Capital INVESTMENT SERVICES of America, Inc.

Investment stewards since 1981

Perspective

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In This Issue . . .

- ✓ One worry after another…China tensions cool, Iran tensions heat up.
- ✓ Stock market has support from underlying corporate earnings.
- ✓ The ***D-trends*** are shaping the world.
- ✓ These trends are a big deal.
- ✓ Demographic changes ahead; "one of the great defining events in human history."
- ✓ Digital innovation; the wellspring of economic growth.
- ✓ Dematerialization; a decoupling of economic growth and resource utilization for U.S. economy.
- ✓ Strategic value for business shifted from tangible to hard-to-measure intangible assets.
- ✓ Descaling; "a great reversal in our Industrial Age habits is taking place."
- ✓ Long standing moats around key intangible assets also being breached.
- ✓ Appendix 1: No recession, modest inflation.
- ✓ Appendix 2: Unleashed innovation.

The Shaping Ds

Ring out the old, ring in the new.

Or should we say, ring out the "old" currently deescalated geopolitical tensions (China and trade), and ring in the "new" escalated geopolitical tensions (Middle East).

While no one knows how events surrounding these geopolitical tensions will unfold, the good news for investors is that the U.S. economic expansion has a fair amount of underlying resiliency to buttress it in the face of new challenges.

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In Appendix 1 we provide our now-customary update of the indicators we believe are most worthwhile to monitor and assess *business cycle* risks. Recession in the U.S. still does not appear likely anytime soon.

Resiliency is also provided from the changing *structure* of the economy and the associated, profound changes in microeconomics at both industry and company levels. We elaborate on the trends reshaping the economy on the pages that follow.

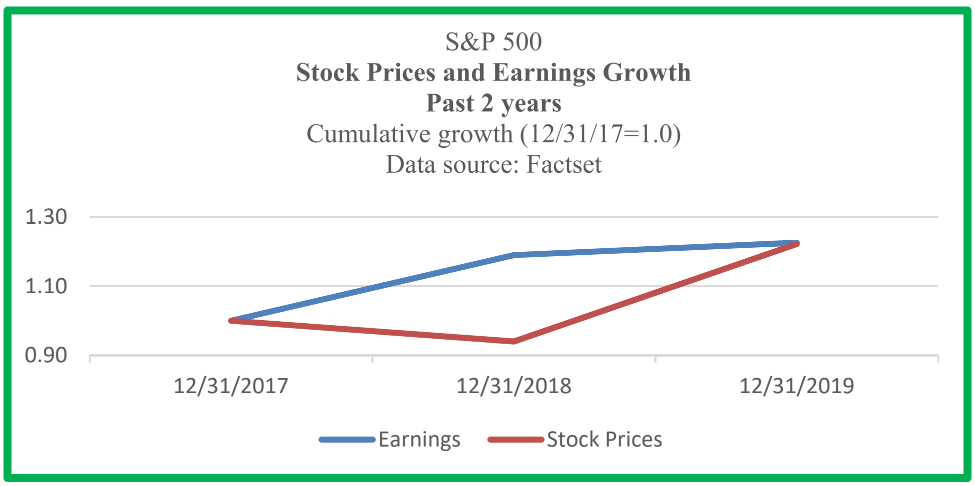
However, before we do, we'd like to note a few things.

Although we expect the U.S. economic expansion to continue, economic growth will likely remain slow and uneven. Yes, many pundits (seeking fame and influence), the media (seeking viewers) and politicians (seeking votes) will continue to accentuate the negative…stoking **F**ears, **U**ncertainties and **D**oubts (FUD).

But what else is new? That's been the case since the expansion began over ten years ago.

As the economic expansion grinds ahead so, too, should the associated uptrend in corporate earnings growth. The earnings uptrend should also continue to lend support to stock prices (see Chart 1 below).

Chart 1: U.S. stock market has support from underlying corporate earnings



We think it's also important to note that the current "bull market" advance in the domestic stock market has endured numerous sharp downdrafts along the way.

The downdrafts were triggered by fears about: recession (nearly every year since 2008!), Eurozone issues, (debt crisis, Greece, Cyprus), Ebola, Trump tweets, Fed too easy, Fed too tight, yield curve inversion, trade, geopolitics (N. Korea), Brexit—to name just a few. Following each of these "panic attacks", stocks with strong underlying businesses soon recovered as corporate earnings growth proved resilient.

As suggested earlier, we believe this resiliency remains in place for many companies.

Investors should expect more panicky downdrafts in stock prices. Sell-offs are scary and gut-churning events, to be sure. But tolerating periodic volatility is a worthwhile price to pay for capturing rewarding investment returns.

The Ds shaping the investment world

We've noted on previous occasions that our stock research process includes an "ear-to-the-ground" element. We operate on a steady diet of consuming what companies have to say during earnings conference calls, at industry conferences, trade shows, "investor days", and in one-on-one visits we initiate.

Here's what we have been "hearing" from the best-of-breed corporate management teams.

The world is being reshaped by what we'll summarize as the "***D-trends***". These include:

- ***Demographics***
- ***Digital innovation***
- ***Dematerialization***
- ***Descaling***

Our past three *Perspectives* ("*Rock the Gemba*", "*Sub 2.1*", and the "*Other Biggie*"—all archived at capinv.com), examined in various detail these trends. Our last two focused on demographics and digital innovations.

In *Rock the Gemba*, we discussed some of the factors driving dematerialization and descaling and provided examples of how companies we own have positioned their organizations to benefit from these trends.

In recent months, we've learned more about the dematerialization and descaling trends. We will share what we learned in the pages that follow, after a quick review of demographic and digital innovation trends.

We believe these *D-trends* are a big deal for investors. They will likely be shaping the investment environment for many years to come.

Demographics

Birth rates around the world continue to collapse to sub-replacement levels. There's credible evidence that the much-feared population bomb is giving way to a population bust.

Demographer Darrell Bricker and researcher John Ibbitson in their book, *Empty Planet: The Shock of Global Population Decline*, write:

> *"We face…a relentless, generation-after-generation culling of the human herd. Nothing like this has ever happened before.*
>
> *The great defining event of the 21st century—one of the great defining events in human history—will occur…when the global population starts to decline."*

Implications

- As Japan is demonstrating, countries with declining workforces tend to be characterized by stagnant economic growth and (increasingly) negative interest rates.

- Policymakers can easily make matters worse by further sapping economic dynamism with tax hikes to fund government spending under the guise of creating economic growth by boosting "aggregate demand". (Japan is following such a play book. Unfortunately, other policymakers around the globe seem inclined to do so as well).

- Many countries will likely experience similar growth challenges in the years ahead (including China).

- **U.S. demographics are significantly more conducive to economic growth.** Millennials (roughly defined as those in the 20-40-year-old range), have overtaken The Boomers as the largest generation.

> "***Prosperity in the long run is achieved by commercially-tested betterment, not the shovel-ready projects of bridges to nowhere."***
>
> **-Professor Deirdre McCloskey**

Digital innovation

In past editions of these pages we have tried to explain the importance of economic freedom, risk taking and innovation to the health and growth of an economy.

The Deirdre McCloskey quote references commercially-tested betterment. That's here namely for the economic freedom, risk taking, innovation dynamic.

For those interested, we have reproduced in Appendix 2 previous material gleaned from McCloskey and other notable economic historians about how this dynamic changed the world and created the modern era.

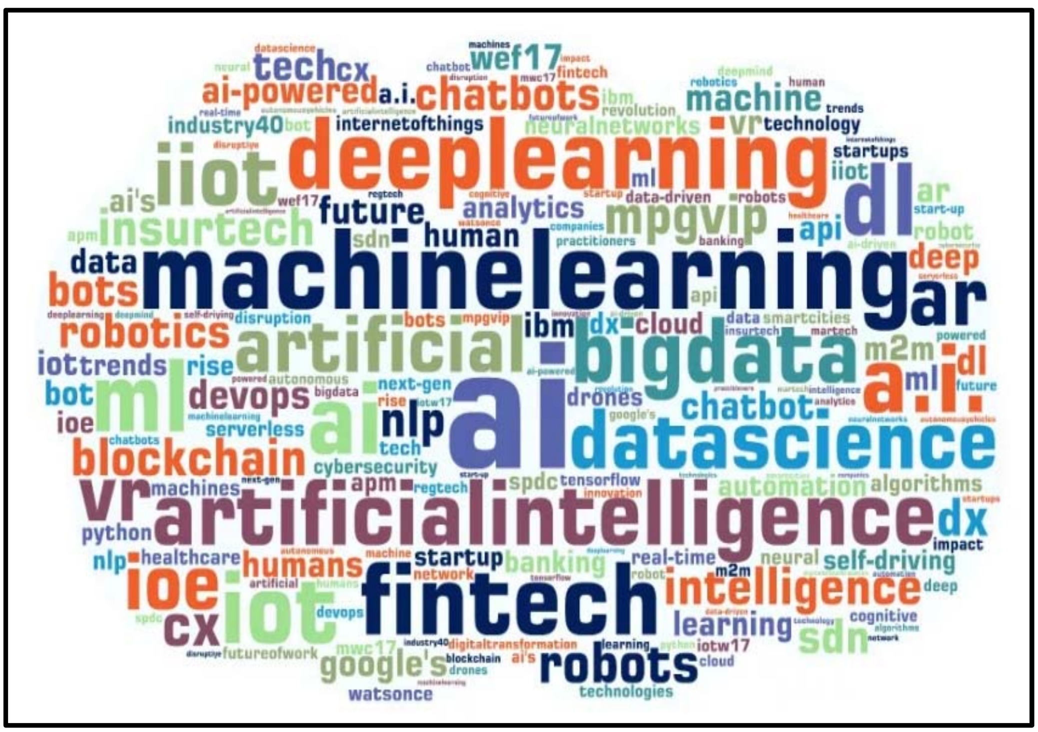
What is the status of innovation today?

Our ear-to-the-ground stock research approach continues to hear of an exciting—and growing—array of emerging digital innovations (at many companies we own, by the way).

The following graphic captures the essence of the *digital innovation cluster* that's making its way across the economy.

Innovation clusters tend to beget more innovation as they form new "combinatorial innovations".

Oil/gas fracking and horizontal drilling is an example of combinatorial innovation. It has, by the way, totally changed the geopolitics surrounding oil and the Middle East adding a layer of resilience to the domestic economy as we'll discuss in a latter section.



Source: vinodsblog.com/2019/01/01/2019-year-of-ai-digital-transformation-performance-then-just-chatter-box/goo.gl/images/KpAa8U

> ***"Combinatorial innovation is exciting because it's unpredictable. It's not easy to foresee when powerful new combinations are going to appear. Innovation is highly decentralized and largely uncoordinated, occurring as a result of interactions among complex and interlocking social, technological, and economic systems. So, it's going to continue to surprise us."***
>
> **-MIT Research Scientist Andrew McAfee**

Implications:

- The history of past significant innovation clusters suggests their initial economic impact is very uneven across businesses, industries and individuals. Competitive pressures spread their adoption, and the economic benefits of the innovations become both more broadly shared and more apparent over time.[1]

- It's reasonable to expect similar patterns with today's digital innovations. As we'll discuss with dematerialization and descaling, **the digital innovation cluster is not just adding a few new companies to the economy. Instead, it is providing the means to change much of the "Industrial Age habits" that characterize the economy.**

- **The innovation cluster that's presently emerging will profoundly impact the economy, lift productivity growth and push the general standard of living higher.**

Dematerialization

What is it?

We're getting more economy with fewer physical resources.

For some time now, best-of-breed companies have been telling us of their activities to **create more value with less of everything. "**Lean business" practices and "asset light" business models have been some of the initiatives leading companies are pursuing.

More recently these initiatives are being amplified as the digital cluster further enables **bits to replace atoms** in business processes.

One of the results of such dematerialization is a profound shift in value of strategic corporate assets from *tangible* to *intangible* assets.

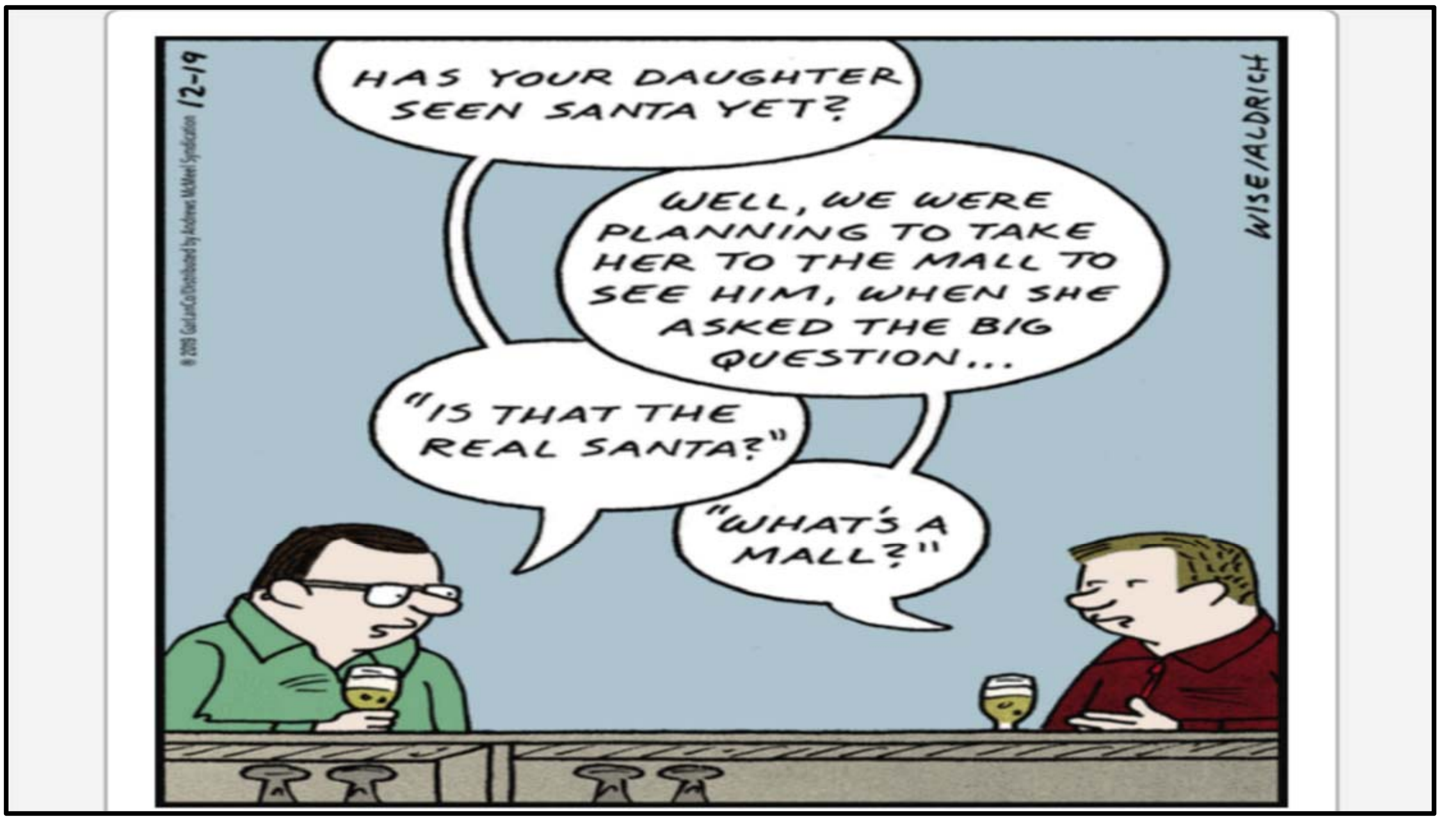
[1] In the book, *Technological Revolutions and Financial Capital*, EE Publishing, copyright 2003, economist Carlota Perez discusses past innovation clusters. Current trends seem to be tracking the patterns she identifies.

What do we mean by intangible assets? Traditional intellectual property (IP) like patents and trademarks in part. But it increasingly includes unique software, proprietary corporate "know-how", cultures that stress constant learning, adaptability, decentralized decision making, and insights into how a company might be able to satisfy client needs and desires.

Meanwhile many tangible assets like production facilities are becoming commoditized as they are relatively easy to replicate or rent.

While steel mills and auto factories may be higher profile examples where the value shift from tangible to intangible assets is occurring, the trend is broadening out.

One of the more obvious examples is e-commerce. We've all seen or heard of shopping malls that have become ghost towns as e-commerce sites take market share from physical stores.



Retail goods are still being bought and sold of course. But the "atoms" involved in the transactions are fewer.

Speaking of transactions, the banking industry provides another example of dematerialization. With payment systems continuing to digitize, banks are wondering what to do with their elaborate physical branch networks that they have regarded as important strategic assets. And remember, it's not like financial transactions are declining—in fact, they continue to multiply.

But our favorite dematerialization examples are expressed within the cartoon, on the following page, which we've shown before involving smartphones.

Think of all the items a smartphone has replaced.

In his book, More From Less, MIT professor McAfee, who we mentioned earlier, provides a dematerialization example from industry (railroads):

"The rule of thumb in the late 1960s was that about 5% of a company's railcars moved on any given day. This was not because the other 95% needed to rest. It was because their owners didn't know where they were. If they could increase the percentage of cars moving each day from 5% to 10%, they could cut their stock of these multi-ton behemoths in half."

Railroads and technology have traveled a long way since then, with digital innovations that are enabling "precision railroading" that further optimizes both the number and utilization of rail cars and locomotives.

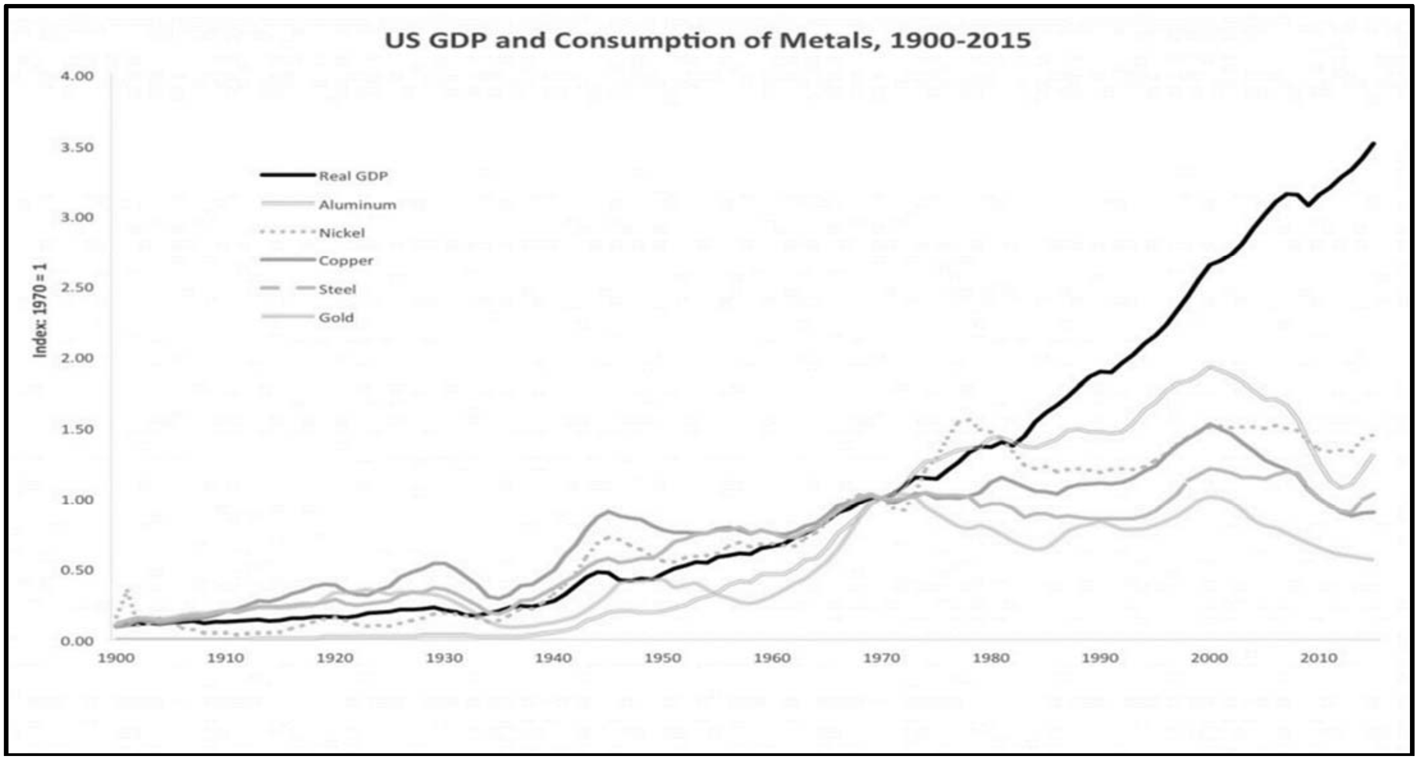
According to McAfee and the studies he cites from environmental scientist, Jesse Ausubel, the "asset light" initiatives of businesses and the substitution of digital bits for atoms is really adding up.

U.S. economic growth is decoupling from resource utilization!

Throughout history there has been a joined-at-the-hip relationship between economic growth and resource utilization. As economies grew, more resources (steel, copper, fertilizer, timber and paper), which are considered fundamental building blocks of the economy, were required. That equation is changing.

Chart 2 on the following page is just one of several in McAfee's book that reflects the dematerialization trend.

Chart 2: A decoupling of economic growth and resource utilization



Some other highlights from McAfee's book:

"A great reversal of our Industrial Age habits is taking place. The American economy is now experiencing broad and often deep absolute dematerialization."

"U.S. total cropland is falling. Between 1982 and 2015 over 45 million acres—an amount of cropland equal in size to the state of Washington—was returned to nature. Meanwhile, the total tonnage of crops produced in the country increased by more than 35 per cent."

"Output (crop tonnage) used to be tightly linked to inputs (water and fertilizer). But that relationship has changed, and we're now getting more from less. Fertilizer use is down almost 25% from its 1999 peak, and by 2014, total water used for irrigation had decreased by more than 22% from its maximum in 1984."

"Total timber use is down by a third, and paper by almost half, since their 1990 high points."

"American manufacturers have learned to produce more things from less metal. Buildings weigh less. Cans weigh less. The aluminum cans of the 1980s weighed 85 grams. Today they weigh only 15 grams. If all beverage cans used in 2010 weighed what they did in 1980, they would have required an extra 580,000 tons of aluminum."

"Dematerialization is separate and distinct trend from recycling. Recycling is about where factories get their material inputs. Dematerialization is about what's happened to total demand for outputs. Outputs are dropping."

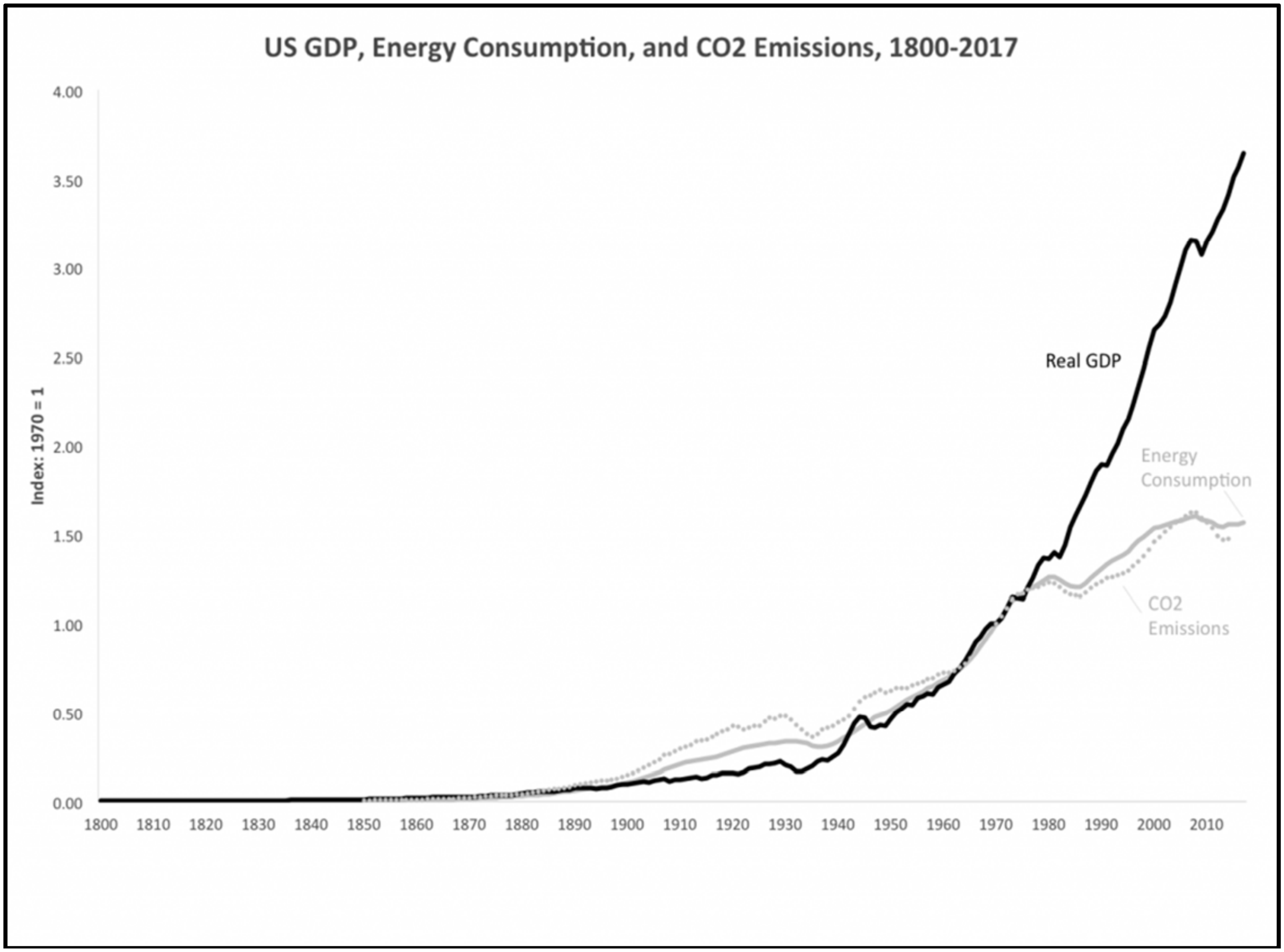
McAfee notes the dematerialization trend has also been observed in other countries. Britain's use of raw materials peaked sometime in the mid-2000s. Germany, France and Italy have generally seen flat or declining total consumption of metals, chemicals and fertilizer.

Dematerialization is not yet a trend in developing economies. But McAfee thinks it's only a matter of time.

What about oil?

McAfee provides Chart 3 which indicates a decoupling here as well.

Chart 3: U.S economic growth and energy consumption has also decoupled



Combined with the fracking revolution—which has enabled the U.S. to both become the world's largest energy producer and achieve energy independence—the domestic economy is much less vulnerable to Middle East induced oil price shocks. This too, adds to the resiliency of the economic expansion.

Implications:

- Many would regard less stress on the earth's resources a very good thing.

- Increased economic resilience:

    - The U.S. is no longer as exposed to surging oil prices that result from Middle East tensions or the actions of OPEC.

    - Companies with lots of tangible assets tend to be extremely cyclical. During recessions they tend to amplify the downturn. As their relative role in the economy declines, downturns will tend to be less severe.

    - As the railroad example suggests, digital assets help optimize use of tangible assets. This also pertains to inventory and supply chain management. Timely information provided by digital assets allows firms to make constant adjustments within their inventory levels. Constant adjustments reduce the need for larger adjustments during recessions which historically, contributed to the severity of business downturns.

- The rise of the millennial consumer may well likely accelerate the dematerialization trend. This demographic group continues to express a preference for experiences (travel, museums, membership clubs, recreational services, personal care, etc.) over "stuff".

- Accounting practices that were developed for a heavy tangible asset world are struggling with the atoms-to-bits economic evolution. Insight and comparability of financial reporting information has significantly diminished as a result:

    - Intangible assets are often not represented on company's accounting "books". Yet, as we've noted, intangibles are increasingly where corporate strategic value reside. Notions like "book value", and stock valuation metrics like Price-to-Book Value have become significantly less meaningful, if even useful.

    - Accounting for business investment is treated inconsistently across companies. Companies can depreciate investments in tangible assets over time. The "hit" to a company's earnings is therefore gradual. Many intangible investments by contrast, are typically immediately expensed. For investors, company "earnings" become difficult to compare as do widely used stock valuation metrics like Price-to-Earnings ratios.

    - These accounting issues tend to make the stocks of intangible asset companies appear "expensive", and the stocks of tangible asset centric companies appear "cheap". The reality may be the exact opposite however.

Descaling

Why do shoes only come in ½ sizes?

For many decades, companies sought to achieve scale and minimize costs through mass production. Making shoes in half sizes was "good enough" for the masses and allowed shoe producers to achieve manufacturing economies of scale.

But "*a great reversal of our Industrial Age habits is taking place,*" to repeat an earlier quote (found on Page 8).

Digital innovations are rapidly *"devaluing mass production and mass marketing"* notes venture capitalist Hemant Taneja in his book, *Unscaled*[2].

Taneja elaborates:

> *"[Digital] technologies are allowing innovators to effectively compete against economies of scale with what I call the economies of un-scale"* (what we're calling descale).
>
> *Small (innovative companies) can do this because they can rent scale that companies used to need to build. This allows companies built on rentable tech platforms to easily and profitably make products that address very narrow, passionate markets.*
>
> *The old mass markets are giving way to micro-markets, micro-production and finely-targeted marketing."*

The "endless shelf of the internet" is helping to drive descaling. Taneja notes that Amazon offers more than 350 million items. That's nearly ten-times what's offered in all the Walmart stores across the world.

We earlier discussed the corporate strategic value switcheroo from tangible to intangible assets. Descaling is also upending the strategic value within *intangible* assets themselves.

As an example, consider shaving products. Supported by a strategic intangible asset (decades of massive advertising) the Gillette and Schick brands dominated the category for nearly a century.

But, a short while back a couple of innovative entrepreneurs were frustrated with the prices charged by the industry titans for razor blades. They formed Harry's Shave Club, found a German company that could make razor blades, blitzed social media with their lower price strategy, set up e-stores at Amazon and Shopify, and built a viable business. They were able to take enough market share from the titans that Schick's owner felt compelled to purchased Harry's last year.

Digital innovations and the descaling dynamics described by Taneja earlier, was a difference maker. Meanwhile, consumers get more choice and lower prices.

And, it's not just Harry's and Dollar Shave Club in razors and blades. It's Warby Parker in eyewear. It's microbreweries in beer and, more recently, hard ciders. It's streaming music services that let you be your own disc jockey. It's steaming video which is eating into cable TV. It's niche products in foods, as the following comment from Shawn O'Neil VP of Global Marketing, Unilever suggests:

> *"I am not losing market share to Procter and Gamble or other consumer packaged food companies. I am losing it to small players who are finding niche products."*[3]

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[2] Hemant Taneja, *Unscaled*, Public Affairs, copyright 2018

[3] Blog post "The rise and success of niche foods brands", foodserviceguy.com

Taneja identifies another fundamental force driving descaling:

> *"When you think about it, the mass-market consumer companies made each of us conform to the experience that was best for them, not us."*

Digital innovations are enabling innovative businesses to profitably put the consumer and their specific needs and desires at the absolute center of each product or service offering. As Taneja concludes: *The consumer experience built on scale over the past century is about to get disassembled and unscaled."*

This trend is in its infancy as the digital innovation cluster will be the lubricant for many more changes.

Affordable shoes available only in half sizes—not anymore!

Implications:

- The post-World War II economy was built largely around mass production.
- This structure is being upended by descaling and the other D-trends.
- Fulfilling each customer's specific needs and desires is moving to the very *center* of the nearly every businesses' universe.
- "Precision" railroading, "precision" medicine, "precision" goods and services designed just for you…the *D-trends* are hard at work seeking to make this possible.
- *Adaptability* will be the absolute key to business success.

Just as tectonic plates beneath the earth's crust are slowly, incessantly shaping the planet's surface in ways only time reveals, the Ds of **D**emographics, **D**igital innovation, **D**ematerialization and **D**escaling are reshaping the economy. Lots of exciting investment opportunities ahead.

We remain focused on understanding emerging fundamentals because it gives us the best probability of investment success.

"The best business is a royalty on the growth of others."

-Warren Buffet

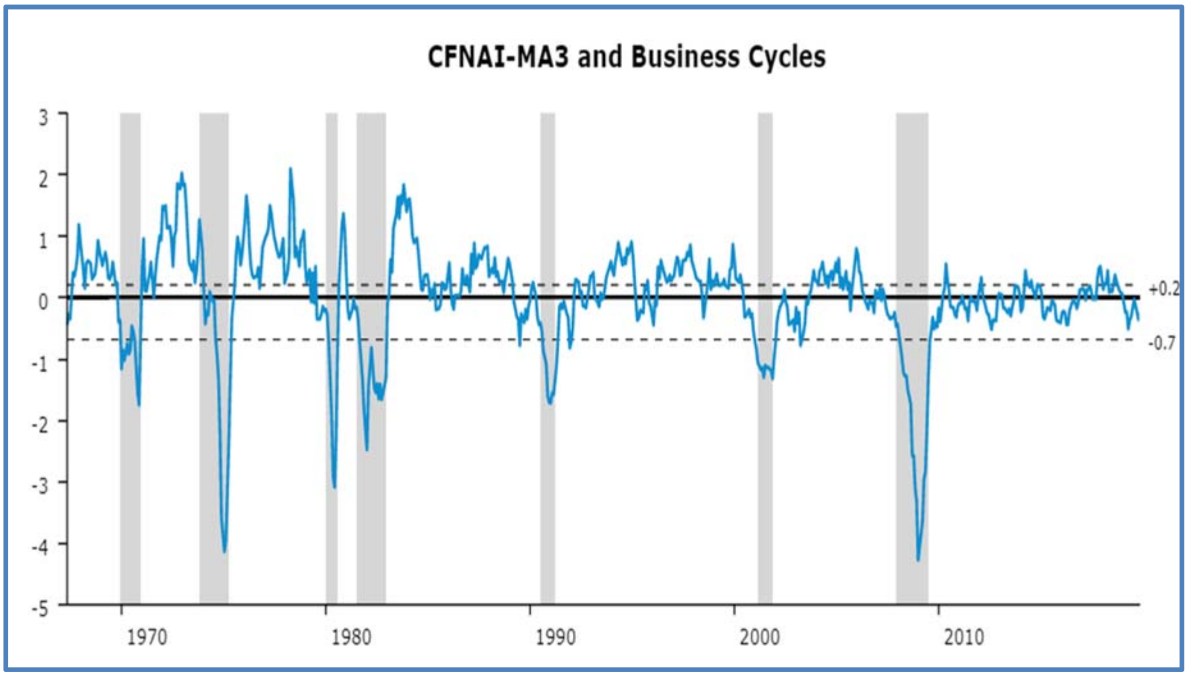
Appendix 1

Business cycle update

No recession, low inflation likely to persist.

Here's an update on our dashboard of leading indicators for growth and inflation. Data provided by the Federal Reserve of Chicago. Our research indicates the following measures are among the most reliable leading indicators available.

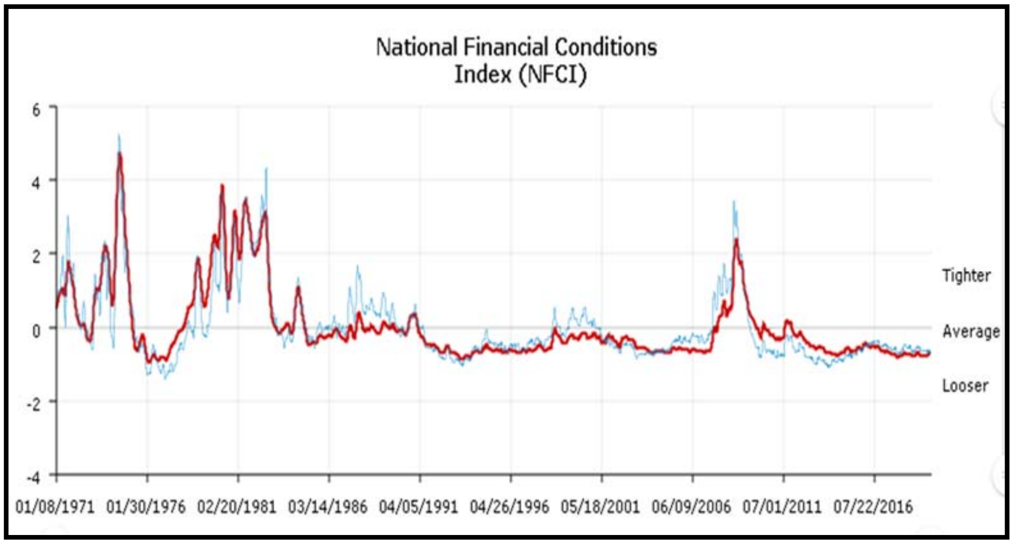
Growth prospects remain steady (but slow).



Notes:

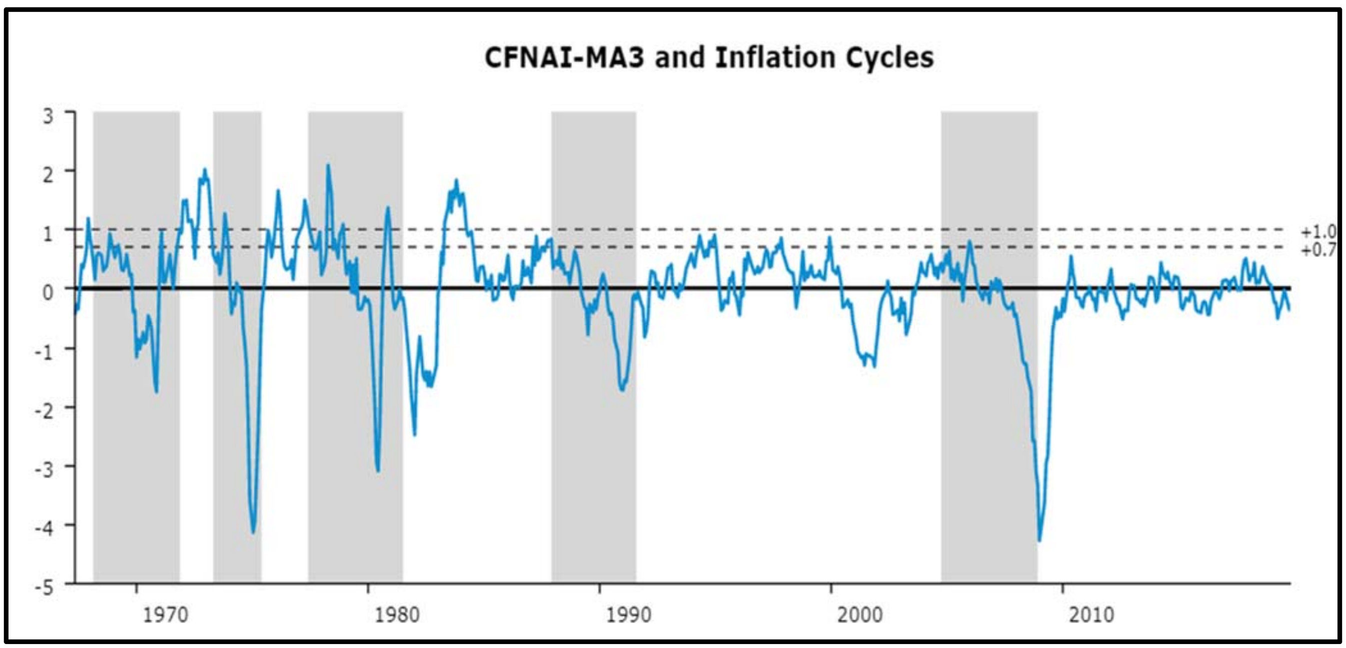
- CFNA-MA3 = Chicago Fed National Activity Index 3 Month Average
- Grey shaded areas = recession
- A value of zero reflects an economy growing at trend
- Positive values indicate above-average growth
- Negative values indicate below-average growth
- Scale is in standard deviations from trend

The financial plumbing underlying the economy remains in good shape, with no signs of a threating credit crunch unfolding.



Note: Positive values of the NFCI have been historically associated with tighter-than-average financial conditions, while negative values have been historically associated with looser-than-average financial conditions.

No signs of threatening inflation either.



Notes:

- Grey shaded areas = periods of sustained increasing inflation.
- An *increasing* likelihood of a period of sustained increasing inflation above +0.7
- A *substantial* likelihood of a period of sustained increasing inflation above +1.0

Appendix 2

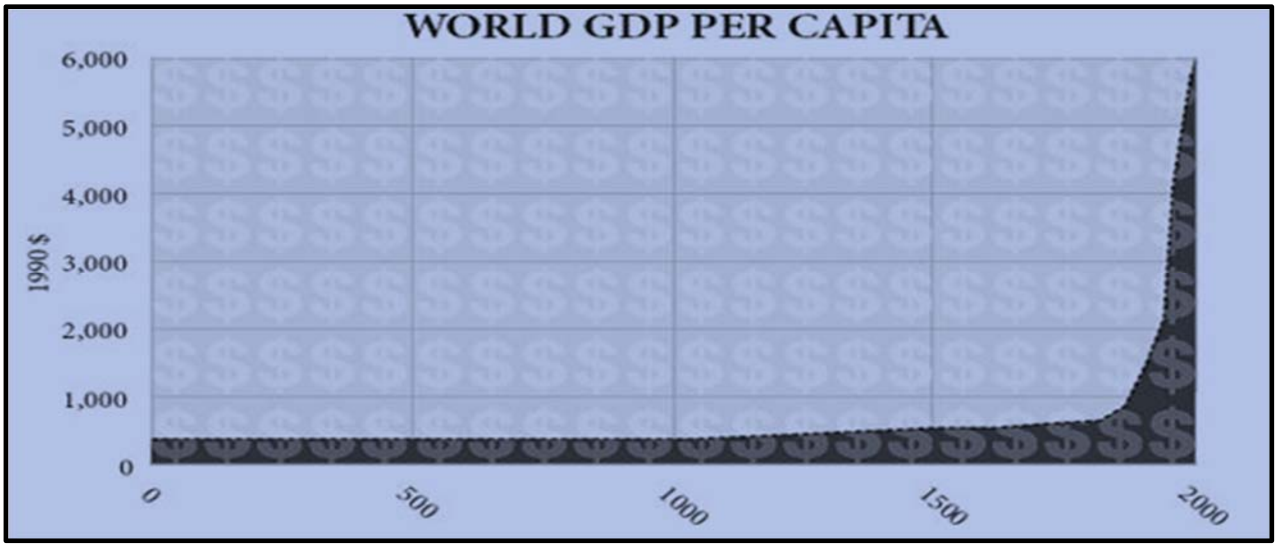
When economic freedom unleashed innovation on the world

For most of human existence, "to the victor go the spoils" was the primary way to accumulate wealth in the zero-sum economy that existed. A precarious hand-to-mouth standard of living for most people persisted for centuries.

As Chart 4 reflects, things began to change in a massive way about 200 years ago as economic freedom exploded.

Chart 4: Innovative dynamism changed the world

World GDP per capita=economic output/income per person



Source: Morgan Housel, Matt Ridley

The freedom unleashed human ingenuity like never before. It also triggered a democratization of markets and economic success. Markets judged an individual's innovative products or services on its value-added merits to a buyer—not on the innovator's familial lineage or pedigree.

The profit and loss system, the price mechanism, and competition underlying free markets also enabled constant experimentation and essential feedback, in search of what "worked best" in satisfying people's needs and desires. Centuries of zero-sum economics gave way to an expanding pie of prosperity where most all citizens were beneficiaries.

Economists and historians use various phrases to describe the dramatic explosion in economic well-being that Chart 4 nearby attempts to display:

- Economist Angus Deaton describes it as *The Great Escape* from centuries of suffering for the common man and woman.[4]
- Nobel Economic Laureate Ned Phelps describes it as the one of the most phenomenal developments in the history of the world that has enabled *mass flourishing* of humans.[5]
- Economic historian Deidre McCloskey calls it the *great enrichment of market-tested betterment*, as economic freedom and respect for ideas of ordinary folks allowed human ingenuity to blossom.[6]

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4 Angus Deaton, *The Great Escape: Health, Wealth, and the Origins of Inequality*, Princeton University Press, copyright 2015

5 Edmund Phelps, *Mass Flourishing: How Grassroots Innovation Created Jobs, Challenge, and Change*, Princeton University Press, copyright 2013

6 Deidre McCloskey, *Bourgeois Dignity*, University of Chicago Press, copyright 2010

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