

I am Certainly Uncertain about an AI Bubble

By Gill Segal

The year 2025 concluded with the Nasdaq index soaring by 21%, marking its third consecutive year of double-digit returns. This performance is fueled by tech-heavy firms deeply integrated into the AI ecosystem. Over the last three years, the gains have been staggering: Nvidia has surged by over 1,200%, Google by 250%, and Tesla by nearly 265%.

Naturally, this raises an urgent question: Are we in an AI-driven bubble?

The warning signs are hard to ignore. The cyclically-adjusted price-to-earnings (P/E) ratio has climbed to 40x—a level last seen during the peak of the dot-com era in late 1999. Market concentration is equally extreme, with the "Magnificent 7" now accounting for 35% of the S&P 500. Furthermore, systemic risks are mounting: "circular" deals between AI firms raise questions about revenue quality, data center investments have reached trillions in debt-financed capital, and the entire ecosystem faces an energy demand that threatens to outpace the power grid.

Perhaps the most puzzling aspect of this bull market is that it is accompanied by an unprecedented spike in uncertainty. The Baker, Bloom, and Davis measures of fiscal and monetary policy uncertainty are currently "off the charts," reading 2 to 4 standard deviations above historical norms. Conventionally, high uncertainty cripples economic activity and depresses equity prices—indeed, real investment growth remains negative as of Q3 2025.

Yet, this unusual combination of high uncertainty and high valuations may actually be rational. By accounting for the sheer variance in AI's prospects, we can explain why these lofty multiples may not represent a bubble at all.

The Math of Uncertainty

To understand a P/E of 40, we can use a simple Gordon Growth Model:

$$PE = \frac{1}{r - g}$$

Where r is the discount rate and g is the nominal earnings growth rate.

1. **The Baseline:** If we set r at 9% (4% risk-free plus a 4.5% equity premium) and g at 5% (matching historical nominal GDP growth plus corporate leverage), we get a P/E of **25**. This is nearly identical to the post-1990 average of 26.6.

2. **The Average AI Boost:** Economists at Goldman Sachs and JPMorgan estimate AI will boost GDP by roughly 7% over the next decade, adding about **0.7%** to annual growth. Adjusting g to 5.7% brings the P/E to **30.3**—a significant jump, but still far from 40.

Embracing the Extremes

The missing piece is the radical uncertainty regarding AI's actual impact. At one end of the spectrum, Nobel laureate Daron Acemoglu projects a modest 0.15% annual boost. At the other, PwC forecasts a massive 2% annual boost. This implies a standard deviation for AI's contribution to growth as high as 1.5%.

If we assume two equally likely scenarios, we can see the power of convexity:

- **Success (50% probability):** $g = 7.2\%$ (Average boost + 1.5% Std Dev). $PE = \frac{1}{9\% - 7.2\%} = 55.5$.
- **Failure (50% probability):** $g = 4.2\%$ (Average boost - 1.5% Std Dev). $PE = \frac{1}{9\% - 4.2\%} = 20.8$.

The average of these two scenarios is a **P/E of 38.2**—remarkably close to the current market level of 40.

Conclusion

Because the P/E ratio is **convex** in growth, uncertainty acts as a catalyst for value. A "success" scenario has a disproportionately positive impact on prices compared to the negative impact of a "failure". While high uncertainty usually raises the discount rate (r), this current uncertainty is largely tech-specific and dominates the right tail of potential outcomes with limited systemic downside ("good" uncertainty).

In the current market, uncertainty isn't a bug—it's a feature. For the modern investor, uncertainty might just be their best friend.