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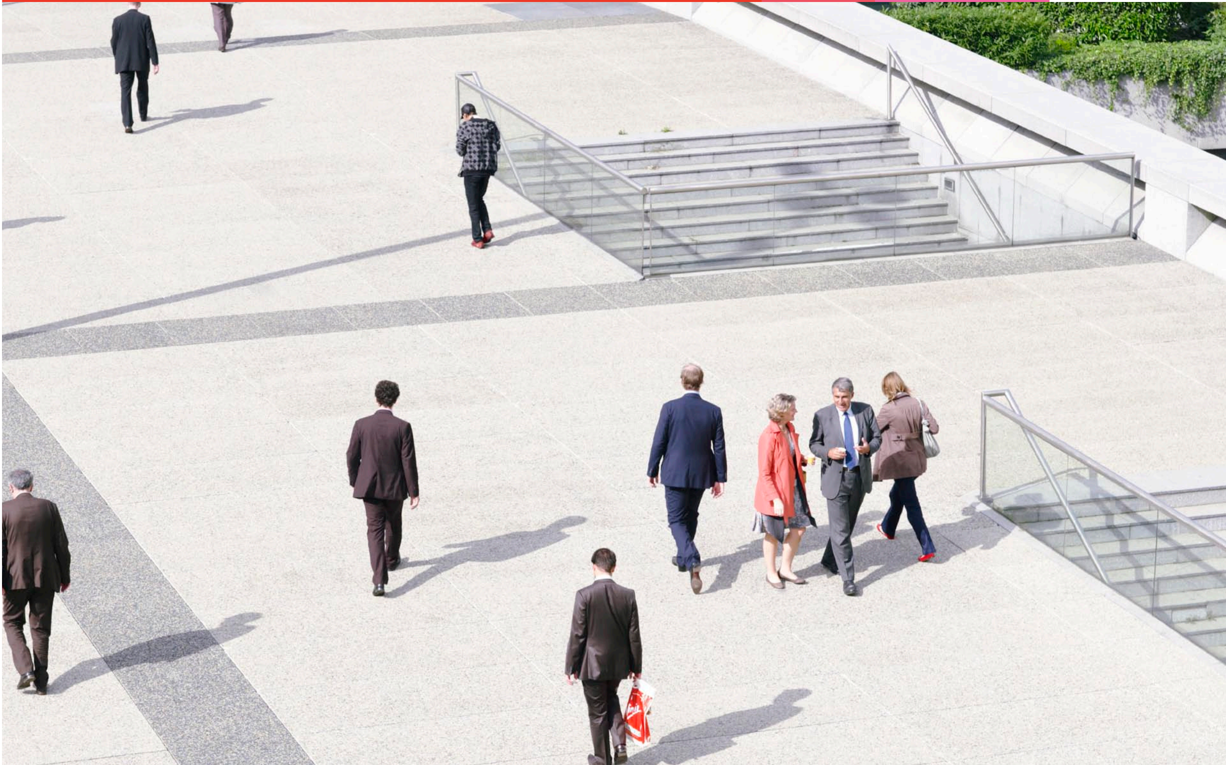
# *PwC Valuation Index*
# Tracking the market to understand value

*2nd edition: Is another tech bubble emerging?*

*May 2011*



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# Welcome

Welcome to this second edition of the quarterly PwC Valuation Index series. In this edition, we drill down into an industry subsector, the technology sector.

There has been a lot of speculation recently about the potential emergence of another "tech bubble" following recent implied valuations of social media businesses. Our Technology valuation team looks at valuation metrics for the sector, considers how value can be assessed when traditional approaches break down and discusses whether it is possible to detect a bubble before it bursts!

We also continue to track the Price/Earnings ("PE") ratio for the UK market against fundamentals and find that, although the ratio for the market has grown since the last quarter, it is still below the ratio implied by fundamentals, with the gap of the same order of magnitude. There is of course still considerable uncertainty as to where the market will go from here – we remain of the view that market multiples will continue to track fundamentals more closely than has typically been the case over the past twenty years.

**Richard Thompson**
Partner
Head of Valuations

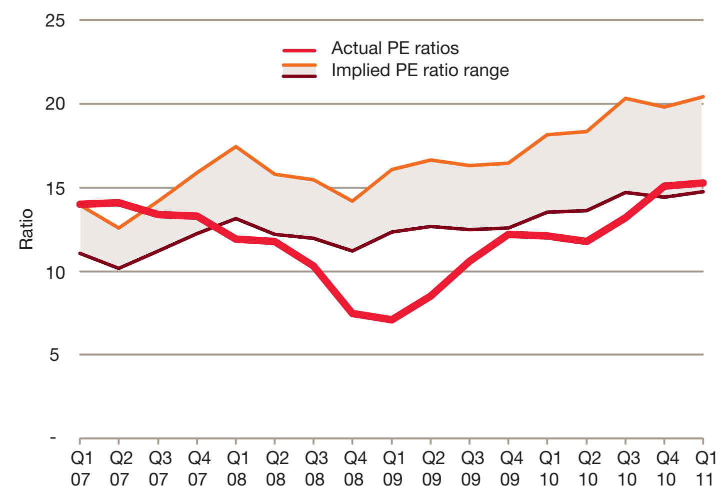
## *The Index: 87 as at Q1 2011*

As can be seen from Figure 1, both the PE ratio for the UK market as a whole and the ratios based on fundamentals increased at a similar rate over Q1 11. The Index at the end of the quarter stood at 87, compared to 88 in Q4 10, so market multiples continue to lag fundamental multiples by a small distance. The FTSE All Share was relatively static over the period (although there was a spike down towards the end of March at the time of the Japanese earthquake), and the rise in multiples was actually due to a drop in earnings which did not drive market prices down.

Fundamental multiples moved in the same direction as a small increase in bond yields (having a downward impact on the multiple) was more than offset by a marginally higher long-term growth outlook. However, huge uncertainty remains, as the UK economy was discovered to have contracted faster than first estimated in Q4 10, and a number of retailers reported disappointing sales figures. Nonetheless, the market has held up, but it is difficult to predict which way it will move for the rest of the year. Given this level of uncertainty, we expect the market to continue to track fundamentals relatively closely for some time, with any interest rate rises having a dampening effect on multiples.

For valuers, this means that fair value is unlikely to differ significantly from market value, as holding out for a higher price may not yield a significantly better result, as the Index continues to hover around the 100 mark. For those thinking of doing a deal, there may be conflicting pressures, as uncertainty puts acquisition plans on hold, yet if there is an expectation that the outlook will improve, this may represent an opportunity for buyers to do a deal below fundamental value if the terms are right.

**Figure 1: Implied vs Actual PE ratios**

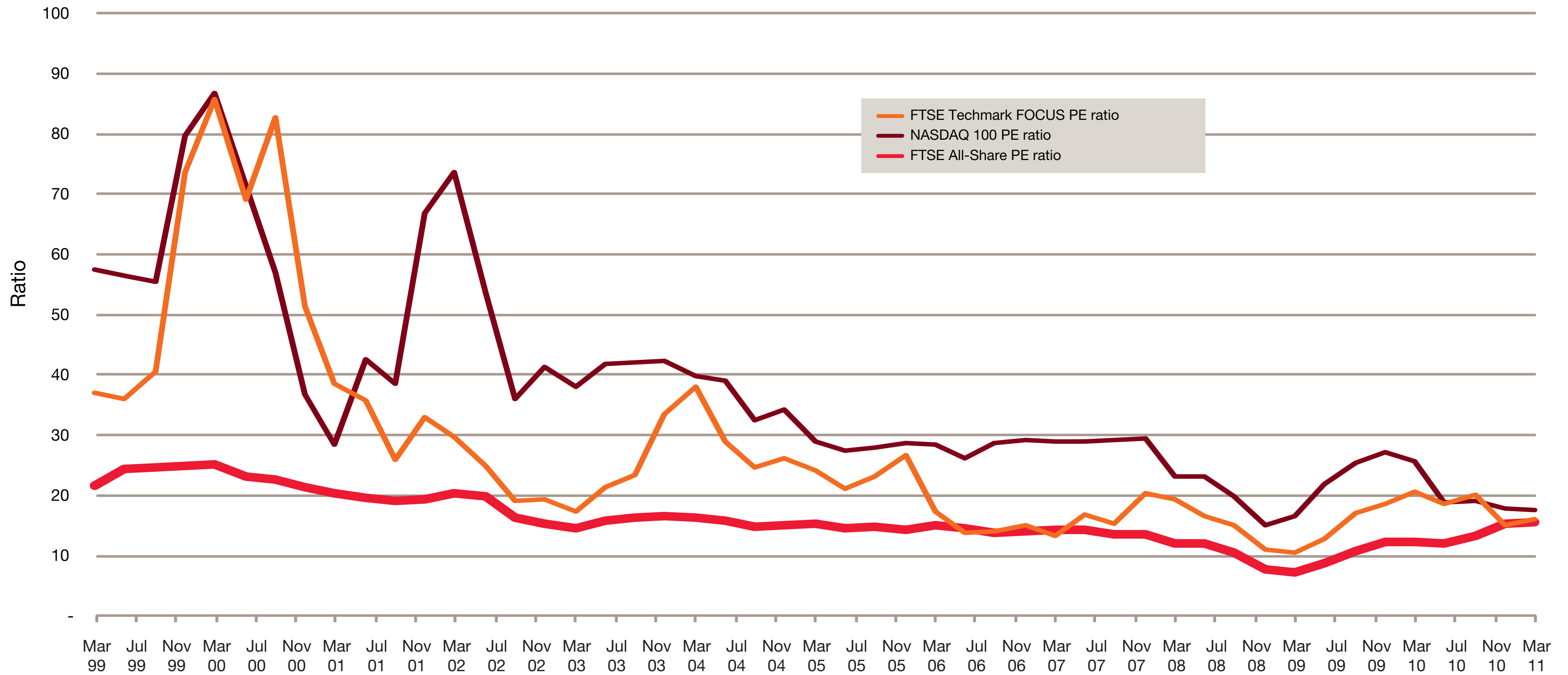


# Summary

- Technology stocks outperformed the market in 2010, and there has been a stream of publicity in relation to inferred valuations of social media stocks. This has led some to question whether another tech bubble is starting to form, as was the case in 2000. Detecting stock market bubbles is notoriously difficult, but there is currently minimal difference between multiples for the technology sector and the overall market, which, combined with the higher growth prospects for many technology stocks, does not appear to indicate the formation of a bubble at the current time.
- Much of the press coverage recently has focused on the inferred valuations of social media stocks and whether such valuations are reasonable. As such businesses go public, benchmarking valuations will become easier; LinkedIn, the social network for business professionals, was valued at around £3bn on IPO. Assessing value in such circumstances is difficult – in the fast moving world of social networks, growth is often prioritised over earnings generation and therefore profit multiples such as the PE ratios we track in the Valuation Index do not work. Other metrics such as revenue multiples and value per user may come into play, although for very early stage businesses, multiples are no longer applicable and more reliance is placed on trust in key management, their track record and the value of the idea or intellectual property.
- Looking at the value of social media businesses on a per user basis seems to provide some basis for such values, although there is significant risk around the ability to monetise users and the long-term sustainability of business models. Further, there is a risk of investors herding and driving up the valuations of social media sites across the board, when it is likely that there will be winners and losers once the business model becomes more established.
- The PwC Valuation Index for the overall UK market stood at 87 at Q1 2011, which means that observed equity multiples were 13% below the multiples implied by economic fundamentals. This is a similar level to the previous quarter, as multiples have tracked fundamentals fairly closely in this period of economic uncertainty. We expect multiples to continue to move approximately in line with fundamentals in the short-term, with any interest rate rises having a dampening effect.

# Technology sector multiples

**Figure 2: PE ratios for technology sector and overall UK market**



# Is another tech bubble emerging?

## Is another tech bubble emerging?

The technology sector was one of the highest performers in 2010, with the Techmark Focus Index in the UK up 18% over the period in comparison with an increase of 9% for the FTSE All-Share. There has also been significant publicity around the emergence of the social media business model, with a number of IPOs of such businesses expected in the near future. Transactions involving Facebook stock have led some to infer valuations for that business of $30bn - $50bn and more, with significant values also being assigned to other social networks such as Twitter and LinkedIn. The valuation multiples implied by these observations are leading to questions as to whether another tech bubble is emerging as it did in the early 2000s; here we consider some of the issues in assessing value when it appears to be detached from economic fundamentals.

As with the Valuation Index for the overall market, we have looked at PE ratios for the technology sector since the tech bubble in 2000 (see Figure 2). At that point in time, the aggregate PE ratio for the sector peaked at close to 90x in the US and the UK – multiples which look extremely high in comparison with a multiple of around 25x for the UK market as a whole (representing the peak in the UK market PE ratio over the past 20 years). Interestingly, a forward PE ratio of 100x has been ascribed to Facebook by some commentators, based on expectations that it could achieve $2bn revenues in the near-term, and a high-level assumption of a 25% net margin[1].

So is another tech bubble emerging? It is notoriously difficult to identify when you are in a bubble without the benefit of hindsight; indeed, Alan Greenspan argued that it was impossible to predict with any certainty until after the event during his time as chairman of the Federal Reserve[2]. In a bubble situation standard valuation metrics break down – we consider how companies can get a handle on value in such situations and what the barometers of value are telling us about the situation today.

## Fundamentals support higher technology PEs

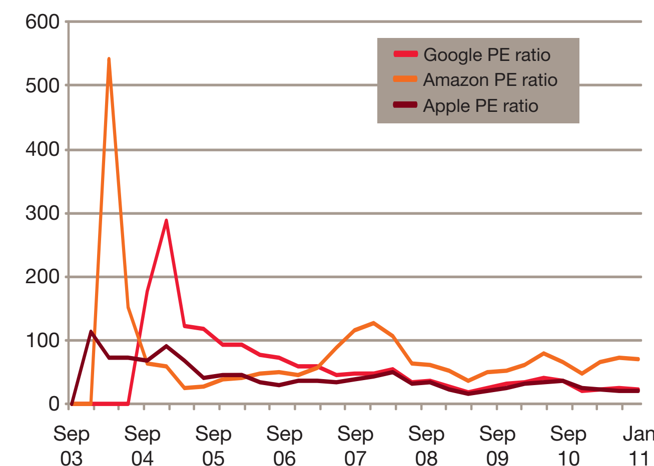
There are many different views as to what constitutes a technology company. Activities captured under this heading might include online businesses (ranging from e-tailers to search engines to news aggregators and more), semiconductor designers and manufacturers, software developers (B2B and B2C), hardware manufacturers and resellers, and now the new wave of social media companies such as Facebook, LinkedIn and Twitter. This diversity makes drawing high-level conclusions difficult, and potentially misleading. Convergence clouds the picture further, as boundaries blur between technology, media and telecoms businesses.

Although it is simplistic to classify the technology sector as an amorphous whole, we can see from Figure 2 that the PE ratio for the sector has typically always been higher than the FTSE All Share PE Ratio. We have looked at the Techmark Focus Index in the UK and the NASDAQ 100 in the US as representative of the sector. One of the main drivers of these higher PEs is that growth expectations have generally been higher for tech companies; for example, market analysts expect the US IT market to grow at 7% in 2011 compared to GDP growth of 2.8%[3]. The expectation is that these businesses are highly innovative in order to continually meet customer needs, and even fulfil needs the customer was not aware of. A prime example of innovation driving growth is Apple, which has seen its share price increase by a factor of four since January 2006. However, expectations of continual innovation go hand in hand with higher levels of risk, which has a dampening effect on multiples – given the higher multiples exhibited by technology companies historically, one can infer that the higher growth potential of these businesses outweighs the higher level of risk in relation to the rest of the market.

So the fact that technology PEs are higher than the rest of the market should not ring alarm bells in and of itself. Indeed, the "value gap" between the listed technology sector and the overall market is much smaller today than at the time of the last bubble – currently the UK technology sector PE ratio is 16x versus the overall market at 15x. Furthermore, in many cases this value differential can be explained by looking at fundamentals.

Figure 3 shows the movement in PE ratios of three well-known internet-related stocks; Google, Amazon and Apple. Google is synonymous with the new wave of internet companies, and its business value has increased 500% since it listed in 2004. Questions have continually been asked as to whether its valuation can be supported by fundamentals, but generally the company has been able to meet or exceed expectations. Google's PE ratio of 22x is significantly above that of the overall US market of 15x. However, analysts expect Google to grow earnings by approximately 17% on a compound basis over the next five years; given the strong link between multiples and growth expectations, this starts to sound supportable. Some analysts look explicitly at Price Earnings Growth (PEG) ratios (PE ratio/five year compound earnings growth) in order to get a feel for whether growth expectations support value, with a ratio close to one generally considered to be reasonable[4]. This is a simplistic approach, as many other factors influence value, but the output can stimulate further thinking, and Google's PEG ratio of 1.3 does not seem to be too far out of line with expectations.

**Figure 3: Technology stock PE ratios**




1 Diane Chu, EconMatters, 14 January 2011
2 "How to spot a bubble – and when it's about to burst", The Times, 12 March 2011
3 Forrester, US and Global IT Market Outlook, Q3 2010
4 A. Zaky, Fortune, 22 October 2010

# How can the valuations of social media companies be assessed?

### The tech sector is diverse – is social media the new e-commerce?

It is also worth differentiating between established technology companies and start-ups, as there appears to be a different set of circumstances in place today compared to 2000. At that time, such was the level of excitement about the internet and how this was expected to transform the business landscape, herding behaviour led to escalating demand for tech stocks across the board, driving multiples to unprecedented levels. However, many of the businesses which rode the crest of the wave are still around today; of the 100 companies in the Techmark Focus Index at the peak of the last tech bubble, 43 are still listed companies. Of the remainder, the majority have been bought out in deals, with only three going out of business. A significant number of tech companies that were successful in 2000 continue to be successful now – the average PE ratio of the companies which are still listed in the Techmark Focus Index is 26.5x, compared to an average ratio of all companies in the index of 15.8x.

Of course the level of risk increases significantly for earlier stage investments, which are not reflected in this analysis of listed company performance. In 2000, many investments were made in Internet companies which failed; Boo.com, a sports fashion website, burnt through $135m of investor cash before collapsing a year after its launch[5]. Recent valuations of social media companies have raised some eyebrows. In September 2006, Yahoo! was reportedly in talks to acquire Facebook for $1 billion. In August 2010, press reports suggested Facebook had a value of $34 billion[6]. This increased to $50 billion in January 2011 following an investment by Goldman Sachs[7]. More recently, some investors feel that the number is as high as $80 billion[8]. There may be a concern therefore that these valuations of social media sites are signifiers of a bubble developing in this subsector.

### The challenges of valuing social media companies

The PE ratios we have used to assess the value of established technology companies are not appropriate for the latest wave of social media investments, which are not typically earnings positive, and if they are, the valuations being put on them are so far out of scale with the profits earned that this measure does not provide valuable insight.

There are, however, some alternative value metrics which we can look at when PE breaks down. For example, in Figure 4 we compare the "value per user" of social media companies versus telecoms operators and broadcasters. In particular, it highlights that the value per user of the social media businesses is lower than that of some of the established telecom operators and broadcasters.

One would expect subscription businesses to exhibit significantly higher value per user due to the more secure future revenue stream and therefore comparability is limited in some cases, although thought provoking nonetheless. However, given the anticipated price premium which is likely to be attached to targeted advertising on social media sites, the size of the disparity between the value of a Facebook user and those of some of the more established companies is not that large.

Certainly, looking at the reach and pervasiveness of Facebook, one starts to understand what may be driving investors to want to get a piece of the action. Over half of Facebook's 30 million UK users visit the site every day[9]. Over the past three months, over 40% of global internet users visited facebook.com, a staggering figure, with an average time spent on the site of over 30 minutes[10]. This is still much lower than television viewing, which stood at just under four hours per day in the UK in 2009, but this time is becoming more fragmented in a multichannel world. Furthermore, the Facebook model facilitates highly targeted advertising, which is only in its very nascent stages on television. Comparing the value per user of Facebook to that of ITV is a crude measure, but interesting, as there is not a huge difference in the metrics, although Facebook's user base does cover many emerging markets, which may exhibit lower revenue per user in comparison to ITV's UK viewership. There are of course other differences in the quality and characteristics of the respective 'user' bases, but the high-level analysis is thought-provoking nonetheless.

If the social media sites can successfully maintain and monetise significant active user bases, the valuations being put on them start to add up. However, the ability of social networking sites to reinvent themselves, retain active users into the very long-term and generate recurring revenues from them represent the key risk factors in terms of such valuations being merited.

**Figure 4: Value per user for selected companies**

| | Active users (millions) | Business value (£bn) | Value per user (£) |
|---|---|---|---|
| BSkyB | 10 | 16 | 1,574 |
| Virgin Media | 14 | 12 | 858 |
| Vodafone | 371 | 120 | 323 |
| Renren | 31 | 3 | 106 |
| Facebook | 500 | 40 | 80 |
| ITV | 42 | 3 | 73 |
| LinkedIn | 75 | 3 | 34 |
| Skype | 170 | 5 | 31 |
| Twitter | 175* | 5 | 31 |

*Active user data not available
Source: PwC analysis

5 "Boo.com founder fears net bubble", Financial Times, 11 April 2011
6 Finds Facebook's $34 Billion Valuation Credible: Video", 25 August 2010, Bloomberg.com
7 "Goldman Offering Clients a Chance to Invest in Facebook", New York Times, 2 January 2011,
8 "Facebook's Value Tops Amazon.com; Trails Only Google on Web",Bloomberg Businessweek, 29 March 2011
9 "Facebook will look different in a year", techradar.com, 2 March 2011
10 Source: Alexa.com

## Conclusion

In a period of economic uncertainty, the overall stock market has been volatile, and gains made since the financial crisis have been supported by exceptionally low interest rates. The technology sector has outperformed the overall market, with valuation multiples consistently above the market as a whole for the past twenty years, driven by expectations of higher growth.

The gap between multiples for the tech sector today and those for the overall market is minimal, and can generally be explained by the higher expected growth path for technology companies. However, such a conclusion only applies to the more established listed businesses – the picture for private companies is more varied, and there are a large number of start-ups for which valuation is based more on gut feel than defined metrics.

When earnings multiples break down, the valuer may look to multiples of revenue or subscriber/user numbers. The alternative is to rely on a discounted cashflow model, although given the uncertainty around projections, this presents its own difficulties. Thinking about how users will be monetised and how this translates to value per user can provide useful insights when triangulating between valuation benchmarks.

Detecting bubbles is notoriously difficult until after the event. However, looking at technology sector multiples and the fundamental drivers of value there does not appear to be a bubble developing for the sector as a whole. Some of the implied earnings multiples being ascribed to social media companies are difficult to reconcile to the rest of the market, which has led to talk of a bubble for that subsector. However, given the size and reach of some of these players, looking at value on a per user basis provides some support for such valuations. The level of risk is also significant, in terms of monetising user bases and being able to maintain loyalty into the very long-term, which will be subject to the next big idea emerging.

Whether social media valuations are justified is a difficult question to answer and there will inevitably be winners and losers in that arena. Valuers need to look beyond classic earnings multiples and use more innovative techniques in order to get a good feel for value in such circumstances.

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We structure ourselves around discrete industry sectors and we leverage the strength and expertise from our entire firm. We understand the drivers behind value creation and dilution and, as a result, our clients receive deeper insights into value and how value drivers can be leveraged and understood.

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