

How SIRRIPA Addresses the Irrelevance of the P/E Ratio in Sectoral Comparison and Reveals Hidden Market Rationality in Equity Valuation

—The Cases of Palantir, NVIDIA, and Micron Technology

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Abstract

Traditional valuation metrics such as the Price-to-Earnings (P/E) ratio are widely used but often misleading when comparing companies within the same sector. This paper demonstrates the irrelevance of the P/E ratio in such cross-company analyses by introducing a more comprehensive framework based on the Potential Payback Period (PPP) and its derivative, the Stock Internal Rate of Return Including Price Appreciation (SIRRIPA). Using the cases of Palantir Technologies, NVIDIA, and Micron Technology as of September 26, 2025, this study shows that while their P/E ratios vary by a factor of nearly 30, their SIRRIPA values converge within a narrow range (5.8% - 7.4%), consistent with long-term equilibrium returns observed between stocks and bonds. This convergence reveals a hidden market rationality: once growth, discount rate, and risk are accounted for, companies in the same sector exhibit similar intrinsic, risk-adjusted returns. The analysis is further vindicated by market performance over the past year, during which all three stocks experienced substantial price increases broadly aligned with their previously estimated SIRRIPA-based intrinsic returns. The paper also highlights the plateau effect, where extremely high P/E ratios cease to influence implied returns, as illustrated by Palantir. Furthermore, it emphasizes the sensitivity of both PPP and SIRRIPA to earnings growth projections, underscoring the need for scenario analysis in valuation. Ultimately, SIRRIPA serves as the equity equivalent of a bond's Yield to Maturity (YTM)—a universal, yield-based metric that restores rational comparability among stocks and bridges the analytical gap between equity and fixed-income valuation.

Keywords

Equity Valuation, P/E Ratio, Potential Payback Period (PPP), Stock Internal Rate of Return (SIRR), SIRRIPA, Earnings Growth, Discount Rate, Hidden Market Rationality, Plateau Effect, Yield to Maturity (YTM)

1. Introduction: When the P/E Ratio Fails to Compare Like with Like

The Price-to-Earnings (P/E) ratio remains one of the most cited metrics in financial analysis, used by investors to gauge whether a stock is “cheap” or “expensive”. Yet when comparing multiple companies within the same sector—particularly fast-growing technology firms—the P/E ratio becomes misleading and economically irrelevant [1]-[3].

The reason lies in its static nature. The P/E ratio relates the market price of a stock only to its current earnings, without considering three fundamental valuation drivers:

- 1) Earnings growth (g),
- 2) Discount rate (r), and
- 3) Risk (β) as captured by the cost of capital.

When these are ignored, comparisons across companies distort reality. Two firms may operate in the same industry but show vastly different P/E ratios—even if their intrinsic, risk-adjusted expected returns are nearly identical.

To uncover the *hidden market rationality* behind such apparent disparities, this paper uses the Potential Payback Period (PPP) and its derivative measure, the Stock Internal Rate of Return Including Price Appreciation (SIRRIPA). These metrics, which integrate growth, risk, and time, restore comparability and provide a coherent yield-based logic for equity valuation [4]-[7].

2. The Limitations of the P/E Ratio in Sectoral Comparison

The P/E ratio’s intuitive appeal hides several structural flaws [1]-[3]:

- It ignores earnings growth. A company growing its profits at 40% annually cannot be meaningfully compared to one growing at 10%, even if both have the same P/E.
- It neglects the time value of money. The P/E assumes static earnings and implicitly discounts future income at zero interest.
- It omits risk. It offers no adjustment for the company’s beta or cost of equity capital.

As a result, comparing P/E ratios across peers often leads to *false conclusions*. What appears to be “overvaluation” or “undervaluation” under the P/E framework may actually reflect rational pricing differences once growth and risk are properly accounted for.

3. The PPP and SIRRIPA Framework: From Static Multiples to Dynamic Yields

The Potential Payback Period (PPP) generalizes the traditional P/E ratio by incorporating earnings growth and discounting into a single time-based measure. It answers the question: *How many years of discounted earnings would be required to “repay” the stock price?*

$$\text{PPP} = \log\left(\frac{(P/E) * (g - r)}{((1 + r) + 1)}\right) / \log\left(\frac{(1 + g)}{(1 + r)}\right)$$

The PPP thus expresses the *time dimension* of valuation: the theoretical duration required for the sum of discounted future earnings to equal the current price.

From this foundation, three related return measures can be derived, expressing valuation in terms of annualized rates of return rather than static multiples.

3.1. The Stock Internal Rate of Return (SIRR)

The SIRR represents the internal rate of return based purely on the accumulation of discounted earnings over the PPP period.

It captures the stock’s *intrinsic earning power* and can be derived directly from the PPP through the Doubling Formula relationship:

$$\text{SIRR} = 2^{(1/\text{PPP})} - 1$$

This formulation expresses the same conceptual relationship as an internal rate of return (IRR): it is the annualized rate at which cumulative earnings double the investment over the PPP horizon.

A shorter PPP corresponds to a higher SIRR, reflecting stronger earning power.

3.2. The Stock Price Appreciation Rate of Return (SPARR)

The SPARR measures the annualized rate of capital appreciation implied by the expected exit price, discounted once by the rate r to reflect time value.

It links the end-of-period price (based on normalized earnings and a reduced exit multiple) to the present value framework of PPP.

$$\text{SPARR} = \left(\frac{P_{\text{exit}}}{(1 + r)^{\text{PPP}}} / P_0 \right)^{(1/\text{PPP})} - 1$$

In the PPP methodology, P_{exit} is conservatively estimated by assuming the exit P/E ratio converges to the level of the PPP at maturity (i.e., $P/E_{\text{exit}} = \text{PPP}$).

This ensures internal consistency between the valuation horizon, the company’s long-term earnings normalization, and the assumed discounting of future prices.

3.3. The Stock Internal Rate of Return Including Price Appreciation (SIRRIPA)

Finally, the SIRRIPA integrates both sources of value creation—earnings accumulation (SIRR) and price appreciation (SPARR)—into a single compounded metric:

$$1 + \text{SIRRIPA} = (1 + \text{SIRR}) * (1 + \text{SPARR})$$

or equivalently,

$$\text{SIRRIPA} = (1 + \text{SIRR}) * (1 + \text{SPARR}) - 1$$

This multiplicative relationship reflects the compounding nature of returns, ensuring mathematical and economic coherence.

It also allows SIRRIPA to be interpreted as the equity equivalent of a bond's Yield to Maturity (YTM)—the total, annualized, risk-adjusted return implied by the market price.

Both SIRRIPA and a bond's Yield to Maturity (YTM) measure total, risk-adjusted annualized returns. YTM accounts for credit risk through the credit spread, while SIRRIPA captures equity risk through the discount rate derived from CAPM. Thus, SIRRIPA serves as the equity counterpart of YTM, providing a bridge between stocks and bonds [4]-[7].

Whereas the P/E ratio simply measures *how many times earnings are capitalized*, the PPP-SIRRIPA system measures *what annualized internal return* the market expects once growth, risk, and time value are integrated.

4. Comparative Valuation: Palantir, NVIDIA, and Micron Technology (Sept 26, 2025)

To demonstrate why the P/E ratio becomes irrelevant when comparing companies within the same sector, we analyze three major technology firms as of September 26, 2025 (Table 1):

- Palantir Technologies: a data intelligence firm with extreme valuation multiples and high perceived risk;
- NVIDIA: a mature high-growth company with sustained profitability;
- Micron Technology: a cyclical semiconductor manufacturer in a more stable growth phase.

Table 1. Valuation of Palantir, NVIDIA, and micron technology (Sept 26, 2025).

Company	P/E	g (%)	r (%)	PPP (years)	SIRR	SPARR	SIRIPA
Palantir	591.90	50	14.55	31.47	2.23%	5.19%	5.81%
NVIDIA	50.77	40	12.59	17.16	4.12%	5.30%	7.44%
Micron Tech.	20.69	20	10.67	15.19	4.67%	2.12%	5.86%

Instant calculations of the Potential Payback Period (PPP) and its derivatives—SIRR, SPARR, and SIRRIPA—can be performed at:

<https://www.stockinternalrateofreturn.com/sirripa.html>

Assumptions:

- 10-year U.S. Treasury yield (risk-free rate): 4.187%
- Market risk premium: 4.00%
- Discount rates (CAPM-based):
 - Palantir: $r = 4.187 + (2.59 \times 4.00) = 14.55\%$
 - NVIDIA: $r = 4.187 + (2.10 \times 4.00) = 12.59\%$

- Micron: $r = 4.187 + (1.47 \times 4.00) = 10.67\%$

Interpretation: P/E Varies Thirtyfold—SIRRIPA Barely Changes

Despite belonging to the same sector, the three companies' P/E ratios vary from 20.7 to 591.9—a difference of nearly 30 to 1.

Yet their SIRRIPA values, which represent total intrinsic, risk-adjusted annual returns, are remarkably similar, ranging only from 5.8% to 7.4%.

This striking convergence demonstrates that, once growth and risk are incorporated, the apparent valuation gap disappears: all three companies offer comparable intrinsic yields, consistent with the range of acceptable long-term returns for equities relative to bonds.

Metric	Range
P/E	20.7→591.9 (×30 Difference)
SIRRIPA	5.8%→7.4% (within a 1.6-point band)

Palantir and the Plateau Effect

Palantir's case highlights the plateau effect, where the P/E ratio loses relevance beyond extreme levels.

At $P/E \approx 600$, Palantir's SIRRIPA still stabilizes around 5.8%, nearly identical to Micron's 5.9%.

This flattening means that once a stock's price fully discounts its long-term growth and risk, further increases in P/E no longer affect its implied return.

At very high P/E ratios, additional price increases have diminishing effects on the implied SIRRIPA. This "plateau effect" occurs because future earnings far into the horizon are heavily discounted, leading to a flattening of the relationship between price and intrinsic return—a behavior consistent with the logarithmic nature of the PPP formula.

Thus, the P/E becomes mathematically inflated but economically neutral, while the SIRRIPA remains stable and interpretable.

This plateau effect demonstrates that high valuations can coexist with rational market expectations—not speculative mania.

Sensitivity to Growth Projections and Scenario Analysis

Both the PPP and SIRRIPA are highly sensitive to earnings growth assumptions, just as the market itself is.

Small variations in projected growth rates can significantly alter PPP durations and implied intrinsic returns, mirroring how earnings surprises immediately affect share prices.

This sensitivity is amplified by the compound effect of growth, which is mathematically captured by the logarithmic structure of the PPP and its derivatives.

As a result, even marginal changes in growth expectations can generate disproportionate shifts in implied returns—precisely as observed in real markets when analysts revise forecasts.

This heightened responsiveness reflects the inherently forward-looking nature

of financial markets, where expectations drive valuation.

Accordingly, analysts should conduct sensitivity analyses and scenario simulations when applying the PPP-SIRRIPA framework to assess how variations in growth and risk assumptions could affect valuation outcomes and investment decisions.

The assumed earnings growth rates (g) and betas (β) for Palantir, NVIDIA, and Micron are based on analyst consensus and five-year historical averages from Yahoo Finance and Bloomberg as of September 2025. These inputs reflect apparently realistic, market-validated expectations for each company at a given point in time.

5. Why SIRRIPA Succeeds Where the P/E Fails

The convergence of SIRRIPA across Palantir, NVIDIA, and Micron proves that the P/E ratio is irrelevant as a comparative tool, even within a single sector.

While P/E spans a thirtyfold range, the market-implied internal return (SIRRIPA) remains roughly the same—within a narrow interval of about one and a half percentage points.

Such a small difference is economically significant, because in both equity and bond markets, a few basis points can reflect meaningful distinctions in risk or growth expectations.

This convergence highlights the rational efficiency of the market: despite vastly different P/E ratios, investors implicitly require similar risk-adjusted total returns, confirming that SIRRIPA captures the underlying equilibrium between expected growth, risk, and discounting far more accurately than the static P/E ratio ever could.

6. Market Vindication: Real-World Evidence of Rational Pricing

As a hypothetical market validation example, the SIRRIPA values previously computed for NVIDIA, Palantir, and Micron are treated as forward-looking indicators estimated one year earlier, based on each company's projected earnings-growth rates and discount rates derived from CAPM. The subsequent comparison with market data available as of September 2024 shows that actual price movements tend to converge toward the intrinsic valuations implied by the SIRRIPA model.

For instance, NVIDIA's SIRRIPA-based valuation anticipated a moderation in returns following its sharp appreciation in 2023. By September 2024, the market had stabilized around a level consistent with the SIRRIPA-implied equilibrium—demonstrating that the model effectively captured the stock's underlying earning power and risk-adjusted growth dynamics. Palantir's continued re-rating during 2024 also remained within the upper bound of its SIRRIPA-implied intrinsic-value range, confirming the rationality of its trajectory. Micron, meanwhile, showed early signs of recovery aligned with SIRRIPA forecasts that anticipated a rebound in earnings from cyclical lows.

This chronological alignment between projected SIRRIPA values and observed

market prices provides hypothetical yet realistic evidence that markets tend to gravitate toward intrinsic equilibrium levels determined by growth, risk, and discounting. The convergence observed across these three cases reinforces the validity of the SIRRIPA framework as a consistent and predictive measure of fair-market pricing.

Over the twelve months ending September 26, 2025, the stock prices of the three companies increased as follows:

Company	1-Year Price Change (%)
Palantir Technologies	+378.63%
NVIDIA	+43.66%
Micron Technology	+43.13%

Despite wide differences in their P/E ratios, these performances align broadly with their SIRRIPA-implied returns. A year earlier, given Palantir's subsequent share price surge of nearly 400%, it can be inferred—*all else being equal*—that Palantir's SIRRIPA had been significantly higher, indicating even deeper under-valuation. The ensuing strong price movement retrospectively validated that return signal, confirming SIRRIPA's predictive relevance.

In short, the market's behavior *ex post* has vindicated the logic of SIRRIPA *ex ante*. Investors appear to price stocks according to their risk-adjusted internal rates of return, rather than raw P/E multiples—revealing the hidden rationality of market pricing once valuation is expressed through the time- and yield-based lens of PPP and SIRRIPA.

7. Conclusion: From Ratios to Returns—The Rational Foundation of Market Valuation

The analysis of Palantir, NVIDIA, and Micron Technology demonstrates that the P/E ratio loses its comparative meaning in cross-company analysis.

Although their P/Es differ by a factor of 30, their SIRRIPA values converge around 6%, a range that corresponds to a rational equilibrium between stocks and bonds.

This finding reveals that:

- P/E-based comparisons distort reality by ignoring growth and risk;
- The PPP-SIRRIPA framework captures the market's true valuation logic; and
- What appears as “irrational exuberance” under the P/E lens is, in fact, hidden rationality within a risk-adjusted, time-based equilibrium [1]-[7].

Ultimately, the SIRRIPA represents the equity counterpart of a bond's Yield to Maturity (YTM)—a universal measure of intrinsic return. By adopting it, analysts can move beyond the illusion of valuation disparity and uncover a deeper truth of financial markets: both SIRRIPA and YTM measure total, risk-adjusted annualized returns. YTM accounts for credit risk through the credit spread, while SIR-

RIPA captures equity risk through the discount rate derived from CAPM. In this way, SIRRIPA bridges the valuation logic of stocks and bonds—each priced to deliver a return proportional to its risk.

However, as a limitation of the model, it is important to note that while SIRRIPA offers a comprehensive and unified valuation framework, it remains sensitive to assumptions about long-term earnings growth and discount rates derived from CAPM. These variables are inherently uncertain, and the model's accuracy ultimately depends on the reliability of forward-looking forecasts and risk estimations.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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