SECOR ASSET MANAGEMENT

A Gap in GAAP – Accounting for Intangibles

September 20, 2022

Executive Summary

- The goal of financial accounting is to provide an accurate picture of the financial condition of the company, however the one-size-fits all approach of US standard Generally Accepted Accounting Principles (GAAP) invariably requires a number of simplifying assumptions that introduce distortions in the process.

- Accounting standards that provided accurate depictions of financial health in an industrial-age economy however have become outdated as the US economy has become less capital-intensive and more software and service oriented.

- A notable example is that GAAP requires expensing intangible outlays, such as Research & Development expenses, as incurred on the income statement. This contrasts with the treatment of capital expenditures which are capitalized as an asset on the balance sheet and amortized over time on the income statement.

- This practice has led to distortions in financial statements in recent years as intangible expenses have become an increasingly larger portion of corporate outlays relative to investments in physical assets.

- This has resulted in the understatement of assets and income for companies with high levels of intangibles in high tech areas such as software and biotechnology, for example.

- Capitalizing R&D and other intangible expenses, at least partially, would present a more accurate portrayal of the financial status of these companies. It also appears that equity investors have already made this adjustment themselves.

Gap in GAAP – Accounting for Intangibles

- **The treatment of outlays for intangibles by Generally Accepted Accounting Principles (GAAP) is distorting balance sheets and income statements in the US.**
  - Capital expenditures for items such as property, plant and equipment are recorded as assets on the balance sheet and amortized over a number of years on the income statement.
  - Most outlays for less tangible items such as Research & Development and Advertising are expensed upfront on the income statement with no asset recorded on the balance sheet.
  - Beginning in 2022, companies must expense and amortize R&D over 5 years for their tax reporting. GAAP financial accounting treatment remains unchanged.

- **As the US economy has become more service-based and software-driven, there has been rapid growth in intangibles over the last two decades relative to capital expenditures in the US.**
  - While nearly equal 20 years ago, annual intangible expenses are now double those of capital expenditures.
    - Intangible Investments: 13% CAGR
    - Capital Expenditures: 5% CAGR

Sources: Wall Street Journal, Luminata Enache and Anup Srivastavva, *"Should Intangible Investments be Reported Separately or Commingled with Operating Expenses? New Evidence"*, Management Science, Vol 64, No.7, July 2018; Counterpoint Global, Morgan Stanley Investment Management, SECOR.

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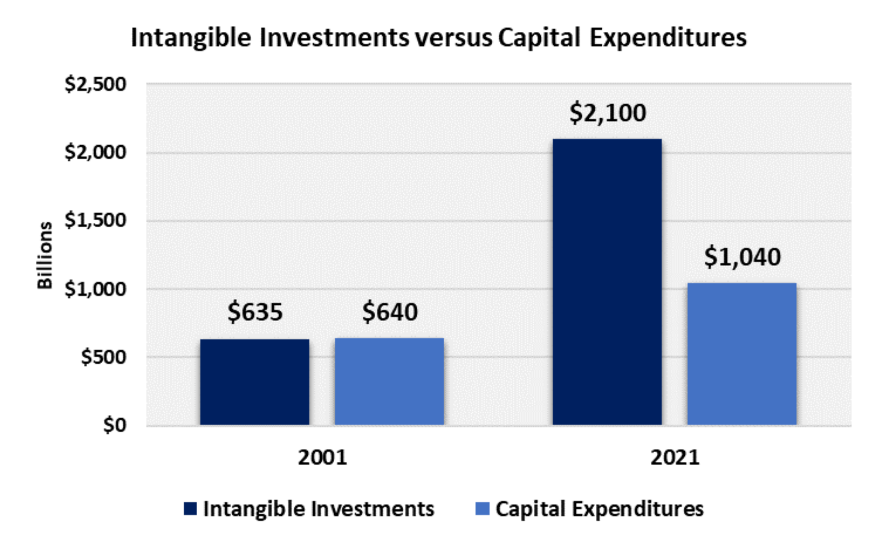
Microsoft

Billions	2021	2020	2019
Revenue	$198.3	$168.1	$143.0
COGS (incl. D&A)	$62.7	$52.2	$46.1
Gross Income	$135.6	$115.9	$96.9
SG&A Expense	$52.2	$45.9	$44.0
R&D Expense	$24.5	$20.7	$19.3
% of Revenue	12%	12%	13%
Other SG&A	$27.7	$25.2	$24.7
Operating Income	$83.4	$70.0	$52.9

Procter & Gamble

Billions	2021	2020	2019
Revenue	$80.2	$76.1	$71.0
COGS (incl. D&A)	$42.0	$37.0	$34.6
Gross Income	$38.2	$39.1	$36.4
SG&A Expense	$20.3	$20.6	$19.9
R&D Expense	$2.0	$1.9	$1.8
% of Revenue	2%	2%	3%
Other SG&A	$18.3	$18.7	$18.1
Operating Income	$17.9	$18.5	$16.5



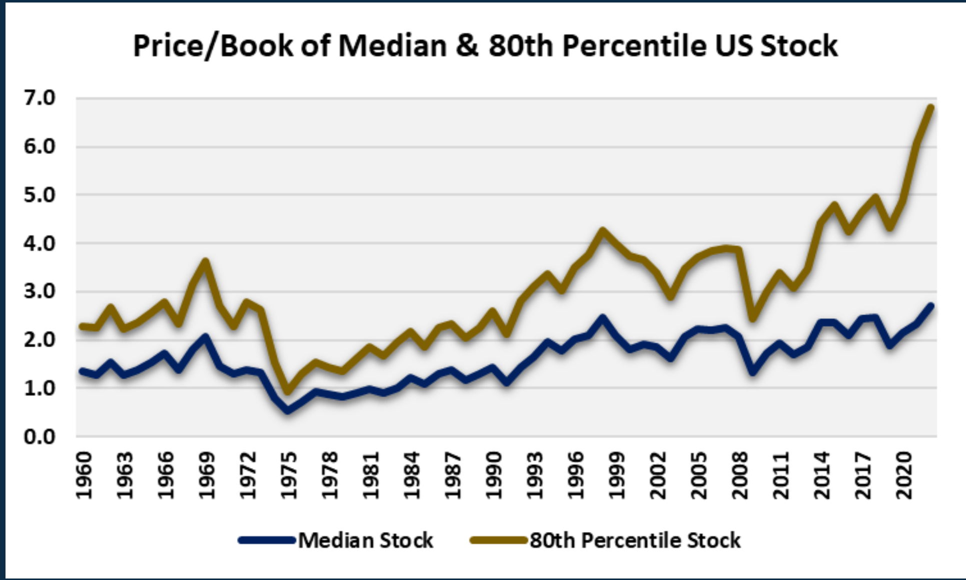
Gap in GAAP – Accounting for Intangibles

- **The industries with the largest R&D expenses are concentrated in high tech areas, disproportionately penalizing their net income relative to more tangible-capital intensive businesses.**

- **Calculations utilizing balance sheet measures, notably Price/Book, have become corrupted by the differing treatment of R&D expense and CapEx.**
  - Price/Book for the median stock in the US has nearly doubled from 1.4x in 1960 to 2.7x in 2022; the P/B for the 80th percentile stock – a proxy for growth stocks - has nearly tripled from 2.3x to 6.8x.
  - Accounting has contributed to the widening spread between the median stock and the 80th percentile stock from 0.9 in 1960 to 4.1 today.
  - Book/Price has become a much less reliable proxy for the Value factor but still figures prominently in the Growth/Value index methodologies for many index providers.

R&D Expense as a Percentage of Revenue by S&P 500 Industry
2020

Top 5 Industries		Bottom 5 Industries	
Biotechnology	30.3%	Hotels, Restaurants & Leisure	0.0%
Software	19.0%	REITs	0.0%
Interactive Media & Services	18.8%	Food Products	0.1%
Communications Equip.	16.7%	Metals & Mining	0.4%
Semiconductors & Semi. Equip.	16.7%	Household Products	0.4%



Sources: Andrew Sather, *R&D Spending by Revenue by Industry [S&P500]*, Sather Research LLC, March 8, 2021; Professor Ken French Data Library.

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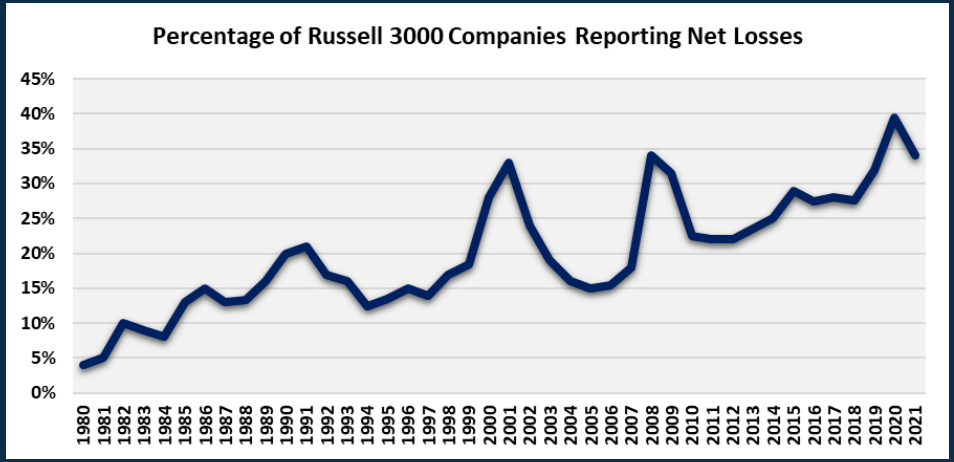
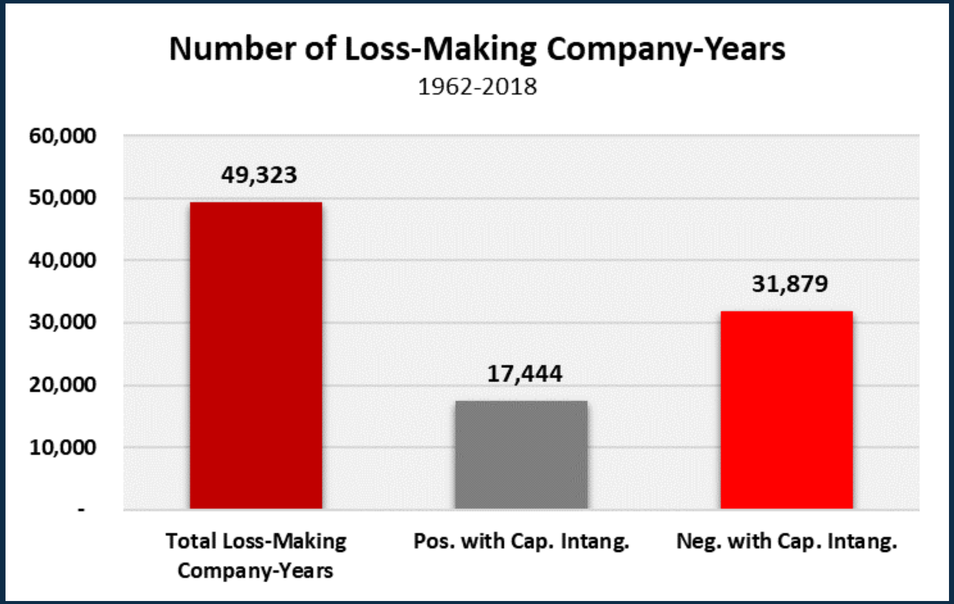
- **There has been a steady increase in the number of US public companies that report net losses per GAAP over the last few decades as a result of expensing the growing intangibles.**



- **A recent study[1] found that by treating intangible expenses as investments (as is done with CapEx) would have flipped approximately 35% of the company-years with annual losses to being profitable.**

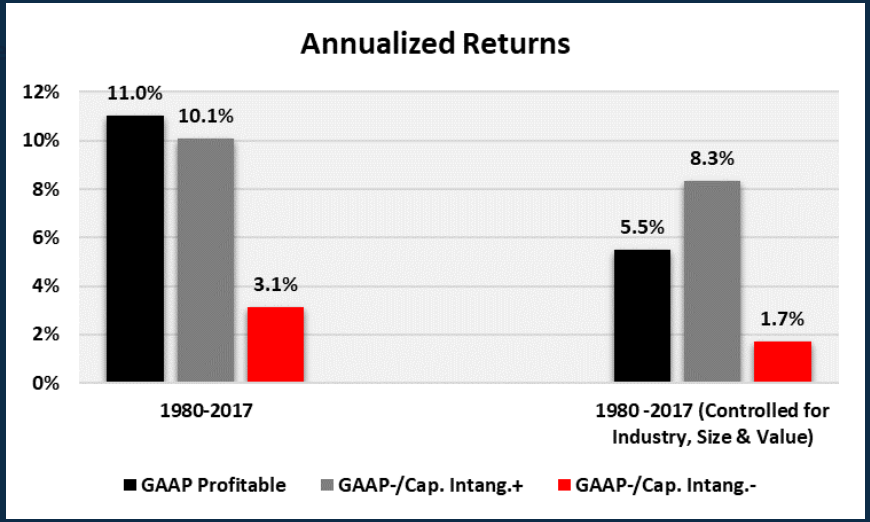


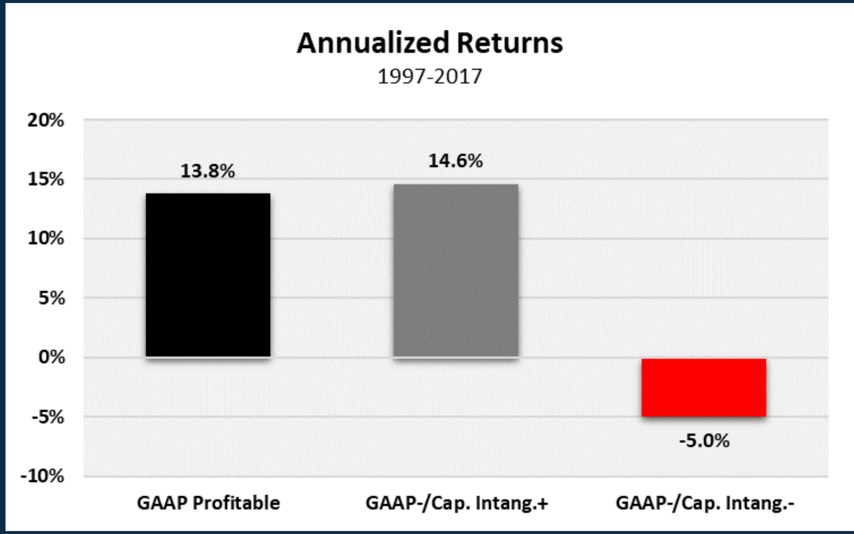
Sources: FactSet, Counterpoint Global, Morgan Stanley Investment Management.
1 Feng Gu, Baruch Lev and Chengqi Zhu, *"All Losses Are Not Alike: Real versus Accounting-Driven Reported Losses,"* SSRN Working Paper, May 2022.

Gap in GAAP – Accounting for Intangibles

- **The authors found that profitable firms under GAAP outperformed over the entire length of their study on an unconstrained basis; however, the firms showing GAAP losses that would have been profitable if intangibles were capitalized performed similarly and even outperformed when controlling for Industry, Size & Value factors.**

- **They also found that these companies have outperformed slightly on an unconstrained basis over the latter years of the study from 1997.**
  - Coincides with the rise of the Technology sector in the US.
  - A number of other studies[2] have found a positive link between R&D intensity and stock returns although there is debate as to whether the anomaly is merely compensation for higher risk or mispricing.

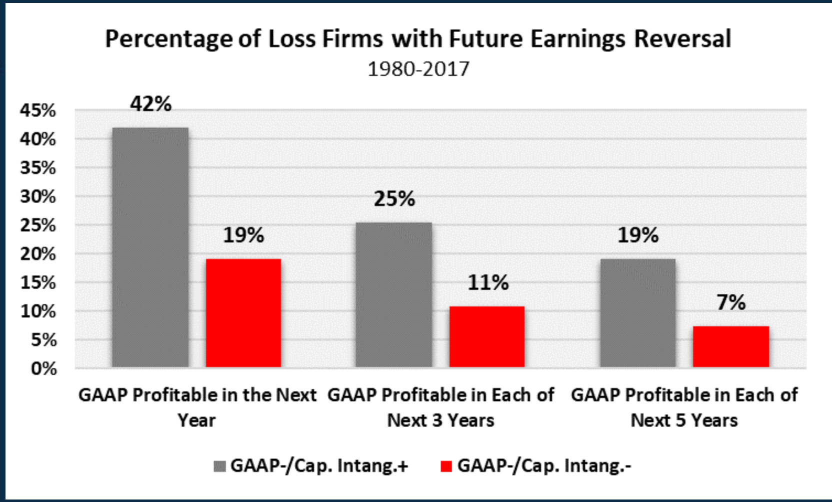




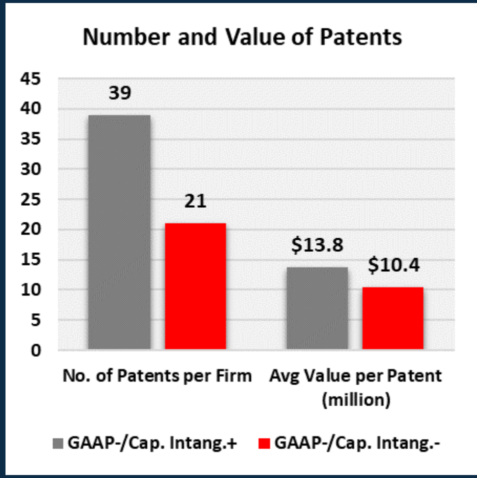
Sources: Feng Gu, Baruch Lev and Chengqi Zhu, *"All Losses Are Not Alike: Real versus Accounting-Driven Reported Losses,"*SSRN Working Paper, May 2022.
2 Woon Sau Leung, Kelifa Mazouz and Kevin Evans, *"The R&&D Anomaly: Risk or Mispricing?"*, Journal of Banking & Finance, June 2020; Jangwook Lee and Jiyoon Lee, *"Mispricing or Risk Premium? An Explanation of the R&D-to-Market Anomaly"*, SSRN Electronic Journal, January 2020; Jonathan Berk, Richard green and Vasant Naik, *"Valuation and return Dynamics of New Ventures"*, The Review of Financial Studies, Spring 2004.

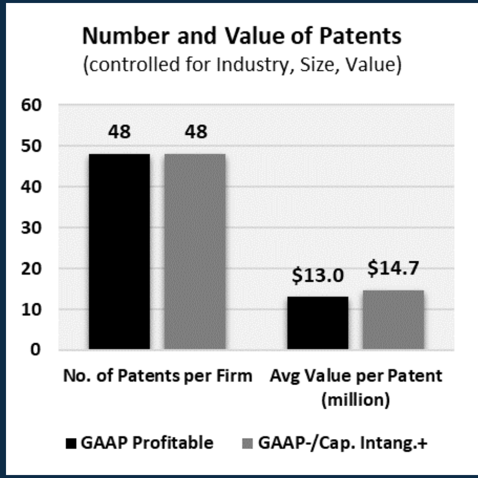
Gap in GAAP – Accounting for Intangibles

- **Companies showing GAAP losses, but profitable if intangibles were capitalized, have been far more likely to turn a GAAP profit in subsequent years than those with both GAAP and intangible-adjusted losses.**
  - 42% of these companies show a GAAP profit in the following year versus only 19% for those that remain unprofitable when intangibles are capitalized.



- **And these companies generate far more and more valuable patents than companies with both GAAP and intangible-adjusted losses, supporting the case for capitalizing (at least partially) R&D expenses.**
  - The amount and value of their patents are comparable to those of GAAP-profitable companies when controlling for Industry, Size and Value.



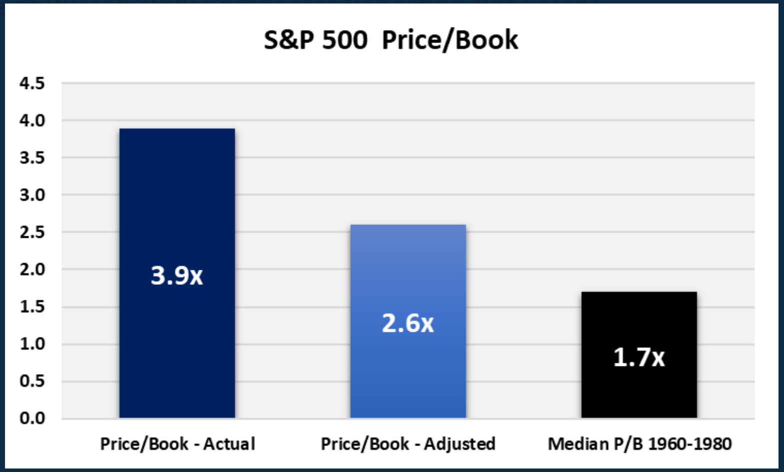


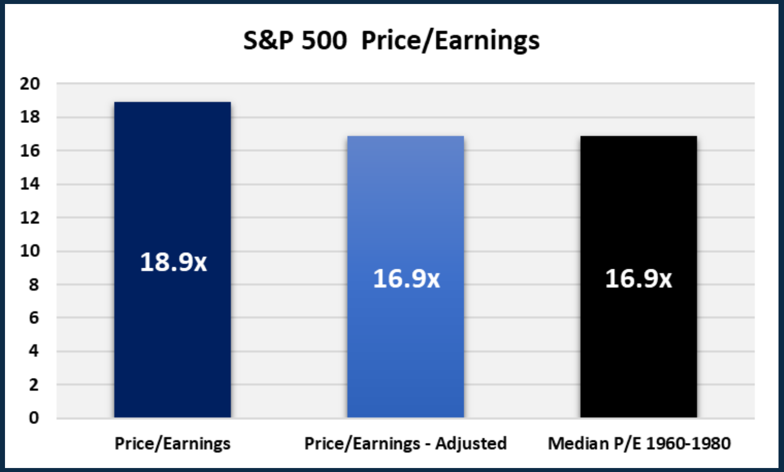
Sources: Feng Gu, Baruch Lev and Chengqi Zhu, *"All Losses Are Not Alike: Real versus Accounting-Driven Reported Losses"*, SSRN Working Paper, May 2022; L. Kogan, D. Papanikolaou, A.Seru and N. Stoffman, *"Technological Innovation, Resource Allocation, and Growth"*, Quarterly Journal of Economics, 2017; USPTO Patent databases.

Gap in GAAP – Accounting for Intangibles

- **How much higher would Book Values be if Intangible expenses were treated as capital investments?**
  - Another study[3] attempted to estimate the portions of R&D expense and other SG&A expenses that should be capitalized versus expensed. Amounts varied by industry but the weighted average was 76% for R&D expense and 54% for non-R&D SG&A expenses.
  - These adjustments would result in a 49% increase in the current Book Value of the US market.
  - This adjustment would reduce the current S&P 500 P/B ratio of 3.9x to 2.6x. (Note: Est. median P/B from 1960-1980 was 1.7x)

- **How much higher would earnings be if intangibles were capitalized?**
  - Applying the same expense/capitalize splits from the above study and assuming a useful life of 4 years for intangible investments and an annual growth rate of 6%, Morgan Stanley estimates that adjusted S&P earnings would rise by 12% versus GAAP earnings.
  - This adjustment would reduce the current S&P 500 P/E ratio of 18.9x to 16.9x. (Note: Median P/E from 1960-1980 was 16.9x)





Sources: Standard & Poor's, Bloomberg, Professor Ken French Data Library, SECOR.
3 Aneel Iqbal, Shivaram Rajgopal, Anup Srivastava and Rong Zhao, *"Value of Internally Generated Intangible Capital,"* Working Paper, February 2022.

Data as of 16 September 2022

Conclusions

- US GAAP accounting standards have failed to stay current with the shift from high capital-intensity industries to those with high levels of intellectual property, such as software.
- This has led to an understatement of both assets on balance sheets and earnings on income statements, particularly for companies with high levels of intangible expenses. This is exemplified by the dramatic increase in the number of US companies showing accounting losses over the past few decades.
- As a result, many financial ratios, such as price to book and price to earnings, have become corrupted. These measures figure prominently in the methodologies for determining Value and Growth style benchmarks. This mis-measurement of Value has likely contributed to the long performance drought experienced by Value stocks.
- Adjusting financial statements by capitalizing intangible expenses in the same manner as capital expenditures would have resulted in a large decrease in the number of companies reporting losses.
- Companies that showed GAAP losses but would have been profitable were intangible expenses capitalized delivered returns similar to those of companies showing earnings under GAAP and outperformed those unprofitable under both approaches by a wide margin.
- As a proof statement that these companies' intangible expenses in fact created value, both the number and value of patents were comparable to those of GAAP-profitable companies.
- Adjusting the financial statements by capitalizing intangibles would bring seemingly inflated valuation measures under GAAP closer to the levels experienced before the growth in intangible expenses.

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