial gain in equities, opting instead for the perceived safety of chasing elusive returns in the credit market. We feel as strongly—and perhaps more so—today as we did when we first wrote about this: Investor insanity in the fixed-income market has gone on for a longer period of time than we had anticipated.

When evaluating the current fixed-income market, we believe people would still be *far* better off taking a business approach to their investing. We reiterate: If people stepped back and looked at their fixed-income investments in a similar manner to an investment in a business, they would become skeptical about their future returns.

Let's say that a business with zero debt is able to produce a steady 10% return on equity. If management elects to retain the annual earnings of this business and plow the funds back into the company, investors can expect to see their so-called equity bond double in a little more than seven years.

Now let's look at a bond in a similar business light. If you purchase a bond at par that produces a 10% coupon and choose to retain the annual earnings from this bond and reinvest the money into the same bond at par each year, you will also double your money in a little more than seven years—producing a similar result to our business example.

Based on this example, it is our opinion that people purchasing bonds today are not applying a business perspective. For example, if we purchased a 30-year U.S. Treasury bond on December 30th at a 3% yield and chose to reinvest the coupon payments into those same bonds at par, it would take nearly 23.5 years to double our money. If we presented our clients with a similar arrangement to invest in a business that produces a 3% return on equity and retains all the proceeds to repeat this poor return, our judgment would be severely questioned, regardless of whether the business was assured survival. Unluckily, today's absolute abysmal return of 3% on a 30-year U.S. Treasury Bond is guaranteed to lose money against inflation that averages above 3% over the next 30 years (we will once again stay away from any forecasting). Nevertheless, many financial managers continue to place a greater-than-average portion of their clients' assets in *un*businesslike opportunities. (This does not mean that bond prices will never rise—investor panic and/or deflationary pressures can attract additional money to fixed-income investments in the future, even at low yields.)

We continue to emphasize several points that concern us about fixed-income instruments: Besides the ongoing poor returns generated in this area, looming risks associated with this "secure investment vehicle" include ongoing rising interest rates (which are on the table as we write this) and even greater chances of default. We remain concerned about low long-term market interest rates, which are destined to move upward as the Federal Reserve begins to slowly change direction on maintaining a low-interest-rate environment. As the economy continues to improve during 2017, the Federal Reserve has announced its intention to raise short-term interest rates three times during 2017, at .25% per decision. We shall see how this develops. Ultimately, the Fed's actions to raise interest rates will put pressure on the value of fixed-income instruments as well as other interest-sensitive assets. Although many still think that fast-rising interest rates are in the distance, our experience with oil over the past few years illustrates that the crowd is often wrong. Market interest rates could unexpectedly move upward at a faster rate than intended in the near future, which would place tremendous pressure on low-yielding fixed-income investments.

In 2017, we have ongoing tranches of municipal and corporate bonds coming due. We will continue to maintain a businesslike attitude toward our fixed-income investments, carefully allocating money to securities that offer a fair risk and return over the duration of the holding.

OUR FINAL THOUGHT

"To develop a complete mind: Study the art of science; study the science of art. Learn how to see. Realize that everything connects to everything else."

—Leonardo DaVinci

Our emphasis on the importance of integrating art and science in this year's letter provides an opportunity to communicate several related thoughts. Art and science are important human endeavors that can be brought to practice in just about any profession. Without art, where would we have an opportunity to appreciate the diverse sounds of Mozart or get satisfaction from the Rolling Stones, or to ponder the exquisiteness of Mona Lisa and the simple beauty of Pablo Picasso's Bouquet of Peace?

In some respects, a large percentage of American people live more comfortably today than J.P. Morgan did in the late 1800s due to advances in science and technology that would have been unfathomable more than a century ago. We enjoy communicating in a heartbeat with loved ones (text is in, voice is out), streaming desired content on any device, and receiving immediate health-related information based on technology developed by entrepreneurs driven to help people live healthier lives.

But with all these advances, we can't help but notice that something is amiss—something that is intangible but important to everyone. We can't put a handle on it completely, but extremism—whether in investing, political views, or cultural attitude—seems to be taking a dominant hold—and we see it throughout the world and in many spheres of activity, including investing. Perhaps all our modern comforts have created an environment for the seven deadly sins cited by Ghandi to take hold:

Wealth without Work; Pleasure without Conscience; Science without Humanity; Knowledge without Character; Politics without Principle; Commerce without Morality; and Worship without Sacrifice

Many of our clients have built, or are building, a retirement nest egg over a lifetime of work, conscious living, and the practice of humanity, character, principle, morality, and sacrifice. At Founders Capital Management, we pledge to build on our clients' foundation by working hard to grow wealth, by remaining conscious stewards of precious assets, by remembering the art and science of investing (especially the human desire to remain secure), by pursuing knowledge with humility and character, by putting aside politics that can create a rigid mindset, by seeking commerce with a moral compass, and by forgoing short-term immediate gains in favor of long-term safety and returns.

Our ethos will always be to value your money as if it is our own, and this is why we philosophically invest alongside our clients. This ensures that we are all in the same boat and that the intrinsic value of our businesses, our clients' well-being, and our own well-being are interrelated.

Each of us at Founders Capital Management remains grateful for your business and for your faith in our stewardship. We can't thank you enough for the opportunity to serve you and for your continued trust. We look forward to working on your behalf during 2017.

The examples and descriptions of investments in this client letter do not represent all of the investments purchased, sold, or recommended by Founders and instead represent:

1. *the 10 largest equity positions held by Founders' clients;*
2. *the two largest equity positions in each industry group to which Founders has allocated capital; and*
3. *all equity positions that account for 3% or more of the total funds allocated by Founders to equity holdings.*

The performance of these investments was not a criterion in determining the representative list. It should not be assumed that the investments identified and discussed were or will be profitable.

The views expressed in this report represent the opinion and analysis of Founders Capital Management based on data available from public sources at the time of writing. This report is not intended to provide any recommendations with respect to the purchase and/or sale of any specific security. It is recommended that individuals conduct their own research or consult with an investment advisor prior to making any investment decisions.

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