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Satellites:
Are they still infrastructure?

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Abstract

Over the past few years the global satellite industry has been under increasing pressure as structural changes have started to appear and are now beginning to take hold. The combination of disruptive technologies, increasing competition, lower barriers to entry and changing consumer demand profiles are unsettling the historically monopoly-like environments that global satellite operators had once enjoyed. For current investors, this means greater uncertainty around business models and thus earnings profiles – changes which have resulted in significantly increased share price volatility and higher equity risk premia.

Our Focus List[1] has historically included two global companies operating in the Satellite industry, namely Eutelsat Communications SA (ETL) and SES SA (SESG). However, the abovementioned changes have altered the strength of their strategic positions – placing into question their suitability going forward.

Whilst we have not invested in the industry since 2015, we have continued to monitor the relevant companies very closely. A significant proportion of the value of the companies remained in the legacy contracts on their satellite assets, which meant that revenues still remained fairly predictable in nature. However, as time has moved on, the state of the current satellite industry has been reassessed in detail and our conclusions are shared in this paper for the benefit of both our clients and the wider investment community. In particular, this paper explores the infrastructure characteristics of the listed satellite operators, examines the investability of the satellite industry and whether these companies still meet the required core infrastructure thresholds for our Focus List.

1 Refer Appendix

The satellite industry

Satellites orbiting the earth form an important part of the global communication infrastructure. The three main communication services that satellites provide are video broadcasting, broadband data services and telecommunication services. A key advantage of satellites is that they do not require large investments on the ground to reach end-users, making them ideal for providing communication links to remote locations or dispersed populations.

Satellite orbits are broadly categorised into three different altitude bands (LEO, MEO and GEO), each with different characteristics that make them ideal for various commercial applications. Low Earth Orbit (LEO) satellites orbit the earth at low altitudes of between 500-1,500km, with their close proximity to the ground generally making them ideal for applications such as satellite phone communication and satellite imaging. Medium Earth Orbit (MEO) satellites orbit at a higher altitude of between 5,000-12,000km and are commonly used for providing navigation (GPS) and broadband networks. A feature of lower altitude satellites (LEO and MEO) is that they orbit the earth more frequently and cover less surface area than higher altitude satellites, meaning that a larger constellation of satellites is required to provide complete global coverage. However, these satellites also have shorter useful lives due to the increased atmospheric drag and orbital decay at lower altitudes[2]. The availability of space, relatively low costs and light regulation facilitates strong competition across many commercial LEO and MEO satellite applications. As a result, LEO and MEO satellites tend to not meet the strict infrastructure asset requirements of the Focus List.

In contrast, geostationary (GEO) satellites orbit directly above the equator at an altitude of 35,786kms – the precise altitude satellites orbit at the same speed as the earth rotates, so that they appear 'fixed' from the ground. The International Telecommunications Union (ITU) regulates ownership rights of each fixed orbital 'slot' due to the limited available space. A single geostationary satellite is on a line of sight with about 40% of the earth's surface, so only three satellites are required to completely cover the globe. However, due to the high altitude, the cost of launching GEO satellites is much higher than LEO and MEO satellites and more power is required to transmit signals from the satellite to the ground. Offsetting these drawbacks are that orbital decay and atmospheric drag are reduced, resulting in longer useful lives of up to 15 years. For these reasons, the physical characteristics of GEO satellites are largely consistent with the core infrastructure asset characteristics of the Focus List.

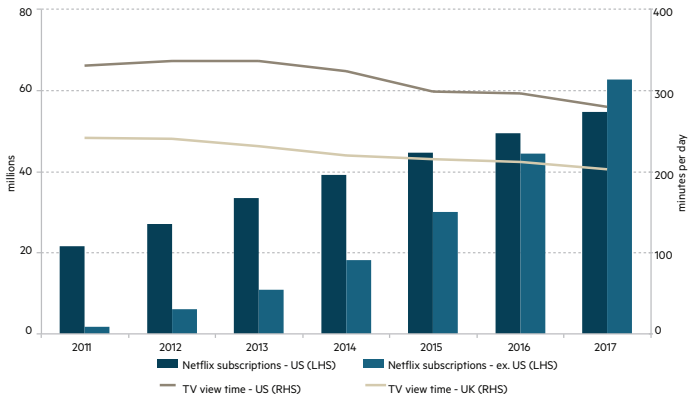
While GEO satellite operators offer customers a range of communication applications, the commercial framework for video broadcasting applications appears to most closely meet the Focus List requirements. This is because the video broadcasting business has historically provided a strong combination of inflation-protection and cashflow stability. Video broadcasters have typically leased satellite transponder capacity by entering into long-term, multi-year contracts (sometimes even for the life of the satellite). Operators are paid for delivering content for each channel, irrespective of the number of viewers watching the channel. In contrast, contracts for data and telecommunication service applications (which are commonly also provided by LEO and MEO satellite operators) do not have the same level of embedded cashflow stability because they operate in very competitive environments and are more often usage-based.

Industry Changes

Over the past few years, investor confidence in the satellite industry has deteriorated significantly. The combined market capitalisation of the five largest listed satellite players – Intelsat, Eutelsat, SES, EchoStar and Inmarsat – has declined by around 35% since their peak in mid-2015; with some recently trading at historically low EV/EBITDA multiples of below 7.0x. This derating has been largest among operators that derive the majority of their earnings from video broadcasting – including Eutelsat and SES, which have experienced strong downward pressure on earnings in recent years.

A key reason for the deterioration in earnings stability and sentiment has been due to concern over the future viability of satellite video broadcasting. Over-The-Top (OTT) content providers, such as Netflix, Amazon Video and YouTube, have disrupted traditional broadcast video platforms by allowing consumers to stream media over the internet. In the US and UK, where the OTT platforms have grown strongly, viewership on broadcast TV has declined as Netflix subscribers have increased (Figure 1). Digital TV Research forecast that Netflix will have over 200 million global subscribers by 2023, up from 111 million in 2017.[3] This has led many broadcasters to reassess how they should best distribute video content as consumers' preferences evolve. In some cases this has led to reductions in the demand for satellite broadcasting capacity – for example, in early 2017 Sky announced that it will be introducing a new OTT streaming service targeting 2 million homes in the UK and 6 million in Europe, with no option for satellite reception.[4]

Figure 1: Netflix subscribers and average TV view time



Note: Subscriptions as of 31 December

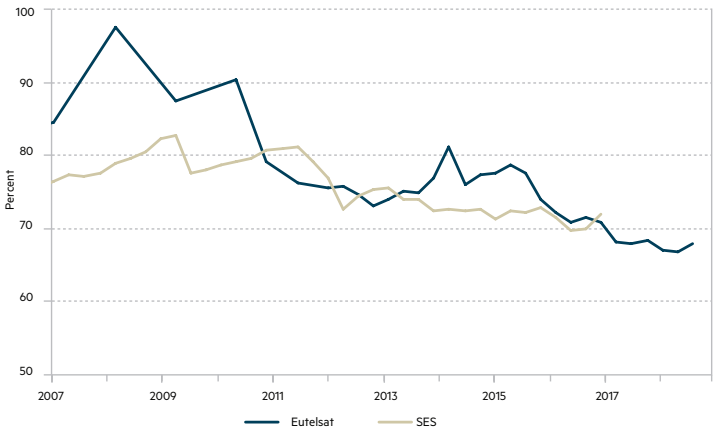
Source: Nielsen data, Netflix, Ofcom

2 Orbital decay is the gradual decrease of the distance between a satellite and the earth over many orbital periods due to mechanical, gravitational or electromagnetic effects. Atmospheric drag is the drag caused by the denser atmosphere at lower earth altitudes.
3 Digital TV Research newsletter, July 2018.
4 Sky Group media release: 'Award-winning Sky Q to launch without a satellite dish – bringing Sky TV to millions more homes', 26 January 2017.

In addition, developments across other satellite applications have further exacerbated the already weak confidence. New technologies that allow for lower cost, higher capacity satellites have intensified competition across data services. For example, the fast-growing satellite internet specialist ViaSat is preparing to launch ViaSat-3 – a constellation of three ultra-high capacity satellites that is expected to deliver significantly greater capacity (1 terabit/second versus 300 gigabits/second on ViaSat-2) at lower cost per throughput than any current satellite. The business also remains under pressure from continued investments in expanding terrestrial networks around the world. Separately, defence budget cuts and reduced global military activity have also led to a slowdown in the growth of government satellite applications.

The impact of these developments has, to some extent, increased available capacity across satellite operators (reflected in a fall in transponder fill rate) more recently (Figure 2). Unfortunately, many of the abovementioned risks are ongoing and many investors remain concerned by the extent to which these risks will drive structural overcapacity higher and place downward pressure on industry earnings.

Figure 2: Transponder fill rate



Note: SES ceased reporting transponder fill rates in 2017

Source: Eutelsat Communications SA; SES AG

Satellites as infrastructure assets

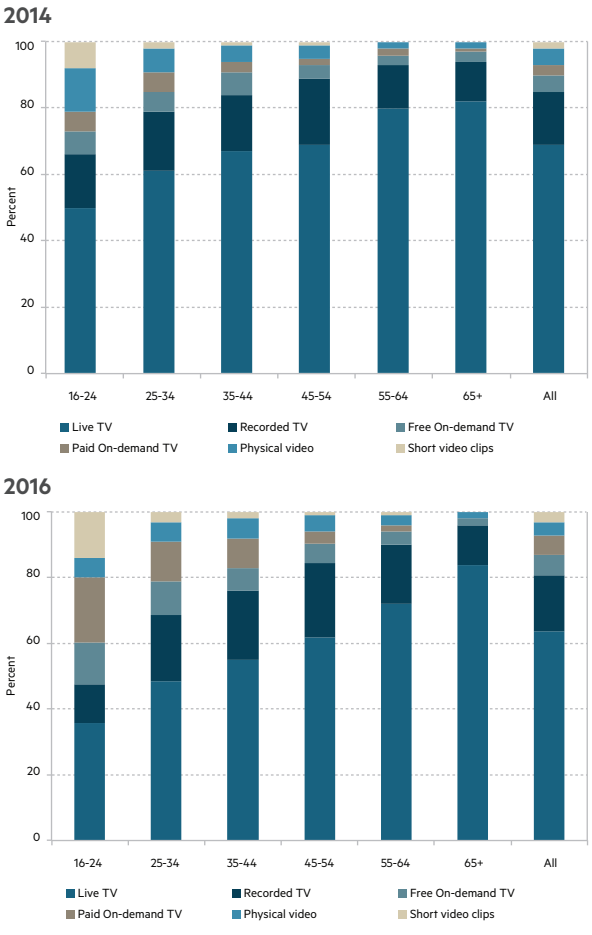
Essential service

Stranded asset risk

Satellites have helped facilitate global communication in the past and are likely to continue to do so for the foreseeable future. Underlying this is the fact that broadcast television viewing is still at the heart of many consumers' media consumption, and satellites are highly effective in delivering content to a mass population with little latency. For example, satellites remain important for broadcasting live events, such as news and sports, because of its ability to reach a wide population near instantaneously. Satellites also remain important for marine and aeronautical data mobility applications where terrestrial networks are not viable. As a result, satellites are at low risk of becoming stranded assets, as they continue to provide a unique service that land-based alternatives are unable to completely rival.

However, investors have become increasingly concerned about the strength of growth in OTT platforms which has led to a steady decline in viewership of broadcast television, and appear likely to continue to do so going forward. Stronger uptake of streaming services is currently limited by the availability of reliable and affordable high-speed broadband, although this is quickly changing. In the UK, video streaming between 2014 and 2016 grew as a share of total viewing at the expense of live TV, particularly among the important 16-24 and 25-34 age groups for advertisers (Figure 3). This has been fuelled by OTT platform providers investing heavily in content as they attempt to attract viewers away from traditional linear TV content. For example, in 2017 Netflix spent US$6 billion on content and may increase this spending to over US$13 billion in 2018 according to The Economist.[5] Continued strong growth in OTT platforms could ultimately undermine the strength of satellite operators' video businesses.

Figure 3: Share of UK viewing by age group



Source: Ofcom Digital Day

5 The Economist: 'Netflix is moving television beyond time-slots and national markets', 30 June 2018.

For now the trend has been somewhat better in emerging markets, particularly those with poor broadband penetration and where OTT platform options are limited. Emerging markets are likely to continue to support satellite operators' growth, with Euroconsult forecasting transponder demand for video applications in emerging markets to grow faster than the global average over the next decade.[6]

Size of customer base

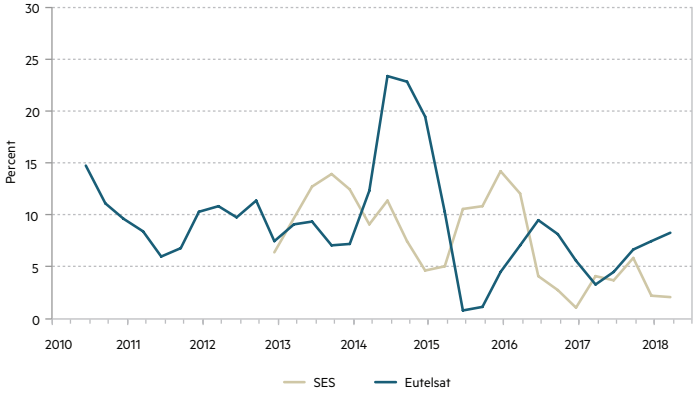
The unmatched reach and cost effectiveness (at scale) of satellites naturally allow operators to capture large customer bases, including populations in remote locations. Eutelsat and SES claim that satellites are the most cost effective and practical means to deliver content to an audience of over 50,000 simultaneous viewers as the cost of delivering the content stays fixed.[7] In contrast, the cost of delivering streaming content over the internet rises in line with the number of viewers. For large broadcasters, the fixed cost economics and the fact that satellite distribution costs represent a small portion of total costs (roughly 3-5% of operating expenses) mean that satellites should continue to capture large customer bases. However, satellite broadcasting may become uneconomical for unpopular channels if viewership declines and advertising revenues continue to shift towards online media. This shift is already becoming evident, for example in 2017 UK broadcaster ITV reported a 5% reduction in net advertising revenues, despite experiencing growth in TV viewings over the year.[8]

Risk of substitution

Although the threat of substitution from satellite to streaming may appear high at the end-customer level, the threat of substitution by broadcasters (the satellite operators' direct customers) is much lower. While the falling cost of high-speed broadband and increasing bandwidth has made it possible for more content to be delivered via the internet, major broadcasters currently are not be able to switch off satellite broadcasting without losing a significant number of viewers who are unwilling or unable to switch to a video streaming service. As a result, the risk of channels with large audiences switching away from satellite broadcasting is currently low.

Instead, the main threat to satellite operators would be from the incremental switching off of channels with small viewership. In many countries, the majority of channels delivered via satellite have small audiences - for example, in the UK over 100 channels make up only a combined 1% of total viewing (while only eight channels represent over half of total viewing).[9] It is likely these channels will eventually switch off satellite distribution and be solely distributed in an OTT fashion through a streaming service, thus reducing satellite capacity utilisation at the margin. Generally, channel growth appears to be slowing with Eutelsat and SES reporting aggregate growth below 5% per annum over the past few years (Figure 4).

Figure 4: Year-on-year Channel Growth



Source: Eutelsat Communications SA; SES AG; Maple-Brown Abbott calculations

Nonetheless, competition between satellite video broadcasting operators continues to be protected by the high cost of switching between competitors. In Europe, broadcasters spend on average €300-400 in installation costs per household which includes dish installation and set-top box.[10] As a result for large platforms, the cost to switch to another satellite operator becomes uneconomical as all subscribers' dishes would need to be redirected to a new satellite. Additionally, as distribution costs tend to be a small portion of costs, broadcasters' sensitivity to these costs are generally low

Strategic position

Barriers to entry

The barriers to entry in satellite video broadcasting remain very high, helping to protect operators' strategic positions. The upfront capital expenditure to place a satellite in geostationary orbit is high – with construction, launch and insurance costs generally totalling in excess of US$300 million per satellite and taking between 3-5 years from final investment decision (FID) before it becomes fully operational. In addition to the financial costs, the number of geostationary satellites in orbit is physically limited by the number of available orbital 'slots' – spaced 2-3 degrees apart to avoid interference with neighbouring satellites. Not surprisingly, the exclusive rights (which in theory can last indefinitely) to 'hot' commercial orbital slot positions have all largely been allocated.[11]

However, satellite technology continues to evolve and some barriers to entry have come down slightly in recent years. In particular, the cost of constructing a new satellite of a given capacity has come down considerably compared to the existing fleet, making book values appear very generous. Other industry developments, such as lower-cost reusable launch vehicles and falling insurance premiums, have meant that associated costs also continue to fall.[12] It has also been suggested that with improved technology, the number of orbital slots may increase in the future as satellites may be placed closer together without causing interference, possibly eroding one of the previously claimed aspects of their monopolistic environment.

6 Eutelsat: Capital Markets Day 2015.
7 A Deutsche Bank report estimated that the break-even point between satellite and OTT is higher than 50,000 viewers, and estimated the number at over 125,000 viewers. More importantly, this number is being driven upwards by between 15-20% annually due to deflation in OTT costs, so that the break-even point for satellite will need to be as high as 250,000 viewers by 2020.
8 ITV PLC: 2017 Annual Report.
9 Broadcasters' Audience Research Board (2018).
10 JP Morgan Research: 'European Satellites', 21 September 2017.
11 The ITU (through national regulators) grants operators exclusive rights to orbital slots for the lifetime of its satellite. However, operators can refile for the same slot by replacing old satellites with new satellites.
12 Launch insurance costs have come down by 60% over the past decade driven by the continued success of the rocket launches and the increased competition for space insurance underwriting business.

By contrast, lower orbiting satellites (LEO and MEO satellites) have much lower barriers to entry. These satellites tend to be smaller, cheaper to launch into orbit and much less regulated than GEO satellites. As a result of the lower barriers to entry, a large number of operators (including O3b, which was acquired by SES in 2016) have satellites at these lower altitudes for various data and telecommunication applications.

Physical asset life

Satellites are built to operate with very high reliability and with a long service life. A satellite's life span is determined by the amount of fuel it has to power its thrusters in order to maintain its orbital position. The current life span of a satellite is between 10-15 years, with innovation in propulsion and power systems having the potential to extend their service life to up to 20-30 years in the future.

Competition

Competition in satellite video broadcasting is generally low. Each operator is broadly confined to regions where it can provide strong coverage from their orbital slots, and so economies of scale generally limit competition to an oligopoly. Eutelsat and SES are the dominant video satellite operators across Western Europe; while DirecTV (owned by AT&T) and EchoStar are the major operators in the US. Other satellite operators, such as Intelsat and Inmarsat, are not in direct competition for video broadcasting because they derive the majority of their earnings from more competitive data mobility applications.[13]

Porter's competitive forces model has been applied to demonstrate how competition among satellite operators varies across applications. In the European market, video broadcasting still appears to be operating in a low competition environment, although some competitive forces have increased more recently; whereas the data and telecommunication applications continue to operate in a highly competitive environment (Figure 5).

Figure 5: Porter's competitive forces model for the satellite industry

Competitive force	Video	Data and telecommunication
Bargaining power of customers	**Low to medium** – high cost of switching for large customers, but spare capacity is growing	**High** – low cost of switching, a lot of capacity available; low brand loyalty
Bargaining power of suppliers	**Low** – technology has reduced the costs of manufacturing and launches; competition has reduced insurance costs	**Low** – technology has reduced the costs of manufacturing and launches; competition has reduced insurance costs
Competition among existing competitors	**Low** – near oligopoly	**High** – monopolistic competition
Threat of substitutes	**Low to medium** – high cost for broadcasters to switch off satellite, but the threat of OTT platforms is growing	**High** – terrestrial data and telecommunication networks are widely available and expanding
Threat of new entrants	**Low** – high barriers to entry, although has come down slightly	**High** – low barriers to entry

Satellite operators are also exposed to different competitive forces in different regions. For example, outside of Europe SES derives part of its video revenues in North America, where broadband penetration is already high and OTT platforms are well established; whereas Eutelsat has a greater focus on expanding across the Middle East and North Africa (MENA) – areas which are lacking fibre infrastructure – and thus limiting its exposure to more competitive markets.

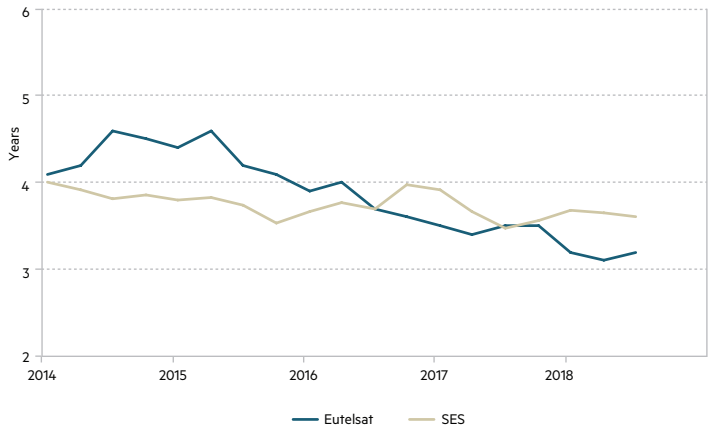
Inflation-protection and stable cash flows?

Long-term contracts delivering stable cash flows?

Satellite video operators have historically been able to generate stable cashflows from the long-term nature of their contracts with broadcasters. However, more recently the duration of new contracts appear to have shortened somewhat. Shorter contracts typically lead to greater earnings volatility and are more challenging to forecast. According to Eutelsat, new contracts today typically have durations of between 5-10 years for video (and much less for data). This contrasts with longer initial contract terms of around 10-15 years a decade ago. This change has been the greatest contribution to the shorter contract backlogs among satellite operators (Figure 6).

The trend towards shorter contracts has reportedly been driven by both broadcasters and operators. Clients have increasingly demanded shorter contracts to maintain flexibility around capacity usage, while operators have reportedly been willing to move towards shorter contracts to increase the frequency of repricing, particularly in emerging markets where inflation tends to be high. To some extent, this may also reflect the shift in market power from operators to broadcasters as structural changes in the industry weaken some of the competitive advantages previously held by operators. The shorter contracts mean that, on average, approximately 10-15% of video contracts expire each year. However, renegotiations of long-term contracts in a changing industry environment are difficult to predict, and has the potential to exacerbate cashflow volatility.

Figure 6: Contract backlog – years of annual revenue



Source: Eutelsat Communications SA; SES AG; Maple-Brown Abbott calculations

Outside of video contracts, data contracts are typically for terms of only around two to three years. In particular, contracts with governments tend to be for one year terms with strong renewal rates (approximately 95% of contracts are renewed each year), although pricing becomes more variable. This reflects that for these

13 Intelsat derives over half of its revenues from Network and Government services, while Inmarsat is primarily focused on Maritime Mobility services.

applications, satellite capacity behaves more like a commodity – where switching between operators is not costly, and so customers value the flexibility of shorter contracts over business loyalty.

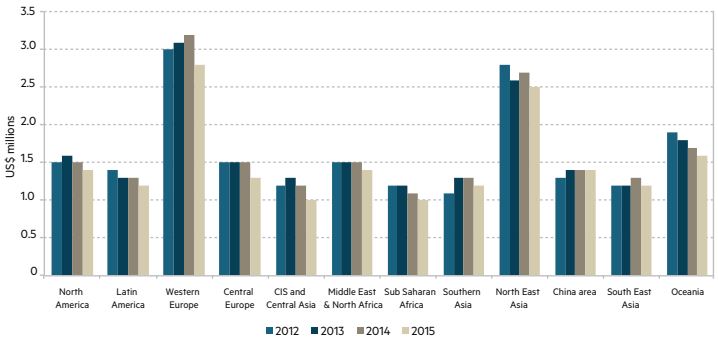
Inflation protection driven by pricing power?

Satellite operators have appeared to have lost some of their pricing power in recent years, with average transponder prices falling steadily in most regions since 2013 (Figure 7). Shorter contracts have eroded some of this pricing stability. This trend appears to have continued with recent comments by satellite operators suggesting prices have been steady or only slightly higher. SES's recent renegotiation of a Sky Deutschland contract was suggested by management to have been recontracted at a lower price per transponder than previously.

The persistence of this erosion in pricing power suggests that the trend has been driven by structural factors, in addition to some temporary factors. Satellite operators have often cited temporary factors for the increase in capacity, such as improved video compression technology reducing the demand for new capacity, new satellites entering service and slow HD/UltraHD penetration. However, the structural threat of substitutes from OTT platforms, the continual reduction in satellite costs and the increasing sensitivity of broadcasters to prices as advertising revenues/subscriptions fall are likely to have a more permanent influence on transponder pricing, and may continue to place downward pressure on transponder pricing.

For now, Western European satellite operators, including Eutelsat and SES, continue to demonstrate strong pricing power relative to other regions (Figure 7). The average price per 36MHz transponder has been around US$3 million per year in Western Europe, compared with North America, Central Europe and Latin America which are all around half the price. Reasons for these differences likely reflect a combination of benign OTT platform penetration so far, a wide variety of channels, and the high concentration of satellite video operators. Nonetheless, revenue per transponder has similarly weakened in line with the broader global trend.

Figure 7: Average revenue per 36MHz transponder



Source: Euroconsult 2016

Inflation-linked contracts

Today, very few contracts for satellite capacity have pricing inflation escalators – a trend that has worsened over time. As a result, the real value of revenues can be eroded away by strong inflation outcomes over the term of the contract. High operating margins (which appear to be narrowing) and the trend towards shorter-term contracts do offer some protection, but neither provides a direct pass-through of inflation. As a result, satellites operators do not score well on inflation-protection for the Focus List.

Operating costs

Satellite operators' operating costs across are low. Efficiently run operators can generally achieve EBITDA margins in excess of 75%. For example, for the 2017 financial year Eutelsat generated an EBITDA margin of 77% (helped by its recent cost cutting program), while SES achieved a margin of 65%. Cash flow stability is also helped by the fact that in any given year, a relatively high proportion (c.70%) of costs are fixed (eg. staff, third-party satellite rental and customer support costs), but there usually remains some (c.30%) variable spend which is more discretionary (eg. research and marketing costs).

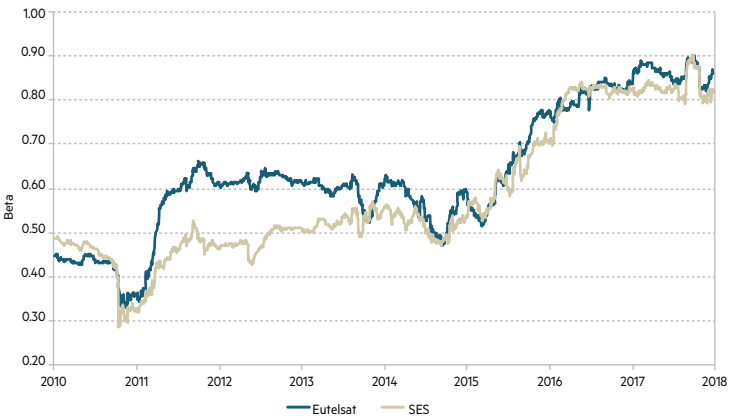
Observed equity market trends

Over the last few years, there has been an apparent change in the market's perception of satellite operators. Much of this was triggered following a profit warning by Eutelsat in April 2016 due to weakness across its entire business, including its robust video broadcasting business in Europe. The result led to a 30% drop in Eutelsat's share price, and similarly dragged down the prices of other listed satellite operators around the world. Since then, there have been noticeable increases in the equity betas of satellite stocks as well as a fall in their earnings predictability. Together, these changes have significantly increased the volatility of the stocks, which is detrimental towards their Focus List eligibility.

Equity beta

The marked increase in satellite operators' observed equity betas has occurred gradually over a long period of time, even prior to the April 2016 profit warning. The rolling 2-year equity beta for both Eutelsat and SES has risen to be between 0.8-0.9, from a low of 0.3 in 2010 (Figure 8). That is, changes in stock prices are now highly correlated with broader equity market movements. In particular, the change in equity betas have occurred in an environment where gearing levels have remained fairly constant, which suggests that the change has been driven by increasing asset betas, rather than higher leverage. This largely reflects that the protection provided by long-term commercial contracts is now fairly low.

Figure 8: 2-year Rolling Equity Beta

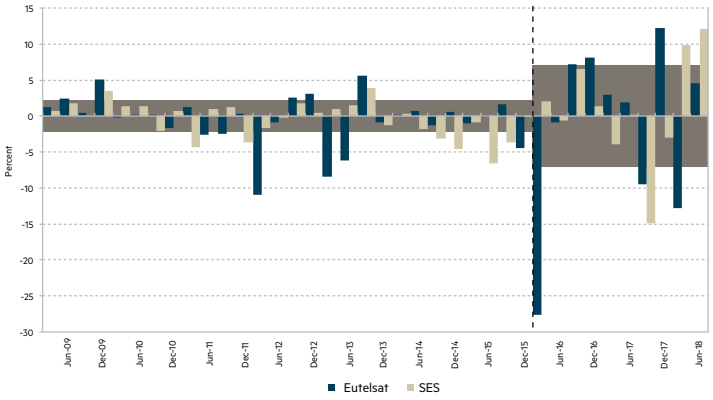


Source: Bloomberg; Maple-Brown Abbott calculations

Earning predictability

The market's ability to predict earnings has also appeared to have deteriorated more recently. Since the April 2016 warning, there has been an increase in the level of market surprise in response to earnings results (Figure 9). The absolute value of post-earnings stock price reactions for both Eutelsat and SES has been substantially larger than it has been historically. The average absolute price reaction to earnings since April 2016 has roughly tripled the average price reaction previously.[14] In part, this change is likely a reflection of the increased uncertainty around recontracting outcomes due to the shorter-term nature of contracts and the continued competitive pressures affecting the industry. Such levels of uncertainty are not synonymous with businesses that are predictable in nature.

Figure 9: Share price reactions to results – same day change



Note: Shaded range represents the average absolute percentage change in the pre- and post-April 2016 periods

Source: Bloomberg; Maple-Brown Abbott calculations

The three-fold increase in observed share price reactions to earnings announcements for both companies can be seen in the table below, further demonstrating the increasing lack of earnings predictability for investors.

Figure 10: Average absolute share price change on earnings release

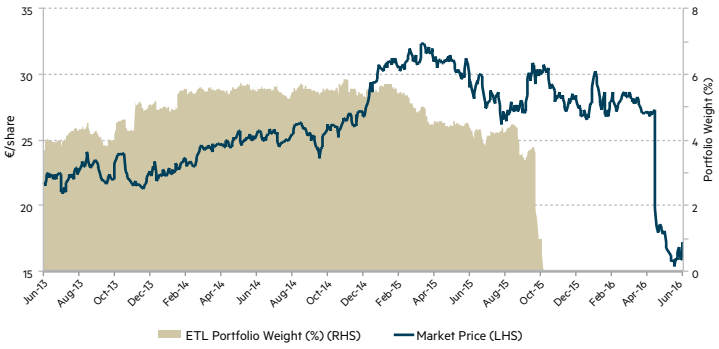
	Pre-April 2016	Post-April 2016
Eutelsat	2.4%	8.8%
SES	1.8%	5.4%

Source: Bloomberg; Maple-Brown Abbott calculations

Our historical investment in the satellites

MBA GLI had previously owned a sizeable position in the satellite industry until mid-2015 (Figure 10). Recognising the coming industry-wide structural issues impacting our longer term growth expectations and a formulated view on the heightened risk for permanent valuation impairment, a decision was taken to completely exit out of what was one of the largest individual holdings in the portfolio at the time – France-based global satellite operator Eutelsat.

Figure 11: Eutelsat share price and portfolio weight



Source: Bloomberg; Maple-Brown Abbott calculations

Assessment of Focus List eligibility

Listed satellite operators Eutelsat and SES's prior inclusion on the Focus List had reflected the strong physical infrastructure characteristics and underlying long-term contracts of their video broadcasting business. This provided the companies with very predictable earnings growth, compensating for the somewhat lack of in-built inflation protection. The Focus List explicitly excluded other listed satellite operators for a variety of reasons, most notably that they derived a large share of their earnings from the more competitive data and telecommunication applications – which are characterised by much shorter contracts – as well as companies operating with structurally unsustainable capital structures (i.e. too much leverage).

However, as consumers' media consumption has changed and technologies have impacted on various facets of the satellite industry, the ability of satellite operators to continue to provide long-term predictable earnings growth has deteriorated. The rise of OTT platforms is slowly shifting consumers away from live TV viewing and increasing the risks of substitution, while technology is bringing down some of the high barriers to entry that has historically protected the industry from the threat of new entrants. These structural developments continue to impact on the industry, and have already driven contract lengths meaningfully shorter. Specifically, satellite operators today are no longer able to provide a strong combination of earnings stability and inflation protection to justify remaining on the Focus List. This appears to be broadly in line with the market's view on the industry.

As a result, both Eutelsat and SES were removed from the Focus List on 30 June 2018.

As part of our process we will continue to monitor developments in the satellite industry (and other industries), and will continue to update the list of stocks on the Focus List as appropriate.

14 While SES appears to be less volatile and more predictable, this is largely due to the fact that SES reports its results following ETL and so its share price had already incorporated some of the 'surprise' for the industry over the same reporting period.

Appendix: The MBA GLI Focus List

The Maple-Brown Abbott Global Listed Infrastructure (MBA GLI) Focus List is a proprietary list of infrastructure stocks that are not only physical infrastructure assets but are also considered to provide the strongest combination of inflation protection and low volatility. The Focus List plays a central role in the MBA GLI strategy because it represents the investment opportunity set for the Portfolio. The criteria for a stock's inclusion on the list are based on the physical infrastructure characteristics of the company's assets and the strength of its underlying commercial frameworks. As companies and industries change over time, the MBA GLI team continues to assess the suitability of stocks on and off the Focus List – resulting in occasional additions or removals from the list.

As of 30 June 2018, there were 111 stocks on the Focus List with a combined market capitalisation of around US$1.8 trillion.

MBA GLI believes the Focus List has a tighter definition of infrastructure relative to many other infrastructure funds and indices. At a minimum, infrastructure assets on the Focus List must provide an essential service (for example, by supporting social and economic activity, having a naturally large customer base and be at low risk of substitution) and hold a strategic position (for example, through high barriers to entry, facing little or no competition and owning long-term, high-value assets). Moreover, these assets are ideally supported by strong underlying commercial frameworks which allow them to generate long-term, stable cashflows. In contrast, businesses that face highly cyclical demand risk or competitive, market-based pricing are excluded from the Focus List.[15]

The tight definition of infrastructure applied to the Focus List is expected to result in lower volatility and better inflation protection than that of existing infrastructure indices and more broadly defined infrastructure funds. Over the past 10 years, the Focus List has exhibited annualised volatility of less than 10% in local currency terms, as compared to widely used infrastructure benchmarks which exhibit annualised volatility in the 11-13% range and global equities in the 14-15% range. Moreover, the Focus List has far outpaced global inflation with an annualised total return of nearly 12% over the same period. Whilst past performance is no indication of future performance, this attractive risk-adjusted performance can be attributed to the strong underlying characteristics of the stocks that are included in the Focus List.

Disclaimer

15 Specific sectors that are excluded include stevedoring companies, 'above rail' railways and integrated utilities.