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Private equity investments beyond Earth orbits: Can space exploration be the new frontier for private investments?

Jeph Mathurin[a,*], Nicolas Peter[b]

[a]*Aperture Financial, USA*[1]
[b]*George Washington University, USA*

Abstract

The year 2004 can be considered an important milestone for space activities. First, on January 14, 2004 President Bush announced a new vision for human and robotic space exploration named "A Renewed Spirit of Discovery". This new space exploration policy called for "a sustained and affordable human and robotic program to explore the solar system and beyond" and seeks also to "promote international and commercial participation in space exploration to further US scientific, security, and economic interests". Secondly, the satellite industry has experienced a trend of private investment fund acquisitions. Five of six major fixed and mobile satellite service providers in the world have been partly or entirely sold to conventional financial investors. These transactions have taken place despite the background noise of overcapacity, stagnant growth and declining operating margins satellite services sector. Over the last 18 months, we have seen a total of approximately US $12B dollars in private equity transactions in the satellite sector. Finally, the Ansari X prize has been won opening the possibility of the personal spaceflight revolution.

This paper seeks to provide some insights into the nature, timing and a rationale for these investments in the space sector. Then, an attempt is made to analyze the potential that space exploration might present for traditional financial investors.

1. Introduction

The recent purchases by private equity firms of several large commercial satellite operators has been highly documented, but these investments focus primarily on activities in Earth orbits. However, is there a potential for private investment beyond these orbits? The private equity industry is often cited as an initial source of funds for many visionary business and scientific projects. What is really new and interesting, is the enthusiasm that new entrepreneurs who made significant fortunes during the dotcom era (e.g. Elon Musk: Space X, Jeff Bezos: Blue Origin, Paul Allen: SpaceShipOne etc.) or other wealthy individuals (e.g. Robert Bigelow) have to invest in the space sector. Is this an overall trend or just some isolated cases? Passion is not everything for these experienced businessmen; they also seek a return on their investment. President Bush's "Vision for US Space Exploration" plans to rely extensively on the private sector, therefore, should open some new investment opportunities in this multi-decades plan.

2. Exploration as a new focus in space activities

Space exploration has recently become an important focal point in major space agencies' plans. The catalyst

* Corresponding author.
E-mail address: jmathurin@aperturefinancial.com (J. Mathurin).
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for this recent movement is President George W. Bush's bold redirection of the USA's civilian space program to pursue exploration to the Moon, Mars and the "worlds beyond" (Bush, press release). The presidential vision named "A Renewed Spirit of Discovery" called to:

- implement a sustained and affordable human and robotic program to explore the solar system and beyond;
- extend human presence across the solar system, starting with a human return to the Moon by the year 2020, in preparation for human exploration of Mars and other destinations;
- develop the innovative technologies, knowledge and infrastructures both to explore and to support decisions about the destinations for human exploration; and
- promote international and commercial participation in exploration to further US scientific, security, and economic interests.

Consequently, in June 2004, the President's Commission on Implementation of the United States Space Exploration Policy led by "Pete" Aldridge (The Aldridge Commission) emphasized the crucial role that technological innovation, national and international partnerships and organizational transformation must play to implement Bush's vision for an affordable and sustainable exploration program. The Presidential Vision endorsed by funding from the Congress of the United States, the Vision for Space Exploration charts a bold course for America's National Aeronautics and Space Administration (NASA), its industrial sector, and its citizens [1]. In this context, the participation of the private sector can be an important asset for such an endeavor [2].

However, the United States is not the only space-faring country developing exploration visions and programs focusing also on the Moon and Mars. Europe, through the European Space Agency (ESA), initiated its space exploration initiative, the Aurora program in 2001 to formulate and implement "a European long-term plan for the robotic and human exploration of solar system bodies holding promise for traces of life." Aurora is a decades-long program featuring multiple robotic missions to the Moon and Mars, a Mars sample-return attempt, and ultimately, astronauts to the Moon and Mars. India, China, Japan, Russia and others are also laying down their own their exploration plans, underlying a paradigm shift where the attention is evolving beyond Earth orbits.

The private sector's interest and involvement will bolster and perhaps complete these agency plans for two distinct reasons. First, as they realize that considerable amount of money will be allocated to new programs by the respective governments, they will want to reap the contract rewards of a potentially expanding market. Secondly, several successful entrepreneurs seek to join this new "gold rush" and gain particular benefits from this new exploration vision that could be analogous to the conquest of the American west. The entrepreneurs seem convinced that they can participate to the vision outside the control of lethargic government programs and murky procurement policies.

Many analysts consider that funding for space exploration projects will require the use of the proverbial Private Public Partnerships (PPP). Unfortunately, these partnerships' success rates are very suspect. For example, X-33 was a joint program between NASA and Lockheed Martin to build a subscale prototype of a large Reusable Launch Vehicle based on single stage-to-orbit platform. NASA terminated the X-33 program in March 2001 because the cost to complete it was too high relative to the benefits and due to technical failure. An estimated $1.5 billion was devoted to this program, with NASA spending about $1.2 billion and Lockheed Martin about $350 million of its own funding—although no flight vehicle was ever tested.

In terms of private sector funding, the public equity markets, banks and early-stage angel investors are less likely to place money in activities that present such high risk and uncertainty ventures as is the case for space exploration. The public equity markets welcome businesses that have clear visibility of their revenues and can meet growth expectations. Banks are incredibly risk averse and expect tangible collateral in exchange for their capital. Small angel investors do not have the capital strength to support long-term billion dollar efforts.

Therefore, outside of an effective PPP, the authors believe that the most promising course to space exploration funding would be to establish a realistic business plan and target more daring private equity investors and very high net worth individuals with strong interest in space exploration. The recent multibillion dollar acquisitions of large satellite businesses by institutional private equity investors clearly show an interest in space businesses. But will they go beyond near earth satellite telecommunications activities? Furthermore, there has also been a well-publicized foray of very wealthy individual private investors into the playing field. We will briefly analyze the nature of these two sources and perhaps provide a glimpse of what it would take for them to match their money to space exploration businesses.