



ValuInsight – The Price of Growth – *This time, it is different. For now.*

- **We are fully aware of the foolishness of such a statement, generally.** But all things considered, perhaps less foolish than an assessment of the current market by historical standards, ignoring the major economic effects of instant global reach, the end of carbon fuels, the dematerialisation of payments, cloud computing, 5G, Industry 4.0, home-working, an unprecedented pharmaceutical research effort, all flashed-forward compliment of the COVID pandemic and “free” money from Central Banks.
- **This report is in two parts.** In the first part, we attempt to frame the issue of growth and its pricing by investors. We last published research on the price of growth in 2006 in *CROCI, Ten Years of Investment Analysis*. Back then, it was clear that investors generally tend to under-price true growth (as opposed to “manufactured growth”, by aggressive share buy-backs, for instance). We felt that it was topical to revisit the tenets of the price of growth within the classic assessment of asset pricing in the way we favour, i.e. by sources of value: replacement, franchise and, well yes, growth.
- **In the second part, we purposely select three “extravagantly priced” shares: Tesla, NVIDIA and Amazon.** We show what effort of imagination is required either to see the shares eventually trading on a market multiple, or to rationalise their current high multiple. Despite unavoidable oversimplification and schematisation, we carefully select plausible assumptions, looking at rent levels, operational leverage and capital consumption.
- **We find the market, as ever, to be a frightfully efficient discounting machine.** Investors might eventually decide that the equity risk premium is too low. Ultimately, their deciding to discount cash flows at 7, 8 or 9% rather than 6% - because they can - is what makes or breaks equity markets. But, for now, with no inflation in sight and the cost of money at zero for the foreseeable future, Tesla, NVIDIA or Amazon at current prices are “normal” companies whose current value discounts a fairly plausible **and highly leverageable future**, and depends on the ability of their managers to execute well, rather than on improbable events.

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Part One: The Price of Growth

What if, this time, it really was different?

We are fully aware of the risks – some would say the foolishness – of printing such a sub-title. Yet we are wary of the (usually unsubstantiated) consensus view that we are in a bubble, reiterated almost every day (but usually carefully hedged, as in the press cut above) by the “experts”. This article is an attempt to look at the issue as objectively as possible.

First a Little Test...

Imagine **OneTimeWonder**, a company growing at 10% per annum for 10 years only, and then forever more at 3%. Its return on capital is also 10%. It can hold on to its competitive advantage for 20 years, 10 years at 10% and another 10 years with a 1% fade per annum (so year 11 sees the return fall to 9.9%, then 9.8% etc...), before fading precipitously to zero. What should its theoretical earnings multiple be today and in five years' time (assume that earnings = cash flow) if the cost of capital is 5%?

PE ratio :

17x	26x	39x	52x
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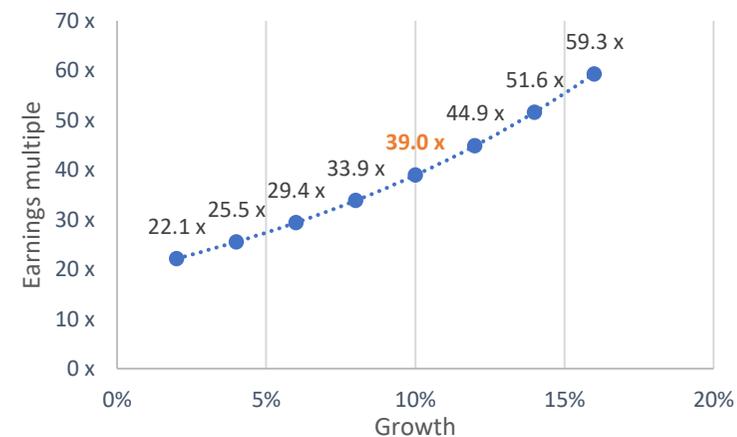
Tick the right box:

The answer is 39x today (the same multiple as Microsoft) and 26.6x in five years' time. The likelihood is that you have underestimated these figures and guessed perhaps 26x now and something lower in five years. **Your answer would imply a growth rate of 3% for the first decade, followed by a growth rate of 2.5% forevermore.** Like most investors, you underestimate the Price of Growth at low cost of capital.

The Growth / Return Matrix

On the following chart, we show the theoretical earnings multiples of **OneTimeWonder** as a function of its growth rate (from 2% to 16%.) You will recognise **10% OneTimeWonder** in the middle of the chart, with its multiple of 39x. Note that the shape of this function is slightly exponential, due to the compounding effect from the additional growth.

The Theoretical Growth Function

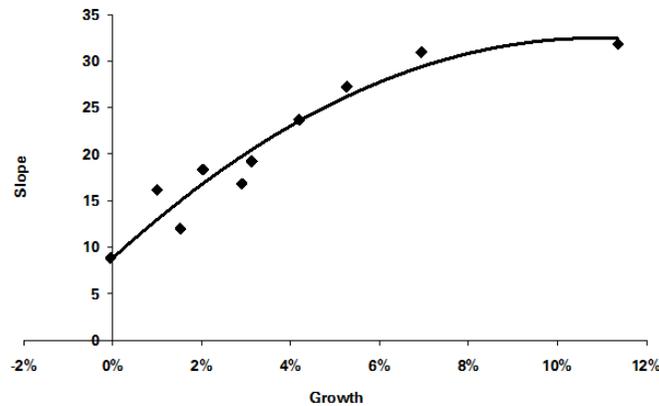


Source : ValuAnalysis Limited

Investors are Structurally Sceptical about Growth

We wrote about the Price of Growth in 2006 in the fifth chapter of the CROCI Book. It ended with this chart showing the relationship between a given level of growth (horizontal axis) and valuation¹ (vertical axis):

Empirically, the Price of growth is not Exponential



Source : CROCI – Ten Years of Investment Analysis

The relationship is neither linear nor exponential, as perhaps intuition would have suggested (we already know that this should marginally be the case *theoretically*). To the contrary, there seems to be a flattening of the relationship as growth gets

¹ Here we are using the *slope* of the regression line – at each level of growth – which measures the relationship between an asset multiple (it would be price to book in accounting terms) and a return (return on equity for the same reference), which is nothing other than a PE ratio.

higher. Everything else being equal, this means that the higher growth cohorts are at a discount relative to the lower growth ones.

There are good reasons why this would be the case; the market might be suspicious of financial leverage (companies could overextend themselves by leveraging their assets, weakening the financial position of the balance sheet) or unsustainability. Paradoxically for equities famously portrayed as the Triumph of the Optimists by Elroy Dimson et alii., markets seem to lack imagination when it comes to growth. Contrary to the common perception, markets are sceptical about growth, in aggregate.

The Warren Buffett Equation

Equity investment is easy on paper: one just needs to pick stocks whose expected return is higher than the market's... Most observers agree that the **long-term real expected return of equities** is in the 5% to 7% range. There are various ways to approximate this², but we favour the Warren Buffett approximation where the expected return is schematically dividend yield plus growth (we hope to be forgiven to fall for the easiest trick in the books: “when in doubt, invoke Warren Buffett”).

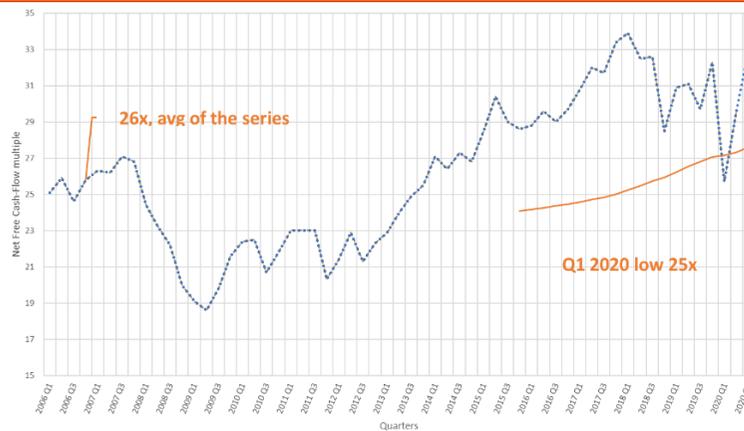
In broad brush terms, and at the most aggregated level, this translates into a dividend yield and share buy backs of 2.5% to

² The complete and uncontroversial formula is $\delta(1+g) \times Y + (g - \pi)$, with δ the distribution rate of dividends, g the nominal growth rate, Y the cash flow yield, and $(g - \pi)$ the expected real growth rate.

3%, plus 3% to 3.5% real GDP growth, or a long-term inflation-adjusted return between 5.5% and 6.5%.

Our Running the Numbers suite of ratios incorporates a net normalised FCF multiple (see next chart) which can be used to approximate **distributable earnings** (i.e. dividend + share buy backs). The average multiple of our global universe comes out at 26x, or a yield of its inverse (1/26), 3.85%.

Historical Normalised FCF multiple 2011 to date



Source : ValuAnalysis Limited

FCF is usually unlevered, i.e. calculated before the cost of debt. It is also rarely fully distributed³, if only because the company might decide to stockpile a bit of cash or make an acquisition. We therefore need to make two adjustments to this gross yield,

³ There are some notable exceptions, like Texas Instruments, which aims to distribute 100% of FCF

one to “leverage” the FCF to take debt into consideration (we usually take 80% of the unlevered figure) and one to consider distributable FCF only, which we estimate at two thirds of reported FCF, on average.

Thus, the net figure is:

$$3.85\% * 80\% * 67\% = 2.06\%$$

which is, in practice, what should accrue to shareholders. Adding the real sustainable growth rate (let’s take 3.5%) gives a long-term real return of equities of 5.56%.

The Warren Buffett definition of expected return is insightful, in our view, because it isolates the growth element from what we could call “a zero-growth discount rate”. The latter is what transforms a perpetual flow into a stock of value. This discount rate is closely correlated to the cost of capital, plus a risk premium. At unchanged growth, the lower the discount rate, the higher the multiple. The driver here is the risk premium, and the real yield. For the purpose of this article, we assume that both are constant, as we want to focus on the sustainable growth rate.

Growth vs. Value: A Tentative Explanation of a Puzzling Divergence

The formula is functional at the most aggregated level, but there is an inconsistency at the stock level. The “rent” (or return) element is a perpetuity, but the growth element is not. If it were, there would hardly be any discrimination between stocks on the basis of their growth, all fading to GDP growth eventually. Thus,

it would be a constant (GDP growth) that could be ignored, and investment would be about buying the higher distributable earnings yields, or lower multiples, also known as “value investing”. Plainly, it is not anymore, as the next chart makes it clear:



Source : Bloomberg

“Value” has outperformed “Growth” for 33 years, and the music stopped in 2007, symbolically the year of the birth of the smartphone. Like everyone else, we are puzzled at this chart, even though we are long-time critics of this artificial and unanalytical divide. The bubble argument looks plausible optically and emotionally, but this chart cannot be explained

rationaly unless we accept that the pricing mechanism is dual. The market seems happy to price cash flow *ad infinitum*, but clearly, “sustainable” growth is not a constant perpetual growth rate. Growth is meant as something like “sustainable growth during a foreseeable time horizon”, i.e. perhaps between 3 and, say, 7 years? If one accepts that for large parts of the largest companies, this sustainable growth rate has been moving higher, then the chart makes more sense.

Growth... But which Growth?

In an economic framework such as the one we advocate, growth is meant as **operationally unlevered growth**. Which means (economic) asset growth⁴. But there are other competing concepts which are muddying the picture.

Revenues are an acceptable proxy but can in fact be levered by pricing and / or currency exposure. As we go down the P/L or cash flow statements, more leverage is applied, operationally and financially. At the bottom end, Earnings Per Share is the most misleading measure of growth, as management can decide to increase financial leverage in order to reduce the share count, and manufacture growth. Cisco or Oracle have long been criticised for this practice, nonetheless totally transparent, and, as such, legitimate. We can't help noticing that their shares are trading at a deep discount to the rest of the Technology sector as a result. This validates our view that investors in aggregate are not easily fooled – at least when it comes to growth – and focus on “real” growth to value enterprises.

⁴ Note that even this is ambiguous, as asset growth can be *financially* levered if assets growth is financed by debt!

The above notwithstanding, markets will tend to reward operationally *leveraged* growth, which is legitimate as operational leverage does produce free cash flow. This creates a difficulty in interpretation.

In the traditional Intrinsic Value framework inspired by Benjamin Graham, stocks are assessed “at zero growth”, and Intrinsic Value is defined as the sum of Replacement Value (of the assets) plus Franchise Value, itself a normalised level of Cash Flow (taxed EBIT in the original model) discounted by the cost of capital. It is possible that some early variants of this model attempted to discount by the cost of capital minus growth, but the latter, by definition, was *ad infinitum*, at best equal to GDP.

Much as we admire this model, it carries several limitations which have prompted us to create a third source of value (after Replacement and Franchise), which we called Growth. We have not found any better term than this but admit that it is somewhat misleading. The correct label should have been: “anything that is not asset or legacy level of cash generation”, but that is less catchy.

Growth Value is the residual of what is priced (by the market) over and above the *current* value of economic assets (at replacement value) and the *current expected* value of the (legacy) franchise “at zero growth”. **Over time, Growth Value will be dispatched into Replacement and Franchise.**

OneTimeGrower is a company growing at 20% for one year only, then not growing at all, with a rent exactly equal to the cost of capital. This is how the Three Sources of value would look like:

	Ex ante	Ex post
Replacement Value	100	120*
Franchise Value	0	0
Growth Value	20	0

*the net replacement value should be 120 *minus* the depreciation of the legacy 100.

The table illustrates the transitory aspect of the Growth Value, and how, over time, it gets distributed into the other sources of value. This is presumably why Ben Braham’s Intrinsic Value does not have a Growth Value. He considers valuation *ex post* (i.e. all is distributed to replacement and franchise), not dynamically and *ex ante*.

StableGrower, a regional company whose sector’s real growth rate is 5%, whose enterprise value is 320, and whose rent is 10%, or 5% above the cost of capital, is more complex to pin down. There are now *two* possible types of likely paths (all calculations in footnotes to make the text easy on the eye).

	Ex ante	Ex post 1	Ex post 2
Replacement Value	100	220	145
Franchise Value	100	100	175
Growth Value	120	0	0

Ex post 1 assumes that the company is priced to grow at 6% net for 13 and a half years⁵, before fading abruptly. The average rent

⁵ 100*1.06^{13.5} = 220

over the period, in the meantime, fades from 10% to 8.1%⁶. This is the classic “fading return” model, where it is assumed that all returns fade to the cost of capital, eventually.

Ex post 2 offers an alternative future path: the company grows at 5.5% for 7 years only (to 145 net assets) but also grows its rent from 5% above the cost of capital to 7% above⁷.

Michael Porter clearly explained how competitive forces drag returns down; there is always an incentive to compete away a competitor’s excess return (assuming a similar cost of capital), such that the marginal return on (existing) capital is naturally negative in aggregate. With good reasons, financial analysts have been trained to assume a fade.

The Advent of an “Antifade” Period?

Yet fades do not have to be the norm. Take **AwesomeCo**, a company leader in a new market emerging from a global re-think of the largest economic sector in the world, and replacing an old technology with absolute certainty over the next 20 years. Effectively, the only variables affecting the trajectory of this company are its market share and the pace of the technology replacement. This company won’t just be about asset growth; it will also be about its ability to leverage these assets to reach out to its desired market share. In all likelihood, the company will first experience an *antifade*, in other words an increase of its rent. Contrary to an average company which typically is in the middle of its fade, this company has, ahead of itself, an “antifade”

⁶ The average assets are now 160 over the period $(100+220)/2$ still producing 100 of Franchise Value. If the cost of capital is 5%, 100 of Franchise Value amounts to $(3.1\% \times 160) \approx 5$ of excess return discounted at 5%. The average rent is therefore $5\% + 3.1\%$, or 8.1%

period (upward going rent profile), presumably followed by a period of stabilisation, ultimately followed by fading returns in perhaps a few decades from now. With perfect, or even imperfect foresight, how would **AwesomeCo** be valued *today*?

Let’s start with **AverageCo**. It grows at 3.5% per annum and has a rent of 13%. We assume that its return fades at 3% per annum from the first year. Broadly, the breakdown between the three sources of value will be evenly distributed (one third each). Its asset multiple is 3x and its multiple of FCF 28 times.

NewCo has the same starting characteristics (growth and rent levels) but a very different fade. It enjoys a period of ten years of *antifade* which takes the rent level from 13% to 20%, followed by a 20-year period of stabilisation, before fading. Its asset multiple is 5.6x and its FCF multiple 54x

AwesomeCo, previously described, is the same as **NewCo**, but with a higher growth rate of 10% just for the first 10 years, fading quickly back to 4% after that. Its asset multiple is 17.3x, and its FCF multiple 167x.

AverageCo is actually a real company that we chose randomly, whose shares are trading at a price of around 80. If investors were to anticipate (*ex-ante*, by definition) **AverageCo** to morph into **AwesomeCo**, its share price would need to go to 540. Thus, *ex-ante*, **AwesomeCo** would trade, at, say, between 150 and 200x

⁷ Average assets are $(100+145)/2 = 122.5$. $7\% \times 122.5 = 8.6$ of excess return, discounted at 5% ≈ 175

FCF. Its “growth” value would represent between 80 and 90% of its market value, because it would incorporate:

- The expected actual accumulation of capital (assets) growing at 10% first and then fading
- The expected increase of the rent (“antifade”)
- The expected slower fade post the antifade period
- The compounded effect of the additional level of rent (previous two points) with additional assets (first point)

None of this can be identified, let alone segregated by a simple static multiple of earnings or of cash flow. This is not just about growth *stricto sensu*, defined as asset accumulation.

The Price of Growth is also the Price of Leverage

It is about instant rollout of new, transformational technologies, which is leveraging the asset base in a way unseen and unknown in previous instances. **And with the clear consequence of expanding the rent.** The following list is a naïve inventory of what drives this leverage across industries:

- A platform effect (“instant global reach”) is generating hypergrowth for global, and therefore large or very large companies (Amazon, Facebook)
- An energy challenge is triggering a total re-think of the largest economic sector in the world (Automotive), and, more generally, mobility (yes, AwesomeCo could be Tesla...)

- A sanitary challenge is stimulating research and innovation in the second largest economic sector in the world (Pharmaceuticals). HealthCare is a prototypical global platform and emerging franchises (IQVIA) are benefitting from this.
- Dematerialisation of payments is increasing the franchise of companies like Visa, whilst allowing the rebirth of briefly obsolete business models (PayPal) and allowing the emergence of new ones (Adyen).
- Growth is accelerating in parts of hitherto cyclical areas, especially semiconductors, spurred by a telecom revolution (5G) and the twin benefits of acceleration computing and artificial intelligence, announcing Industry 4.0 and the connection of trillions of objects (NVIDIA).

In addition to these (very simply described) structural trends, we see two temporary but long-lasting effects:

- Swaths of the old economy (including high growth areas like air transport) have been meaningfully - if not permanently - impaired by the COVID 19 virus. Best in class companies like Safran, the plane engine maker which used to grow at 6%+, see their growth prospects questioned, which is pushing the relative risk premium of the more sustainable growth areas (all the ones above) *down*.
- The cost of money has effectively gone to zero for the foreseeable future

Part Two: Tesla, Amazon, NVIDIA

This part sounds like the title of a Woody Allen film, and in a way, it is indeed a fiction. In this section, we attempt to illustrate what effort of imagination would be required either to see these companies trading on market multiple within the next few years, or to see the rationale for which they trade on a higher multiple. What is it that the market is pricing, that the spot multiple cannot tell?

Tesla

Tesla is the archetype “speculative” stock. With a valuation that – allegedly – does not make sense. On ca. 630 times normalised net FCF, how could it...?

Tesla today

Tesla will sell in 2020 approximately 500,000 vehicles, up 28% from last year’s 368,000. This represents far less than 1% of global car sales. At ca. \$400 (the stock is volatile!), the company trades on ca. 630 times normalised operating free cash flow, 16.2 times net economic assets and has an operating rent of 2.6%, 10 times less that of Microsoft, for an enterprise value that is ca. 30% of the software company. Presented like this, we agree that this does not make any sense...

“Imagine all the people” ...

Global car sales are not very controversial. Analysts, who like complexity, sometimes talk about SAAR revenues, a seasonally adjusted annualised number, and sometimes disagree on the definition of “cars”, which may or may not include light-weight vehicles. But, broadly, on the basis of ca. 72m sold in 2020 and a

recovery near 77m in 2021, global car sales will grow at ca. 4.5% per annum, reaching between 91m and 93m by 2025.

Here is another uncontroversial fact: Battery Electric Vehicles (“BEV”) have started to replace Internal Combustion Engine (“ICE”) vehicles, and there is no coming back. Penetration might or might not reach 100% ultimately, depending on which technologies may emerge (e.g. hydrogen), but it is a safe bet to assume that the majority of cars will be electric in, say, 20 years from now.

A 2025 “basic” assumption: 13% rent and 61x FCF multiple

Let’s assume that the world will buy 91.5 million cars in 2025, and that BEV will have a market share of 8%, a low number according to the current expectations of experts. With a market share of ca. 21%, Tesla may sell 1.5m vehicles, up threefold from the 500,000 units expected to be sold in 2020. Assuming that the average selling price keeps on falling, from ca. \$55,000 to perhaps \$47,000, Tesla will turn over ca. \$74bn in its car business, to which it may add another \$5bn (conservative!) in its energy generation business. Call it a revenue line of ca. \$79bn. This is neither conservative nor aggressive; the consensus is expecting above \$80bn for 2025 (source Capital IQ).

What matters though are two crucial figures which are much harder to imagine: the margin at which Tesla will generate these revenues, and the amount of economic capital that it will need to mobilise.

For the moment, we will keep the margin level unchanged, at around 13% (this is the economic gross cash margin; by way of comparison, EBITDA margin is expected to be 16.3% in a few years, which will be reduced by taxes). We estimate that an additional half a million cars in production “costs” Tesla ca. \$5bn of additional capital, fixed assets and working capital. So fixed assets would go up by ca. \$10bn, and intangible assets by a similar amount. This is calculated by assuming a 4.5% clip from revenues to fund R&D, capitalised over 8 years. Thus the 2025 figure would represent the amounts stacked-up between 2018 and 2025. All in, we estimate that Tesla would use about \$47.5bn of net economic capital, vs. \$25.5bn currently.

This would produce a net Free Cash Flow of ca. \$6.3bn, a net rent of 13.4% and thus the shares trade on 61 times net Free Cash Flow 2025 on that basis.

A quicker BEV penetration: 15% rent and 43.5x net FCF

Recall that we assumed a conservative BEV penetration of 8% only. Some imagine a penetration of more than 11% by 2025. Again, at unchanged market share (a big assumption), Tesla would need to see a penetration of 10% to reach ca. 2m vehicles and revenues lapping \$100bn. We assume that there would be another \$7bn of capital needed, mostly of fixed assets and working capital, but no meaningful additional intangible spending, as this (and next) assumption is about leveraging. On that basis, net FCF would reach ca. \$8.8bn.

Two million vehicles and a (slight) margin enhancement: 17.7% rent and 35x net free cash flow multiple

So far, we have not taken a view of the margin that Tesla could achieve by 2025. It is possible, albeit clearly optimistic, that the company might be able to push its leverage potential and *increase* its margin. This would not, we assume, be achieved by increasing prices (which we think will keep on falling) but by reaching a better mix of fixed and variable costs. The best the company has achieved in its short history is 13%, and a 15% mark would ensure a net free cash flow of \$10.9bn, producing a rent of 17.7% and trading on a market multiple by 2025.

None of the above are meant to be forecasts. We have not even attempted to model Tesla post Battery Day, as we do not understand how the figure of 20 million vehicles could be achieved, or indeed what a price of \$25,000 per vehicle would do to the economics of the business. This is meant to illustrate that all these assumptions are plausible, and even conservative, especially with respect to BEV penetration (which might be materially higher) and capital consumption (which we feel should be lower than what we assumed, especially intangible assets). On the other hand, all is predicated on Tesla keeping a meaningful market share in electric vehicles, an assumption that bears of the stock / company will be quick to dismiss. We have no counter argument, but we have not found any convincing demonstration that the traditional car manufacturers, even those who are well advanced in electric vehicles (GM, VW, Renault), are about to displace Tesla.

Amazon

Amazon is the most established and largest “antifade” company in our tryptic. The company generates about \$21bn of normalised net Free Cash Flow and trades on about 78x this amount.

In our view, Amazon is not about growth, at least understood as “accumulation of assets”. We estimate that Amazon uses about \$207bn of net economic capital. Like Tesla in the future, but unlike NVIDIA, it is already a very capital-intensive business. The value of its leased assets, ca. \$28bn, is larger than the market capitalisation of say, Motorola Solutions. Amazon is about **leverage**. It is not really possible to imagine Amazon growing its capital base at the rate of growth of its revenue, ca. 24% per annum. This would be equivalent to a doubling of its asset base in less than four years, and, even if it were to double its cash flow generation to, say, \$40bn (which is, incidentally, no more than the median consensus estimate for 2021), such growth would be unfunded and would require a serious amount of debt.

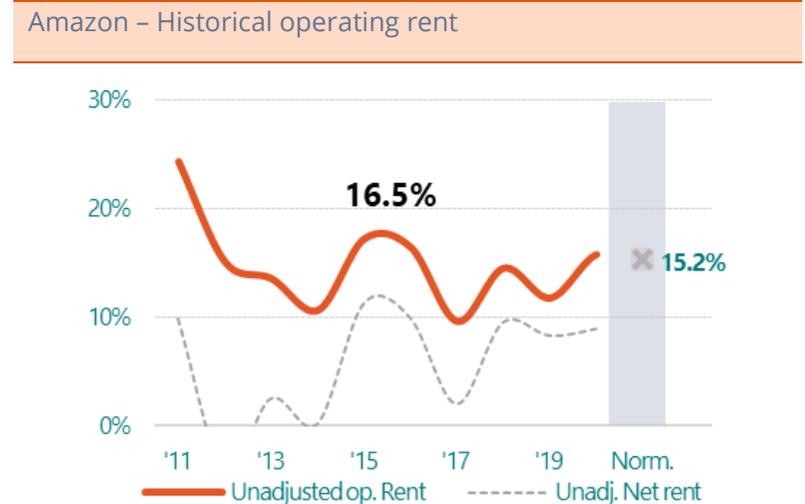
Thus, we think that investors in aggregate are expecting a more modest growth rate (12%?) coupled with a robust leveraging of the asset base, which translates into a higher rent.

Assuming a 20-year competitive advantage, this is what our generic model has to say about an earnings’ multiple of ca. 78x.

First 10Y average return	Next 10Y average return	First 10Y average growth	Next 10Y average growth
17.3%	17.5%	12%	7.5%

Such a multiple implies a fairly stable return (17.3% and 17.5% for the two decades, respectively) and a marked step down in growth from one decade to the next (12% and 7.5%, respectively).

To put this in context, here is the operating rent of Amazon since 2011:

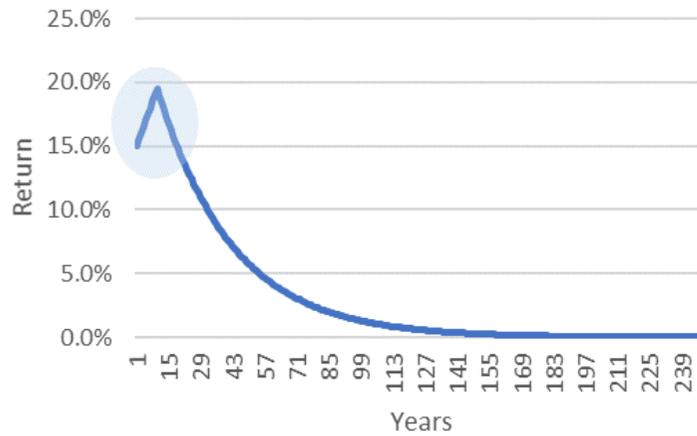


Source : ValuAnalysis limited

This chart makes it clear that the operating rent has been stable during the past decade, which is an important information; Amazon has not started its fade. Forward, on our generic model, investors in aggregate are indeed assuming *some* leverage, which would see the recent peak (16.5%) surpassed by about 100bp. Playing devil’s advocate, as we have attempted to do

throughout this document, a 10 year second period of returns is – perhaps not intuitively – very short. A better way to picture this is to see the full theoretical profile of returns, on the next chart.

Amazon – Full implied return profile at 78x net FCF



Source : ValuAnalysis limited

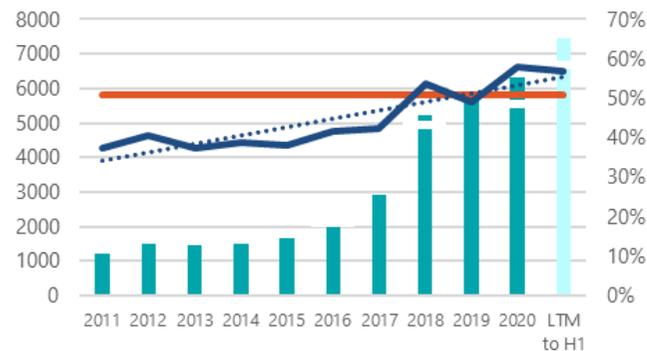
This profile makes Amazon a two-decade wonder, after which returns normalise very quickly. We do not dispute the merit of prudent anticipation but cannot help wondering if this quick implied normalisation really fits with the dominant model that the company is rolling out. Jeff Bezos, in his 2016 letter to Amazon shareholders, calls this fading phase **Day 2**. *“Day 2 is stasis. Followed by irrelevance. Followed by excruciating, painful decline. Followed by death. And that is why it is always Day 1”*. Needless to say, any extension of the post “antifade” period (in this model, the first decade) would happily propel the multiple towards 100x.

NVIDIA

We are not yet able to assess the newly announced group with ARM, if only because this merger has not yet been approved. The Chinese authorities might not be amenable to the sale of the company designing 70% of chips in the world to an American company. But if this merger were to go ahead, this would clearly constitute, in our view, a major enhancement and solidification of the trends detailed below.

NVIDIA trades on a “modest” 61.5x normalised net Free Cash Flow and does not require investors to “bridge” a 5-year period to rationalise its valuation, like Tesla. On the following chart, the bars show the amount of economic Gross Cash Flow, with the line showing the margin (on revenues). The orange line is the “normalised” trend, allowing for a cyclical pullback.

NVIDIA – Economic Gross CF, margin and trend

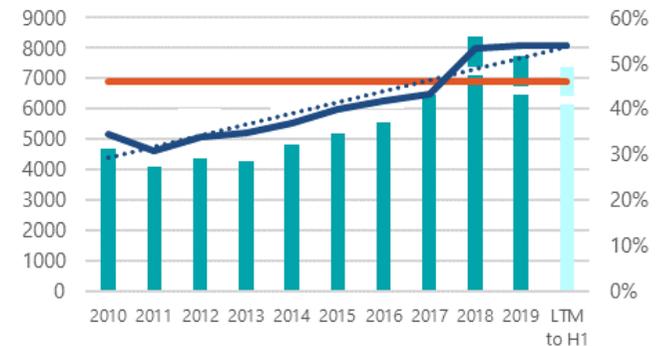


Source : ValuAnalysis limited

This “downward” normalisation is typical of the embedded fade that analysts – including us - have been trained to assume. And, in most cases, with reason. But not in **all** cases. In the semiconductor sector, we have numerous examples of “antifade” profiles, with a famous Texan precedent.

On the following chart, we show the same information for Texas Instruments, a company that boasts a 40% market share worldwide in analog semiconductors. Note how we also normalise Texas Instruments’ margin below the hump of 2018-2020, in the belief that this extra margin is purely cyclical and not sustainable. The folks in Dallas would beg to disagree, and three years-on, they might have a point. Texas, like NVIDIA, are examples of antifade.

Texas Instruments – Economic Gross CF, margin and trend



Source : ValuAnalysis limited

Optically high multiples may suggest that investors are not prepared to embed a short-term fade provision for these companies. Investors in aggregate may even be willing to do the contrary and to project and price their expectations perhaps one year further than usual, call it 2022 from here.

With **unchanged margin**, and the appropriate additional capital⁸, and simply by benefitting from its revenue growth and the leverage effect on its capital two years out, NVIDIA trades today on 39x 2022 net FCF (reported in January 2023).

This however does not go all the way to explain NVIDIA's valuation, in absolute terms and relative to Texas Instruments. Based on its trend margin, Texas Instruments trades on less than half of NVIDIA's multiple of FCF, because its trend growth rate is also significantly lower. Texas' trend growth might be barely above global GDP, call it 4%, whereas NVIDIA's is probably 3 times that. **What propels the multiple is the combination of an expected antifade and a high growth rate.**

Let's now assume that NVIDIA's spot operating rent – currently 26% - reaches the normalised level of Texas Instruments – 35% - in five years' time. This is not a random assumption. We believe that both companies have an inordinate ability to leverage their assets by focusing on dominating a narrow field of the semiconductor industry. Contrary to Texas, NVIDIA's business model is also "fabless", which implies less capital intensity, and, everything else equal, should imply a higher rent over time. It is therefore a plausible estimate that NVIDIA might emulate Texas Instruments and have this mid-30s rent in sight.

This new assumption allows to visualise the twin benefits of an antifade rent profile, coupled with a high growth rate. Is 39x the appropriate multiple? Not if you believe that NVIDIA can sustain its super growth rate for more than a couple of years. Based on the simple generic model already mentioned, the following table shows the relationship between growth/return assumptions and multiple.

Avg 10Y return	Avg 10Y growth	Generic multiple
30%	8.4%	39x
30%	12%	55x

Assuming an average economic return on capital ("rent") matching Texas Instruments' at the end of a ten year period (thus averaging 30%), a 39x multiple implies an average 8.4% growth and a doubling of NVIDIA's assets over the coming decade. Robust, but perhaps not in line with the company's ambitions and deliveries. Recall that NVIDIA's position in acceleration and artificial intelligence, coupled with a strong positioning in key verticals (datacentres, autonomous vehicles, gaming) has allowed the company to deliver ca. 30% growth in revenues expected for this year (2020 reported in January 2021) and four consecutive quarterly "beats". Additional growth of 400bp (from 8.4% to 12%) will push the multiple to 55x.

These are not forecasts. Rather, we are lifting the bonnet of high growth companies to make the pricing mechanism that investors in aggregate are currently applying more explicit, bearing the risk of oversimplification and schematisation.

⁸ Everything else equal, additional capital will of course **lower** the rent.

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Recommendation	"Buy", "Hold" and "Sell" recommendations		Investment services provided to these issuers in previous 12 months	
	Number	% of total	Number	% of total
Buy	29	45.3	0	0
Hold	24	37.5	0	0
Sell	11	17.2	0	0

The above table covers the period 3rd October 2019 to 2nd October 2020. This disclosure is reviewed and updated on a quarterly basis. Last updated 2nd October 2020.

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