CLAY TOKENS

The Uniform Accounting Monthly Report | July 31, 2021

Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

The End of Accounting – Innovation and R&D are completely mishandled by GAAP and IFRS

Professor Baruch Lev is one of the foremost academic experts when it comes to analyzing the impact of deficiencies in corporate financial reporting.

His book which has shaken the accounting foundations the world over is appropriately titled The End of Accounting.

Professor Lev has spent decades instructing up-and-coming business professionals about these issues in his role as the Philip Bardes Professor of Accounting and Finance at the renowned NYU Stern School of Business.

I met with Baruch to discuss our mutually favorite area of research, the problems with accounting. Over lunch near his home in upper Manhattan, we discussed a very specific deficiency: the nonsensical global reporting of research and development costs and intangible assets.

As Professor Lev stated in his 2003 working paper on intangible assets, "The measurement and valuation of intangible assets are a matter of considerable interest to [financial statement users]" because, in part, "[they] provide more value-relevant information than conventional performance measures such as earnings and cash flows."

Based on current U.S. GAAP accounting standards, virtually all R&D is expensed as incurred instead of viewed as an investment. Asked why it should be capitalized and expensed over time, one colleague replied, "it's called the matching principle."

Of course, the matching principle states that companies should report expenses at the same time as the revenues they are related to. Too bad R&D accounting has gone astray from one of accounting's first principles.

One might surmise an easy fix with a simple reclassification of research and development from operating cash flows to an investment expenditure category. However, that is complicated by GAAP's own exceptions and lack of consistency.

Presented to the UAFRS Advisory Council

Prepared by Valens Research
1(917) 284 6008

Joel Litman, CPA
Chief Investment Strategist

Rob Spivey, CFA
Director of Research

Angelica Lim
Research Director

Kyle Pinkerton, CFA
Senior Analyst

For instance, software development costs incurred subsequent to establishing technological feasibility are treated as capitalizable. Other silliness in the rules includes how R&D is capitalized when attributed to the value of a business acquired, however, is not capitalized when R&D grows organically. Obviously, this creates a horrible mismatch even inside a company looking across its own business units, let alone across peers and competitors.

At the top investment funds in the world, adjustments to the financial statements are done to create comparability and usability of the financials. Uniform Accounting is the name given to the systematic adjustment of financials into globally consistent and comparable figures.

Uniform Earnings calculations treat R&D as an investment expenditure. That doesn’t necessarily mean it’s a good expenditure just because it gets capitalized. Companies spend money on plants and machinery that is later found to be unproductive. Companies spend money on technological equipment that is later found to be obsolete.

In other words, while Uniform Accounting calls for R&D to be capitalized onto the balance sheet, en masse, that doesn’t mean it has intrinsic value, any more than another asset. The capitalization is performed in order to track management’s spend on capital investments, not to value those investments.

The rationale often given by standards boards about expensing rather than capitalizing research is that the products of research are often too uncertain or difficult to quantify. Are accountants any better at estimating the real value of a piece of land held on the books at historical costs? Or the value of a new factory that costs billions?

The accounting bodies get themselves into trouble when they try to value assets or debts or streams of cash flows. That’s not their job. It’s the investor’s job to value things. The accountant’s job is simply to account—accurately and verifiably—for the company’s actual spend.

As Professor Lev states, analysis of financial statements is “hampered by the lack of systematic and comparable measures for these increasingly important assets.”

IFRS has failed the international world even further by creating a set of guidelines that are confusing to even the smartest investors. IFRS allows for capitalization of certain R&D expenses, yet the consistency from company-to-company and year-to-year, for the same industry and even the same company, is unbelievably arbitrary in nature.

Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

Failing to capitalize R&D can create havoc in accurately measuring profitability. For many firms, the existing accounting testament leads to extensive volatility in return calculations and a grossly inadequate capture of capital investment levels.

These issues destroy the reliability of important measures of corporate performance like return on assets or return on invested capital (which, by the way, really ought to be identical calculations... however that's a conversation for a different issue).

Instead, R&D must be capitalized and amortized from there. And it must be done consistently.

To do so, Uniform Accounting capitalizes R&D over a fixed period of years, depending on the nature of the firm's R&D. The capitalized R&D is then amortized over the same set of years, effectively smoothing the R&D expense into adjusted earnings.

What if the fixed term is wrong for the capitalization period? Well, that's an issue analysts deal with regularly when companies use asset lives that are way too long or too short for the assets in question, be they trucks, factories, or leasehold improvements.

So, one might suspect there to be an error if the capitalization period is three years when it should be four, or eleven when it should be fifteen. When you work out that level of error scenario by scenario, it's nothing compared to the error of using a capitalization period of zero, which is what immediately expensing implies. It's not even in the same ballpark.

Finally, the capitalized R&D is carried on the balance sheet net of accumulated amortization, allowing for far more economically accurate measures of profitability. Innovative companies should not have to be penalized for making smart investments into their future.

CLAY TOKENS

The Uniform Accounting Monthly Report | July 31, 2021

Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

There is a long line of innovative firms, from various sectors, where as-reported assets and earnings do not represent economic reality due to R&D being expensed and not capitalized.

This month we highlight three companies, with significant R&D investments, wherein the lack of capitalization severely limits the reliability of the firm's reported assets and earnings:

•Pinterest, a photo-based sharing social media application
•NVIDIA, a semiconductor manufacturer
•Zoetis, an animal pharmaceutical company

In the pages and charts below, we show the difference between as-reported GAAP earnings and UAFRS-computed earnings. In addition, we show the difference between as-reported GAAP assets and UAFRS-based assets.

While all of the 130+ adjustments have been applied, we hone in on how these few line items in particular can create material deviations from economic reality.

In each case shown below, it's quite obvious the stock market does not and has not valued firms on GAAP earnings, just as Professor Lev has made so abundantly clear in his tomes of available published research.

These examples highlight just how bad the as-reported numbers are, from a database of more than 32,000 companies wherein Uniform Accounting and GAAP/IFRS accounting differences are shown.

The report name "Clay Tokens" comes from the earliest known form of accounting and bookkeeping and a foundation for tracking the earliest debits and credits. In this regard, Uniform Accounting is an attempt to get financial statements back to the foundations of the purpose of accounting… to be useful to the users of the accounting information. Clay Tokens is produced monthly by Valens Research on behalf of and for the UAFRS Advisory Council for Uniform Adjusted Financial Reporting Standards.

PINS – Pinterest Inc.

Since becoming public, PINS has seen robust profitability, with its Uniform earning power rising in each of the past 3 years (Exhibit 1a).

Reflecting this UAFRS-based earnings trend, the firm has seen material stock price appreciation since its IPO, a reward for improving fundamentals.

Meanwhile, GAAP earnings have remained negative in each year over this period, misleading investors into incorrectly believing the firm has been unable to post a profit. This completely fails to explain the impressive performance of the firm's stock.

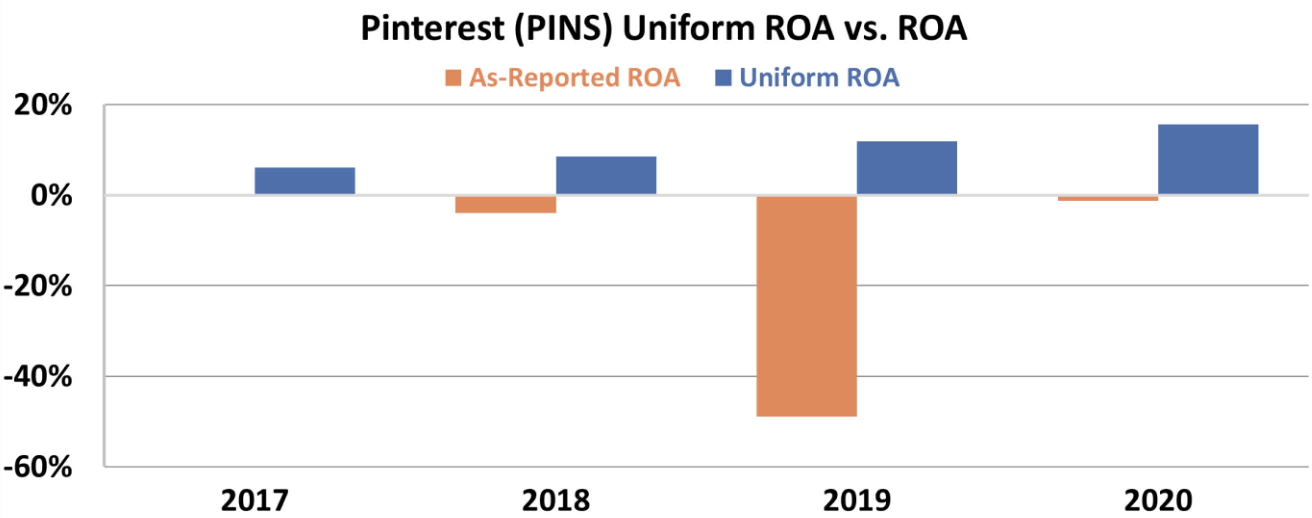
Since the firm's IPO in April 2019, **PINS** share prices have more than tripled in value, rising from just $24/share to over $75/share (Exhibit 1b). That said, according to the market, **PINS** appeared to be a firm with consistently negative profitability, unable to translate its top-line success into profits for shareholders. It does not look like a firm with improving profitability trends that would warrant this stock market performance.

However, using Uniform Accounting, we can identify distortions such as a firm's expenses being overstated due to the treatment of R&D expenses, as is the case here, which substantially suppresses profitability metrics (Exhibit 1c).

UAFRS-adjusted metrics paint a significantly different picture of **PINS**, where Uniform ROA, like its share price, has more than tripled. Uniform ROA has risen from below corporate average 6% levels in 2017 to over 15% in 2020 suggesting the firm's stock price appreciation has likely been justified.

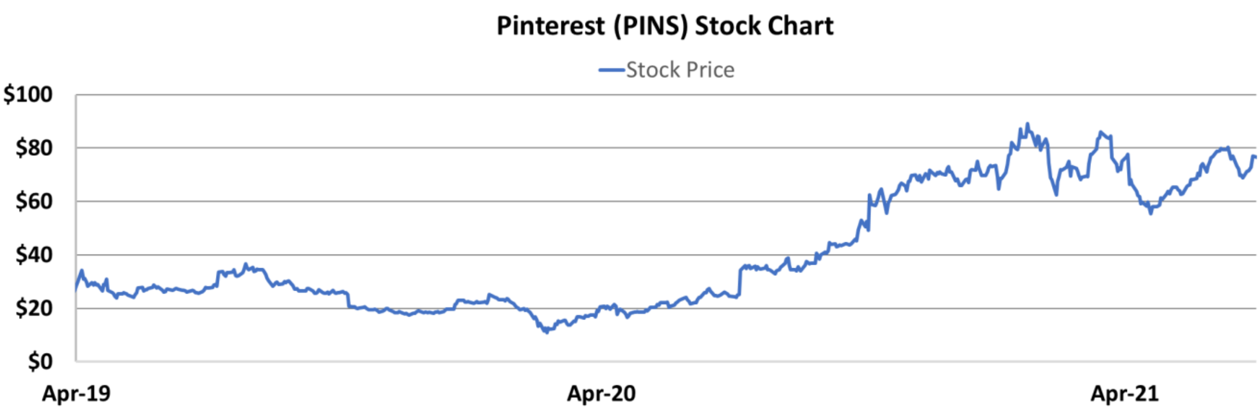
Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

Exhibit 1a



Sources: UAFRS, CaptialIQ

Exhibit 1b



Source: CapitalIQ

Exhibit 1c

PINS - Pinterest, Inc.	2017	2018	2019	2020
R&D expense	188.2	238.5	339.9	387.5
Capitalized R&D investment	193.6	444.5	797.5	1,198.9
Uniform earnings	35.3	90.5	172.0	430.6
Net income	-130.0	-63.0	-1,361.4	-128.3
% Variance	-468.3%	-169.6%	-891.5%	-129.8%
Uniform net assets	583.2	1,069.2	1,454.4	2,121.7
Total assets	1,173.0	1,152.7	2,393.3	2,609.5
% Variance	101.1%	7.8%	64.6%	23.0%
Uniform ROA	6.0%	8.5%	11.8%	15.3%
ROA	0.0%	-4.0%	-49.0%	-1.3%
Uniform ROA vs ROA - Variance	6.0%	12.5%	60.8%	16.6%

Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

NVDA – NVIDIA Corporation

A leading semiconductor manufacturer exposed to graphics and compute & networking end markets, NVDA has seen robust earning power, which has jumped massively over the past year (Exhibit 2a).

Over a similar timeframe, the firm's stock price has skyrocketed, moving in the same direction as its Uniform-calculated earnings and semiconductor chip cycles.

Meanwhile, GAAP earnings showed a firm that has seen weak profitability in recent years, with EPS falling off in 2020 before recovering to previous levels. This fails to explain the firm's meteoric stock price movements, displaying how these standards demonstrate a dislocation between economic reality and as-reported performance.

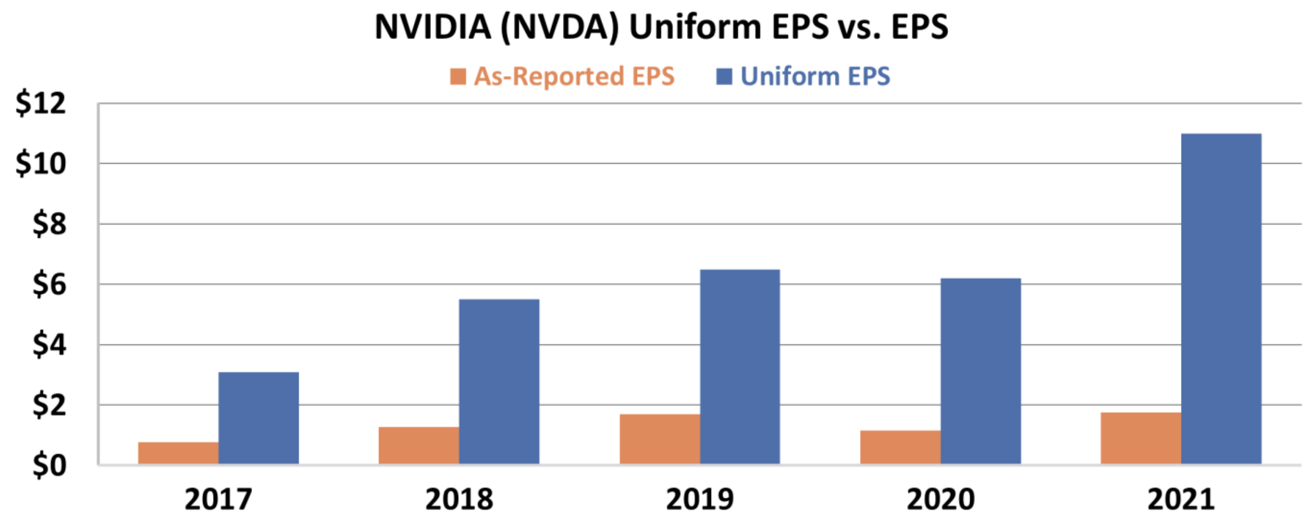
Since the end of 2018, NVDA shares have seen material appreciation, rising from approximately $35/share to nearly $200/share, a near 500% increase (Exhibit 2b). That said, according to the market, NVDA appeared to be a firm which saw generally flat profitability, and not one with strengthening fundamentals that would justify the company's stock outperformance.

However, using Uniform Accounting, we can identify distortions such as a firm's expenses being overstated due to the treatment of R&D expenses, as is the case here, which substantially suppresses profitability metrics (Exhibit 2c).

According to as-reported metrics, NVDA saw its EPS remain modest from its fiscal 2019 to 2021, immaterially improving from $1.70 to $1.76 over the two-year span. Meanwhile, UAFRS-adjusted metrics paint a significantly different picture of NVDA, where Uniform EPS substantially improved over the same time frame, expanding from an already more robust $6.50 in 2019 to an even stronger $10.99 in 2021. This earnings trend justifies the firm's stock price improvement.

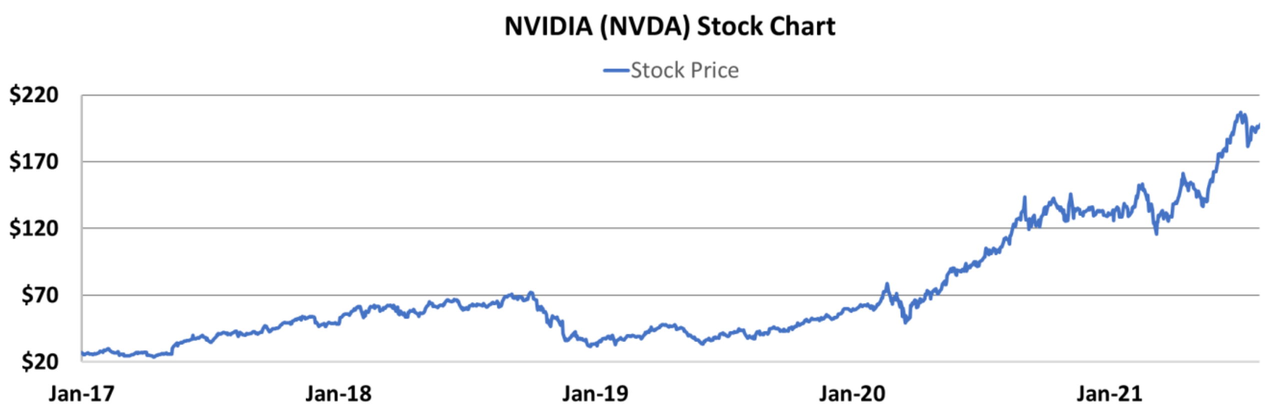
Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

Exhibit 2a



Sources: UAFRS, CaptialIQ

Exhibit 2b



Source: CapitalIQ

Exhibit 2c

NVDA - NVIDIA Corporation	2016	2017	2018	2019	2020
R&D expense	1,329.0	1,578.0	2,040.0	2,289.0	3,064.0
Capitalized R&D investment	5,187.4	5,574.8	6,361.6	7,460.4	9,271.9
Uniform earnings	3,492.7	5,125.2	5,981.0	6,123.6	9,933.8
Net income	1,666.0	3,047.0	4,141.0	2,796.0	4,332.0
% Variance	-52.3%	-40.5%	-30.8%	-54.3%	-56.4%
Uniform net assets	7,817.4	8,538.1	10,728.3	12,053.4	16,743.4
Total assets	9,841.0	11,241.0	13,292.0	17,315.0	28,791.0
% Variance	25.9%	31.7%	23.9%	43.7%	72.0%
Uniform EPS	$ 3.09	$ 5.51	$ 6.50	$ 6.19	$ 10.99
EPS	$ 0.77	$ 1.27	$ 1.70	$ 1.15	$ 1.76
Uniform EPS vs EPS - Variance	232.0%	424.0%	480.0%	504.0%	923.0%

ZTS – Zoetis Inc.

Since 2017, as the leading pharmaceutical company focused on pet and livestock care, ZTS's Uniform earning power has proven to be robust and improving (Exhibit 3a).

The firm's stock price reflected this improvement in Uniform-calculated earnings from 2016-2019, with significant appreciation over that time period.

Meanwhile, GAAP earnings had been modestly deteriorating over this time period. These earnings figures distort the economic reality of the firm's performance.

Since the end of 2016, **ZTS** share price saw a meteoric rise, climbing from approximately $55/share to over $200/share, representing a near 275% appreciation in value (Exhibit 3b). Yet, according to the market, **ZTS** appeared to be a firm that likely warranted a decline in stock price due to faltering fundamentals, and not one that had managed to strengthen its already impressive performance.

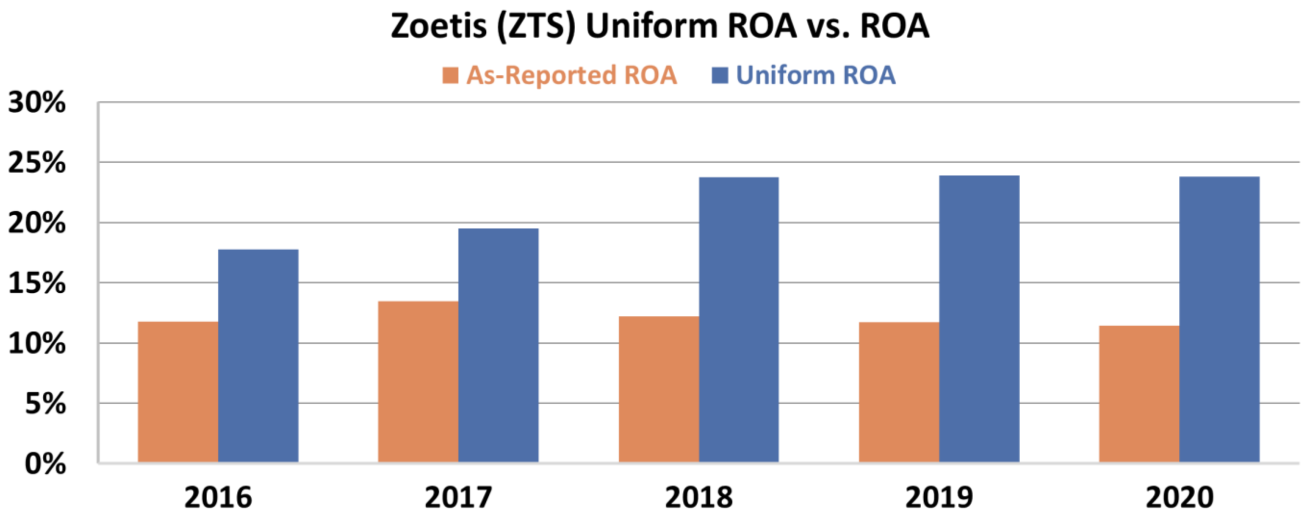
However, using Uniform Accounting, we can identify distortions such as a firm's expenses being overstated due to the treatment of R&D expenses, as is the case here, which substantially suppresses profitability metrics (Exhibit 3c).

According to as-reported metrics, **ZTS** saw its ROA decline from 14% in 2017 towards corporate averages, falling to 11% in 2020. Meanwhile, UAFRS-adjusted metrics paint a slightly different picture of **ZTS**, where Uniform ROA jumped from more robust 20% levels in 2017 to 24% levels through 2020, accompanied by strong asset growth following the firm's acquisition of Abaxis. These Uniform metrics better explain the rationale behind the firm's substantial stock price appreciation.

110 Cambridge St., Cambridge, MA 02141 | info@valens-research.com

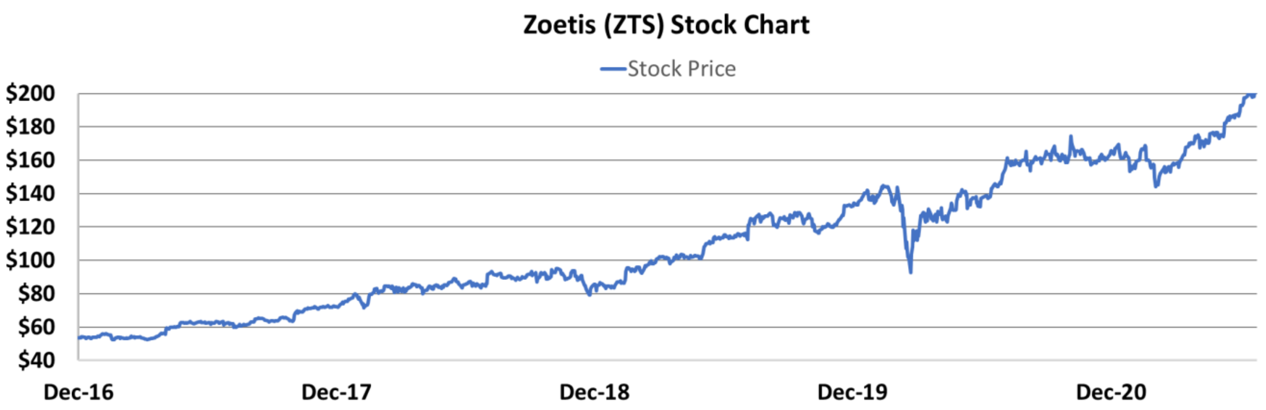
Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

Exhibit 3a



Sources: UAFRS, CaptialIQ

Exhibit 3b



Source: CapitalIQ

Exhibit 3c

ZTS - Zoetis, Inc.	2016	2017	2018	2019	2020
R&D expense	376.0	382.0	432.0	457.0	463.0
Capitalized R&D investment	3,352.8	3,760.1	4,235.2	4,720.7	4,868.8
Uniform earnings	1,142.3	1,341.0	1,814.1	2,051.1	2,145.7
Net income	821.0	864.0	1,428.0	1,500.0	1,638.0
% Variance	-28.1%	-35.6%	-21.3%	-26.9%	-23.7%
Uniform net assets	6,424.3	6,872.7	7,627.3	8,584.8	9,014.5
Total assets	7,649.0	8,586.0	10,777.0	11,545.0	13,609.0
% Variance	19.1%	24.9%	41.3%	34.5%	51.0%
Uniform ROA	17.8%	19.5%	23.8%	23.9%	23.8%
ROA	11.8%	13.5%	12.2%	11.7%	11.4%
Uniform ROA vs ROA - Variance	6.0%	6.1%	11.6%	12.1%	12.4%

Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting

Definitions

Uniform Net Assets **–** Net Asset’ is calculated as Net Working Capital + Long Term Non-Depreciating Operating Assets (including Land and Non-Depreciating Operating Intangible Assets, excluding Goodwill and other acquisition-related Intangible Assets) + Inflation-Adjusted Net PP&E + Net capitalized R&D + Net Capitalized Leases + Net Depreciating Operating Intangible Assets

Uniform ROA– UAFRS-adjusted ROA is a cleaned up Return on Asset ratio, used to understand the operating fundamentals of the company. UAFRS-adjusted ROA is Earnings’ divided by Asset’.

Uniform Earnings is calculated as Net Income + Special Items + Interest Expense + Depreciation and Amortization Expense + R&D Expense + Rental Expense + Minority Interest Expense + Pension Charges + LIFO to FIFO adjustments + Stock Option Expense + Purchase Accounting Cash Flow Adjustments - Non-Operating (Investment) Income - Asset Life Based Charge on Depreciating Assets. Asset' is Net Asset’, or Net Working Capital + Long-Term Non-Depreciating Operating Assets (including Land and Non-Depreciating Operating Intangible Assets, excluding Goodwill and other acquisition related Intangible Assets) + Inflation Net PP&E + Net Capitalized R&D + Net Capitalized Leases + Net Depreciating Operating Intangible Assets.

110 Cambridge St., Cambridge, MA 02141 | info@valens-research.com

Deficiencies in GAAP/IFRS vis-a-vis Uniform Accounting