Is There a Bubble in Technology Stocks?

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After a period of extreme outperformance, the tech led market rout we have experienced over the last few days has many people asking if we are seeing the beginnings of a 1999/2000-style bubble brewing in the sector.

COVID-19 has clearly caused a surge in demand for various business models that leverage technology. While we do not think *all* this demand will be permanently sustained at current levels, we feel reasonably certain in saying that online shopping, digital payments and online entertainment will not revert back to pre-pandemic levels, even after a vaccine becomes available.

Similarly, where companies adopt cloud-based software to facilitate remote business processes, we think the demand will be sustainable. Businesses are currently building workflows around these new solutions; from personal experience, we know how difficult it can be to change those once they are deeply embedded.

Put more succinctly, we definitely think some behaviours are going to change permanently.

For some businesses, this pull-forward in demand – if sustained – can have a huge impact on valuation. For example, if Netflix has reached and acquired in 2020 a customer that would otherwise only have switched from linear television two or three years from now, having them as a recurring monthly subscriber over the next 24 months clearly adds value. There are two elements to this value-add: firstly, the actual dollar value of subscription fees collected over the next 24 months, but also the fact that the revenues start *now* and not two years hence – in other words, a time value of money impact.

To illustrate this dynamic, a brief, simplified and somewhat exaggerated example may be helpful. (The numbers and specifics in this example are purely theoretical and serve to illustrate a point)

Consider a rapidly growing software business. Pre-COVID, this business was expected to earn $1000 in revenues this year. Because the business is still investing to grow its revenues, it was expected to generate both an accounting loss of $300 and negative free cash outflow of $400 (due to $100 being invested in fixed and working capital) this year.

The business was expected to be breakeven from an accounting perspective in year 3, and to sustainably generate free cash flows from year 5 onwards. Assuming a 9% cost of capital as the discount rate, and a terminal growth rate of 3%, a simplified discounted cash flow valuation for this business might look as follows:

Table 1: Discounted Cash Flow, pre-COVID assumptions

Pre-COVID	Year 1	2	3	4	5	6	7	8	9	10	*Terminal value*
Revenue	$1 000.0	$1 300.0	$1 560.0	$1 794.0	$2 018.3	$2 220.1	$2 397.7	$2 565.5	$2 719.4	$2 855.4	
Earnings	-$300.0	-$160.0	$0.0	$100.0	$300.0	$450.0	$550.0	$600.0	$650.0	$700.0	
Investment	-$100.0	-$112.5	-$126.6	-$142.4	-$160.2	-$180.2	-$202.7	-$228.1	-$256.6	-$288.7	
Free Cash Flow (FCF)	-$400.0	-$272.5	-$126.6	-$42.4	$139.8	$269.8	$347.3	$371.9	$393.4	$411.3	
PV of FCF	-$367.0	-$229.4	-$97.7	-$30.0	$90.9	$160.9	$190.0	$186.7	$181.1	$173.8	$2 982.9

Fair value	
Pre-COVID	$3 242.0

Source: AIM.

This business is worth $3,242 today, despite generating negative earnings and cash flows in 2020, due to the long-run free cash flows the business is expected to generate.

Now, assume that COVID-19 has seen a substantial and sustained pull-forward in demand for this business. Instead of doubling revenues by year 5, revenues double by year 2. To meet this increased demand means steeper losses and additional capital investment in years 1 and 2, but the business turns free cash flow positive – and meaningfully so – by year 4. In addition, the sustained higher level of demand means that the business has much higher revenues and free cash flows by year 10.

Again performing a simplified discounted cash flow valuation, the results are as follows:

Table 2: Discounted Cash Flow, post-COVID assumptions

Post-COVID	Year 1	2	3	4	5	6	7	8	9	10	*Terminal value*
Revenue	$1 700.0	$2 000.0	$2 250.0	$2 500.0	$2 750.0	$2 997.5	$3 237.3	$3 463.9	$3 671.7	$3 855.3	
Earnings	-$400.0	-$100.0	$50.0	$350.0	$600.0	$800.0	$1 000.0	$1 100.0	$1 200.0	$1 300.0	
Investment	-$250.0	-$225.0	-$200.0	-$220.0	-$242.0	-$266.2	-$292.8	-$322.1	-$354.3	-$389.7	
Free Cash Flow (FCF)	-$650.0	-$325.0	-$150.0	$130.0	$358.0	$533.8	$707.2	$777.9	$845.7	$910.3	
PV of FCF	-$596.3	-$273.5	-$115.8	$92.1	$232.7	$318.3	$386.9	$390.4	$389.4	$384.5	$6 600.6

Fair value	
Post-COVID	$7 809.1

Source: AIM.

Assuming the pull-forward is sustainable and leads to meaningfully higher demand and a sooner realisation of free cash flow, the fair value of this business modelled in table 2 increases by more than 100% relative to the fair value calculated in table 1.

Finally, were we to reduce the discount rate in our post-COVID example from 9% to 8% but keep all the other variables the same, the calculated fair value in table 2 would be even higher (in this case, greater than $10,000.)

In short, this is what we believe has played out for many technology businesses this year: a huge pull-forward of demand, combined with lower discount rates caused by aggressive monetary policy. (It stands to reason that any increase in discount rates will have an opposite negative effect on valuations, which is why we maintain that an unexpected spike in inflation requiring central banks to hike interest rates is a risk, but we do not see this as our base case.)

With that said, the valuations above clearly embed a considerable amount of value into cash flows more than 10 years distant. There is substantial forecast risk to these numbers, to put it mildly.

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Speaking to industry experts and executives who were around for the dotcom bubble, our belief is that the technology businesses of 2020 are not nearly as precariously positioned as their brethren in 1999. To start, there is simply much more cash – both on balance sheets, and being generated from operations. Secondly, the infrastructure to deliver the services and goods these businesses sell now exist and are operating at scale; this was not remotely true in 1999.

Stated differently, Jeff Bezos went from shipping books out of his garage to running the behemoth that is Amazon; Netflix today is not Pseudo.com in 1999, because the telecom and entertainment infrastructure to cost-effectively serve a massive, global audience with streaming entertainment exists in 2020. In our opinion, the rally in technology businesses is not just interest rates and speculation driving prices: these are now viable businesses models, and ignoring this fact is not acknowledging the changes that have occurred in the last 20 years.

However, one thing has not changed: investor exuberance – which tends to over-extrapolate the recent past well into the future – is the same as it has always been. This means that, even for a good business, the valuation can become excessive when expectations become unmoored from reality and thus overly optimistic. Some of the recent price action in select stocks does suggest to us an element of speculative euphoria driving prices.

To conclude, we do not think technology stocks are experiencing the same kind of bubble as the one that occurred in 1999 or 2000, insofar that in 1999, many businesses simply had no reasonable way to deliver any of the cash flows priced into the publicly traded stock. That is vastly different to the reality today. Moreover, keep in mind that the discount rate in 1999/2000 was much higher than today, meaning to achieve the valuations of 1999, growth expectations were much higher and the equity risk premium was much lower.

To us, the key item to watch is the equity risk premium; if that starts collapsing to a meaningful extent – like it did in 1999 – we would be very cautious indeed.

We believe that we own a portfolio of high-quality, resilient businesses that have excellent prospects over the next several years, but we are almost certainly due a bout of volatility and a period of market consolidation. We are keeping a close eye on valuations and are taking action in the portfolio where we feel it is needed. We also absolutely believe that owning high-quality businesses that are currently out-of-favour is eminently sensible and prudent – hence our meaningful exposure to businesses like Berkshire Hathaway, Coca-Cola and Heineken.

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