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Economic and Market Outlook

September 30, 2016

(Deconstructing Growth)

Section I. What Is Seems Not Enough

Part A. Preface

Jim Paulsen, Chief Investment Strategist and Economist at Wells Capital Management (subsidiary of Wells Fargo & Co.), was quoted by *MarketWatch.com*, August 1, 2016, as saying: "Just imagine how different the world would be if the published numbers for GDP were 3%. If that were the case, would this be the most hated bull market ever? Would there be such vitriol to established political candidates? Would there be chronic worries about a global slowdown?"

Paulsen put his finger on a major reason for the "Doom and Gloom" present in the financial press and among investors, consumers, and voters. Simply put, the financially related malaise we feel is directly related to the poor growth rate of the economic recovery, which has left in its path a general sense of being economically left behind. Slow growth in income improvement and a widening of income inequality between labor and the owners of capital has contributed to the sense that things are somehow going very wrong.

It could be pointed out that the Great Recession (2007-09) did not become a Depression like the 1930s, throwing 25% of the labor force out of work, while driving businesses, including those in manufacturing, banking, agriculture, etc., into something that could be called a catatonic state, or worse.

What puzzles so many economists is the persistence of "Doom and Gloom," despite having missed the Depression-Bullet and having witnessed a return to pre-recession employment levels.

There are many opinions offered as to why the recovering growth rate has been so slow, but none of the explanations has been truly satisfactory.

A recently released study, which we will examine carefully later, has finally found some answers, and they are extremely helpful in that they present key reasons why the dramatic acceleration of innovations has not increased our growth rate to date.

The study's answers are markedly different from those of the current consensus.

Before taking on the subject of economic growth and the prospective of the key drivers of GDP growth—production and innovation—we will begin with an update of both the economy and the stock market.

Paulsen is right in that slow growth is not enough. We need to understand the outlook for the growth rate (i.e., what the historical growth rate is and when it is likely to return to normal). Since the stock market's rate of return is tied to economic growth, our review of economic prospects will answer the market's prospects as well.

The balance of Section I will present the relevant data supporting continued economic and stock-market expansion. Section II will examine the prospects for a greater growth rate. Section III will return to considerations for investment analysis.

Part B . Economic Expansion Continues

Earlier this year, we presented our seven key indicators used to forecast the direction of economic activity. Our March report offered these tools to help allay concerns that the stock-market correction that ran from November of 2015 through mid-February was not the first negative leg of a developing bear market.

The point of showing that the economy remained sound was to point out that there was no indication of the onset of a recession and, without such an event, the probability was extremely high that no bear market was in process.

That the mid-February market level was the low proved correct, as the economic indicators strongly suggested.

Charts of the seven forecasting tools are now a regular feature of our reports because they offer the best evidence of the market's likely direction.

The updated Charts are as follows:

Chart-1 (Civilian Unemployment Rate)
Chart-2 (Real Retail and Food Service Sales)
Chart-3 (Industrial Production Index)
Chart-4 (Real Personal Income Excluding Transfer Receipts)
Chart-5 (All Employees: Total Nonfarm Payrolls/Civilian Labor Force)
Chart-6 (10-Year Treasury Constant Maturity minus 2-Year Constant Maturity)
Chart-7 (Smoothed U.S. Recession Probabilities)

Currently, the only indicator that signals an economic sector of weakness is Chart-3 (Industrial Production Index). It should be noted that Industrial Production is about to turn positive again after having been mauled by the dramatic drop in energy prices. We should also note that, despite lower energy costs having had a negative impact on Industrial Production, lower energy prices are a positive to the overall economy.

Part C. Evidence against Irrational Exuberance

Despite the market's rise since mid-February, investors remain extremely cautious. The Gallup survey of stock ownership (April 20, 2016) indicated the lowest level of ownership since the survey began twenty years ago.

The fear of investing in corporate common stocks is clearly evident in the Gallup survey despite the investors' improved financial well-being.

In Chart-8 (Household Debt Service Payments as a Percent of Disposable Personal Income), we see the best debt-to-income level in more than 35 years.

In Chart-9 (Saving Deposits: Total), we see no shortage of savings that could be partly utilized for investments. Note that more than $8.5 trillion (yes, with a T) of cash sits in personal savings accounts earning essentially nothing.

Additionally, check out the pay-down of debt relative to assets in Chart-10 (Household Liabilities, % of Total Assets). Clearly, debt is not a problem either relative to income or assets.

Chart-11 (Average Annual Hours Worked …) and Chart-12 (YRI [Yardini Research Institute] Earned Income Proxy) both show recovery from the 2007-09 Great Recession. We will discuss Hours Worked later, as a separate issue because its slow recovery impacts Productivity.

In Chart-12, Earned Income is charted as a percent change. What we are looking at is average hourly earnings times weekly hours worked. This Chart makes a couple of valuable points:

First, the Chart records the annual rate of earnings growth, which takes great issue with those who claim that income is not growing.

Second, on the other hand, the rates of growth, both in Private Wages and Salaries (3.3%) as well as in YRI Earned Income Proxy (4.3%), have not returned to the growth rates that existed before the recession in early 2007.

Charts-8 through -12 clearly show capability to invest, but not the will to invest.

Where is the evidence of excess optimism (I.e., Irrational Exuberance)? The lack of its presence suggests the stock market is nowhere near a peak.

The next two Charts strongly suggest investors should be buying rather than fearing a sizable decline.

Chart-13 (% of S&P 500 stocks with trailing dividend yield greater than 10-Yr. Treasury yield) illustrates the full story of investor fear. For the last many decades, only 5% of stock dividends in the S&P 500 Index exceeded the 10-Year Treasury yields. Today, 65% of stocks in the S&P 500 Index have dividends that exceed 10-Year Treasury yields. Remarkable reversal!

Chart-14 (Sell-Side Consensus Indicator) comes from Bank of America Merrill Lynch. It is a monthly survey of Wall Street's strategists' consensus common stock allocation. The Chart depicts an extreme bearishness exists among the investment strategists. Such extreme conditions have historically been an excellent indicator of what not to do (i.e., a contra indicator).

In other words, since Wall Street strategists are so extremely bearish, investors should buy. In fact, the indicator predicts a 12-month price return (excluding dividends) of 21%. The proof is in their data. Historically, subsequent 12-month returns from such a level as today have been positive 100% of the time, with median 12-month returns of a plus 27%.

We believe that, from both a dividend perspective (Chart-13) and an appreciation perspective (Chart-14), stocks should be preferred over bonds.

Our conclusion concerning economic activity is that no recession and, hence, no bear market is probable.

Section II. The Link between Innovation, Productivity, and Growth

Part A. Mismeasurements

In an article published in the *Harvard Business Review*, entitled, "GDP Is a Wildly Flawed Measure for the Digital Age" (July 28, 2016), written by Berry Libert and Megan Beck, the authors state:

> Here's how the mismeasurement works. As the economy has evolved from one age to another (from industrial to services to information to network), our basic measurement systems have not kept pace. Gross Domestic Product (GDP), our core measure of prosperity, was developed during the industrial age. It struggles to account for today's intangible assets—services, insights, and networks. As the market, including customers, employees, and investors, shifts the mix of what is done and what is consumed, this most important and commonly used economic indicator, along with Generally Accepted Accounting Principles (GAAP), tells a concerning story. According to these global measures, we are all headed into negative territory—likely because technology shrinks the goods we purchase, their required inputs, the time it takes to make them, and the pace and space required to deliver them. [Our emphases.]

They continue:

> It's time to measure all the value that human beings produce around the world: networks of extraordinary value, digital assets of infinite use and reuse, and the new gig employment opportunities that are opening to everyone—including the data and insights that all of this brings to each of our lives. Our research into business models clearly indicates a world where networks and digital assets are more valuable than things and "access" is more convenient than ownership. In the process of creating more efficient, happy, and technologically supported lives, we may have to blow up and recreate how we gauge economic prosperity and growth. [Our emphases.]

We will return to the subject of mismeasurement as it relates to other key economic and investment inputs, but the above quote opens the door to part of the answer to apparently slow growth—namely, incomplete data!

Part B. The Productivity Puzzle

"Productivity isn't everything,
but in the long run, it's pretty much everything."
--Paul Krugman,
Nobel Laureate for Economics

In an article entitled, "Innovation Is Not Enough," published in Project Syndicate's newsletter (August 24, 2016), Dani Rodick (Professor of Economics at Harvard University) wrote:

> We seem to be living in an accelerated age of revolutionary technological breakthroughs. Barely a day passes without the announcement of some major new development in artificial intelligence, biotechnology, digitization, or automation. Yet those who are supposed to know where it is all taking us can't make up their minds.
>
> At one end of the spectrum are the techno-optimists, who believe we are on the cusp of a new era in which the world's living standards will rise more rapidly than ever. At the other end are the techno-pessimists, who see disappointing productivity statistics and argue that the new technologies' economy-wide benefits will remain limited. Then there are those—the techno-worriers?—who agree with the optimists about the scale and scope of innovation but fret about the adverse implications for employment or equity.
>
> What distinguishes these perspectives from one another is not so much disagreement about the rate of technological innovation. After all, who can seriously doubt that innovation is progressing rapidly? The debate is about whether these innovations will remain bottled up in a few tech-intensive sectors that employ the highest-skilled professionals and account for a relatively small share of GDP, or spread to the bulk of the economy [our emphasis]. The consequences of any innovation for productivity, employment, and equity ultimately depend on how quickly it diffuses through labor and product markets.

Dani Rodick has put his finger squarely on the problem for greater growth vs. slow growth (i.e., productivity). Productivity is defined as the output of goods and services (GDP) divided by the total number of man-hours utilized to create the output in a selected time period.

We have written extensively about having entered a new Secular economic growth cycle based on exponential growth in innovation. This clearly puts us in Rodick's techno-optimists camp.

Therefore, we need to provide some insight into productivity that answers key questions about why productivity has failed to increase for years in the face of such levels of innovation.

Like Rodick, we believe low GDP growth will be solved when productivity is increased by the diffusion of innovations.

To examine productivity more closely, we pose three questions:

1. Is there a specific drag on productivity that has been important enough to single-handedly offset the positive effects of innovations diffusing through the economy?
2. How normal is it for productivity gains to lag innovation cycles?
3. Is mismeasurement a significant part of what we perceive as low productivity and low GDP growth?

We begin our analysis by saying there is a major problem holding back productivity and GDP growth. The problem, or drag on productivity and GDP, arises from the aging of the War Baby Boomers (born 1946-1964). The problem of an aging consumer and an aging workforce dwarfs the entire combined effects of the following possible influences:

1. Income inequality
2. Debt hangovers from the housing bubble (still 4 million, or 8%, of homeowners have equity underwater)

3. Possible effects from alleged government over-regulation
4. Risk aversion by consumers and businesses affecting both spending and investment

In a report from the National Bureau of Economic Research (NBER), issued in July of this year, economists Nicole Maestas, Kathleen J. Mullen, and David Powell offer a conclusion that an aging U.S population has reduced and is reducing the economy's growth (GDP) by a startlingly large amount.

Their working paper (No. 22452) concludes that the annual GDP growth in the current decade that began in 2010 was and will be slowed for another 4.5 years by 1.2% per year. The problem drops to a 0.6%-per-year reduction to GDP growth in the 2020-2030 decade.

These economists believe that the drag on GDP growth is nearly entirely due to the aging population (i.e., population/work-force over 60).

The number 1.2% might not seem large until you realize that GDP's long-term growth rate has been 3% (1950 until 2010). GDP growth has fallen to less than 2% per year since 2010. If we add back the 1.2% per year drag on the growth rate of GDP, the economy's recovery from the Great Recession (ended June 2009) would be at or above normal.

To delve a little further, the NBER says that the aging problem comes from two directions: first, the declining labor force, and second, the declining labor productivity.

In Chart-15 (Civilian Labor Force Participation Rate), we see the steady decline since 2002, but more critically, we see the decline since the Great Recession, which ended in June 2009. There are many explanations for the decline, but the key one is that baby boomers have aged to the point that they have been retiring in mass since the leading edge reached 62 years old (considered prime retirement age by NBER's findings) beginning in 2008. The NBER calculates that one-third of the total decline in GDP growth since 2010 has been due to the retiring baby boomers.

The largest part of the drag on GDP growth, however, comes from declining labor productivity. Additionally, the NBER found a very curious effect in that productivity did not just get hit by the numbers of departing workers, but also by a less efficient remaining workforce after the retirement of so many senior workers.

In the same report, the NBER indicated that the long-term average annual increase in productivity has been 2.1% (1947 to 2015), but that it had fallen to less than 1.0% in the last five years and to only 0.6% last year (2015). So far in 2016, productivity is actually negative.

Since NBER's study found that one-third of the decline in productivity was due to retiring war baby boomers and two-thirds of the decline was due to the aging and productivity of the remaining work-force, we can clearly see that innovation's upward push to productivity and, hence, GDP growth has been offset by the problem of an aging population in recent years.

NBER concludes that the aging problem has directly impacted productivity and, through lowered productivity, has lowered GDP growth by a full 1.2% annually, as stated above.

Our aging population has one more effect, or drag, directly on GDP growth through reduced annual consumption of goods and services. In the aggregate, consumer spending by those over 60, despite increased healthcare spending, is less than the average for the whole population.

In sum, for GDP growth to accelerate enough to return towards its 3% norm, we need some combination of the following:

1. Increased capital growth—total additions to savings and investments less depreciation.
2.* An increased labor force—higher labor participation rate.
3.* An increased labor force efficiency—productivity.
4. Labor force productivity depends on growth in innovations that increase labor force efficiency for any given level of capital.

*Note: Both aspects of the labor force are directly affected by the structure of the labor pool, age, education, etc.

In discussing productivity, we have addressed the key drag on GDP growth and have answered, for the short run, why there seems to be little impact from the explosion in innovation in nearly every industry and sector of the economy. We have also found in the slow GDP growth the answer to the wide-spread "Doom and Gloom": simply put, slow growth means slow-to-no wage growth, among other things.

Recall what Jim Paulsen, of Wells Capital Management, said, as quoted at the beginning of this report: "Just imagine how different the world would be if the published number for GDP were 3%."

Since the key drivers of GDP are capital, labor-force growth along with productivity, and innovation, we now turn our attention to the subject of innovation.

Part C. Productivity Lags Innovation

Ewen Cameron Watt, Chief Investment Strategist at Blackrock Investment Institute, wrote for the *Financial Times* (November 5, 2014):

> Tech optimists argue that we are on the cusp of a productivity renaissance. Pessimists counter that the productivity boon from the internet era is waning. We are optimists. The next leg of innovation has far to go: exponential increases in computer power, machine learning and the ability to analyse vast reservoirs of data back this view. Many companies, industries and investors have yet to tap these data riches.
>
> The rapid diffusion of technologies is one reason why it is harder for companies to maintain competitive advantages: just 63 per cent of S&P 500 companies a decade ago are still in the index today, according to Thomson Reuters. It becomes more important to invest in companies that can weather the disruptive effects of innovation and harvest its benefits. It also means that predicting whether a company will be around in a decade is going to become tougher. [Our emphases.]

To help throw-off the mantra of the pessimists, we look back to an analysis by Stephen Davies, published by the Foundation of Economic Education (February 22, 2012). At the time, his arguments were aimed at understanding that the slow recovery was unlikely to relapse into a 1930s Depression. In his article, entitled, "Are We Looking at the Wrong Depression?" Davies said:

> Until as late as the 1950s, "Great Depression" in economic history generally referred to the period between 1873 and 1879 (in the United States) or 1873 and 1896 (in the United Kingdom and much of Europe). When we look more closely

> at those years, the likeness to where we are now becomes noticeable. [Our emphases.]

Davies continues:

> Most historical GDP records show a significant slowdown of growth in most of the world for at least part of the period between 1873 and 1896. On the other hand there was not the kind of dramatic collapse seen after 1930.
>
> However, this picture of prolonged stagnation needs to be severely qualified. One early observer who questioned this widespread perception at that time was the American economist and historian David Ames Wells. His argument, and that of many other economic historians, was summed up in a short work by S. B. Saul, *The Myth of the Great Depression, 1873-96*. Wells pointed out, among other things, that the years after 1873 saw very large increases in global output of a number of key products, not only in agriculture but also steel and a range of manufactured products. As Wells explained, this was because of an unprecedented series of innovations in both technology and business organization. In fact the 30 to 40 years after 1870 saw the advent of technologies that would define modern life, including electricity, the internal-combustion engine, the telephone, the diesel engine, and the modern petroleum industry.
>
> As a result, the official figures are seriously misleading. While nominal wages stagnated or declined, real living standards increased because of the falling cost of products. Output increased, but this was not captured unless one applies a GDP inflator to account for the increasing value of money. [Our emphases.]

Referring to the burst of innovation, Davies continued to paraphrase Wells, saying:

> This increased productivity created many new products but also led to large adjustments as older industries and forms of employment shrank, prompting a large movement of labor. This took some time, so the costs of the transition in human terms were significant.

Obviously, one sees the parallels to today outlined by Stephen Davies.

We also believe that innovation has yet to diffuse enough (i.e., spread through the economy) to offset the aging problem outlined earlier, but we fully believe the crossover point between the drag of the aging labor force problem and the power of accelerating innovation is near.

Surges in productivity in both the Service sector (80% of GDP) and the Manufacturing sector (20%) can be expected.

Note that, in Davies' article, the slow growth period for the U.S. GDP was not 1873 to 1896 (23 years), but instead 1873 to 1879 (6 years). The technology explosion took hold in the U.S. much quicker.

Today, we have become an Information Economy rather than a Manufacturing Economy, and much of the Disruptive Innovations cited by the McKinsey & Co. study (see the list below) have been diffusing into the economy. From what we have reviewed of the twelve disruptive technologies, we have concluded productivity will help GDP growth to return to the normal 3% rate in the year immediately ahead. In our opinion, the growth rate of GDP should

exceed the normal rate, on balance, over the decade ahead. We fundamentally believe that we are on the cusp of a protracted productivity recovery.

The expected renaissance of productivity will most likely come from the McKinsey & Company's twelve disruptive technologies. Again, here they are:

1. Mobile Internet
2. Automation of Knowledge Work
3. Internet of Things
4. Cloud Technology
5. Advanced Robotics
6. Next-Generation Genomics
7. Advanced Materials
8. Autonomous or Near-Autonomous Vehicles
9. Energy Storage
10. Renewable Electricity—Solar and Wind
11. 3-D Printing
12. Advanced Oil and Gas Exploration and Recovery

Section III. Investing in a Time of Exponential Innovation

Part A. Accounting—The Search for Inclusion

The truly dismaying aspect of today's data-driven Knowledge-based Economy is the mismeasurement of what drives the success of a business in managing, producing, and distributing goods and services.

In particular, the incomplete inclusion of intangible assets, such as Data Capital, or Digital Capital, remains a significant problem for security analysis. This is a critical issue because the transition to a Knowledge-based Economy in recent decades has put the knowledge-base of firms at the center of innovation and competitive strategies, which go hand-in-hand with the shift of corporate capital investment patterns from tangible to intangible.

In fact, today's economy is "built on the application of intangible information technology with inputs and outputs increasingly becoming intangible," according to a working paper published by *WWWForEurope.eu* (June 2015).

The authors—Alexander Ebner and Fabian Bocek—point out that the terms *Knowledge-based capital* and *intangible assets* are used interchangeably in their report. They "find a positive and significant relationship between business investment in intangibles and overall economic labour productivity [our emphasis]." They go on to say, "Intangibles account for up to 75% of the average growth of market-sector labour productivity."

This research paper, though focused on Europe, has made the direct link between growth of innovations from *Data Capital* or *Knowledge Capital* or *intangible assets* with growth in productivity.

The types of intangible assets typically acquired include:

1. Computer Information (Software and Data Bases)
2. Intellectual Property of Research and Development
3. Exploration (information on location and access of new resource inputs)
4. Copyrights, Patents, Licenses, etc.

5. New-Product Development in Financial Services (Venture Capital Products)
6. Economic Competencies, such as brand-building and advertisement
7. Market Research
8. Workforce Training
9. Externally Acquired Consulting
10. Collaboration Agreements
11. Internal improvements in decision-making

An article jointly sponsored by Oracle Corporation and MIT, published in the *MIT Technology Review* (March 21, 2016), points out a similar refrain concerning the importance of Data Capital:

> Capital Equipment, such as a truck, for example, can be used by only one person at a time. It's the same with financial capital. You can invest a dollar in only one opportunity at a time. However, data is different [our emphasis]. A single piece of data can fuel multiple algorithms, analytics, and applications simultaneously.

The article concludes, "Companies must adopt a new mindset. They should start thinking of data as an asset [our emphasis]."

This mindset has become more urgent as intangible assets have become the more critical to success.

McKinsey & Company pointed out the mismeasurement problem quite succinctly back in July of 2013, when they issued a report called, *Measuring the Full Impact of Digital Capital*. Jacques Bughin and James Manyika, members of the report's research team, said:

> Digital Capital (i.e., Data Capital) takes two forms. The first is traditionally counted tangible assets, such as servers, routers, online-purchasing platforms, and basic Internet software. This appears as capital investment on company books. Yet a large and growing portion of what's powering today's digital economy consists of a second type of digital capital—intangible assets. [Our emphases.]

They continue:

> The environments that encourage consumers to access products and services, and the intense big-data and analytics capabilities that can guide operations and business growth . . . Conventional accounting treats these capabilities not as company investments but as expenses, which means that their funding isn't reflected as capital. Since amounts spent aren't amortized, they take a large bite out of reported income. [Our emphases.]

The treatment of investments in intangible assets as an expense is a glaring example of mismeasurement of elements of both company and economic growth.

Simply put, if corporate earnings are mismeasured (i.e., understated), then what do today's Price-to-Earnings Ratios (i.e., P/E Ratios) really say about valuations? The answer may be little or nothing—or worse, misleading!

Bughin and Manyika also indicate that capital spending, both by corporations and at the national economic level, is understated by not properly analyzing investments in intangibles. They point out that digital capital has become a major contributing factor to growth.

In today's economy, GDP and corporate revenue growth are driven by productivity and the level of innovation, which is more and more driven by the use of intangible assets like those listed earlier.

One intangible asset, in particular, Collaborative Agreements (i.e., contractual partnerships and equity-based joint ventures), is rapidly becoming one of the most important contributors to the rise of accelerating innovation.

Just think of all the collaborations mentioned in our reports of Disruptors in each of the twelve areas first introduced by McKinsey & Company (e.g., Alphabet/Google, Amazon, Apple, Celgene …).

Finally, we note an article entitled "Ten Open Questions for the Techno-Optimist" (August 31, 2016) is worth a read. At issue is mismeasurement.

Part B. The Phil Fisher/Charlie Munger Investment Approach

This part of the report is intended to add to our prior discussion of the Fisher/Munger approach to stock selection.

As we indicated in our last report, Charlie Munger saw the value of an investment as coming from companies with "entrenched competitive advantages and business models that produce significant and growing volumes of distributable cash flow." Munger's approach was to seek out measures of the Quality of a company. His approach is tied closely to that of Phil Fisher (one of the most influential investors of all time, who died in 2004).

Munger has been quoted as saying, "Once quality is made part of the valuation of business, the investing process is very different than when it is mostly about accounting and finance."

The Phil Fisher/Charlie Munger model is basically to evaluate companies based on the analyst's perception of a corporation's long-term growth potential. In other words, they advised to buy not on the basis of a trailing earnings P/E ratio or a low price-to-book ratio, but instead on the basis of such things as having high-quality management, being a leader in an evolving industry, and having solid prospects for the long-term.

In researching more of their own articles and those based on interviews, we have come to understand the basic analysis used to make their investment decisions.

Everything they considered centered on the word, *Quality*.

The following list, compiled from the various articles, includes both tangible and intangible asset considerations that define what they mean by Quality:

1. Revenue Growth
2. Operating Cash Flow
3. Operating Margin
4. Price-to-Sales vs. Price-to-Book Value
5. Research and Development
6. Intellectual Property Rights
7. Labor Relations (Turnover of Management and Workforce)
8. Highly Respected Management by Peers and general "scuttlebutt"
9. Customer Satisfaction
10. Networking/Outsourcing (i.e., Collaboration)
11. Workforce Training/Education/Satisfaction

12. Understanding of Knowledge-Based Capital (i.e., Digital Capital)
13. Pricing Power
14. Is company an Industry Leader?
15. Is company a Low-Cost Producer?
16. Are the company's Products and/or Services Unique with a Wide Potential Use?
17. Ability to Stay Solvent (Leverage)
18. Ability to Self-Finance (Internal Liquidity)

Of all these factors, and surely there are still more, the potential for Long-Term Revenue Growth and a sizable and rapidly growing Operating Cash Flow were the keys to what they described as Quality.

They believed Operating Cash Flow was superior to Net Income as a metric of a company's financial health because "Cash is King." If a company does not generate cash over the long-term, it will cease to exist.

Operating Cash Flow is net cash generated from operations (i.e., Net Income plus changes in working capital—inventories, receivables, etc.).

Their belief in Operating Cash over Net Income supports their expressed opinion that Price-to-Earnings ratios (P/E ratios) were not to be the critical issue in the buy decision.

Part C. Reinterpreting Growth—A Summation

This report began with an updated view that the outlook for continued economic progress and further advances in the Secular Bull Market remain supported by the weight of evidence.

Beyond this review, we chose to devote time to the analysis of the sources of GDP growth. We pointed out that the widespread "Doom and Gloom" that exists today most critically stems from an underperforming economy. In effect, the growth since the end of the Great Recession has not been enough to foster a feeling of well-being. To understand why the growth rate of the economy has been 2% or less since 2009, rather than the historic 3%, we deconstructed GDP to get at the constituent parts of what creates the growth rate.

As the text of our report progressed, we saw how the growth rate of GDP is dependent on the rate of growth in productivity. Further, we saw how productivity was, in turn, dependent on capital, labor, and innovation changes.

We found that productivity has indeed slowed to a crawl and the reasons for that circumstance center on rather profound changes in the labor force. To our dismay, we noted that such labor-force changes have had the impact of blocking the positive effects of a dramatic new cycle of innovation.

On close examination of a new study by the NBER (i.e., the most highly respected privately sponsored economic research organization), we found that the block to GDP growth was the direct hit to productivity brought about by changes in the labor force—specifically, from the Aging War-Baby-Boom.

From the working paper of the NBER, we learned that the drag on productivity has been due to the massive retirement trend of the "Boomers" (i.e., reduction to the participation rate) and the dramatic impact of aging on output per capita.

This study concludes that the impact of the aging of the Boomers has reduced the growth rate of GDP by 1.2% (i.e., from the 3% historical rate to less than 2%) over the period

beginning in 2010. The 1.2% reduction is projected to continue until 2020 and then drop to 0.6%.

Simply stated, what the NBER research concluded is that the Aging Baby-Boomers have accounted for 100% of the decline in GDP growth. Our takeaway is, forget blame, the decline has a natural cause.

Furthermore, since productivity growth is critical to GDP growth, and the aging problem remains, it is totally clear that neither productivity nor GDP growth will be materially helped until the innovation cycle reaches the crossover point where the positive impact of innovation exceeds the negative impact of an aging labor force.

As indicated, the economic similarities are remarkable between the present time and the 1873-79 Economic Depression in the U.S. In that Depression, it took six years for the growing influence of a dramatic innovation cycle to overpower the economic effects of a Global Depression that continued another nine years after the U.S. recovery.

The key point is that no matter how dramatic the innovation cycle, major improvement in the growth rate of GDP will lag.

We noted that the NBER study concludes that the negative hit from the aging labor-force will continue into the 2020s; however, we have yet to say anything about what to expect from innovations.

Part D. Projecting Innovations' Effects on GDP

McKinsey & Co. offers major support to our view that a crossover point will soon be reached where the addition to GDP growth from innovations will exceed the drag created by the aging work-force.

Using their estimates, the economic benefit to GDP will reach more than $4 trillion per year by 2025. McKinsey & Co. did not make a year-by-year projection, but instead indicated that the per year contribution to GDP growth from the increasing benefits of innovations could fall between $4.19 trillion and $10.16 trillion in the year 2025.

To put these numbers in perspective, the estimated GDP for the U.S for 2016 is $18.558 trillion. Knowing the size of the U.S. GDP allows us to convert to dollars the NBER projection of an annual drag on GDP growth from aging of 1.2%. The projected drag in dollars, thus, would be $0.223 trillion per year.

Let us assume that the low-end of McKinsey & Co.'s projections is achieved (i.e., $4.19 trillion per year in 2025), and that the annual benefits are equally spread over the nine years. Without going any further, we can estimate that the per year add-on over the next nine years would be $0.466 trillion, or an addition of 2.5% to the yearly GDP growth rate.

If the economic impact of technology projections were to spread equally, it is immediately clear that the growth rate of GDP would not only return to its historic norm of a 3.2% annual advance (1947-2016), but would easily exceed the norm. The growth rate would, in fact, join other extended periods where GDP grew at rates above 4%.

Chart-16 (Real Gross Domestic Product—present change from year ago) illustrates such periods of above-average growth.

If we assume, instead, that technology's addition to GDP spreads unevenly over the next nine years (i.e., in jumps or spurts), we can still expect to see GDP annual growth first return to

and then exceed its historic rate. Why? Because the projected economic benefits to the U.S. economy, at even the low-end forecast, are of such a persuasive magnitude as to overpower the continuing aging labor-force drag on growth.

Moreover, even if mismeasurement of productivity and, hence, of GDP growth continues to lessen but slowly, the mere size of the McKinsey & Co. projections of the annual contribution to GDP from the advances seen in the twelve disruptive technologies enhances the probability that the growth rate of GDP will rise to and beyond norm.

Furthermore, if the actual additions to GDP from technological innovations come in at levels above those of the very low-end, the likelihood of a prolonged period of above-normal growth only increases.

In conclusion, we expect the decade ahead to provide above-average economic growth. From an investor's point of view, the decade could well prove to be the best for stock investments since the decade of the 1990s (average annual return of 14.7%) and, before that, of the 1950s (average annual return of 16.7%). "Doom and Gloom" finds no place in the coming decade's lexicon.

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