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The Financial Issue: Why Do FSS Operators Borrow So Much Money?

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The Fixed Satellite Service (FSS) satellite operator business is the most established of the satellite industry, with leaders like Intelsat and SES representing many billions of dollars of investment and revenue. In the past, these companies and their predecessors like Hughes Communications Galaxy and RCA American Communications exclusively relied on investor risk capital and internally ground funds. What has changed to make these companies behave more like debt-leveraged industries like wireless/cellular telephone and airlines?

How We Got Here

Based on the original approach from 1965, the operation of an FSS service is very technical and capital intensive. Once you figure out what kind of satellite you want (specifications, launch vehicle, operation approach and schedule), the two to three year construction cycle can begin. The spacecraft manufacturer and launch provider require progress payments such that at time of delivery, their costs are paid. In the past, the capital for the progress payments came from the corporate treasury; and one or two satellites were sufficient to get a new operator off the ground and able to derive first revenues (ignoring presales). However, satellite buyers needed to make those payments on a timely basis or be threatened with contract termination. I recall an instance in the mid-1970s when one operator in fact failed to make a critical progress payment and the satellite was subsequently sold to another buyer.

The first INTELSAT satellites used C band for international point-to-point links. While this was an important application, the market was limited to telecom companies who also had major investments in undersea cables and terrestrial microwave systems. It was the development of domestic TV distribution in the US that caused FSS to blossom into a major growth sector. Without C band FSS, the cable TV business would never have become a billion dollar industry and public broadcasting would have remained local and uninteresting. The fourth and most profitable TV network in the US, Fox, needed C band to serve its new affiliates. In a similar vane, ESPN and CNN owe the success of their remotely-produced

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Cover Story

Why do FSS companies .....from page 1

programming to the availability of C band FSS services and the earth stations that dot the country.

These developments provided the foundation for the two most successful FSS operators in the US: RCA Americom and Hughes Communications Galaxy. Both organizations were internal startups by spacecraft manufacturers that used customer money to get their satellites launched. The success of these operators is reflected in the fact that they are major parts of today's two largest FSS operators, SES and Intelsat, respectively. (Interestingly, Loral is the only combined spacecraft manufacture and satellite operator left in existence.)

The next major growth phase for FSS was with Ku band in North America, Western Europe and Japan. The first launches in 1980 were a landmark, but the applications and revenues were not yet there. It took ten years for a base to emerge, represented by Satellite News Gathering (SNG), Very Small Aperture Terminals (VSATs) and the early form of Direct to Home (DTH) television. Companies like Hughes Network Systems, ViaSat and Spacenet put dozens of Ku band transponders to productive use, providing corporate and government data networks.

Europe, on the other hand, made the high-level decision to dedicate C band to the telecom companies and develop satellite Ku band in its stead. The Eutelsat system put Ku band on top for TV distribution services and ultimately resulted in successful businesses for the Astra satellites of SES. Today, SES garners billions of dollars of revenue as the focal point for European television. SES emerged from Luxembourg, the small but media-savvy European country that adopted the US video-bird model. With financial backing from the Luxembourg government and Luxembourg banks, SES got its first satellites up and won the business of Rupert Murdock's Sky service in the UK. Astra was and is the video neighborhood of choice, helping SES to become the most financially-successful satellite operator in the world. They had the internal capital to bulk-up the company through the acquisition of Americom in the US and, more recently, NewSkies Satellites.

The same approach was taken in Japan for much the same reason, resulting in the formation of Japan Telecommunications Satellite Corp, now known as SkyPerfect JSAT Corp. This company was backed financially by two leading Japanese trading companies as well as their supporting banks. This publicly-traded company moved gracefully from being a purely domestic provider to its ascendancy as the leading satellite operator in Asia. They created a US subsidiary, JSAT International, to enter into joint ventures with PanAmSat and later Intelsat, providing Ku band FSS capacity to the US on the Horizons 1 and Horizons 2 satellites.

Satellites and Rocket Science

The technical side of FSS satellite operation has changed at the detail level, but the fundamentals are the same. You pay the manufacturer and launch agency to put

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the satellite up; you put the satellite into operation in a previously-coordinate orbit position; and you sell transponder capacity to users, garnering revenues to cover your initial investment and the relatively low cost of operating the satellite itself. However, once a satellite is put into service, its lifetime is limited to the range of 15 to 20 years by a number of factors. Principle among these are the stationkeeping fuel on board (normally enough for 15 years) and the power output of its solar panels and batteries. Redundancy of other elements like RF power amplifiers, motors and on-board digital electronics would normally allow the spacecraft to survive even longer, possibly at reduced capacity.

Bigger is usually better when it comes to the satellite operator as operating efficiencies increase with the size of the fleet. For example, it may only require a doubling of technical staff to support a system of 20 satellites as opposed to only four. Bigger is generally better for the satellite as well. The largest class of satellite sold by SS/Loral, Boeing, Lockheed-Martin and the Europeans has about twice the capacity of the mid-size satellites that were common ten years ago. The price of such a satellite is perhaps 50% greater, so there is an economic benefit available to those who afford a total price tag of nearly $300 million. Greater efficiency of investment and operation does tend to give bigger operators like SES and Intelsat a cost advantage relative to medium sized operators like Loral Skynet/Telesat, Eutelsat and JSAT.

Small operators in Asia and the Middle East may be at a cost disadvantage and therefore tend to rely of various forms of market protection in their domestic and regional markets. These companies, and the bigger companies as well, can reduce the investment per satellite by purchasing a smaller spacecraft that is targeted to a specific requirement. Orbital Sciences and the Europeans produce such models that deliver 24 transponders, a quantity once considered adequate for a domestic market.

Launch vehicles represent probably the biggest conundrum for operators. There are only two US rockets left on the market: Atlas and Delta. However, both of these are among the most expensive as the manufacturer, United Launch Alliance, is focused on the government business. That leaves Arianespace with the only remaining western launch vehicle and they have done brilliantly in recent past. Boeing Sea Launch is still a good bet with the Ukrainian Zenit booster and Russian Block DM final stage, while International Launch Services just announced that the Russian provider of the Proton rocket has taken over that venture (originally formed with Lockheed Martin). The upshot is that the FSS operator must take a greater responsibility for choosing and managing the selection, production and operation of the launcher.

The cost and challenge of satellite design, construction and launch is making it tougher for FSS operators to maintain and develop their businesses. The launch event itself carries a historical risk of failure of approximately 5%, which is mitigated through launch insurance and making available a backup satellite either on the ground or in orbit. Launch insurance rates range between 10 and 20% of the insured value, depending on recent experience. At times, these premiums go “sky high” and major operators consider self insuring (customary for Intelsat and Echostar). Perhaps this is because they have the luxury of more satellites operating in orbit.

Raising Necessary Capital

Organization and financial strategy have

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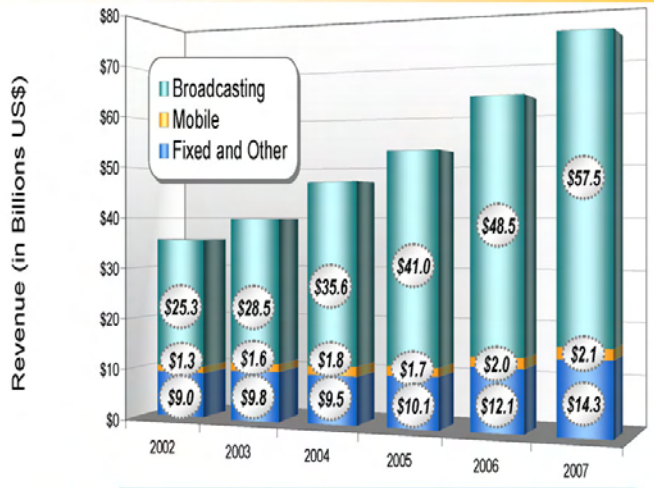
evolved over the years and operators are much more sophisticated about their ownership structure and how they raise capital. For example, a series of leveraged buy-outs is what is behind the now-dominant Intelsat system. Intelsat's debt of around $11billion, accumulated by acquisition of its rival PanAmSat and the latest private acquisition by Serafina Holdings, Limited, will be serviced through its latest annual revenue of $2.2 billion and a backlog of $8.2 billion. While these numbers may not appear to balance, the prospects are that the company will claim a significant part of overall industry growth in coming years.

Contrast Intelsat with it now main rival SES, which has a very low debt burden and is aligned with the Grand Duchy of Luxembourg. SES is the only major global satellite operator that is not owned wholly or partly by private equity firms, relying instead on a combination of public stock and strategic European investors.

One of the most effective beneficiaries of open capital markets is Echostar, which borrowed money and sold stock to amass a large fleet of US domestic Ku band satellites. To meet demand for DTH applications, Echostar has been using FSS capacity in the US to expand their service offerings in HDTV and local channels. The newly-formed Echostar Holdings is now making their excess FSS capacity available to the US market. As a new-comer they are at a decided disadvantage relative to Intelsat and SES with a backlog of the best customers. However, they have the benefit of excellent orbit positions for US service, which is always a foundation for a successful business. Loral is positioned as an FSS operator with the established international service and it's acquisition of Telesat Canada.

Revenues, Fixed Satellite Services



	2002	2003	2004	2005	2006	2007
Broadcasting	$25.3	$28.5	$35.6	$41.0	$48.5	$57.5
- Satellite Radio (DARS)	$0.0	$0.1	$0.3	$0.8	$1.6	$2.1
- Satellite TV (DBS/DTH)	$25.3	$28.4	$35.3	$40.2	$46.9	$55.4
Mobile [1]	$1.3	$1.6	$1.8	$1.7	$2.0	$2.1
Fixed and Other [2]	$9.0	$9.8	$9.5	$10.1	$12.1	$14.3
- End-User Broadband	$0.2	$0.3	$0.2	$0.3	$0.3	$0.4
Total	$35.6	$39.8	$46.9	$52.8	$62.6	$73.9

1. Mobile Satellite Services: telephony and data
2. Fixed Services/Other: Transponder agreements, network management services; Remote Sensing; and end-user broadband

Source: Satellite Industry Association

In addition to mature Asian operators like Thaicom, Satelindo AsiaSat and Measat, there has been an influx of new satellite operators. Three are opportunistic businesses intent on making profits: Asia Broadcast Satellite, Protostar and SAT-GE. With only one satellite each (ProtoStar ordered a second from Boeing), one might wonder how they can compete in this era of multi-satellite operators. Long term, they would seem to be acquisition targets.

We therefore identify two classes of FSS operators: larger companies that leverage off of a very strong and profitable domestic or regional market to grow to a global presence and dominion; and smaller local operators that exist on a single base and are limited in market presence and reach. The former have huge demands for capital and thus must be friendly to the largest players in the investment community.

New satellite operators can follow the same strategy, as exemplified by the debt placement of YahSat with 15 banks for $1 billion. No one would question the viability of a UAE company, backed by a royal family. Yet, the structure of YahSat would seem to be more like other operators in the sense that the lender's risk is collateralized by the very satellite that is being purchased.

Future Prospects for FSS

FSS operators will continue to enjoy a large market in developed and underdeveloped regions alike. This is because FSS transponders are versatile, allowing their use to adapt to current and evolving applications. These satellites have a high operating leverage because they cover a wide area giving users access to bandwidth from almost anywhere and from any mode of transportation. Terrestrial fiber and wireless systems are limited in their access and coverage to locations they already serve.

Growth in the FSS industry is pretty

predictable and a reason for faith that well-positioned operators will survive and likely prosper. On top of this, there have been recent application booms that appeared to come from nowhere. Some of it dates back to the Internet bubble of the late 1990s, which served to put more satellites in the pipeline that have subsequently became filled through organic growth.

An outgrowth of September 11, 2001, and the War on Terror has been the take up of service by the US military and its NATO allies. This filled much of the available Ku band capacity outside of North America and provided a wind-fall for the major FSS operators. The trend from this point is a consolidation of resources within the Department of Defense to more efficiently utilize commercial satellite resources. This, combined with the introduction of the new WBS satellites (one of which recently entered service), means that growth of government demand for FSS is probably over and reduction in such demand is a distinct possibility.

With these pluses and minuses, growth-minded FSS operators need to uncover and develop new markets for their capacity, and construct satellites which promote such business. An area of great interest is the broad spectrum at Ka band. While Telesat, WildBlue and Hughes Networks Systems already operate Ka-band FSS satellites, it still remains to be seen how SES and Intelsat decide to move ahead in this underexploited portion of the spectrum.

The broad range of solid uses and users of FSS capacity provide for good revenues and long-term stability. History tells us that new applications appear to replace any loss from movement to terrestrial alternatives like fiber and fixed wireless. FSS operators must obtain their funds from the most attractive sources, including debt and equity. The revenue streams are reliable and new applications provide for growth (and demand for more capital). As a result, the economics and dynamics of the FSS business provides a special opportunity for strategic and financial players who want to make money in a future-proof business.

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