

January 1, 2025

Dear Fellow Investors,

We've outlined the major topics & takeaways of our annual letter below – details follow!

MAIN MESSAGE HIGHLIGHTS:

- We just might not be thinking big enough, which is surprising given our optimistic Roaring 2.0's and Intelligence Revolution calls.
- While bits-led advancement has been astonishing, real-world advancement has actually slowed.
- We believe we're witnessing a paradigm shift in spirit and economics.
- We've been in a paradigm led by horizontal integration – seemingly slow by comparison. Believe we're entering a paradigm led by vertical integration – an uncertain environment that moves fast.
- Bubble behavior is actually required.
- Difference between good and bad bubbles and their spillover effects.
- We're about to experience something as transformational as what someone who lived through the Industrial Revolution experienced.
- We see the possibility of a future filled with freedom, abundance, and a modern-day renaissance.

FORECASTS FOR 2025:

- **Economy:** GDP up modestly, eclipsing \$30 Trillion
- **S&P 500:** a breather year as earnings growth is offset by multiple compression
- **Short-term rates:** a methodical Fed marching towards neutral, 3.5% to 4% by year-end
- **Long-term rates:** 10-year yield maintains long-term average of 4.5%
- **Oil prices:** spends most of the year in the \$65 to \$70 per barrel range
- **Inflation:** in the range of 3.0% to 3.5%
- **Commercial real estate:** FTSE NAREIT All Equity total return index finishing up 7% to 9%
- **Residential real estate:** more subdued environment with gains up modestly, if at all

"Fun" forecasts

- The cost of energy follows Moore's Law as the thirst for power is met

Long-term forecasts identifying trends that will command positive attention

- A working quantum computer will become reality, facilitating a jump to ASI
- Humanity breaks ground on a permanent moon-base
- Blake's Tesla will earn money for him as he enrolls in their autonomous ride-hail service
- AGI will be recognized with the jump to ASI not too far behind

Dear Fellow Investors,

WE'RE NOT THINKING BIG ENOUGH

"Instead of building the future we're becoming better at developing increasingly realistic simulations of it."

We've certainly been optimistic about the future, as highlighted in our Roaring 2.0's and Intelligence Revolution main messages of the past several years. But after observing the rate of progress we've come to the conclusion that we might not be thinking big enough. We've lived in a world that mostly resembled the past for the last 50 years. There has certainly been considerable change in the digital world. We've seen a bits-led revolution as computers, mobile computing devices, and the internet ushered us into the information age. However, when it comes to the real world, we've seen lackluster progress compared to the accomplishments of decades ago.

Tremendous real-world achievements were made during and after the Industrial Revolution. The first Transcontinental Railroad was completed in 1869, setting the stage for an extensive railway network that revolutionized transportation, commerce, and expansion to the West. Mass-produced automobiles replaced horse-drawn carriages, necessitating early road networks, which eventually led to the Interstate Highway System in the 1950s. We built the Brooklyn Bridge, Golden Gate Bridge, and Lincoln Tunnel in the span of 60 years. Incredible water projects like the Hoover Dam and the California State Water Project secured supply and unlocked future population growth for much of the West. The country became an industrial powerhouse, leading the world in steel, automobiles, and oil & gas production. Electricity and the light bulb reshaped daily life and industry. The telephone connected us like never before. Pristine skylines in some of our most beautiful cities took shape above ground, while complex subway systems trafficked residents below. The first humans took flight in 1903, and mankind reached space merely 60 years later.

SOMETHING CHANGED

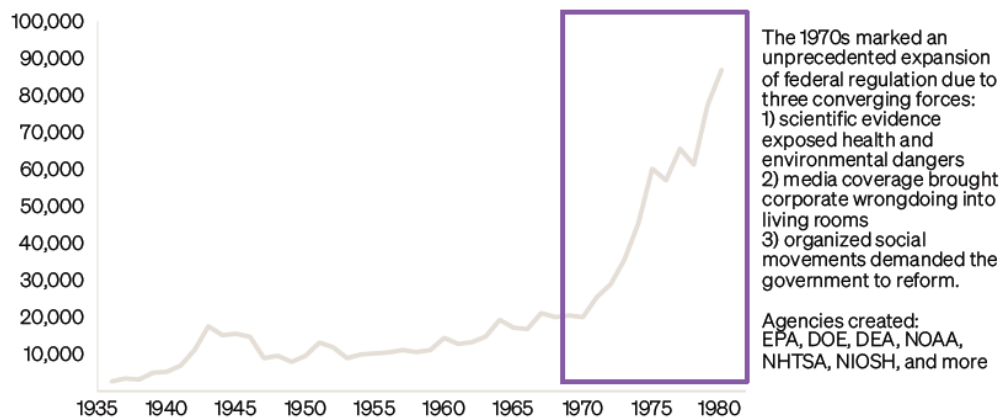
There certainly isn't one direct cause but rather a combination of numerous factors. Post World War II optimism eventually waned as the US went through a nasty period of high inflation and economic stagnation. Significant domestic programs were formed during the mid-1960s as part of Lyndon Johnson's Great Society, as many felt left out of the recent gain in prosperity. The rise of [corporate social responsibility](#) (CSR) also took hold with companies expected to address economic, social, and environmental concerns (sound familiar?). High-profile corporate scandals, like [Lockheed's bribery scandal](#), exposed corporate malfeasance. The Industrial Revolution had a negative side too, as it gave us a clear history of horrendous corporate abuses, such as the [Radium Girls](#). Given high unemployment, inflation, and little growth a broad-based shift in perspective took shape in this period of *muck*. Companies once regarded as engines of prosperity came to be seen as harmful entities in need of oversight and reform - some of which was well deserved.

BIG CHANGES IN OUR REGULATORY FRAMEWORK

All this resulted in a paradigm shift towards **risk aversion**. Given the difficult economic environment of high inflation and high unemployment ([misery index](#)) many were not feeling the great wealth creation seen during the Industrial Revolution. We were now a few generations removed from the era that experienced transformational change, going from agrarian to industrial life. This set the stage for an acceleration in government. As more agencies were created, the list of regulations ballooned. Today, the federal government employs approximately two million people making it the country's largest single [employer](#). There are more than [four hundred](#) federal agencies that issue over [three thousand](#) regulations per year, which is significantly more than congress.

The 1970s saw an acceleration of agency creation and expansion under Johnson's Great Society programs and the modern environmental movement.

Number of Pages in the Federal Register (List of Regulations), 1936 to 1980



Source: [SocialCapital](#)

A SLOWDOWN IN REAL WORLD PROGRESS

"Our current desire to measure and control all risk has reduced our collective willingness to take any."



Flight: We used to be able to fly from New York to London in 3.5 hours. Today, this is about 7.5 hours as commercial aircraft now fly around 550 – 600mph vs. Concorde's 1,350mph. The [Concorde](#) flew from 1976 to 2003. It never proved to be economically viable however given its high operating costs, limited routes due to sonic boom restrictions, high ticket prices, and high maintenance expenses. Rather than push the envelope of innovation to overcome some of these limitations, Concorde was grounded in 2003, which has resulted in all commercial flight being subsonic once again.



Space: Our Space program was once the envy of the world. Born out of necessity as we recognized the implied military capabilities of Russia's Sputnik, NASA went on to accomplish amazing feats. The Apollo Era led to numerous breakthroughs culminating in the moon landings from 1969 to 1972. The first U.S. space station, Skylab, was active until 1974 showing an initial move towards space habitation. Eventually the focus shifted to reusable spacecraft with the [Space Shuttle](#) program. Space exploration requires long-term thinking, consistent funding, and a high appetite for risk. As the urgency of the Space Race diminished, NASA's progress ground to a halt as they officially shut down the space shuttle program in 2011.



Energy: After the Manhattan Project and the end of World War II the US built 259 nuclear reactors. Nuclear energy offered several reasons for hope in the pursuit of abundant, clean energy. It has high energy density meaning it can produce energy from very little material reducing land and resource requirements. Nuclear power produces zero greenhouse gas emissions during operation and the energy produced is constant, unlike wind or solar, which are intermittent. Given incidents like [Chernobyl](#), [Three Mile Island](#), and [Fukushima](#) as well as environmental concerns, public perception and political will turned against nuclear energy. The process to build a new nuclear facility can now take over a decade which has discouraged new construction. The U.S. has been steadily [shutting down](#) nuclear power plants since the early 1980s.



Infrastructure: California's high speed rail was first proposed in the 1990s and received funding in 2008, with the passage of [Prop 1A](#) authorizing nearly ten billion dollars for the project. San Francisco and Los Angeles were to be connected by trains that could travel up to 220 miles per hour, moving passengers between these destinations in less than three hours. Nearly twenty five years later there is no [definitive date](#) for when the train will be operational. Estimated costs now exceed one hundred billion dollars, and plans have been dramatically scaled back to connect only a stretch in the middle of the state, from Merced to Bakersfield.

"A nostalgic hopelessness, defeatist fatalism, our outright nihilism about the future has started to metastasize. On a deeper level the absence of transcendental vision that characterizes our age has resulted in a general future blindness in which the future has simply become the continuation of a never-ending present defined by uniformity, homogeneity, and a general lack of dynamism."

A PARADIGM SHIFT IN SPIRIT AND ECONOMICS

A new questioning spirit is pulsating throughout our country, asking why real-world progress has been so slow. It's incredibly non-sensical that people today are in awe of what humans built centuries ago. If tools, technology, and knowledge have advanced so much, why do we find it so difficult to build anymore?

ENTERING A NEW CYCLE

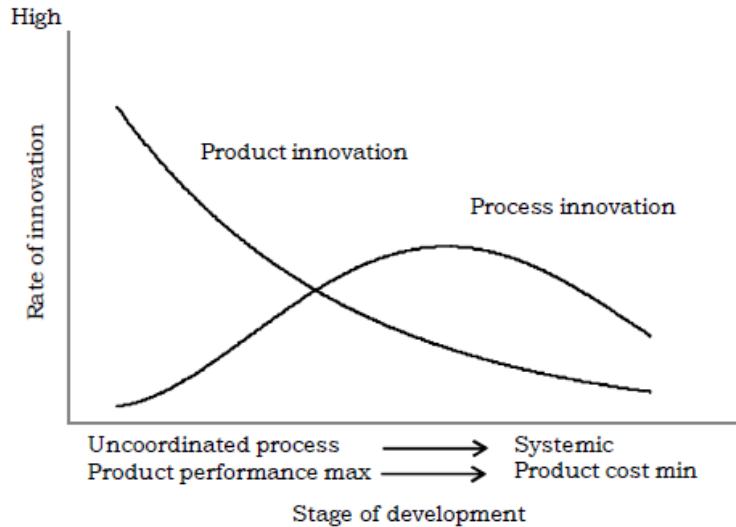
Believe it or not, what we're talking about has been well documented throughout history, as evidenced by the incredible works of Soviet economist [Nikolai Kondratieff](#) (1926), [Carlota Perez](#) (2003), and most recently [Byrne Hobart and Tobias Huber](#) (2024). Industries - and therefore the overall economy - tend to move in long-term cycles that last approximately 50 years. There are periods during which the old way of doing things dies, and a new one is born. These cycles see huge amounts of capital and assets put into production, leading to significant change and transformation. They are dominated by different integration regimes as industries move horizontal to scale up and reduce costs, while shifting vertically when it comes time to innovate new products.

HORIZONTAL – HOW REAL-WORLD PROGRESS HAS BEEN – SEEMS SLOW BY COMPARISON

Assessing our leading real-world industries of today leads to a fairly obvious observation: we've been in a tremendous horizontal integration cycle. Complex products are largely built with well-developed global [supply chains](#), companies specializing in parts of this supply, factories migrating towards low-cost labor, and the main company serving more of a product design / final assembly role. Many of our industrial companies are no longer led by engineers but by [business types](#) that know much less about product design and much more about financial levers. This approach is ultra-focused on squeezing every last bit of margin out of the process and is a clear sign that an industry has matured. Eventually, these complex supply chains can grow increasingly fragile and find themselves unable to adapt to quickly changing conditions.

VERTICAL – HOW REAL-WORLD PROGRESS IS ABOUT TO BE – FEELS UNCERTAIN AND MOVES FASTER

Vertical integration strategies typically dominate when industries are in their early stages or undergoing significant transformation. Market structures are unclear, supply chains are not well developed, and new technologies are emerging. A company that is able to control more of its supply chain and in-house processes can create new products faster and more efficient than competitors.



Source: [Annals of Business Administrative Science](#)

ROARING 2.0'S AND INTELLIGENCE REVOLUTION ARE PART OF SOMETHING BIGGER – WE'RE ENTERING A NEW TECHNO-ECONOMIC PARADIGM

A new Techno-Economic Paradigm shows a way of using new technologies to make business more efficient, profitable and therefore competitive. It includes a number of ingredients:

- A new [constellation](#) of technologies that are innovations in different but connected fields
- Has the potential to transform multiple sectors
- There is a [key factor of production](#) that is cheap, abundantly available, and widely applicable
- New best practices, managerial practices, organization models, and business models emerge
- New infrastructure facilitates the spread of new technologies and processes throughout the economy
- Increase in entrepreneurial activity as people figure out how to bring these new technologies together and to market in commercially viable ways

This paradigm shift is a massive disruption, and we believe we're just starting to feel that right now. It's a period of mismatch and adjustment as the potential of new faces the entrenched "this is how we've always done it". Appetite will shift from risk aversion to risk embrace. Once critical mass is reached these new technologies make it abundantly clear that there are significant advantages to the new way and embracing this becomes necessary for survival.

BUBBLE BEHAVIOR IS ACTUALLY REQUIRED

Critics will proclaim that these new technologies are unproven, overvalued, and a bubble. We actually view the bubble talk as a positive, noting that we must differentiate between good and bad bubbles. Bubbles driven by financial engineering are typically bad. Subprime mortgages didn't fundamentally change anything about homes. Houses were still the same structures and still produced in the same way. Good bubbles are far more valuable, bringing together talent and capital to work on something new and exciting. They are speculative by nature. They invoke exuberance

from people working in the field. Outcomes are unknown as there is little clarity. They will not produce an attractive cost-benefit analysis. Analysts will not be able to confidently model out future cash flows. Return on investment will certainly be questioned. However, sometimes these good bubbles go on to produce the next big thing - something that previously didn't exist - and fundamentally change the world.

“An innovation-accelerating bubble is a definite vision of the future that drives extreme commitment from investors and other participants. A bubble can be a collective delusion, but it can also be an expression of a collective vision.”

DEFINING GOOD BUBBLES AND SPILLOVER EFFECTS

Good bubbles typically form when there is high risk tolerance from institutions with immense capital and resources, a clear sense of urgency, and concentrated talent. This results in the formation of an intelligence supply chain that creates new tools for solving new problems. The excitement generates FOMO, as others (typically younger, as risk appetite tends to be higher) rush to get involved. Multiple approaches work at once, with numerous players working towards the same goals. There's a strong sense of urgency, partly due to the belief that competing projects could reroute resources to more immediate goals. Success is highly uncertain. There will be plenty of mistakes and waste along the way. But once complete, the world will be left with something that previously didn't exist. There will be many spillover effects that enable new technologies, quite different from the project's original goal, and lead to innovations upon innovations.

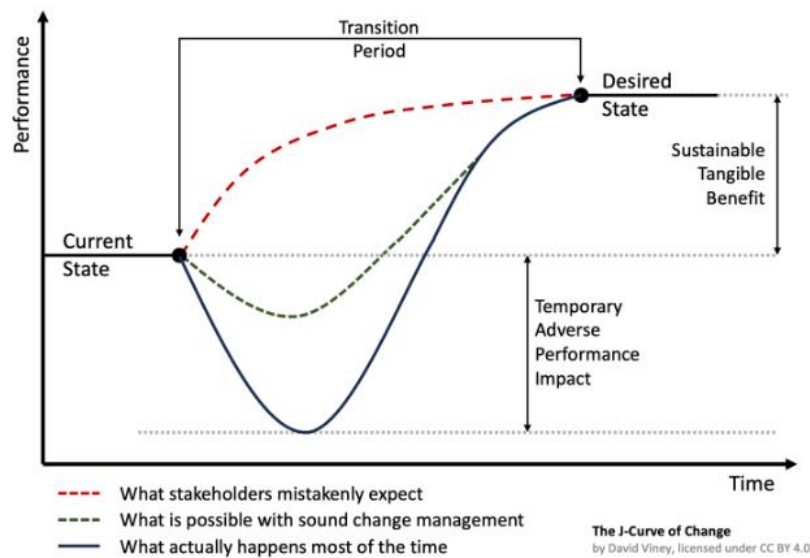
EXAMPLES OF GOOD BUBBLES

The [Manhattan Project](#) brought together physicists who had to convince each other that a nuclear weapon was possible and then convince politicians that it was worth attempting. Los Alamos might have been the largest concentration of brainpower ever assembled. It was led by youth as the average age of participants was just 25. The project purposefully created numerous large-scale manufacturing facilities alongside Los Alamos knowing that some of them wouldn't work or be redundant. It wasn't clear which processes would produce sufficient enriched material. This parallel approach to uranium enrichment increased the risk of wasted money, time, and material on fruitless efforts but it lowered the more important risk that the bomb would not be completed at all. While the development of atomic weapons remains a controversial topic with complex ethical implications, the project led to significant technological advancements. The spillover technologies were numerous as John von Neumann worked on his first computer while involved and we still use his architecture to this day. Nuclear fission became a major electricity source in places like USSR, US, UK, and France. The important branch of math and economics known as game theory was invented during this time and today underpins ad pricing models from major technology companies. Bringing it back full circle, Google now invests a large sum of these ad profits in various R&D projects including quantum computing and fusion power. Once other countries developed nuclear weapons the race was on to demonstrate how they could be delivered. This led to the Space Age.

In 1961 President Kennedy declared that the US should commit to landing a man on the moon. There was a monumental problem though, no one knew how to do it or whether it was even possible. None of the rockets, launchpads, space suits, or zero-gravity food even existed yet. The Apollo program would require an incredible amount of money with a very high probability of failure. It eventually grew larger than the Manhattan Project, requiring an investment that was 12 times larger. Apollo assembled over four hundred thousand people ranging from scientists, engineers, mathematicians, astronauts, and construction workers. It was supported by more than twenty thousand industrial firms and numerous research universities. The structure was decentralized, flexible, and often informal. This enabled scientific and technical risk taking, rapid cycles of testing and feedback, and a relentless focus on problem solving. Apollo's success was awe-inspiring, showcasing America's capabilities and spurring further innovation. This eventually led to such technologies as CAT scans, MRIs, communications satellites, and freeze-dried food. However, the contribution most felt today just might be what the space program did for the development of integrated circuits.

To accomplish such amazing feats, NASA would need the help of computers. When they bought their first chip in 1961 it cost around \$1,000. The following year, they were able to get the price down to \$100 due to massive bulk discounts. Another year later, 3,000 chips could be bought from Fairchild Semiconductor for \$15 per chip. By 1965 the cost had fallen to \$1.58 per chip, NASA was buying 60% of all chip supply, and Moore's Law was born. In 1965 Gordon Moore wrote "[Cramming More Components Onto Integrated Circuits](#)" and eventually left Fairchild Semiconductor to co-found Intel. Apollo set the pace for chip development, kicking off a process where better software was made possible due to higher performance chips. This enabled chip manufacturers to produce ever-better chips to meet the growing demand.

There are numerous examples of bubbles that encounter initial failure but eventually brought about an acceleration in innovation. [Transatlantic cable](#) was laid to enable telegraph communications between Europe and North America. Numerous investors lost everything as first attempts failed, but it did eventually make the world more connected. A massive buildout of railroad capacity eventually led to about one quarter of all railroad companies going [bankrupt](#), but the tracks still remain, unlocking cheap transportation for goods that is still used today. Step function change typically follows a J curve.



Source: [David Viney](#)

When moving towards a new desired state that has numerous unknowns and a high probability of failure, initial attempts will look like wasted effort. However, when successful, this early work eventually delivers something new that didn't exist before.

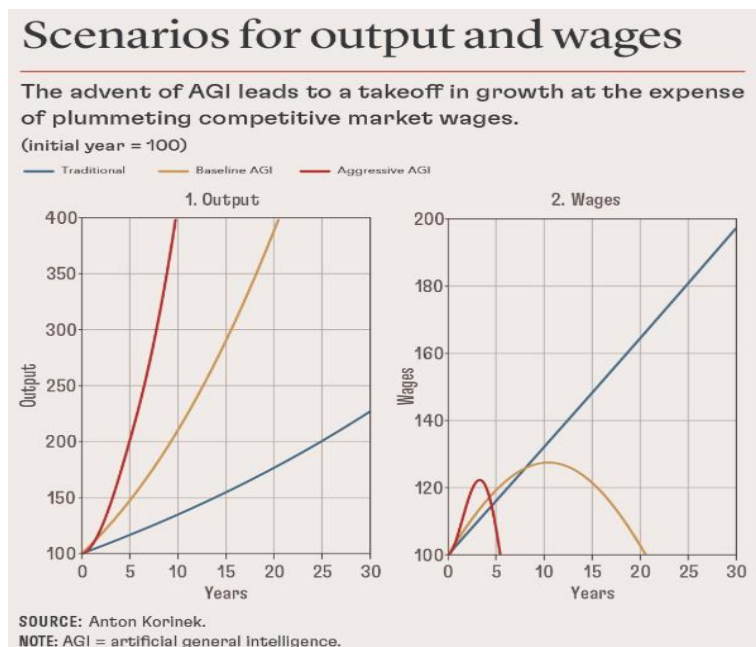
"Innovation accelerating bubbles which emerge around a definite, optimistic vision of the future induce meaning as participants in a bubble share the conviction that their pursuit, while uncertain, promises to realize something that transcends the present. A bubble is therefore not simply a collective delusion but an expression of a future that is radically different from now."

WHAT WE SEE COMING

"If the source of our real-world stagnation is societal risk aversion then the only way out is to promote a culture that nurtures risk-taking, embraces uncertainty and failure, and pursues aggressive funding of ambitious projects. Good bubbles stimulate collective risk-taking, nurture extreme enthusiasm and commitment, and excessively fund trial-and-error innovation. These bubbles are uniquely suited to incubate and accelerate future technologies that can break through stagnation and accelerate growth."

A SURGE IN PRODUCTIVITY AND OUTPUT

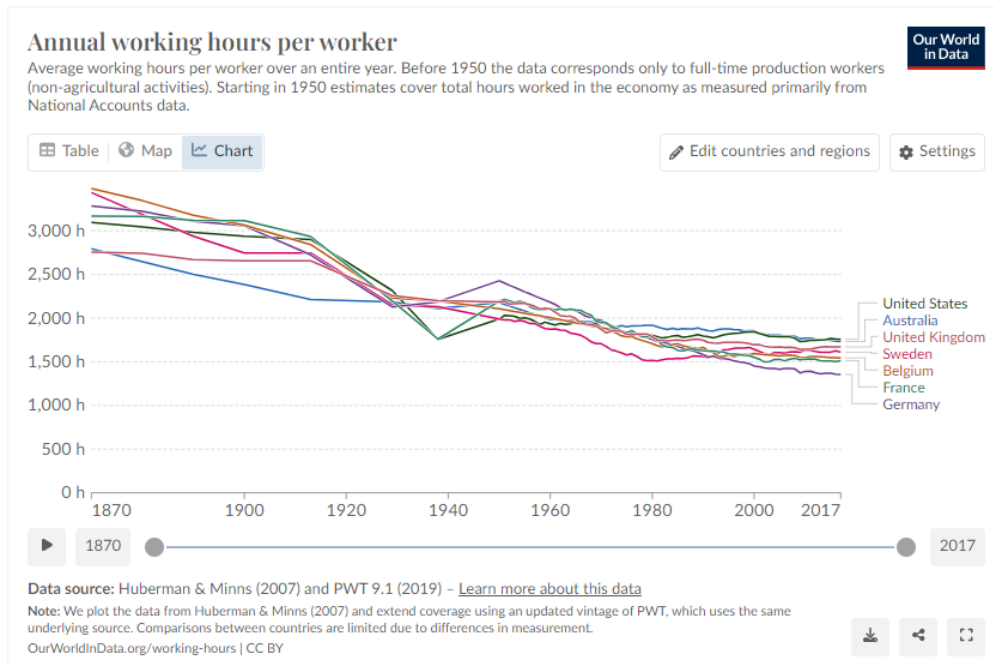
If Artificial General Intelligence (AI that possesses the ability to understand, learn, and perform any intellectual task a human can perform) is achieved it will surge throughout all industries causing the lid to be blown off the economy's productive capabilities. We will see the most important ingredient for production become unbound as we become capable of manufacturing labor. We're already seeing the first deployments of [AI agents](#) in the digital world. Right behind this is an incredible advancement in robotics. AGI coupled with robotics just might be the last machine man needs to create, as it will be capable of designing and building better future machines and bring with it novel creations. This implies a future of abundance and cheap goods and services. Since the Industrial Revolution humans have automated simple tasks (both mechanical and cognitive) and reallocated workers to perform more complex tasks. The International Monetary Fund is already discussing the possibility that there might be an upper bound to the complexity of tasks that the human brain can perform, and actually considers a scenario in which wages [plummet](#) due to the rise of manufactured labor.



Source: [International Monetary Fund](#)

WHAT WILL PEOPLE DO?

The rise of [manufactured labor](#) makes this a valid question. The idea of a universal income is being discussed as well as new tax policies on manufactured labor to fund it. In this scenario, corporate tax would become much more meaningful than income tax. While we view the thought that people will have nothing to do as plausible, we believe the more likely scenario will be one in which humans pivot to other careers where we excel. Recall, the average work week has been cut in half since the Industrial Revolution. It also marked the period in which industries such as film, beauty, restaurants, and professional sports took shape as more people in the working and middle classes began to enjoy discretionary income.



AGI UNLOCKS THE POSSIBILITY OF A MODERN RENAISSANCE

“The last century brought radically different and almost incommensurate phases in art, architecture, literature, and film, the past 3 decades have been characterized by a recession of novelty and a period of increasing homogeneity. There’s a constant enunciated desire for variety. This need for novelty is shallowly satisfied by the algorithmic intensification of perception, consumption, and simulated experiences, whether in cyberspace or through mind-augmenting substances.”

We believe as people enjoy more free time and have more money (or at least the equivalent of more money as the price of goods and services plummets), careers centered around being social, creative, and shared experiences will boom. The Industrial Revolution gave us our regimented workday, office cubicles, and education system. People are largely living an assembly-line dominant way of life, specializing in a certain part of a process, focused on what can be accomplished day-by-day, week-by-week, or month-by-month. This rigor and consistency proved to be an excellent means to bring the masses out of poverty but a horrendous vessel for letting the creative juices flow. Good enough standardized products came at the expense of beauty, inspiration, and craftsmanship. The Notre Dame cathedral took nearly two centuries to complete. Michelangelo spent approximately four years painting the ceiling of the Sistine Chapel. When time is no longer a constraint and humans are equipped with capable machines, we envision a surge in awe-inspiring creations.



WHAT DOES THINKING BIGGER MEAN?

It means we're about to experience something as transformational as someone who went through the Industrial Revolution. We'll be moving on from an era of real-world stagnation into a future of freedom, creativity, and abundance. This advancement keeps us on the [Human Trajectory](#), continuing humanity's exponential economic progress. It's going to feel uncertain, scary, exciting, and will happen fast. Rather than fear the upcoming disruption we urge investors to embrace it. Recalling a great quote from one of the NASA engineers working on the Apollo project, *"the greatest risk of manned space missions is not death, but not to explore at all."*

FORECASTS

This is the section of the annual letter where we discuss forecasts made in the past and discuss the bullets on the opening page of this letter. As we do every year, we remind ourselves it's a foolish endeavor to believe we can accurately forecast the future – something no one can truly do! We enjoy using "What If" in our thought process as it allows for outside-the-box thinking and challenges our (and your) assumptions. It also allows us to think beyond the current "news cycle" forecasting that permeates much of the financial press. As a reminder, these forecasts are our thoughts as of the writing of this annual letter in mid to late-December. Markets are dynamic and ever-changing. When change occurs, so too must our thoughts to adapt to the then current investment environment.

We reiterate, our portfolios are managed substantially from the bottom up. This means we look at individual investments themselves and the **long-term** value they represent, knowing that quality companies at the right price represent value. With this reminder out of the way, let us review our forecasts from 2024's annual letter and make some new and bold (and perhaps futile given our long-term perspective) forecasts for 2025. For 2024 we had a solid record again, getting many correct (7.5) and a couple wrong (2). Fortunately, the main message forecasts were mostly on the positive side of the ledger.

The Economy:

For 2024 we forecast the US economy would continue to show a year-over-year increase and eclipse \$28.5 Trillion.

We were correct in our belief that Wall Street was too pessimistic heading into 2024. While consensus was calling for a significant slowdown, potential recession, and the Fed coming to the rescue, we did not. GDP was **\$29.4 Trillion through the end of the 3rd quarter of 2024 and the Federal Reserve did not have to "rescue" the economy with early and often rates cuts. Full point.**

For 2025 we forecast the economy will continue to see overall growth, albeit at a much slower pace. There has been one industry that has benefited immensely over the past few decades, showing no pause in growth even during economic troubles and pandemics – the government. We find the announced efforts of the new administration to focus on government efficiency and stem the tide of runaway deficit spending as encouraging (more on this later). If successful it could be an initial negative to economic growth as the biggest industry downsizes. Eventually, we believe the fears of a permanent loss in employment will wane as the economy absorbs and creates new jobs for this workforce. If the cut government programs are essential, the states and/or private sector will pick up the slack and fill the need, most likely in a more efficient and cost effective manner. 2025 could be a transitional period characterized by an initial economic contraction, followed by an eventual expansion, as rampant innovation, animal spirits, and a more competitive U.S. economy eventually picks up the slack. Should the bureaucracy prove too entrenched and resilient to downsizing, then our GDP number might be too low. **Therefore, we forecast that the economy will be modestly higher than \$30 Trillion by the end of the 3rd quarter 2025.**

Inflation:

For 2024 we forecast inflation would be in the range of 3.0% to 3.5%. Further, the inflation rate would stay low so that the Fed was not forced to use artificial means to try and reduce it. The numbers are in through November and clearly show CPI stayed below 4% all year and even fell below 3% in July. **Full point.**

For 2025 we still believe systemic inflationary pressures exist in the economy. Deficit spending financed by increasing currency is, by its very nature, inflationary. The Federal Reserve has several tools to control the supply of money and therefore have an impact on inflation. While the Federal Reserve saw [money supply](#) (M2) peak at \$21.9 Trillion in March of 2022 and their [balance sheet](#) balloon to \$8.94 Trillion after the extraordinary government-approved measures to battle COVID, they did raise interest rates from zero to 5.5% by August of 2023 (the fastest hiking cycle by % in history) in an effort to curb the then 8.0% inflation rate. They've largely been successful without severely impairing the economy and as a result have been able to methodically unwind their efforts to control inflation. They're seeking to find neutral on short-term interest rates and, just as importantly, have been able to reduce their balance sheet by \$2 Trillion (\$6.9 Trillion as of 12/9/2024). While the velocity of money has started to inch back up, it is still subdued, which should allow for normalized Inflation and monetary growth going forward. **Therefore, we forecast the same 3 to 3.5% inflation rate that we saw for 2024 once again for 2025.** If we are wrong, decreased government spending may actually lower the rate.

Short-term rates:

Our forecast for 2024 was no change in the Fed Funds rate until around the election. Going into the year, most of Wall Street believed the Federal Reserve would have to quickly cut rates they had been relentlessly hiking for the past two years. We held the contrarian view they would hold rates steady for most of the year. If they were to cut, we believed it would be towards year-end and possibly after the election as they wouldn't want to be perceived as being political. 2024 did see the Fed wait very patiently and finally make their first rate cut in the last meeting before the election. **Full point!**

For 2025 we believe the Fed will manage monetary policy more with balance sheet maneuvers impacting the velocity of money as opposed to interest rate adjustments. They'll likely achieve their goals faster if we see some federal budget cuts impacting the velocity of money as the government won't be there sucking funds out of the economy. Their quest remains to find the new neutral for short-term rates which we believe is somewhere around 3 to 3.5%. We expect the Fed to remain methodical, moving towards this range over the next year or two. **For 2025 we believe there is a good chance the Fed Funds rate is at 3.5 to 4% by year-end.**

Long-term rates:

For 2024 we saw the 10-year yield drifting up towards 4.5% by year-end. As importantly, we do not see it drifting back towards the unhealthy, accommodative levels of a few years ago. We entered 2024 with the 10-year yield at 3.87% and 4.6% at year-end. **Spot on – full point!**

For 2025, we believe a smaller government that initially results in higher unemployment will be villainized by the press in partisan, political reporting. This will lead to a short-term hit to GDP seeing it contract or rise slower than economists predict. This slower rate of growth will allow the Fed to continue their methodical march to neutral on short-term rates. Given the enhanced prospects of increased productivity, less regulation, fiscal discipline, and a business-friendly environment, we expect a healthy, upward sloping yielding curve as **the 10-year yield maintains its historic average of approximately 4.5%.**

Stock Market:

For 2024, we applied a P/E multiple of 17 – 19 times forward earnings estimates for 2025 (\$274.17) which translated to 4,700 – 5,200 on the S&P 500. This is where we entered the year on the low-end and approximately 9% higher on the high-end. We saw 2024 as a year where stock returns follow earnings growth with the possibility of heightened volatility, given the uncertainty surrounding the election. There was indeed earnings growth, and by mid-year, the market had already moved to the upper end of our forecast range. Political uncertainty didn't disappoint, given multiple assassination attempts on Trump and the Democratic party ousting President Biden in favor of the Harris / Walz ticket. Post election, the market has continued its strong momentum given the certainty of election outcomes and prospects of a business-friendly agenda. As of today, the S&P 500 is near 6,000 – a level well in excess of our forecast. While we were correct in believing this would be a positive year for the market, we certainly weren't correct in predicting the magnitude of the advance – **no point here.**

As noted in our "Muck and Up" letter from a few years ago, we believe we're in one of these significant "Up" periods that can last for decades. Advancements in innovation drive efficiency, productivity, and profits. This results in expanding valuations and returns that are typically many multiples higher than the end of the prior "Muck" period. However, these periods of "Up" are not immune from pullbacks, recessions, or even bear markets.

We hope 2025 will be a year in which real progress is made on addressing deficit spending and the growth of our national debt. Continuing with the status-quo results in the very real possibility that our debt burden becomes unmanageable and pushes us towards national bankruptcy. We must unleash our incredible economic engine and grow the future output to reasonably cover the costs of prior spending. Fortunately, this playbook is already underway in Argentina producing quite promising initial results. However, even Argentina had to endure some short-term pain in order to turn the tide. With our expectation that our largest industry (government) will experience disruptions via personnel cuts and technology enhancements, we believe market sentiment may initially sour and see valuations revert to the mean. Current expectations are for 2025's earnings growth to be above average, up approximately 15%. Given back-to-back years of 20% plus returns, we believe 2025 could be a year in which a pause occurs as fundamentals catch up with upward price movement that has already taken place. With the market already trading at 22 times 2025's expected earnings, we feel earnings growth will be offset by multiple compression as the government efficiency and fiscal discipline playbook unfolds. **For 2025 we forecast the S&P 500 to be up modestly to a range of 6,200 to 6,400.** Please note, given the impossible task of trying to correctly time the market and our belief in the transformation we're about to witness, a "breather" year is not a valid reason to get out of the stock market.

Oil:

For 2024, we forecast oil prices maintaining a range of \$70 - \$100 a barrel and averaging in the \$80's for the year. This was indeed the case – **full point!**

The first Trump presidency saw oil hit a high of \$77.41 on 6/27/18. The high during the Biden presidency was \$123.64 on 3/8/22. The difference in attitude toward drilling and the economic pressures placed upon producing nations appears to be borne out by the commodity's price action. Increased drilling and the potential resolution of numerous international conflicts should keep supplies high and downward pressure on prices. We forecast an upper bound around the \$80 level. The economics of producing countries may create a renewed effort by Saudi Arabia (who has lost some of its sway over OPEC) to keep prices above a \$55 floor. **Given our forecast range, we expect oil to spend most of 2025 somewhere in the middle, around \$65 to \$70 per barrel.**

Commercial Real Estate:

For 2024, we forecast a solid total return from REITs as interest rates stabilized. Similar to 2023, we recommended positioning portfolios into sub-sectors that still have a fundamental need in the economy – manufactured housing, industrial warehouses, data centers, and health care (but not hospitals). **Overall, we saw the FTSE NAREIT All REIT total return coming in at 10% or higher in 2024.** This looked like a slam dunk for much of the year as the index was up over 13% through the end of November. However, there has been recent weakness in the REIT space and as of today, the index is up a much more modest 4.8%. **Half a point.**

There were a significant number of buildings refinanced during the low-rate environment of 2015 to 2020 with many done on a 10-year maturity. Some are encountering challenges as lease demand is only now starting to normalize post COVID and we're in a significantly higher interest rate environment. Net cash flows may be negatively impacted a bit as refinancing activity starts to heat up. Our forecast for a more stable interest rate environment should allow refinancings to be manageable. Some sectors that have not completely recovered from COVID related disruptions (like the office space) will still be under the risk of "extend and pretend" by the financial institutions that hold their notes. We see "Back to the Office" trends continuing and cash flows that could significantly improve making the refinancings doable.

For 2025 we will continue to focus on affordable housing (manufactured home communities), real estate related to disruptive technology (data centers, cell towers, medical research), self-storage, and industrial warehouses. We do note, given the challenges previously discussed, office and apartments may see a solid recovery year if the negative sentiment were to wane. **For 2025 we forecast the FTSE NAREIT All REIT Index rising again, in line with inflation (3 to 3.5%) and yields (4 to 5%), for a total return of 7 to 9%.**

We've often maintained real estate is a long-lived asset with leases reflecting economic forces over time. As inflation and interest rates rise, renewals on rents will reflect that, but it will be several years before those changes work their way through the marketplace. In the meantime, cash flows continue.

The valuation of these cash flows fluctuates over the short-term (even year-to-year) and becomes the volatility seen in the price of REITs. This implies REITs can go through stretches of underperformance when compared to alternative, cash flow generating investments such as the 10-year US treasury. However, when viewed through a long-term perspective we continue to prefer owning quality REITs that invest in value-added projects. Value is eventually captured through growing demand and rising rents. A well-managed REIT will pair off the liabilities on their property portfolio to these consistent cash flows. This gives them the ability to produce a rising income stream as opposed to a fixed coupon and see share price appreciation as value-added projects take shape. The staying power of real estate can be a welcome piece to a portfolio.

Residential Real Estate:

For 2024, we saw the magnitude of the increase in the Cash-Shiller national home price index as muted, rising less than 5%. In September of 2023 the index stood at 318.4 and in September of 2024 at 333.0 – an increase of only 4.6%. **Full point.**

Demand for residential real estate has always been driven by employment. We see the work-from-home trend continuing to unwind. This implies people need to live close to their employers once again, so employment-centric locations should see a recovery. Businesses relocating to states with favorable tax and regulatory environments will continue to influence the national landscape, subjecting it to varying supply and demand pressures. Immigration could also wane (which could result in a net neutral to negative effect when deportations are factored in) possibly reducing demand in these parts of the country. The new administration may be successful in removing some regulations that impede new housing starts, but most of these are at the state level. The bottom line is there might be numerous cross

currents for residential real estate in the coming year. **For 2025, we forecast a more subdued environment than years past with the Case-Shiller index rising very modestly, if at all.**

Fun Forecasts for 2024

We predicated that a notable merger would take place in the entertainment industry as consolidation in the highly fragmented content / streaming services needed to take place. 2024 didn't disappoint. We would take our **full point** merely from the \$8 Billion [merger](#) of Skydance Media and Paramount Global, but there were other mega deals as well. The [NBA](#) signed an 11 year rights deal with Disney, Amazon and NBC Universal valued at \$76 Billion. [Netflix](#) did a \$5 Billion deal to bring WWE's Raw franchise to streaming. Perhaps the most interesting deal was between Runway and [Lionsgate](#) as Runway will train a new AI model on Lionsgate's film and TV library to develop future original projects.

We predicted that AGI (Artificial General Intelligence) will be recognized as being here and worries will shift towards ASI (Artificial Super Intelligence). The speed of AI development is astounding. Who knows, maybe by January there will be recognized AGI? Despite the incredible progress, it hasn't happened yet, so **no point here.** While our timing may be a bit off, many in the tech world feel it is a matter of when, not if, AGI will be here. Perhaps we will just move this to our long-term forecasts!

Fun Forecast for 2025

The race to AGI will intensify this year as major players invest huge amounts of capital and resources. Given the incredible energy demands, research and development costs, infrastructure needs, data acquisition and management costs, and rapidly evolving regulatory environment, only deep-pocketed players will be able to afford the high barriers to entry. The start-up scene is vibrant with smaller players seeing significant investments from the juggernauts. 2025 could be the year in which some of these promising start-ups are actually acquired for their talent and advancements in the field. Companies that achieve AGI will be able to unlock efficiencies and reduce costs, including energy costs. Therefore, our **fun forecast for 2025 is that energy production technology will boom and we'll see the cost of energy become subject to Moore's law by the end of the year.**

Long-term fun forecasts

The real purpose of the "Fun Forecasts" is to have us think outside the box, try and remove the recency bias we all suffer from, and look beyond much of today's negative outlook. Why are we always dreading the "Black Swan" events? Why can't we anticipate "White Swan" occurrences? Many of our annual fun forecasts in the past have not been right in that year, but did come to pass in following years. Someone once said, "we over-estimate what we can accomplish in one year and under-estimate what we can accomplish in five years". Let's think five years (and longer). We'll keep these forecasts here in an attempt to identify significant themes that we should be paying attention to.

Previously made long-term forecasts with updates below:

A working quantum computer will become reality, facilitating a jump to ASI

- Google achieved a milestone in regards to quantum computing. They unveiled [Willow](#), their state-of-the-art quantum chip.

Humanity will break ground on a permanent moon-base

- Boeing has had many problems in the last year one of which was [stranding](#) two astronauts at the International Space Station. Space X to the rescue and with that [Artemis](#) gets more Space-X input and confidence of it actually happening.

Blake's Tesla will earn money for him as he enrolls in their autonomous ride-hail service

- On October 10th Tesla [unveiled](#) their CyberCab and robo-taxi plans set to launch in the very near future. Once activated, the network will allow existing Tesla car owners to add their vehicles into the robotaxi fleet.

New addition for 2025:

AGI will be recognized and the jump to ASI will not be too far behind

- OpenAI unveiled [o3](#) in December. It is a breakthrough model that significantly surpasses all previous models in benchmarks.

CONCLUSION

We will always strive to cull through information, ferret out the important from the unimportant, and take short-term emotions out of the long-term investment process. Our goal is to help our investors achieve their financial independence and the freedom to focus on what they want to do in life and not what they have to do. As always, we welcome your feedback and would love to talk about these and other topics that may be important to you. We thank you for your continued confidence and the opportunity to manage your investments. We take very seriously our responsibility. ***Crowell Weedon Wealth Management's Mission: To provide diversified, disciplined long-term investment solutions, service and guidance to help our clients achieve and maintain their "Financial Independence".***

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Disclaimers

All quoted passages are from the book [BOOM: Bubbles and the End of Stagnation](#)

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Real estate investments may be subject to a higher degree of market risk because of concentration in a specific industry, sector or geographical sector. Real estate investments may be subject to risks including but not limited to declines in the value of real estate, risks related to general and economic conditions, changes in the value of the underlying property owned by the trust and defaults by borrower.

The Dow Jones Industrial Average is a price-weighted average of 30 significant stocks traded on the New York Stock Exchange and the NASDAQ.

The Standard & Poor's 500 Index is a capitalization weighted index comprised of 500 widely-held stocks on US stock exchanges. Companies included in the index are selected by the S&P Index Committee, a team of analysts & economists at Standard & Poor's.

S&P 500 Total Return Index is a measure of the price movement of The Standard & Poor's 500 index and including the dividends paid by the companies in the index.

S&P Case Shiller Index – a group of indexes that tracks changes in home prices throughout the United States. Case-Shiller produces indexes representing certain metropolitan statistical areas as well as a national index.

GDP – the monetary value of all the finished goods & services produced within a country's borders in a specific time period.

The MSCI US REIT Total Return Index is an index that broadly represents the price and income movement of the equity REIT universe in the United States. The Index represents approximately 85% of the US REIT universe.

The Barclay's Aggregate Bond Index – includes government securities, mortgage-backed securities, asset-backed securities and corporate securities to simulate the universe of bonds in the market. The maturities of the bonds in the index are more than one year.

P/E Ratio is a valuation ratio of the company's current share price compared to its per-share earnings.

Past Annual letters are available by request and available on our website at: <http://www.cwam.dadavidsonfa.com/Our-Commentary.4.htm>