



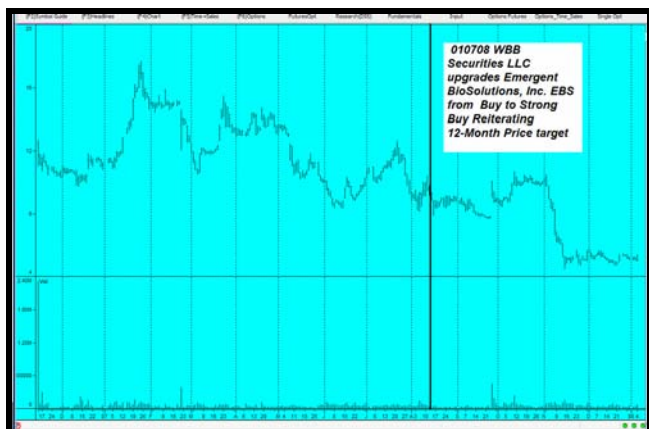
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Emergent BioSolutions, Inc. (NYSE:EBS)(01/07/08)

Upgrading to Strong Buy Rating and Reiterating \$13.75 Price Target



13- Month Price and Trading Volume

Rating Legend:

Strong Buy – Should be aggressively purchased.

Buy - Should be purchased on market weakness.

Hold - Fairly valued.

Sell - Stock should be sold on market strength.

Sell Short - Should be aggressively sold.

Speculative Buy – For aggressive accounts only.

| | | | | | | | |
|------------------------------------|----------------|--|---------------|----------------|-------------|-------------|-------------|
| Current Price | \$4.99 | | FY:Dec | | 2006 | 2007 | 2008 |
| 12 Month Trading Range | \$4.40-17.75 | | EPS | Q1 | | (0.10)A | (.05)E |
| Market Capitalization (Mil) | 148.45 | | | Q2 | | (0.17)A | (.02)E |
| Shares Outstanding (Mil) | 29.75 | | | Q3 | | 0.10 A | 0.37E |
| Avg. Daily Volume | 169,648 | | | Q4 | | 0.96E | 0.54E |
| L. T. Debt (Mil) | 43,488 | | | Year | 0.93A | 0.79E | 0.84E |
| Dividend/Yield | N/A | | | | | | |
| Book Value P/S | 4.82 | | | P/E | 12.0 | 6.3E | 5.9E |
| | | | | EPS Growth | NM | NM | 6.3%E |
| | | | | FY Rev. | 152.73 | 180E | 190E |
| NASDAQ Composite | 2504.65 | | | | | | |
| S&P 500 | 1411.63 | | | | | | |
| 12 Month Target Price | \$13.75 | | | *fully diluted | | | |

The Challenges of Government Procurement

Emergent BioSolutions (EBS) is a sole-source contractor with the U.S. Department of Health and Human Services (HHS) for supply of BioThrax anthrax vaccine for the U.S. Strategic National Stockpile (SNS). In September, EBS signed a new three-year BioThrax contract with HHS worth up to \$448 million. BioThrax is also used by the Department of Defense (DoD) for its active immunization of military personnel in high-risk areas. In November, the DoD cancelled its previously issued Request for Proposals (RFP) for additional BioThrax procurement. DoD intends to pursue a collaborative arrangement with the HHS to use stockpiled doses of BioThrax.

In justifying this policy change, DoD cited a recently issued Government Accountability Office (GAO) report which directs HHS and DoD to develop a single, integrated inventory system for BioThrax, with rotation based on a first-in, first-out principle. While such a single system could, in

theory, reduce the government's demand for BioThrax, we believe that the net impact of this directive on U.S. government demand will be less dramatic than expected. Implementation of this system could be delayed by logistical, legal and financial issues, which could have the effect of accelerating purchases under the current HHS contract.

While development efforts and government funding for a next-generation anthrax vaccine based on recombinant protective antigen (rPA) continue, we believe that BioThrax will continue to be the only FDA-approved anthrax vaccine through 2013, the last year of funding under the current BioShield law. Meanwhile, EBS has been making improvements in its BioThrax vaccine that raise the bar for a new competitor.

During the past several years, EBS invested approximately \$58 million (of a total expected \$75 million) in the expansion of its Lansing, MI production facility. This expansion, which should be completed by 2009, will increase BioThrax manufacturing capacity from 8-9 million doses per year to up to 40 million doses per year. The increased capacity will enable EBS to actively pursue BioThrax sales to foreign governments and other U.S. government customers. This plant will be configured to produce multiple vaccine products, either from EBS's own portfolio of developmental products, or in partnership with another company. Considering the current shortage of manufacturing capacity for vaccines, and the lead-time required to bring a new production facility online, we expect EBS will have little problem in generating significant revenue from this plant.

In previous years, DoD and HHS have purchased effectively every dose of BioThrax produced by EBS. Demand for BioThrax by the DoD is increasing due to its mandatory vaccination program. HHS has stated that it would like to have sufficient anthrax vaccine in its stockpile to treat 25 million people in a post-exposure scenario. Progress by EBS toward shelf life extension, post-exposure prophylactic administration and a three-dose regimen could effectively increase the demand for BioThrax for the SNS. Additionally, considering the expanded production capacity expected by 2009, and the EBS pipeline of biodefense and commercial vaccines, we remain confident in our 2009 earnings estimate of \$1.18 per share. We are therefore raising our rating for EBS to a Strong Buy and reiterating our 12-month price target of \$13.75.

Management

Fuad El-Hibri - Chief Executive Officer and Chairman of the Board of Directors - CEO and Chairman since June 2004 and President from March 2006 to April 2007. From May 1998 until June 2004, he was CEO and Chairman of BioPort Corporation, when, it became a wholly owned subsidiary of EBS. BioPort was then renamed Emergent BioDefense Operations Lansing, Inc. Mr. El-Hibri served as chairman of Digicel Holdings, Ltd., a privately held telecommunications firm, from August 2000 to October 2006. He served as president of Digicel from August 2000 to February 2005. He also has served as Chairman of East West Resources Corporation, a venture capital and financial consulting firm, since June 1990. Mr. El-Hibri is a member of the board of trustees of American University and a member of the board of directors of the International Biomedical Research Alliance, an academic joint venture among the NIH, Oxford University and Cambridge University. He also serves as chairman and treasurer of El-Hibri Charitable Foundation. Mr. El-Hibri received a master's degree in public and private management from Yale University and a B.A. in economics from Stanford University.

Daniel J. Abdun-Nabi - President, Chief Operating Officer and Secretary - President since March 2007, Chief Operating Officer since May 2007 and secretary since December 2004. Mr. Abdun-Nabi served as senior vice president corporate affairs and general counsel from December 2004 to April 2007, and vice president and general counsel from May 2004 to December 2004. Prior to joining the company, Mr. Abdun-Nabi served as general counsel for IGEN International, Inc., a biotechnology company, and its successor BioVeris Corporation, and as senior vice president, legal affairs, general counsel and secretary of North American Vaccine, Inc. Mr. Abdun-Nabi received an L.L.M. in taxation from Georgetown University Law Center, a J.D. from the University of San Diego School of Law and a B.A. in political science from the University of Massachusetts, Amherst.

Robert G. Kramer, Sr., Executive Vice President Manufacturing Operations, and President & Chief Executive Officer, Emergent BioDefense Operations Lansing, Inc. - Executive Vice President, manufacturing operations, since April 2007 and President and Chief Executive Officer of Emergent BioDefense Operations Lansing Inc., formerly BioPort Corporation, since July 2004. He previously served as Chief Financial Officer, Chief Operating Officer and President of BioPort. Prior to joining BioPort, Mr. Kramer held various financial management positions at Pharmacia Corp., which was acquired by Pfizer Inc. (PFE), and with subsidiaries of Northwest Industries. Mr. Kramer received an M.B.A. from Western Kentucky University and a B.S. in industrial management from Clemson University.

R. Don Elsey - Senior Vice President Finance and Administration, Chief Financial Officer - Chief Financial Officer since March 2006, Senior VP Finance and Administration since May 2007, and Treasurer since June 2005. Mr. Elsey previously served as VP finance. Prior to joining EBS, Mr. Elsey served as the director of finance and administration at IGEN International, Inc., and its successor BioVeris Corporation. Mr. Elsey received an M.B.A. in finance and a B.A. in economics from Michigan State University. He is a certified management accountant.

Uncertainty Regarding Pending BioThrax RFP's is Resolved

When we initiated coverage on EBS in August 2007, negotiations between the U.S. government and EBS were underway for two pending RFPs, one for HHS & the other for DoD. Subsequently, each of these negotiations has concluded, albeit with different results.

HHS Executes a New 3-year Contract

In September 2007, EBS announced a new three-year contract with HHS, worth up to \$448 million, for the supply of 18.75 million doses of BioThrax for the SNS. The quantity specified in this contract is the maximum quantity specified under the RFP.

The base contract amount is \$400 million for the supply of 18.75 million doses of BioThrax. The contract contains additional provisions for a price increase, pending approval of a shelf-life extension to four years. An additional \$11.5 million is earmarked for milestone payments in connection with the advancement for a post-exposure indication for BioThrax.

In conjunction with this announcement, EBS stated it would deliver at least 6 million doses to HHS by the end of the year. The first 5.5 million doses will be sold at a slight discount due to

slightly reduced shelf life. All remaining doses under the contract will be sold at non-discounted price levels.

DoD Cancels RFP and Plans to Coordinate with HHS

Last month, EBS announced that DoD canceled a pending RFP and intends to procure BioThrax in collaboration with HHS. This action follows a recent GAO report, which was critical of HHS, and recommends collaboration between HHS and DoD to minimize waste by developing a single integrated inventory system for BioThrax, with rotation based on a first-in, first-out principle.¹

Challenges of Implementing the GAO Mandate

In theory, the collaboration between HHS and DoD could eliminate the need for the U.S. government to purchase the 1.5-2 million doses needed for the DoD each year. According to the GAO report, 28 lots of BioThrax vaccine will expire in calendar year 2008 worth \$123 million, and an additional 25 lots worth \$106 million are set to expire in 2009. The GAO report suggests that supplying the DoD with short-dated lots from the SNS could save the government up to \$25 million per year. In our opinion, the impact of this collaboration on net sales of BioThrax to the U.S. government will likely be considerably less than \$25 million per year.

The logistics of delivering doses of BioThrax that are on the verge of expiring from the SNS to meet DoD demand will be challenging to implement. The vaccine must be kept refrigerated (36 - 46°F) until used, and DoD administers BioThrax effectively everywhere that military personnel are stationed. HHS and DoD additionally identified funding and legal challenges to developing an integrated inventory system for BioThrax, which may require legislative action. Any delays or impediments to implementing a combined HHS-DoD system could result in accelerated purchases under the existing HHS contract, as new doses will be required to replace at least a portion of the doses intended for DoD usage.

The net impact of this collaboration on the quantity and quality of doses remaining in the SNS will depend on how much remaining shelf-life is required by DoD to distribute short-dated doses. Removing these short-dated doses from the SNS would have the effect of reducing the overall quantity of usable BioThrax doses available in the SNS.

Next Generation Anthrax Vaccine – Still Years Away

In our opinion, the likelihood that a next generation anthrax vaccine based on recombinant protective antigen (rPA) will be available to replace BioThrax prior to 2013 (the year in which funding under the current BioShield law expires) is very low. We believe that significant technical challenges remain before such a vaccine is available. Although none of the technical challenges appear to be insurmountable, each requires significant time and resources to solve, and each must be addressed more or less sequentially. Even if these technical challenges are ultimately addressed, generating human safety data and scaling up manufacturing could further delay approval.

¹ <http://www.gao.gov/new.items/d0888.pdf>

The National Institute of Allergy and Infectious Disease (NIAID) has provided significant development funding to Avecia Group, PLC and VaxGen, Inc. (VXGN.PK) for the development of an rPA-based anthrax vaccine that can protect the public with three or fewer doses. In December 2006, HHS cancelled a large BioShield contract with VXGN.PK for the development of such a next-generation anthrax vaccine. Since then, no additional BioShield contracts have been awarded for improved anthrax vaccines and earlier this year, NIAID canceled funding for early development of improved anthrax vaccines.

Significant Technical Hurdles Remain in the Development of rPA Vaccine

Vaccines are complex products that, unlike most drugs, are often difficult to characterize. Evaluating their effectiveness involves measuring the immune response of exposed animals. Uncertainty over the correlation between animal data and the expected human response, as well as the lack of efficacy data in humans, adds to the technical challenges in developing a new vaccine.

rPA was first developed and fully characterized by the DoD in the early 1980's, but has yet to be developed into a useful vaccine that can be manufactured in large scale and supplied in a practical form. Stabilization has been a significant challenge. rPA is a complex protein that easily degrades when heated even mildly. Traditional stabilizing approaches, using hydrogels or aluminum salts, do not work with rPA.

Stability testing is inherently a time-consuming process. To establish three-year shelf-life stability at room temperature, a dose should sit at room temperature for three years, and subsequently be shown to retain its biological activity. Although accelerated methods of proving stability exist, their correlation to room temperature stability is not ideal, and may not be acceptable to the FDA. In other words, it may take 3-4 years to prove 3-year stability.

A new manufacturing plant also will be required. Building and qualifying such a facility is a 3-4 year process. Frequent setbacks in scaling up vaccine manufacturing are also quite common, and we would expect this process to be time consuming as well.

Avecia's rPA Anthrax Vaccine Program

In spite of its stated accomplishments, the Avecia rPA vaccine program is still far from commercial. Avecia has received over \$70 million in U.S. funding for the development of its rPA vaccine, known as Thraxine. A Phase II clinical trial was completed for this compound early in 2007. Avecia is working collaboratively with several companies that have vaccine experience to stabilize its formulation for rPA anthrax vaccine under an existing grant from the NIAID. This work is scheduled to be completed by April 2008.

Once stability has been established in the lab, the resulting formulation must be scaled up to produce quantities sufficient to support additional clinical trials. Additional animal studies would also be necessary to prove that immunogenicity is retained in the resulting formulation. Considering the overall safety concerns associated with any anthrax vaccine, we would expect any additional human clinical trials to be particularly large and lengthy to complete.

Somewhere along this path, Avecia needs to decide when and if to begin building a plant to produce the quantities required by HHS. Even with an aggressive schedule, building and qualifying a new biofermentation vaccine production facility is at best a 3-4 year process. When the plant is completed, the stabilized vaccine would then need to be scaled to full production.

Each of these stages of development takes time, and will likely involve overcoming technical hurdles along the way. To quote directly from the GAO report, “vaccine development work is known to be susceptible to technical issues even in late stages of development.”

HHS Criticism Could Slow rPA Vaccine Development

The recently issued GAO report is critical of how the VXGN.PK rPA contract was handled by HHS. We believe these criticisms will reduce the likelihood, or at the very least delay any new procurement contract for rPA based vaccine under BioShield, as HHS will be very careful to address the concerns outlined in this report.

Following are several key excerpts from the GAO report², highlighting some of the significant challenges in developing a next generation anthrax vaccine, as well as demonstrating the need for HHS to do some comprehensive self-evaluation:

- “Vaccine research and development, leading to FDA approval for use, is a long and complex process. It may take 15 years and, according to FDA, cost from \$500 million to \$1.2 billion and require specialized expertise.”
- “[HHS] has announced its intention to issue another request for proposal for an rPA anthrax vaccine procurement but, along with other HHS components, has not analyzed lessons learned from the first contract’s failure and may repeat earlier mistakes.”
- “... the lack of clear requirements is a cause of concern to companies asked to partner with the government since they invest significant resources in trying to meet government needs and now question whether the government can clearly define its requirements for future procurement contracts.”
- “To help ensure the success of future medical countermeasures procurement, we recommend that the Secretary of HHS direct ASPR, NIAID, FDA, and CDC to ensure that the concept of use and all critical requirements for such procurements are clearly articulated at the outset.”

Another important point contained in this report was a specific directive ordering HHS to destroy expired doses of BioThrax. The GAO determined that HHS was intending to keep expired lots of BioThrax in inventory for “emergency use only”, though this claim was refuted by HHS. This would violate FDA policy, and potentially undermine public confidence. As part of this report, HHS is now mandated to develop a suitable system for disposing of expired vaccine.

² Ibid

EBS Improvements Raise the Bar for rPA

The BioShield Act specifically states that FDA will “authorize” an unapproved or unlicensed product, such as the rPA anthrax vaccine candidate, only if “there is no adequate, approved and available alternative.” Progress made by EBS on BioThrax in each of these areas raises the technical requirements for such a next-generation competitor vaccine:

- Shelf life extension to four years,
- Post-exposure prophylactic administration,
- Three-dose regimen,
- Expanded production capacity,
- Reduced cost per dose.

The net result, in our opinion, is a very low likelihood that a next generation anthrax vaccine will be available to replace BioThrax before 2013 (the year funding under the current BioShield law expires). In our opinion, a “next-generation” anthrax vaccine is far more likely to be developed by EBS than by a competitor.

Expanded Production Capacity Expected in 2009-10

Over the past several years, EBS has invested approximately \$58 million (of a total expected \$75 million) in the expansion of its Lansing, MI production facility. We believe the value of this asset is poorly appreciated by investors. This expansion, which should be completed by 2009, will increase the manufacturing capacity for BioThrax from the present level of 8-9 million doses per year to as many as 40 million doses per year. Once this plant is completed, EBS will be able to actively pursue sales of BioThrax to foreign governments and other U.S. government customers.

This plant will be configured to produce multiple vaccine products, either from EBS’s own portfolio of developmental products, or in partnership with another company. Currently there is a significant shortage of manufacturing capacity for vaccines. Considering the current status of the EBS developmental pipeline, the time necessary to bring new manufacturing capacity online, and the long lead times for contract manufacturing, we expect EBS will have little problem in generating significant revenues from this plant once completed. This plant could make EBS an attractive acquisition candidate for a larger vaccine manufacturer currently considering expanding its capacity.

Valuation

In our opinion, the DoD and HHS collaboration outlined in the GAO report has yet to be fully implemented due to the logistical, legal and funding issues. Delays in implementing this program will, in our opinion, accelerate purchases under the HHS contract, as doses will be used both for the military and to replace doses expiring from the SNS.

Demand for BioThrax from the military has averaged 1.5-2 million doses in previous years. This demand should increase somewhat due to the fact that the military changed its anthrax vaccination program for soldiers stationed in high risk areas from voluntary to mandatory. During 2007, the DoD received only 1,050,000 doses of BioThrax from EBS through October. The additional doses needed to satisfy the military's demand for BioThrax must come from one of two places – the military's inventory of BioThrax, or the HHS inventory. Delays in implementing a coordinated inventory system could make it difficult for HHS to ship doses that are close to expiration to the military. Alternatively, we believe that BioThrax purchased by HHS under the existing contract for SNS, will instead be forwarded directly to the military.

For the past several years, the DoD and HHS have collectively purchased effectively every dose of BioThrax produced by EBS, which has been running its plants at maximum capacity. The "ideal" quantity of anthrax vaccine required for the SNS is not known. Previous government reports have stated a desire to have sufficient anthrax vaccine in the SNS to treat 25 million people in a post-exposure scenario. With expanded production capability expected in 2009, we believe that increased procurement of BioThrax by the government becomes highly likely, in particular if BioThrax is shown to be effective for post-exposure treatment. The EBS pipeline of biodefense and commercial vaccines could contribute to further growth by 2009.

EBS has previously given guidance for full-year 2007 of 16-18% growth in revenues and positive earnings per share. This implies Q4 2007E revenue of at least E\$85 million. We believe actual Q4 2007 results could be somewhat higher, and project Q4 2007E EPS of \$0.96E per share, and full year 2007E EPS of \$0.79E per share.

We reiterate our \$13.75 one-year price target, and are upgrading EBS to a strong buy rating. Our price target is based on our estimated 2009E EPS of \$1.18E per share, using a 17 multiple, and applying a 20% discount rate.

Trademarks

BioThrax® is a registered trademark of Emergent BioSolutions, Inc.

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| | Percentage of Covered Securities | Percentage of Banking Clients |
|------|-----------------------------------------|--------------------------------------|
| Buy | 79% | 33.3% |
| Hold | 10.5% | 0% |
| Sell | 10.5% | 0% |

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