Zacks Small-Cap Research

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Positron Corp (POSC-OTC)

POSC: Initiating With Neutral Rating

Current Recommendation	**Neutral**
Prior Recommendation	N/A
Date of Last Change	09/08/2011
Current Price (09/08/11)	$0.02
Six- Month Target Price	**$0.04**

OUTLOOK

Positron's fortunes could improve as a result of a favorable shift in industry dynamics coupled with major new developments at the company including significant product introductions, a co-development deal with medical device heavyweight Covidien, the acquisition of a radiopharmaceutical manufacturing facility and a partnership to build a high energy cyclotron.

Sales of POSC's PET scanner have been significantly below management's expectations, although we forecast this to pick up in 2012. Fuel for long-term growth is expected to come from radiopharmaceuticals development, an area POSC has just begun to enter.

Risks include a high cash burn rate, the need to continue to find additional financing, extremely thin gross margins, significant possibility of further shareholder dilution, slow PET placement rate and uncertainty about the ultimate success of POSC's radiopharmaceutical manufacturing aspirations.

We value the company at $0.04/share and are initiating coverage of POSC with a Neutral rating.

SUMMARY DATA

52-Week High	**$0.09**
52-Week Low	**$0.02**
One-Year Return (%)	**-66.21**
Beta	**1.24**
Average Daily Volume (sh)	**1,085,147**
Shares Outstanding (mil)	**797**
Market Capitalization ($mil)	**$16**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**0**
Insider Ownership (%)	**8**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**13.1**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2011 Estimate	**N/A**
P/E using 2012 Estimate	**N/A**
Zacks Rank	**N/A**

Risk Level	**High,**
Type of Stock	**N/A**
Industry	**Med Instruments**
Zacks Rank in Industry	**N/A**

ZACKS ESTIMATES

Revenue
(in 000s of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2010	467 A	934 A	1,013 A	2,209 A	4,623 A
2011	2,871 A	3,021 A	2,475 E	2,575 E	10,942 E
2012					14,640E
2013					39,060 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2010	-$0.01 A	-$0.01 A	$0.00 A	-$0.00 A	-$0.02 A
2011	-$0.00 E	-$0.00 A	-$0.00 E	-$0.00 E	-$0.01 E
2012					-$0.01 E
2013					-$0.01 E

Zacks Projected EPS Growth Rate - Next 5 Years % **N/A**

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BUSINESS

Positron Corporation (Positron) began designing, producing and marketing molecular imaging devices for cardiology using Positron Emission Tomography (PET) technology in the early-1980s. Despite PET providing more accurate scans than single-photon emission computed tomography (SPECT), which has been considered the industry-standard nuclear imaging modality, the company struggled to generate much in the way of revenue or gross profit due to SPECT's deeply entrenched share of the market and slow acceptance by healthcare providers which was exacerbated by unfavorable PET reimbursement policies.

Positron may be in the midst of a major transition, however. A favorable shift in industry dynamics coupled with new developments at the company including significant product introductions, a co-development agreement with medical device heavyweight Covidien, the acquisition of a radiopharmaceutical manufacturing facility and a partnership to build a high energy cyclotron may help turn the company's fortunes.

A molecular imaging company, Positron offers the only dedicated PET scanner optimized for cardiac imaging. Attrius® , which launched in early 2010, is the company's flagship PET scanner which was awarded the Frost & Sullivan "2010 North American Cardiac Molecular Imaging New Product Innovation Award". With the only standalone cardiac PET scanner on the market, Positron is looking to carve a niche position in between lower cost yet poorer accuracy SPECT imaging and pricey PET/CT combination scanners, the high accuracy of which is unnecessary in cardiac applications.

While Attrius is expected to provide the bulk of revenue in the near-term, radiopharmaceuticals development and sales to the Attrius customer base is being positioned as the company's fuel for long-term revenue growth. According to an independent research firm, U.S. sales of radiopharmaceuticals should grow at an annual compounded rate of 22% from 2010 to 2018. Once functional, Positron's recently announced cyclotron project could be the final link in the company's quest to fulfill most major functions within the nuclear imaging value chain including isotope production, radiopharmaceutical manufacturing, radiopharmaceutical preparation and delivery (PosiRx / Covidien partnership), and imaging (Attrius). And while Positron's main focus is PET imaging, their recently launched PosiRx™ radiopharmaceutical preparation and dispensing system caters to the significantly larger SPECT system installed base, which is expected to provide customer and revenue diversification.

Positron is currently headquartered in Fishers, Indiana where it also maintains manufacturing capabilities. All of the company's PET scanners are manufactured through a joint venture called Neusoft Positron Medical Systems in China. Production of radiopharmaceuticals and development and manufacturing of radiopharmaceutical products and devices are currently handled at a facility in Crown Point, Indiana. As of May 2011 Positron had 30 employees.

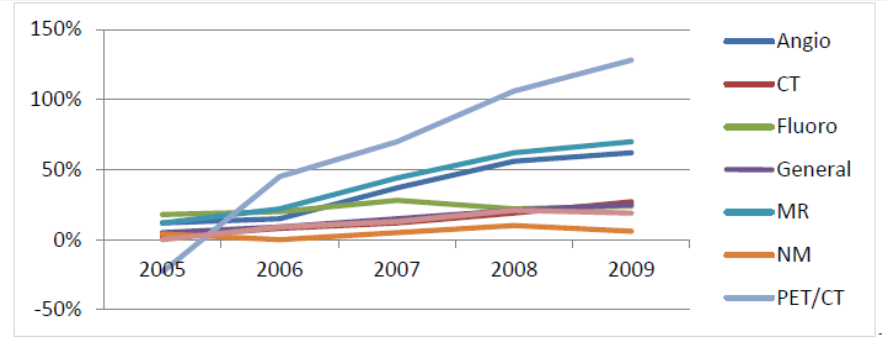
In an economically-incentivized deal with the city of Noblesville, Indiana, Positron recently announced their intention to relocate their headquarters, R&D and manufacturing facility to that city which is just 8 miles north of Fishers. Positron will also build a high-energy cyclotron in Noblesville. The city, which is expected to benefit from job creation and tax revenue, has agreed to provide certain economic incentives in return. Contingent on Positron securing total financing commitments of $42MM, Noblesville will provide up to $6.7MM of economic development bonds to acquire property for the project. The city and Positron will also pursue the issuance of up to $40MM in Midwestern Disaster Area Bonds. Positron will look to raise outside debt financing as well as raise capital through the sale of up to a 49% minority interest in the cyclotron project.

MARKETS

PET imaging is used in a variety of applications including for oncology, brain function/diseases and cardiology. Within cardiac imaging, Positron's target market, there are several different modalities including ultrasound, MRI, PET, computer tomography angiograph (CTA or CT) and single-photon emission computed tomography (SPECT). PET and SPECT are nuclear imaging modalities which provide the highest level of detail relative to organic anatomic changes (i.e. - function and metabolism) in the body while the others primarily only provide information about the anatomy and structure of the body. As such, CT and MRI are sometimes considered complementary, as opposed to direct competitors, to PET and SPECT. This is especially the case for myocardial perfusion imaging which is used to determine the volume of blood flow to the heart.

Growth in several diagnostic imaging modalities have shown significant acceleration over the last several years but especially with PET and PET/CT which experienced 128% CAGR from 2005 - 2009, outpacing all other modalities. While some argue that the growth in imaging is due to overutilization, compelling evidence supports that demand for higher accuracy technologies with improved diagnostic capabilities (and reduced reliance on more invasive diagnostic procedures), have been a significant driver of this growth.

ANNUAL GROWTH RATE (2005 - 2009) OF IMAGING MODALITIES



SOURCE: Fathala, A., Cost Effectiveness in Mutlimodality Cardiac Imaging, 21st Saudi Heart Association Scientific Sessions, Feb 2010. ACC 2011 Environmental Scanning Report 06/17/2011

MARKETS: CARDIAC IMAGING

Roughly one-third of all Americans are estimated to have some form of cardiovascular disease. It is the number one leading cause of death in the U.S., claiming almost one million lives per year. People with cardiovascular disease often have an accumulation of plaque within the walls of the coronary arteries that supply the myocardium (heart muscle) with oxygen. Known as coronary artery disease (CAD), the condition is progressive and obvious symptoms such as chest pain or a heart attack may not be present until advanced stages of the disease. Barring a reliable diagnosis and appropriate intervention, CAD is often fatal.

For lower-risk patients, a cardiac stress test may be used to measure heart function. For moderate to severe risk individuals or those that can not exercise (i.e. - stress their heart) cardiologists will often use non-invasive imaging as the initial diagnostic tool to help determine the integrity of blood flow in the coronary arteries. If non-invasive imaging fails to provide a definitive diagnosis, coronary arteriography is performed. Coronary arteriography is an invasive procedure that involves the insertion of a guide wire into the femoral (leg) artery which is threaded up to the aorta. A contrast agent is then injected along the wire and an x-ray taken. Patients diagnosed with severe athersclerosis may then undergo revascularization in order to clear and re-open the arteries. Revascularization is not only highly-invasive, at about $40k per procedure, it is also costly. As we note under our "Competition" section in this report, PET, when used in place of SPECT, has shown to reduced the number of coronary arteriography and revascularization procedures by over 50% and reduced overall costs by 30%.

Since nuclear imaging, which also involves the injection of a contrast agent, allows the visualization of blood flow, it affords greater diagnostic capabilities relative to myocardial perfusion compared to CT or MRI. While CT is often

used as a complementary technique to PET or SPECT for cardiac imaging, CT's clinical utility for this application is debated. As we explain later, no other manufacturer (other than Positron) currently manufactures a stand-alone PET scanner - instead only offering combination PET/CT machines which are significantly more expensive than Positron's Attrius PET scanner. This introduces the argument of whether the questionable additional utility of CT for cardiac applications is warranted by the higher cost of a combination PET/CT scanner.

Nuclear Imaging…

PET and SPECT are the two most widely used nuclear imaging modalities. SPECT has some utility in a number of applications including neurology and oncology but is primarily used in cardiology. In cardiac scans, PET has been shown to provide a better picture of blood flow compared to SPECT which allows it to better identify those patients that should undergo revascularization and reduce reliance on coronary arteriography as a definitive diagnostic. PET's superior sensitivity has been documented in clinical studies and was even more apparent with heavier and large-breasted patients.

Despite the greater accuracy afforded by PET, nuclear imaging is currently dominated by SPECT, accounting for approximately 90% of all nuclear scans. Estimates put the number of SPECT cameras currently in use at about 14k, compared to just 140 dedicated PET systems being used for cardiac applications. We view the market opportunity for Positron as the replacement market for the existing 14k SPECT cameras as well as growth of the overall market. Bio-Tech Systems, Inc. a healthcare market research firm specializing in medical imaging, notes in a November 2010 report that they forecast the PET FDG (i.e. - cardiac tracer) radiopharmaceuticals product market to grow at an annual rate of about 15% from 2009 to 2017 compared to just 10% for SPECT radiopharmaceuticals over the same period. They expect an increase in the volume of cardiac procedures to fuel most of the growth of PET. While Bio-Tech's report focuses on radiopharmaceuticals (and not specifically imagers), this also presumably implies that demand for PET imagers will also greatly outpace that of SPECT.

SPECT's current dominance of the nuclear imaging market has to do with its lower cost and, until recently, significantly more favorable insurance reimbursement. However, a recent shift in reimbursement making PET more economically competitive and a global shortage of molybdenum-99, the isotope used to manufacture the contrast agent for cardiac SPECT, has resulted in a recent uptick in demand for cardiac PET (however, the moly-99 shortage has since stabilized and a July 2011 FDA alert to stop using a major PET tracer may temporarily shift preference back to SPECT). Another factor favoring PET is its use of radiopharmaceuticals with shorter half lives compared to those used in SPECT or CT which affords PET a lower patient radiation dose. Congress is currently looking at medical radiation and considering adopting policies to ensure patient safety - which over the long-term could benefit PET over the other nuclear imaging modalities (although the July FDA alert related to concerns over radiation exposure with a certain PET tracer). However, the biggest factor driving greater use of PET in cardiology appears to be its superior sensitivity which is expected to continue. The American College of Cardiology Environmental Scanning Report 2011 notes, "A greater use of PET can be expected for both assessing blood flow quantitatively and molecular imaging of atherosclerotic plaques and myocardial disease states."

Reimbursement…

The Centers for Medicare and Medicaid Services (CMS) have approved the use of PET to test for "myocardial viability" as a "primary or initial diagnosis, or following an inconclusive SPECT prior to revascularization" using an FDG (fluorodeoxyglucose) tracer PET is also covered for non-invasive imaging of the perfusion of the heart using Rubidium 82 or N-13 as tracers.

Healthcare cost reform initiatives coupled with concern that the recent explosive growth in imaging (twice that of other physician services) is (at least partly) due to overutilization (especially in low risk patients) has resulted in CMS and other payers beginning to place greater scrutiny on imaging reimbursement policies. Recent measures by third party payers addressing cardiac imaging reimbursement and concern over overutilization include;

- **Overutilization concerns**
  - The Patient Protection and Affordable Care Act of 2010 (PPACA) requires the creation of a protocol for physicians to self-disclose violations of the physician self-referral (Stark) law. *(SOURCE: ACC Environmental Scanning Report)*
  - CMS's Physician Fee Schedule for 2011 requires physicians making self-referrals to MR, CT, and PET imaging services to inform their patients at the time of referral about their ownership of or other financial interest in imaging equipment as well as provide them with the option of obtaining the service elsewhere. *(SOURCE: ACC Environmental Scanning Report)*

- In April 2011, the Medicare Payment Advisory Commission (MedPAC) recommended that Medicare require clinicians who order more imaging studies than their peers to obtain prior authorization for advanced imaging. *(SOURCE: ACC Environmental Scanning Report)*

- **Reimbursement**
  - In 2011, CMS will increase the utilization rate assumption from the current 50 percent to 75 percent in calculating reimbursements for medical imaging services on "high-cost" equipment (applies to equipment that costs more than $1 million). This will result in lower payments for cardiac CT and MR services in 2011. *(SOURCE: ACC Environmental Scanning Report)*
  - CMS reduced cardiac PET reimbursement by 23% (from $1,429 to $1,099 per scan) effective January 1, 2011.
  - CMS reduced MPI SPECT reimbursement by less than 1% (from $773 to $768) effective January 1, 2011.

We note that while CMS recently cut reimbursement for cardiac PET significantly more than for SPECT (23% vs. 1%), PET reimbursement remains over $300 more than SPECT. Which, despite the higher cost of PET, could still offer a reasonable incentive to use PET over SPECT for cardiac imaging (especially when considering the overall reduction to downstream costs and better patient care afforded by PET).

MARKETS: RADIOPHARMACEUTICALS

Nuclear imaging involves the injection of radiopharmaceuticals into the patient which radiates signals which are then converted into an image. Different radiopharmaceuticals are used depending on the modality (i.e. - PET, SPECT, etc.) and the specific part of the body studied.

Bio-Tech Systems notes that while sales of SPECT radiopharmaceuticals fell 9% in 2010, this was a result of the use of generic sestamibi due to shortages of moly-99 as a result of two nuclear reactors going offline during the year. The reactors have since come back up and moly-99 is now plentiful. Bio-Tech estimates U.S. sales of SPECT and PET radiopharmaceuticals will grow at a 22% annual rate from $1.2B in 2010 to $6.0B in 2018. They expect the majority of this growth to come from the introduction of new radiopharmaceutical products for new indications and applications and higher radiopharmaceutical prices.

Areas such as Alzheimer's disease, Parkinson's, apoptosis, angiogenesis and new oncology applications as well as novel cardiology tracers have all sparked development of new radiopharmaceuticals.

PRODUCTS

PRODUCTS: PET IMAGING

Attrius is Positron's ultra-high sensitivity 2D PET scanner. It can be used for all imaging modalities but has software that is optimized for cardiac studies, specifically, myocardial perfusion imaging. With a small footprint and significantly cheaper price tag compared to competing PET/CT scanners, Attrius was designed to cater to smaller cardiology practices.

The system received FDA clearance in 2009 and launched in the U.S. in March 2010. Positron sold 15 systems in 2010, 5 of which were installed (Positron does not recognize revenue from a sale until the system has been installed at which time a customer acceptance is signed). In May 2011 shareholder update letter Positron forecasted 30 Attrius system sales during the current year. Since then management noted radioisotope shortages

have softened sales and as of June 30, 2011 the company (per the Q2 10-Q) had sold 16 systems in aggregate (which implies only 1 system sold in the first 6 months of 2011). Of these 16 sales, 13 (5 in 2010, 8 in 2011) have been installed and revenue recognized from. While Positron has not disclosed unit pricing, we ballpark each Attrius system sells for about $800k.

Attrius Cardiac PET Scanner



SOURCE: www.positron.com

Unlike all other currently manufactured PET systems which are combination PET/CT scanners, Positron's Attrius is a standalone (dedicated) PET system. The uniqueness of Attrius, certain benefits compared to PET/CT systems and competing imaging modalities, and strategic fit within the evolving advanced imaging marketplace were some of the reasons Frost & Sullivan awarded Attrius their "2010 North American Cardiac Molecular Imaging New Product Innovation Award". The specific criteria that were used in selecting a winner for the award were the ability to "substantially increase one or more of the following; significance of new product in its industry, competitive advantage of new product in its industry, product innovation in terms of unique or revolutionary technology, product acceptance in the marketplace, new product value-added services provided to customers, and number of competitors with similar products". Frost & Sullivan's report notes Attrius fills an unmet need in the industry for higher accuracy cardiac imaging which will improve patient outcomes without the prohibitive price tag of PET/CT combination systems. Frost & Sullivan believes Attrius is "the ideal solution for cardiologists and hospitals looking to add high accuracy and cost effective technology."

Service and Support…

Positron provides a one-year warranty on their imaging equipment (legacy scanners as well as Attrius). Following the warranty period customers can receive full service and maintenance support through purchase of an annual service contract. As of December 31, 2010 Positron had 28 full service agreements under contract. We estimate pricing of these service contracts at approximately $40k annually.

Positron also recently unveiled its PosiStar™ Customer Care program which provides full 24/7 clinical and technical support, physician interpretation training, billing instruction, priority maintenance/service response and software upgrades. Positron has not disclosed the number of PosiStar contracts in place, although as it was just recently introduced and the Attrius launch is still in its infancy, we expect it's minimal. We estimate PosiStar pricing at approximately $100k per annual contract.

PRODUCTS: RADIOPHARMACUTICAL SYSTEM

Radiopharmaceutical preparation is required prior to injection of the dose for nuclear imaging. The process involves eluating (extracting) radioactive chemicals from generators (Tc-99m from molybdenum-99 for SPECT) which are

then mixed with drugs and injected into the patient. The market for these generators is highly concentrated with only a few manufacturers (Covidien, Lantheus, and Bracco) dominating the market. Radiopharmacies use Tc-99m generators to deliver unit doses of Tc-99m (which has a half-life of 6 hours) to imaging end-users. Radiopharmacies often make several deliveries per day due to the short half life which is costly and requires geographical proximity of the radiopharmacy with the end user.

PosiRx is Positron's radiopharmaceutical system that automates elution, preparation and dispensing processes for radiopharmaceutical agents used in SPECT molecular imaging. PosiRx handles all process necessary to prepare and dispense nuclear imaging agents including assaying the dose in the syringe so it is ready for patient injection. These procedures are currently performed manually in centralized radiopharmacies which introduces additional handling requirements and cost and reduces accessibility by imaging departments/facilities. Target customers of PosiRx are high-volume imaging departments as well as radiopharmacies. With PosiRx dose preparation can be accomplished directly in the physician's office, allowing for only once per week delivery of Tc-99m, 24/7 dose accessibility and an onsite supply. This not only reduces cost to imaging facilities but also promotes increased productivity. It also allows generator suppliers to market directly to end users (hospitals) and bypass radiopharmacies.

The first of its kind, PosiRx addresses the need for reliable dose consistency and delivery in an automated, hands-off process. PosiRx meets compliance guidelines set by the U.S. Pharmacopeia. The system was designed to provide for minimal radiation exposure of the operator. PosiRx executes procedures through a simple touchscreen interface, reducing training time and cost.

PosiRx completed testing validation of a beta unit in March 2011 and per the Q2 2011 10-Q, "commercial systems have been fully constructed and tested at the Positron facilities in Fisher's Indiana, these systems are targeted for placement at customer sites."

Positron's sales model with PosiRx involves placing the system free of charge and generating revenue through a co-promotion agreement with Covidien whereby Covidien supplies the consumables for PosiRx. With approximately 140k SPECT systems currently in use in the U.S., the potential market is formidable. The company noted in its May 2011 shareholder update letter that they are targeting 8 - 12 PosiRx system installs in the U.S. during the year. This is likely aggressive, however. We look for the co-promotion deal with Covidien to begin generating only modest revenue in Q4 2011. The company is also looking at opportunities to place systems outside the U.S.

PosiRx



SOURCE: www.positron.com

Tech-Assist is Positron's infusion and shielding system which is used to reduce radiation exposure during PET radiopharmaceutical injections. Tech-Assist addresses the ever-present concern in nuclear medicine that every

radiation dose of any magnitude can product some level of harmful effects and aims to maximize compliance with ALARA (As Low As Reasonably Achievable) principles.

The Tech-Assist device consists of a syringe shield fitted into a rotating bracket which sits atop a cart. The cart allows the radiation dose in the syringe shield to be transported while at a distance. The rotating bracket allows the technologist to inject the dose into either the right of left arm of the patient.

Tech-Assist



SOURCE:

PRODUCTS: RADIOPHARMACEUTICALS

Positron has recently noted that their initial focus relative to radiopharmaceuticals development will be on indium oxyquinoline (indium oxine), an approved generic radiopharmaceutical used for radiolabeling autologous leukocytes (i.e. - blood cells). Positron estimates the market for indium oxine is worth about $20 million annually. The company opened a facility in Crown Point, Indiana in August 2010 where they expect to manufacture indium oxyquinoline. The company's May 2011 shareholder letter noted that they expected to begin producing and marketing a radiochemical grade of indium oxyquinoline in Q2 2011 and submit for FDA approval in Q3. However, the Q2 201110-Q notes, "Positron filed an amendment to its existing NRC (Nuclear Regulatory Commission) license to allow this site to manufacture and ship radiochemical products to customers. Approval of this amendment is expected in the third quarter of 2011."

Positron sees indium oxyquinoline, which is currently offered by only one other supplier, as an entrance into the radiopharmaceuticals manufacturing market and expects to offer PET radiopharmaceuticals in the future. The plan is to begin development of PET radiopharmaceuticals at Crown Point following the introduction of indium oxine and eventually transfer production to Noblesville, assuming that facility is built and up and running. The manufacture, production, FDA approval and commercialization of PET radiopharmaceuticals is likely at least one to two years away, however. Eventually, Positron expects radiopharmaceuticals to represent a significant part of the overall business and be a major driver of revenue, income and cash flow. We have not modeled any revenue contribution from radiopharmaceuticals manufacturing until 2013.

Cyclotron…

Final details of Positron's proposed 70MeV cyclotron is expected to be ironed out later this year. The current plan is that the company's headquarters would be moved well before the cyclotron is finished - which likely would not be completed until 3 to 4 years from now. During the second quarter 2011 Positron (per the 10-Q), "executed a non-binding Term Sheet (the “Term Sheet”) to purchase a Cyclone 70 cyclotron system, with related services, from Ion Beam Applications SA. (“IBA”). The cyclotron would be used at the Company’s planned facilities in Noblesville, Indiana. The Term Sheet would become effective upon delivery by the Company of the downpayment, thereafter the Company and IBA shall negotiate terms for the purchase of the cyclotron. If a final agreement is reached the deposit would be applied toward the device; otherwise, IBA would retain the deposit. The Company is not legally

obligated to the Term Sheet and there can be no assurance that the Company will execute a final agreement to purchase the cyclotron or that, if executed, such agreement will be on terms favorable to the Company."

When completed the cyclotron would be the largest producer of medical isotopes, the building blocks of radiopharmaceuticals. Positron pegs the current market for these isotopes at about $18MM and growing at an annual rate of about 30% (~$50MM market when the cyclotron would be online ~ 2014/2015). The major isotope expected to be produced by Positron's cyclotron is Strontium-82 (Sr-82) which has experienced supply shortages, U.S. production of which is currently confined solely to the Department of Energy National Laboratories at Los Alamos, N.M. and Brookhaven, N.Y. Sr-82 is a parent isotope for Rubidium-82 (R-82) which is used in the tracers for PET cardiac imaging. Positron expects to use the isotopes for production of its own PET radiopharmaceuticals and expects to market their PET radiopharmaceuticals to their captive base of Attrius customers. Once up and running the cyclotron will afford Positron the unique position of fulfilling most major functions within the nuclear imaging value chain including isotope production, radiopharmaceutical manufacturing, radiopharmaceutical preparation and delivery (PosiRx / Covidien partnership), and imaging (Attrius).

COMPETITION

The most direct competition to Attrius comes from SPECT and combination PET/CT scanners. As is the case with most medical devices, the most influential competitive considerations (aside from reimbursement policy and amount) between nuclear imaging systems is accuracy and cost. While standalone CT and MR imagers are also competing technologies, as resolution and accuracy of these imagers is second-tier to PET, these are largely complementary modalities in cardiac imaging and as such, we view both as more indirect competition and not a significant threat to Attrius. We therefore confine our competitive discussion relative to Attrius to SPECT and combination PET/CT scanners.

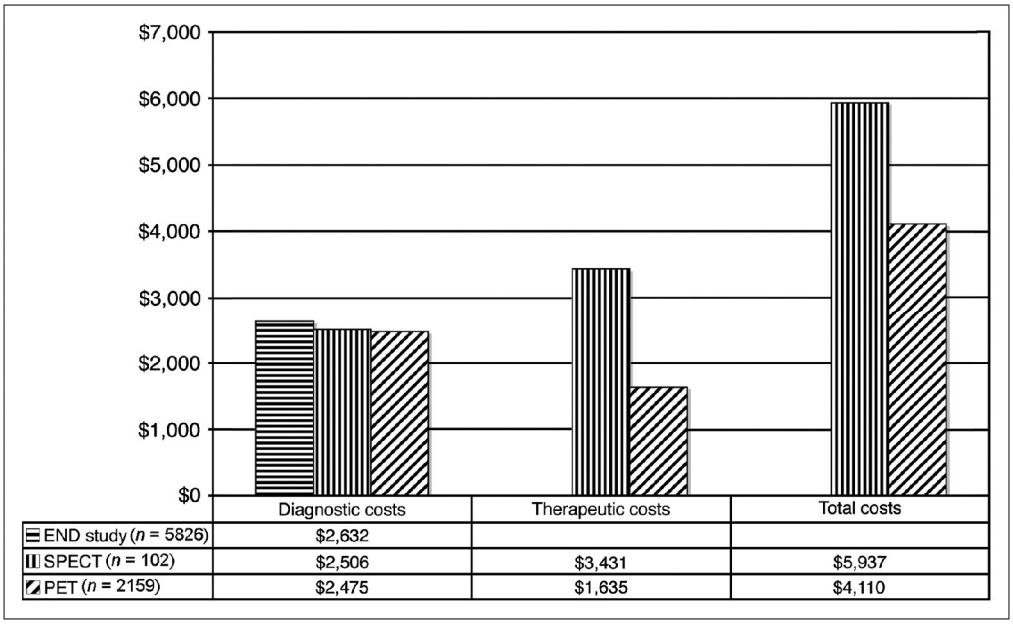
PET versus SPECT

SPECT currently dominates the nuclear imaging market, accounting for approximately 90% of all scans, the vast majority of which are cardiac scans. With about 14k SPECT cameras currently in the U.S. market, the modality dwarfs the ~140 dedicated PET systems in place. This is despite clinical evidence that proves PET is more accurate than SPECT in the assessment of myocardial perfusion (especially in overweight patients). In a meta-analysis of 44 studies over an eight year period the specificity and sensitivity of SPECT in the detection of coronary artery disease was 87% and 64% compared to 95% for PET on both (specificity and sensitivity) measures.

While the enhanced accuracy of PET over SPECT is widely accepted, as PET scans are more expensive than are SPECT (~$1,900 for PET vs. ~$1,000 for SPECT), there is some debate whether PET's greater accuracy translates into overall cost savings due to a reduction in unnecessary procedures. Proponents of PET cite a large study by researchers at SUNY Buffalo as evidence that it does. The study, titled *Impact of Myocardial Perfusion Imaging with PET and RB-82 on Donwstream Invasive Procedure Utilization, Costs, and Outcomes in Coronary Disease Management,* compared PET with SPECT in myocardial perfusion imaging of patients likely to have coronary disease with the goal of determining whether PET would reduce downstream utilization of (invasive) diagnostic coronary arteriography (~$5k per procedure). In building their hypothesis the authors noted, "Compelling evidence has demonstrated that invasive procedures such as coronary arteriography, coronary artery bypass grafting (CABG), and percutaneous transcoronary intervention (PTCI) are overutilized in the United States, contributing to unnecessary health care expense without improved patient outcomes." In the end the study found that use of PET over SPECT reduced the number of coronary arteriography and CABG procedures by over 50% and reduced overall costs by 30% (with no significant difference in myocardial infarction after one year) - which provides support for the use of PET over SPECT from both a patient care as well as a long-term overall cost standpoint.

Relative to overall diagnostic cost, the study found specifically that although SPECT procedures are less costly, this cost advantage over PET was lost (see table below - diagnostic costs are ~ equal) because a greater percentage of SPECT patients required a coronary arteriography procedure (i.e. - definitive diagnosis). The study found that approximately 25% of all patients (in both the PET and SPECT cohorts) that underwent coronary arteriography also received CABG (~ $40k per procedure). Therefore the total cost savings ($4,110 vs. $5,937 - in table) with PET was gained through lower therapeutic (revascularization) costs with PET patients due to lower CABG utilization.

PET Cost Benefit vs. SPECT



	Diagnostic costs	Therapeutic costs	Total costs
END study (*n* = 5826)	$2,632		
SPECT (*n* = 102)	$2,506	$3,431	$5,937
PET (*n* = 2159)	$2,475	$1,635	$4,110

SOURCE: Merhige ME, Breen WJ, Shelton V, et al. Impact of myocardial perfusion imaging with PET and (82)Rb on downstream invasive procedure utilization, costs, and outcomes in coronary disease management. J Nucl Med.2007;48:1069-1076. The Journal of Nuclear Medicine.

While the above provides support for the use of PET over SPECT in MPI from healthcare cost and patient care standpoints, it does not necessarily directly consider the economics of the hospital/imaging facility. SPECT systems cost about one-third to one-half of the price of Attrius and PET procedures are more costly than SPECT. While this is (at least somewhat) offset by higher reimbursement for PET than for SPECT (notwithstanding the recent cuts by CMS), hospital/physician economics will always be a very influential determinant of demand. The recent reimbursement updates by CMS relative to nuclear imaging may not be the last, however. Assuming it becomes more accepted that there is a meaningful cost benefit of PET compared to SPECT in the future, PET reimbursement could benefit.

PET versus PET/CT

PET/CT scanners integrate PET and CT into a single scanning session, allowing for greater localization of lesions (i.e. - pinpointing where the abnormality is) and finer resolution. While CT has been widely accepted as having significant utility as an adjunct to PET in applications such as oncology, there is less than compelling evidence that that this is the case in cardiac applications such as MPI.

All other manufacturers of PET systems (other than Positron) offer only PET/CT combination scanners. These systems, which includes those from med-device heavyweights GE, Siemens, and Philips, are significantly more expensive than Attrius. With an average price tag of about $2MM, a PET/CT system is much more difficult to justify for a cardiology practice than is Positron's Attrius (~ $800k), especially when the additional utility of CT in cardiac scans is questionable at best. PET/CT scanners are typically purchased by hospitals which can use them for a variety of applications but primarily for oncology. Conversely, Attrius' lower price and smaller physical footprint make it a much more reasonable option for dedicated cardiology practices and lower throughput hospitals.

CASE STUDY: IMAGING MODALITY PURCHASE DECISION

An article in the April 2011 edition of trade magazine *Cardiovascular Business* details Louisiana-based Ochsner Health System's imaging modality purchase decision. In the midst of revising their cardiac-imaging services, Oschner needed a highly accurate imaging system that made sound economic sense. After considering the benefits and trade-offs between PET, PET/CT and SPECT, they decided on Attrius.



The following are excerpts from the article titled, *Inside the Transition to Flow-Based Patient Care:*

Other imaging options do not match the capabilities of cardiac PET. Newer CZT-SPECT systems may be approaching flow capabilities, however, this technology is in its infancy with regards to flow, notes Robert Bober, MD, Ochsner's director of nuclear cardiology. The decision-making team also considered the economic implications of investing in a hybrid PET/CT system. However, the numbers didn't add up, he confides. CT added hundreds of thousands of dollars in costs to the system, and CT angiography volume at Ochsner did not justify the additional expense. In contrast to other options, Positron's Attrius cardiac PET system provides the right mix of diagnostic capabilities and value for Ochsner Health System. "The primary drivers have been the clinical application of the technology and what it brings to the practice in terms of diagnostic differentiation. It is cutting-edge technology in cardiology," explains Mark A. French, vice president of operations, surgical services and cardiology at Ochsner. The Attrius effectively weds cutting edge with cost-effectiveness. "We want to make sure our investments are sound," continues French. The economic case for the Attrius was crystal clear for Ochsner decision-makers. A pro forma calculated at six studies a day indicated return on investment (ROI) in six to eight months, shares Bober, and the hospital hit a breakeven point at three studies daily.

Six months after deploying the Attrius cardiac PET system, Bober observes that the new model has impacted downstream procedures and costs. Although a cardiac PET study costs more than SPECT upfront, it can lower costs downstream, which is achieved via greater diagnostic accuracy.

SOURCE: TriMed Media Group. Cardiovascular Business Magazine, April 2011. "Inside the Transition to Flow-Based Patient Care", Lisa Fratt

FINANCIALS

Cash Position

Positron's cash position is precarious. As of their most recent reporting period (6/30/2011) Positron had $496k in cash and equivalents. The company's most recent capital raise came from the April 2011 sale of $1.3MM in 8% convertible bonds (due December 2012). Management's May 2011 shareholder letter mentioned that they began borrowing against their accounts receivable. Also outstanding are four series of convertible preferred stock - none of which require cash pay dividends, however. Positron also lists $2.0MM in customer deposits (liability) on its balance sheet related to Attrius system orders that are in process of being fulfilled.

Positron has yet to generate positive cash flow. Cash used in operations was $4.7MM in fiscal 2010 and $2.5MM through the first six months of 2011 ($1.2MM in Q1 and $1.3MM in Q2). The company has consistently funded operations through the regular issuance of common stock and preferred shares (outright sale as well as payment for certain services) which we model to continue for at least the next two to three years - this may change, however, as our model does not yet incorporate the effects of financing the cyclotron project. We will update our assumptions when terms and likelihood of the deal getting done are more certain.

Positron's fragile cash and liquidity position presents a substantial amount of risk for investors - if the company can not raise additional cash in the very near-term, they may not be able to sustain operations.

Revenue

Positron breaks out revenue into two categories; systems and services. Attrius systems revenue is recognized only after installation at the customers' facility has been completed, which can lag the actual contract sale date by 4 - 6 months. At the time of sale customers place deposits with Positron for a portion of the total sales price - the amount of the deposit varies but we estimate it (based on information in regulatory filings) at approximately 50% of the total price of the system on average.

Services revenue represents sales of service/maintenance contracts as well as sales of PosiStar.

…Attrius Jumpstarts Revenue But Margins Remain Anemic

Attrius made its market introduction in early 2010 and through the end of that year Positron had contracts for 15 systems, 5 of which had been installed and which revenue had been recognized from. This helped push total revenue up to $4.6MM (including $3.7MM from systems) in 2010, from just $1.5MM in 2009. The remaining 10 system sales not yet recognized in 2010 should hit the income statement during the current year (8 of which were recognized in 1H 2011). Despite the jump in revenue in 2010, gross income remained barely better than break even at $59k (1.3% gross margin) in 2010 vs. $127k (8.8% gross margin) in 2009. Gross margin has barely budged during 2011, coming in at 15% in Q1, but only 6% in 1H 2011 (-2.3% in Q2 2011).

OUTLOOK

Our Outlook for Positron is highly subjective and is based largely on anecdotal information gained through discussions with management (management did not provide specific guidance other than what is available in the public domain) and relatively high-level research on the industry. Our financial projections for Positron are also largely driven by sales of Attrius (especially through 2013). As such, if reality proves different from our various assumptions (especially relative to growth in sales and margins of Attrius), there is significant risk that Positron's actual financial performance will fall short of our projections. While at least a portion of this risk should begin to mitigate if Positron can demonstrate an ability to generate sustained and consistent period-over-period (y-o-y as well as q-o-q) growth in Attrius system placements and related gross margins, until there is more clarity relative to a number of other significant lingering unknowns (i.e. - ability to raise additional capital, remaining current on payables, ability to control operating expenses, etc.), an investment in Positron will continue to be inherently highly risky.

Attrius

Management had been shooting for approximately 30 system sales in 2011 but noted that a recent shortage in PET isotopes have softened PET scanner sales. The Q2 10-Q implies only one system was sold during the first half of the year. A July FDA communication alerted PET imaging facilities to halt use of CardioGen-82, a generator which supplies a significant portion of PET tracers due to concern over patient radiation exposure. While the tracer supply could come back on-line after further review of the generator manufacturer by the FDA, this supply disruption will likely hinder demand (at least in the near-term) for Attrius.

We model only 9 Attrius system sales in 2011 and revenue recognized on 14 systems (which includes installations from the systems sold during 2010). Assuming isotope shortages reverse and no other significant hindrances arise, we assume Positron is able to increase the rate of unit sales in 2012 to 30. We model Attrius unit sales of 30 in 2012, 40 in 2013 and 60 in 2014. Revenue recognition will continue to lag that of sales contracts but the difference

should be much more blurred as the overall sales and placement rate accelerates. We currently model $10.0MM in Attrius sales (recognized) in 2011, growing to $37.5MM in 2014.

We currently do not see any substantial catalyst that will widen product gross margins, which will continue to hamper profitability and cash flow, especially in the near-term. While higher production volumes may provide some longer-term product margin relief, we do not believe it will be enough to cover operating expenses. Instead, we view Positron's hardware business as more of the razor in a razor-razor blade business model and a way for Positron to grow a dedicated customer base to which they can then sell high margin radiopharmaceuticals.

Service Revenue
Service revenue accounted for about 24% of total revenue in 2010. We expect service revenue to continue to track at about 10% - 25% of Attrius sales for the foreseeable future. We look for service revenue of $844k in 2011, growing to $9.4MM in 2014.

Radiopharmaceuticals / Consumables
Our Radiopharmaceuticals / Consumables line item includes contribution from the Covidien co-promotion of SPECT consumables and sales of indium oxine and PET radiopharmaceuticals. Assuming the cyclotron build-out progresses as the initial plan suggests, we will also eventually include forecasted revenue generated from sales of isotopes - which should also directly facilitate radiopharmaceuticals sales growth and related margins. When it becomes more clear as to construction timelines and there is more certainty relative to when the project could be completed and functional, we will update our model accordingly.

In the meantime Positron will look to generate revenue from the Covidien co-pro through placement of PosiRx systems and launch of their indium oxine product - eventually followed by sales of PET radiopharmaceuticals. We model SPECT consumables revenue to be driven mostly by PosiRx system placements. While we model PosiRx system placements to be negligible in 2011, we think this could begin to accelerate going into 2012 and begin to generate more meaningful revenue in 2013.

Our model assumes only a very modest contribution from indium oxine during the current year, which we believe will remain relatively insignificant in the following years. Indium oxine represents a foot-in-the-door for Positron, however and hopefully an opportunity to become relevant in the large, rapidly growing and high margin market for radiopharmaceuticals. While offering a potentially very lucrative opportunity (and much more than any of their other products) for Positron, the manufacture, production, FDA approval and commercialization of PET radiopharmaceuticals is likely at least two years away. As a result, we model radiopharmaceutical revenue to remain modest (<10% of total revenue) until around 2014, at which time Positron's revenue, profitability and cash flow could all show meaningful improvement.

We model radiopharmaceutical / consumables revenue of less than $1MM in 2012, growing to $13.4MM in 2014.

Revenue and Net Income Estimates
We look for revenue of $10.9MM in 2011, growing to $60.3MM in 2014. Lackluster gross margins coupled with little leverage in operating expenses as a result of R&D related to radiopharmaceutical development and additional sales and marketing expenses related to accelerating system placements means Positron will likely continue to run an operating loss through at least 2013. Our assumption that Positron is able to reach profitability in 2014 is based largely on high-margin radiopharmaceuticals showing a significant sales ramp beginning in the early part of that year. If Positron is unsuccessful in their quest to manufacture radiopharmaceuticals, we fear that the company may have a very low chance of reaching profitability solely with their Attrius business.

We model net loss of $6.0MM in 2011, turning to net income of $1.7MM in 2014. With almost 800MM common shares currently outstanding (and just over 3 billion on a dilutive basis) which will grow if Positron continues to finance operations through the sale of common and convertible securities, we model $0.00 in EPS through at least 2014. As noted earlier, however, Positron's capital structure could potentially change significantly, contingent on financing of the cyclotron project. We will update our share count estimates if and when appropriate.

VALUATION / RECOMMENDATION

As we model POSC to post negative income and EPS through 2013, along with the enormous outstanding share count, valuation using a P/E multiple is not appropriate. Instead we value Positron using competitor enterprise value/sales multiples (EV/S). There are no similarly sized (i.e. - microcap) competitors with available analyst revenue estimates. As a result we use revenue estimates of much larger companies in the medical imaging and cardiac care spaces as comparables (ZOLL, THOR, COV, HOLX). Average comparable EV/S (using estimated 2012 sales) currently stands at 2.7x. Applying this to our estimated 2012 revenue of $14.6MM for Positron results in an enterprise value of $33MM, or $0.04/share. POSC currently trades at approximately $0.02/share. We are initiating coverage of Positron with a Neutral rating.

Our Neutral recommendation reflects substantial risks of an investment in Positron. If the company can demonstrate a sustained ability to increase the Attrius unit placement rate, increase gross margins and reduce cash burn, we feel a significant portion of these risks will be mitigated which could prompt us to upgrade to Outperform. If, on the other hand, the company's financial position / liquidity deteriorates further and/or they fail to remain current on near-term obligations (i.e. - accounts payable), this could trigger a downgrade in our recommendation to Sell. As it stands now, our price target is $0.04 with a Neutral recommendation.

RISKS

- Very little cash relative to burn rate. Funding operations through regular financing. POSC will need to raise more cash immediately
- Huge outstanding share count. Significant possibility that shareholders will experience further dilution
- Attrius system placement rate has slowed. Isotope shortages may continue to hamper sales
- Gross profit is almost non-existent
- POSC's ultimate success may hinge on radiopharmaceutical manufacturing. A number of things have to go right for this to happen - and revenue from this may not materialize for two or more years from now

Management Profiles *(SOURCE: www.positron.com)*

Patrick G. Rooney - Chairman of the Board and Chief Executive Officer

Patrick Rooney was elected Chairman of Positron in 2004 and has served as Chief Executive Officer since 2009. He brings an extensive financial and management background, focusing on early stage growth companies. Mr. Rooney has led Positron through refocusing its core competencies, objectives, and the development and execution of sales and growth strategy. He serves on the Board of Directors of Positron's development and manufacturing joint venture, Neusoft Positron Medical Systems Co., Ltd. Since March 2003, Mr. Rooney has been the Managing Director of Solaris Opportunity Fund L.P. and Positron's largest investor. Through years 1985-2000, he was a member of The Chicago Board of Options Exchange, and The Chicago Board of Trade and The Chicago Mercantile Exchange. In September 1998 through March 2003, Mr. Rooney was the Managing Director of Digital Age Ventures, Ltd., a venture capital investment company that focused its investments in medical and technology companies.

Joseph G. Oliverio - Chief Technical Officer and Director of PET Clinical Programs

Joseph Oliverio joined Positron as President and member of the Board of Directors in 2005 and has served as Chief Technical Officer since 2009. Mr. Oliverio has been instrumental in guiding Positron's cardiac PET technology and has provided the vision of their molecular imaging strategy. He is a Certified Nuclear Medicine Technologist and has performed over 13,000 cardiac and/or oncology scans, imaged with Positron devices. Mr. Oliverio has worked as a nuclear medicine technologist at the first outpatient cardiology group offering PET, as well as, an assistant service engineer for Positron Corporation. Mr. Oliverio was a pioneer in operating the first freestanding heart disease reversal and prevention clinic, as the first community based hospital offering cardiac PET combined with an innovative heart disease reversal program.

Timothy M. Gabel - Vice President of Engineering and Service

Timothy Gabel joined Positron in 2006. He has been key in the development of Positron's award winning Attrius PET system through leading the collaboration of Positron and its joint venture partner, Neusoft Positron Medical Systems and the implementation of Positron's service division. Prior hereto, Mr. Gabel specialized in international business, international technical project management, product research and development, lean manufacturing implementation, and product design with the automotive components supplier, Delphi Corporation. His experience includes technology transfer and joint venture partnership development with companies in China, Japan, Mexico and Europe.

Scott M. Stiffler - Vice President of Pharmaceuticals

Scott Stiffler joined Positron in October of 2008. Mr. Stiffler has extensive experience in device and drug manufacturing and has lead the Company's radiopharmaceutical research and development as it relates to automated radiopharmaceutical delivery devices and future expansion into radiopharmaceutical manufacturing. He has extensive experience in device and drug manufacturing as well as product development through his tenures at Eli Lilly and General Motors.

Corey N. Conn - Chief Financial Officer

Corey Conn has served as Chief Financial Officer of Positron Corporation since 2005 and has served as a Board Member since 2008. Mr. Conn has been instrumental in navigating Positron's financial position since its restructuring through today's revenue generating growth. He brings over 15 years of experience in financial management of early stage growth companies and has worked with a number of medical and information services companies.

Ron R. Hinton - Director of Quality and Regulatory Affairs

Ron Hinton joined Positron in 2010 and brings over 30 years of extensive experience as a quality management professional within the medical device and pharmaceutical industries. Mr. Hinton directs Positron's quality systems and global regulatory requirements for devices and drugs for US, Canadian and European compliance. He has held managerial positions in Quality Assurance throughout his career working for Mallinckrodt Medical, Alcon Laboratories and Eli Lilly & Company.

Peter J. Webner - Director of Pharmaceutical Business Development and Sales

Peter Webner joined Positron in 2008 and brings over 25 years of experience in the Medical Imaging Community. Mr. Webner is a licensed Nuclear Medicine Technologist with an extensive medical management background. He was instrumental in launching several radiopharmaceutical research products. Mr. Webner is a key contributor in Positron's development of its radiopharmacy automation solutions and the planning of future radiopharmaceutical products. He has held managerial positions throughout his career working for Mount Sinai Medical Center and IBA.

FINANCIAL MODEL

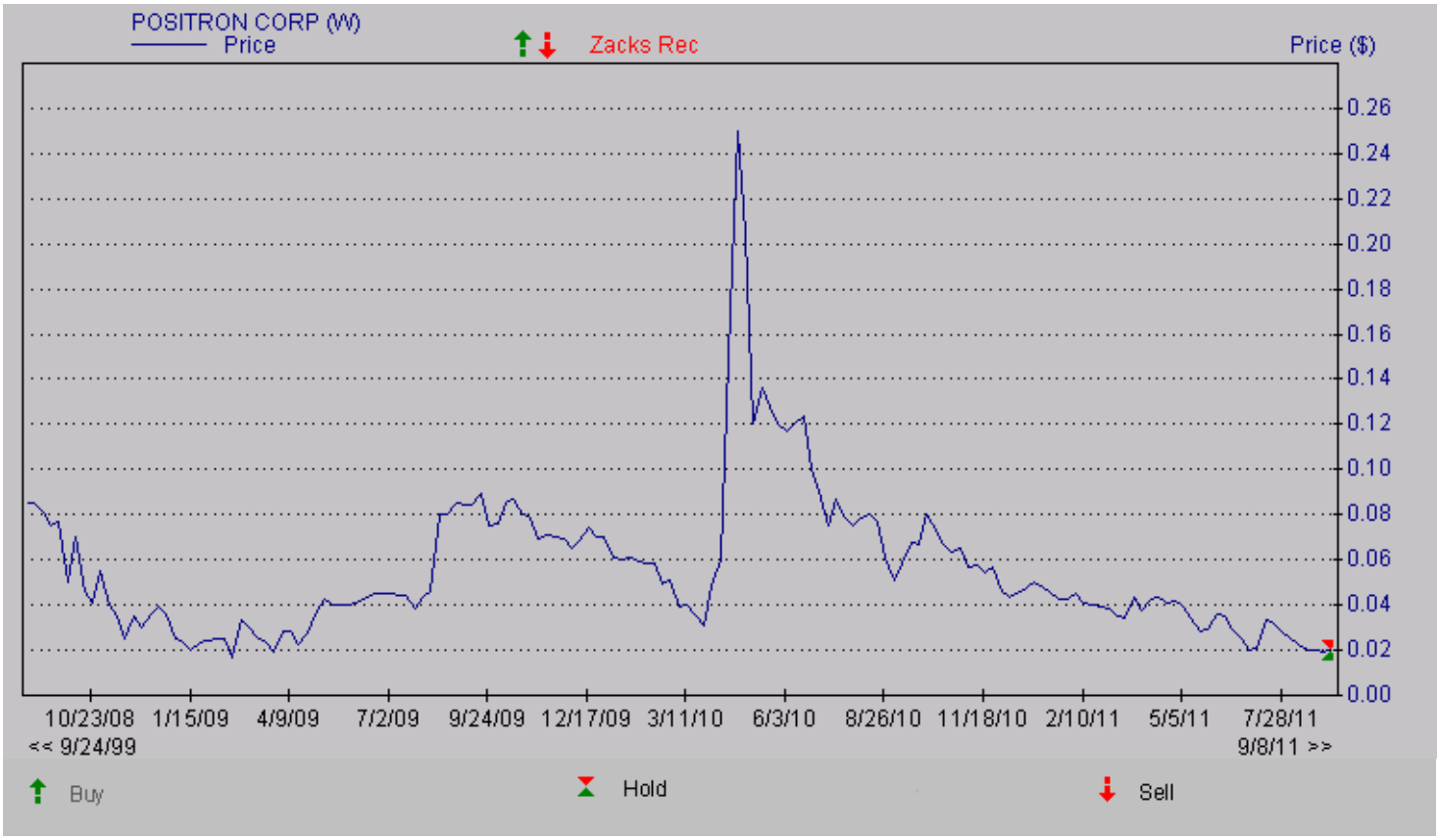
Positron Corp.

	2010 A	Q1A	Q2A	Q3E	Q4E	2011 E	2012 E	2013 E	2014 E
Radiopharma / Consumables	$0.0	$0.0	$0.0	$0.0	$100.0	$100.0	$840.0	$5,760.0	$13,440.0
YOY Growth	*#DIV/0!*	-	-	-	-	-	*740.0%*	*585.7%*	*133.3%*
PET Systems	$3,692.0	$2,623.0	$2,875.0	$2,250.0	$2,250.0	$9,998.0	$12,000.0	$27,750.0	$37,500.0
YOY Growth	*551.7%*	*1103.2%*	*298.8%*	*173.4%*	*16.6%*	*170.8%*	*20.0%*	*131.3%*	*35.1%*
Service revenue	$885.0	$248.0	$146.0	$225.0	$225.0	$844.0	$1,800.0	$5,550.0	$9,375.0
YOY Growth	*7.0%*	*-0.4%*	*-12.6%*	*18.4%*	*-19.4%*	*-4.6%*	*113.3%*	*208.3%*	*68.9%*
Total Revenues	$4,623.0	$2,871.0	$3,021.0	$2,475.0	$2,575.0	$10,942.0	$14,640.0	$39,060.0	$60,315.0
YOY Growth	*219.7%*	*514.8%*	*223.4%*	*144.3%*	*16.6%*	*136.7%*	*33.8%*	*166.8%*	*54.4%*
Cost of Revenues	$4,564.0	$2,443.0	$3,089.0	$2,457.0	$2,524.5	$10,513.5	$13,350.0	$31,164.0	$40,594.5
Gross Income	$59.0	$428.0	($68.0)	$18.0	$50.5	$428.5	$1,290.0	$7,896.0	$19,720.5
Gross Margin	*1.3%*	*14.9%*	*-2.3%*	*0.7%*	*2.0%*	*3.9%*	*8.8%*	*20.2%*	*32.7%*
R & D	$1,276.0	$334.0	$327.0	$322.0	$300.0	$1,283.0	$1,744.0	$2,215.0	$3,150.0
% R&D	*27.6%*	*11.6%*	*10.8%*	*13.0%*	*11.7%*	*11.7%*	*11.9%*	*5.7%*	*5.2%*
Selling & Mktg	$1,096.0	$323.0	$344.0	$351.5	$329.6	$1,348.1	$1,727.5	$3,788.8	$5,549.0
% Sell&Mktg	*23.7%*	*11.3%*	*11.0%*	*14.2%*	*12.8%*	*12.3%*	*11.8%*	*9.7%*	*9.2%*
G & A	$12,131.0	$506.0	$826.0	$556.9	$540.8	$2,429.6	$2,781.6	$6,640.2	$9,047.3
% G&A	*262.4%*	*17.6%*	*22.0%*	*22.5%*	*21.0%*	*22.2%*	*19.0%*	*17.0%*	*15.0%*
Operating Income	($14,444.0)	($735.0)	($1,565.0)	($1,212.3)	($1,119.9)	($4,632.2)	($4,963.1)	($4,748.0)	$1,974.3
Operating Margin	*-312.4%*	*-25.6%*	*-51.8%*	*-49.0%*	*-43.5%*	*-42.3%*	*-33.9%*	*-12.2%*	*3.3%*
Interest income, net	($43.0)	$0.0	($777.0)	(35.0)	($50.0)	($862.0)	($150.0)	($250.0)	($300.0)
Derivative gains (loss)	$2,104.0	$0.0	($493.0)	0.0	$0.0	($493.0)	$0.0	$0.0	$0.0
Other income	$1,460.0	$0.0	$0.0	0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Pre-Tax Income	($10,923.0)	($735.0)	($2,835.0)	($1,247.3)	($1,169.9)	($5,987.2)	($5,113.1)	($4,998.0)	$1,674.3
Taxes	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Tax Rate	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Net Income	($10,923.0)	($735.0)	(2,835.0)	(1,247.3)	(1,169.9)	($5,987.2)	($5,113.1)	($4,998.0)	$1,674.3
YOY Growth	*90.0%*	*-77.5%*	*-55.7%*	*-570.7%*	*-25.0%*	*-45.2%*	*-14.6%*	*-2.3%*	*-133.5%*
Net Margin	-	-	-	-	-	-	-	-	*2.8%*
EPS	($0.02)	($0.00)	($0.00)	($0.00)	($0.00)	($0.01)	($0.01)	($0.01)	$0.00
YOY Growth	*-36.3%*	*-88.2%*	*-67.5%*	*-518.2%*	*-36.3%*	*-53.0%*	*-25.6%*	*-4.2%*	*-110.9%*
Diluted Shares O/S	713,463	784,327	789,738	850,354	906,347	832,692	955,978	974,970	3,000,000

Brian Marckx, CFA

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