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New Rec: CTI Molecular Imaging (CTMI: \$24.25) Oct. 24, 2002

Position: Sell Target: \$12.50 Timing: 2 (1=aggressive; 5=cautious)

\$MM	4Q02e	1Q03e	2Q04e	3Q04e	2002e	2003e	2004e	2005e
Revs	82.9	56.6	59.8	78.5	255.0	296.5	368.4	415.6
EPS	0.14	0.05	0.09	0.12	0.24	0.43	0.57	0.63
Y/YGr	-9%	n/a	n/a	n/a	-10%	81%	32%	11%
PE	n/a	n/a	n/a	n/a	101	55.85	42.33	38.24
PSR	n/a	n/a	n/a	n/a	3.87	3.33	2.68	2.37
Con	0.14	0.04	0.12	0.15	0.24	0.58	0.78	n/a

Shares out: 45.8M

Mkt. Cap: \$1B

FYE: Sep

Summary: CTMI manufactures positron emission tomography (PET) scanners and related radiopharmaceutical products used mainly in the diagnosis of cancer and cardiac disease.

Hopes are high for the PET scanner market. CTMI bulls compare the market to the MRI market, which has about 4,700 units installed in the US compared to PET's 500 units. However, the fact is that PET, unlike MRI, where the majority of use is orthopedic, is mainly used for cancer screening, and even then PET is used only if standard imaging modalities, such as MRI, CT, X-ray

and others, do not provide enough data. In addition, bullish hopes for some large indications, like breast cancer and Alzheimer's, as we discuss later appear to be unfounded. Breast cancer, while approved, has been approved only for a small subset of the population. Alzheimer's has not been approved and we do not think that it will be approved.

We approach the PET scanner market in several different ways, but we always arrive at the same conclusion. Bullish expectations for the PET scanner market to reach 2,301 units in the US and 3,803 worldwide by 2005 are way too high. As a result, "street" expectations for the near term, 2003, and beyond are too high. The "street" expects PET scanner revenues to CTMI of \$220M in 2003 and \$274M in 2004, while we project scanner revenues of \$196M in 2003 and \$222M in 2004. We note that management has not been shy in its promotion of CTMI shares. At a recent investor conference management told eager listeners that it would generate \$1B in revenues in 2006. This is more than double what estimate is possible.

CTMI currently derives 70% of its revenue from a joint venture with Siemens, selling PET scanner capital equipment. This venture is 49.9% owned by Siemens with an option for Siemens to acquire the rest, after a specified number of PET scanner units is sold. Management estimates that the Siemens option will be triggered in early 2005, and that Siemens may acquire the PET scanner division of CTMI in 2006. We estimate that these events should occur nearly two years later than this. The agreement between Siemens and CTMI calls for a mutually agreed upon price or an independent appraisal at the time of purchase. We think that the market for PET scanners at the time will approach saturation and question the value that will be put on this deal.

Bulls in CTMI are also enthused about the radiopharmaceutical business, PETnet. They think that the scanner business is the razor and that FDG, the radiotracer used by the scanner is the razor blade. CTMI's PETNet division manufactures and sells the radiotracers required to operate a PET scanner. However, this radiotracer, commonly known as FDG, is a commodity that can be manufactured by anyone, including PET scanner operators themselves. PETNet was able to benefit from underpenetration of FDG networks in certain geographical regions by imposing high prices on its customers that did not have any other alternatives for FDG supply. Still, in the first half of FY2002, PETNet produced an operating loss.

Recently, CTMI's two main competitors in FDG, Syncor and Eastern Isotopes (IBA), have been working on strengthening their own networks and reaching new areas of service. Syncor is being acquired by Cardinal Health, which should only further its reach and clout. GE has a strategic relationship with Syncor. PET scanner operators we talked to prefer Syncor and IBA's customer service to that of PETNet's. Also, Syncor and IBA are selling FDG at much lower prices than PETNet. For example, a PET site facility manager from California told us that he ended his contract with PETNet at \$500 per dose of FDG to switch to Syncor's service priced at \$300 per dose. Interestingly, CTMI management and "street" analysts claim a 60% share of the US FDG market for

PETNet, but that is based on total scanners served. When measured by share of FDG doses sold, PETNet has only about a 33% share.

As a result of over optimism about PET scanner placements and procedures, the “street’s” estimates of FDG sales are also too high. The “street” projects sales of \$76M in 2003 and \$100M in 2004, while we project sales of \$66M in 2003 and \$84M in 2004.

Our market size estimates are based on conversations with PET scanner facility managers, oncologists, radiologists, and FDG manufacturers. We also compare the PET market to the MRI market. In addition we made extensive use of a comprehensive purchasing survey that asked all US facilities using PET, even part time users, what they plan to buy in the next three years. Oncologists helped us narrow the vast population of cancer patients that fall under the umbrella of diseases covered for PET under CMS guidelines. We learned that only a small subset of cancer patients would even be considered for a PET scan

There is no question that oncologists in general are excited about the promise of PET, and that their usage of PET is growing. However, the picture they painted calls for a more conservative growth than the “street” presents. Oncologists further emphasized the importance of establishing clinical utility of PET. They told us that in a number of cases PET was shown to have better sensitivity and specificity than conventional treatment, but few studies have evaluated the clinical impact of PET on staging a patient and clinical management of a patient. Having results of clinical utility for a new diagnostic treatment is critical for the adoption process. Insurance companies confirmed this notion, and indicated caution about which procedures they would reimburse. We note that reimbursement rates for PET have been declining. The Medicare reimbursement for a tumor exam plus radiotracer declined by about 21% in 2002 to \$1,850 and is expected to drop by another 22% in 2003. As priced drop, the economics of owning a machine deteriorate. At about \$1,450 per procedure in 2003. We expect to see further decreases in reimbursement.

Thus, as is so often the case, the “street” has taken a reasonably good story about a growing business to its illogical extreme. On Wall Street, trees can grow to the sky. We just don’t see these Wall Street trees on Main Street.

Indeed, rather than a tree, we see a wall for CTMI. The wall is the saturation point in the market for PET scanners. When investors also start to see the wall, rather than the tree, they should quickly revalue CTMI shares. We think that CTMI will begin to miss numbers in 2003, and that the reassessment will come sooner rather than later. Prospects for the radiopharmaceutical business will also come under more scrutiny at that time, and will be found wanting, in our opinion.

While the “street” projects EPS of \$0.58 for 2003 and \$0.78 for 2004, we project EPS of \$0.43 for 2003, \$0.57 for 2004. For 2005, we project sales of \$415M and EPS of \$0.63, as CTMI hits the limits of its ability to further grow machine sales. We think the value of the PET scanner business in 2006 to

Siemens will be minimal because the market will be nearly saturated and only service will be valuable. At its current valuation of \$24.25 CTMI boasts a market value of about \$1 billion. However, we see sales going into a serious decline some years out, and we doubt that CTMI will have much of a business as the market for PET scanners becomes saturated. We set a target price of \$12.50.

Background

CTI Molecular Imaging manufactures positron emission tomography equipment (PET) and related products. PET is an imaging modality used in detection and treatment of cancer, cardiac disease and neurological disorders. PET images show the chemical functioning of an organ or tissue, unlike X-ray, CT, or MRI, which show body structure. PET plays a role in diagnosis and treatment assessment in neurology and cardiology, but oncology remains the focus. PET imaging can help detect recurrent tumors of the lung, colon, breast, lymph nodes, skin, and other organs.

A dose of radiotracer is injected into the patient before the scan is performed. PET is a non-invasive imaging technique that traces biologically relevant compounds labeled with short-lived positron-emitting radionuclides such as carbon-11, nitrogen-13, oxygen-15 and fluorine-18 (FDG). FDG is used in most oncology applications. Due to their short half-lives, radiopharmaceuticals must be in readily available supply in order to make effective use of a PET scanner. Most clinically important radiopharmaceuticals are produced using a piece of electronic equipment called a cyclotron. A user of PET can either acquire and operate a dedicated cyclotron or obtain radiopharmaceuticals from specialty pharmacy providers.

CTMI entered the PET business in 1983. Currently CTMI manufactures PET scanners, PET/CT scanners (combines PET and CT into one piece of equipment), cyclotrons and detector materials that are used in manufacturing PET scanners. CTMI is also in the business of manufacturing and distributing FDG, the radiopharmaceutical used in PET scan procedures.

CTMI reports revenue in four business segments: CPS (PET scanners and PET/CT scanners), PETNet (network of radiopharmacies), Detector (integral part of PET and PET/CT scanners), and Other (equipment service, consulting, and cyclotron equipment sales). Intercompany eliminations were realized from the sale of cyclotrons to PETNet, sale of detectors to CPS, etc.

(\$MM)	1999	2000	2001
CPS	62.3	86.2	133.6
PETNet	10.7	20.5	35.6
Detector	2.4	10.7	18.4
Other	23.6	37.5	45.5
Eliminations	-10.8	-30.9	-44.2
Total Revenue	88.2	124	188.9

Revenue trends (source: company reports)

% Revenue	1999	2000	2001
CPS	71%	70%	71%
PETNet	12%	17%	19%
Detector	3%	9%	10%
Other	27%	30%	24%
Eliminations	-12%	-25%	-23%
Total Revenue	100%	100%	100%

Y/Y Growth	2000	2001
CPS	38%	55%
PETNet	92%	74%
Detector	346%	72%
Other	59%	21%
Eliminations	186%	43%
Total Revenue	41%	52%

CPS or PET capital equipment sales is the largest part of CTMI's business, accounting for about 70% of CTMI's revenue. This business is a joint venture with Siemens that originated in 1987. Siemens owns 49.9% of CPS, and CTMI owns the remaining 50.1%. According to this joint venture agreement, Siemens has an option to acquire from CTMI for cash up to an 80% interest in CTI PET Systems (CPS) if and when CTI PET Systems achieves specified unit sales volumes. By the end of 2002, CTI PET Systems would need to have sold a cumulative total of 907 units to achieve the required cumulative sales level for the option to be exercisable. After 2002, the cumulative unit sales requirement increases by 74 units each year.

As of March 31, 2002, the cumulative total number of units sold by CTI PET Systems was 425. Management and the "street" estimate that the call option will be triggered in early 2005. We think that it will be triggered in late 2006. Once these sales volumes are achieved, CTMI has the right to defer the exercise of the option for an additional year. If Siemens exercises its option and increases its ownership interest in CPS to 80%, Siemens could use that controlling ownership interest to cause CPS to engage in a transaction the effect of which would be a purchase by Siemens of CTMI's remaining 20% ownership interest in CPS. Accordingly, the Siemens option effectively gives Siemens the ability to acquire 100% of CPS. The price of acquisition is to be negotiated at the time of exercise or, if the parties are unable to agree, the price will be determined through an appraisal process. CTMI also has a corresponding right to require Siemens to purchase the same number of shares of CTI PET Systems common stock, with Siemens also having a one-year deferral right.

The exercise of the Siemens option would eliminate a large portion of CTMI revenues, operations and assets, including some valuable employees and intellectual property assets relating to the manufacture and development of PET scanners. As of March 31, 2002, approximately 43% of CTMI's total assets were attributable to CTI PET Systems.

If the option is exercised, CTMI would be left with PETNet as its primary revenue generator. FDG is a commodity chemical that anyone can manufacture

after a \$2M-\$4M capital investment. Currently three nationwide networks for distribution of FDG exist, and we expect the competition in this market to intensify.

Discussion

1. Size of PET scanner market

a. Government regulates growth of the PET scanner market in the U.S. In most states, each facility desiring to add a PET scanner must file a Certificate of Need (CON) with the state. Obtaining approval from the state is a lengthy and complicated process. Industry insiders tell us that it takes anywhere between five and twelve months to get a license, depending on the state, plus an additional three to six months to have the equipment built. Several industry sources have characterized PET scanner growth as very conservatively paced by the government. To illustrate, a news article recently reported that the North Carolina State Health Coordinating Council only approved 8 of the 12 PET scanners it had initially planned to allow to be put in health facilities statewide in 2003.

California has done away with the CON requirement. As a result, PET scanners have proliferated through California in greater numbers than elsewhere in the country. Our conversations with multiple PET center operators in the region indicate that there is significant overcapacity in this market. One facility manager in California told us that it is very unlikely that additional scanners would be purchased for his facility in the next 3-5 years. He said that the PET scanner market has reached saturation in the region very quickly. He illustrated by saying that there were four other PET scanning facilities within a ten-mile radius from his facility and “many more within the entire valley.” The Academy of Molecular Imaging directory lists 29 PET sites in California with one or more PET scanners each. In contrast, 13 PET sites each are listed in New York, Florida, and Texas and 9 PET sites are listed in Pennsylvania. Industry insiders tell us that there are more PET sites in existence than what is listed with Academy of Molecular Imaging.

b. Existing PET scanner installations are currently not fully utilized. According to the President of the Academy of Molecular Imaging and a Director of CTMI, PET sites currently perform an average of 2.7 studies per day. As a point of reference, a PET site operating an 8-9 hour day could comfortably perform 8 studies per day. Our interviews with PET site personnel as well as distributors of FDG, the radiotracer required for performing a PET scan, confirmed that many PET sites are currently underutilized. We found that only PET sites located in major metropolitan areas were used at capacity, and the typical wait for a patient to get scanned in those locations is two weeks.

c. The “street” compares the adoption of PET technology to the adoption of MRI. However, according to a few leading radiologists we spoke to, 35%-40% of MR studies are orthopedic related. PET will never be able to compete in that area, as PET cannot perform structural imaging. Just this fact alone places PET at a lower order of magnitude in terms of studies performed than MRI, even when

PET attains maturity in terms of penetration. PET scanners are expensive and are only used on a limited segment of the population in comparison to an MRI. The majority of scans performed by PET scanners are oncology related. One of the “street” models has PET reaching 4,000 installations in the US in 2009, which gets close to where MRI was a couple of years ago. Also, 4,000 installations would average to about 80 per state, and would have to include small hospitals. A leading radiologist told us that for hospitals under 150 beds, it would be very difficult to ever justify a PET scanner purchase. Further, we were informed by the radiologist, hospitals, and imaging center operators that it would also be difficult to justify a PET scanner purchase by 200-300 bed hospital unless it had a cancer center. There are about 1,000 hospitals in the U.S. that contain cancer centers.

US hospitals	1999	2002E
6-49 beds	1,186	1,150
50-199 beds	2,348	2,277
200-500 beds	1,168	1,132
500+ beds	254	254

We estimate a total market potential of 2,092 PET scanners in the U.S. We assigned two PET scanners each to the 500+ bed hospitals, one PET scanner to the 200-500 bed hospital with cancer centers. We also assigned 838 mobile PET scanners to be shared among the remaining 50-500 bed hospitals at two days per week for 200-500 bed hospitals and one day per week for 50-200 bed hospitals.

Hospital Type	PET scanners
500+ beds	254
Cancer Centers	1,000
Mobile for 200-500 bed	153
Mobile for 50-200 bed	685
Total	2,092

Another way to compute a rough upper bound for PET scanner placement in the U.S. is to argue that PET scanner placements cannot be greater than 60% of MRI placements due to the fact that 35%-40% of MRI scans are orthopedic in nature. PET is not applicable for orthopedic scans. In 2001 there were about 4,700 MRI scanners in the country. This would put the PET scanner market at 2,820. In the opinion of radiologists we spoke to, the upper bound is likely even lower.

We also obtained detailed market research data from a study that surveyed all sites in the U.S. performing PET studies in 2001. At the time, 691 sites were performing PET in the U.S. Of those, 24% or 167 were outpatient imaging centers and 523 were hospitals. These numbers include hospitals that leased or shared PET mobile units part time. Of the 523 hospitals ordering PET studies, 214 were 400+ bed hospitals, 231 were 200-399 bed hospitals, and 78 were hospitals with fewer than 200 beds. At the end of 2001, 220 fixed PET scanners were installed in 200 sites. Further, 270 sites used mobile PET services. Most mobile PET users were hospitals with less than 400 beds. Smaller hospitals share the leasing of a mobile unit to minimize the financial risk while determining the

volume of service. Larger hospitals sometimes use mobile scanners to shorten the time to get into the PET business while making plans to install fixed units.

All sites were also asked to reveal details concerning their purchasing plans three years out, from late 2001 until 2003+. Of the 691 sites surveyed 230 plan to acquire 225 PET scanners and 10 NM-CD cameras in that time frame. NM-CD camera is a “poor-man’s PET”, costing about \$700K-\$800K. The 230 sites are broken down into 65 sites that in 2001 had fixed PET scanners, 75 sites that in 2001 used only mobile PET services, and 90 sites that in 2001 used only NM-CD cameras. The sites surveyed indicated that they would purchase 90 fixed PET units in 2002 and 70 units in 2003+. The survey also indicated that many sites do not have purchase plans more than three years out. We found this to be the case in our own survey of 20 different PET sites.

The sites were also asked about which vendors they were considering in their purchasing plans. GE and Siemens were close firsts, with Phillips coming in third with about half the votes of GE and Siemens.

Near term, then, it seems from the survey that 90 fixed units could be purchased in 2002 in the US. We also estimate that 88 additional PET units would be purchased in 2002. We think that a majority of these will be mobile units going to mobile PET service providers plus extra units going to hospitals and outpatient centers not included in the survey. Our year by year projections of US PET scanner market growth is detailed later in this report.

From a longer term perspective, we can use the profile of PET service users from the 2001 survey to arrive at a more realistic market size estimate for PET scanners. The survey indicates that 33% of the sites which already have a fixed unit had plans to get an additional unit within three years, and 30% of the sites who used mobile PET service had plans to get a fixed unit. Mobile service was used largely by hospitals with fewer than 400 beds. If we assign a fixed PET scanner to 30% of hospitals with 200-500 beds, two fixed scanners to all hospitals with 500+ beds, and mobile PET scanners for two and a half days/week to 50% of 200-500 bed hospitals and 35% to 50-199 bed hospitals, we arrive at 1,530 units.

So far, we have estimated the market for PET scanners three ways. The total size of the market is always below what the “street” thinks is the total potential. We have still other indications that the market for the scanners is less than bulls are hoping, which we discuss later. We will use the 2,092 total potential US number in our projections.

d. The “street” assumes that CTMI’s scanner placements trigger Siemens’ call option in early 2005, which will then be exercised in 2006, as CTMI has the right to delay by a year. Further, following 88 PET scanner placements in FY2001, CTMI is expected to place 141 scanners in FY2002, 178 scanners in FY2003, 230 scanners in FY2004, and 285 scanners in FY2005. We think that the “street” projections are too aggressive and that it will take longer to make this many scanner placements. In particular, we project 141 CTMI scanner

placements in FY2002, 151 placements in FY2003, 164 placements in FY2004, and 172 placements in FY2005. Our estimates call for the Siemens' trigger to happen in late FY2006 and to be exercised in FY2007, nearly two years after "the street" expects it to happen.

The table below summarizes historical PET market growth, both in the U.S. and worldwide.

	1997A	1998A	1999A	2000A	2001A
US PET units	80	100	143	220	327
WW PET units	243	288	360	500	692

The "street" estimates for PET market growth in the U.S. are presented below.

"street" estimate	2002E	2003E	2004E	2005E	2006E
New U.S. units	190	280	378	504	622
Total U.S. units	517	797	1,175	1,679	2,301

Similarly, the "street" estimates for PET market growth worldwide are shown below.

"street" estimate	2002E	2003E	2004E	2005E	2006E
New WW units	306	442	595	786	982
Total WW units	998	1,440	2,035	2,821	3,803

Based on the market growth estimates above, the "street" makes the following projections for CTMI scanner placements going forward.

"street" estimate	2002E	2003E	2004E	2005E	2006E
New CTMI units	141	178	230	285	355
Total CTMI units	546	724	954	1,239*	1,594
Siemens unit minimum	907	981	1,055	1,129	1,203
CTMI WW market share	55%	50%	47%	44%	42%

*Siemens trigger is surpassed

We arrived at our estimates for U.S. PET scanner annual sales (all manufacturers) by adding together the number of fixed scanners from the PET survey discussed earlier, U.S. Oncology's recently announced purchase plan of 10 scanners per year, which we discuss later, and the number of PET scanners purchased by new users of PET who were not part of the survey population (many of these will be mobile PET scanners, which is why we classified them as mobile).

OWS estimate	2002E	2003E	2004E	2005E	2006E
Fixed PET	90	100	110	120	130
USON PET	10	10	10	10	10
Mobile PET	88	101	105	109	117
Total - U.S.	188	211	225	239	257

US annual PET scanner sales

OWS estimate	2002E	2003E	2004E	2005E	2006E
New U.S. units	188	211	225	239	257
Total U.S. units	515	726	950	1,189	1,447
Market penetration	25%	35%	45%	57%	69%

US annual PET scanner sales; penetration based off 2,092 US market potential we computer earlier

To obtain the world sales estimates, in 2002, we assumed that US PET scanner sales would be 60% of total worldwide sales. We expect this percentage to drop gradually to 50% by 2006, as the US market becomes saturated.

OWS estimate	2002E	2003E	2004E	2005E	2006E
New WW units	313	383	424	460	515
Total WW units	1,005	1,388	1,812	2,272	2,786

Worldwide annual PET scanner sales

OWS estimate	2002E	2003E	2004E	2005E	2006E
New CTMI units - US	91	99	106	110	116
New CTMI units - rest	50	52	58	62	72
Total CTMI new units	141	151	164	172	188
CTMI installed base	546	697	861	1,032	1,220*
Siemens unit minimum	907	981	1,055	1,129	1,203
CTMI WW market share	54%	50%	47%	45%	44%

*Siemens trigger is surpassed

In making our estimates we assumed that CTMI's market share slowly declines in the worldwide installed PET scanner market. This is mostly due to competition from GE, but also from Phillips, based on the PET survey we mentioned earlier in the report and based on our interviews of PET scanner facility managers about their purchasing intentions. In particular, we assumed that CTMI's share of PET scanners sold into the U.S. market gradually declines from 48.5% in 2002 to 45% by 2006. We also assumed that CTMI sells 40% of the units sold outside the U.S. in 2002. We expect that share to decline to 28% by 2006. Siemens has a strong presence in Germany, which is already fairly well penetrated in terms of PET scanner placements.

2. Players in the PET scanner market

In mid-1999 there were only two major companies with PET scanners on the market. Now there are more competitors in the field. Prices have almost been halved from 5-7 years ago, when PET scanners cost as much as \$3M. Now a PET scanner could be acquired for \$1.5M. Philips Medical has acquired ADAC Laboratories, a top-three player in the PET device market.

CTMI was a pioneer in the PET scanner market and a dominant player in the early stages of market penetration. General Electric is the other major player in the PET scanner market and offers both PET scanner and PET/CT technology. GE got into the PET business later than CTMI, but has aggressively taken ever larger share of total annual PET scanner placements, as illustrated in the table below.

The table shows the number of PET scanners sold worldwide by each manufacturer in a given year. The second table shows market share trends of the new sales each year. We see that CTMI's share of all PET scanners sold in a given year has come down from 80% of units sold in 1997 to 42% of units sold in 2001.

PET scanners	1997	1998	1999	2000	2001
CTMI	28	31	40	61	88
GE	4	10	14	39	80
Other	3	4	18	40	42
Total	35	45	72	140	210

Number of PET scanners sold per year worldwide

% Total	1997	1998	1999	2000	2001
CTMI	80%	69%	56%	44%	42%
GE	11%	22%	19%	28%	38%
Other	9%	9%	25%	29%	20%
Total	100%	100%	100%	100%	100%

CTMI management and the "bulls" claim that CTMI's LSO detector, which offers faster PET scan times than the standard BGO detector gives it an advantage over GE in terms of winning sales contracts. LSO detector is a part of CTMI's PET/CT system, device that has PET and CT in one. The price of a PET/CT device is about \$2.2M, the same as the cost of PET and CT separately. CTMI has an exclusive license to the LSO technology until 2008. Our conversations with PET sites indicated that LSO technology is not an important driver of their purchases at this point. Many PET sites are not operating anywhere near capacity and are not concerned about paying a premium to speed up scan times. According to figures recently reported by the National Electronic Manufacturers Association, GE Medical Systems currently has 82% share of the U.S. market for PET/CT systems and 56% share of the U.S. market for PET and PET/CT systems combined.

In October 2001 GE signed a multiyear agreement with US Oncology (USON) to be the exclusive supplier of PET scanners to the entire US Oncology network. US Oncology is affiliated with over 868 physicians operating in over 450 locations, including 77 outpatient cancer centers, in 27 states. US Oncology currently has 13 PET installations. In 2001, US Oncology estimates that their network physicians provided care to over 500,000 cancer patients, including approximately 200,000 new patients, representing 15% of the nation's newly diagnosed cancer cases. In the first six months of 2002, USON PET scanners averaged about 3.7 scans per day. Over the next few years USON plans to open more cancer centers and outfit them with state of the art PET scanner. USON expects that this growth will result in a purchase of approximately 10 GE PET scanners per year.

The US Oncology PET scanner requirement estimates give us another data point to size the U.S. PET scanner market. National Cancer Institute estimates that there were 9M cancer survivors alive on January 1, 1999. If we assume that

there are 10M cancer patients in 2002, then US Oncology provides care for about 5% of the cancer population. However, US Oncology provides care to 15% of US newly diagnosed cancer patients, which is about 10% of the cancer survivor population per year. If we extrapolate USON's purchasing plan of 10 PET scanners per year for four to five years on the entire cancer population, we arrive at 1,000 additional PET scanners to be purchased. Adding in the expected PET scanner installation of 500 by year's end, we arrive at a market size of 1,500 for the US. Once again, we have been able to validate the reasonableness of our assumption of about 2,092 total US market potential.

3. Economics of owning a PET scanner

We have heard a number of complaints from PET centers about economics of ownership. We have also come across a number of interesting quotes from some prominent industry insiders. Ruth Tesar, the executive director for Northern California PET Imaging Center in Sacramento is quoted as saying, "The cost per procedure is higher than \$1,850 for most PET centers that have recently been established." Another observer noted "PET cameras are in the \$1.8 million range, and depreciate by about \$30,000 per month. Is \$1,300 a good rate? It's a rate. Is \$900 a good rate? It's bankruptcy." PET scans can cost as much as \$3,000 per scan, four times as much as MRI tests and seven times as much as CT scans.

a. Centers for Medicare & Medicaid (CMS) proposed lower reimbursement rates for PET in its 2003 schedule. If finalized, the rule will move PET out of its new-technology ambulatory patient classification (APC), and will set payments for cardiac procedures at \$870.11 and for tumor procedures at \$971.53 (CPT codes G0030-G0047). The 2002 rates for these procedures were \$958.52 and \$1,375, respectively. An FDG dose of 4-40 mCi/ml (CPT code C1775) is scheduled for reimbursement at \$475, the same as in 2002. The reimbursement in 2001 for tumor procedure and FDG combined was \$2,331.18. Therefore, the combined rate for tumor procedure and FDG fell 21% in 2002 and is expected to fall another 22% in 2003. Frost and Sullivan in a recent report on the U.S. nuclear medicine market mentions decreased future reimbursements as one of main obstacles in preventing widespread PET usage in mainstream clinical practice.

b. CTMI in its investor presentation shows a slide on PET provider profitability summarized in the table below.

CTMI presentation	breakeven	growing	established
Cases per day	2.75	5	8
Reimbursement per case	2,100	2,100	2,100
Annual revenue	1,501,500	2,730,000	4,368,000
Equipment lease	400,000	400,000	400,000
Maintenance	120,000	120,000	120,000
FDG Price	400	400	400
FDG	286,000	286,000	286,000
Personnel	700,000	800,000	900,000
Net income	-4,500	890,000	2,116,000

CTMI's conclusion from the slide is that a PET provider breaks even doing 2.75 cases/day. We note that the CTMI model uses a reimbursement rate of \$2,100 and 260 days per year. The 260 figure includes holidays. Most PET sites we checked with are open 250 days per year.

If we use the 2002 CMS rate of \$1,850, 250 days per year and keep the rest of CTMI's assumptions about operating costs, we arrive at a break-even point of 3.42 cases per day.

2002 reimbursement	breakeven	established
Cases per day	3.42	8
Reimbursement per case	1,850	1,850
Annual revenue	1,581,750	3,700,000
Equipment lease	400,000	400,000
Maintenance	120,000	120,000
FDG Price	400	400
FDG	355,680	832,000
Personnel	700,000	900,000
Net income	6,070	1,448,000

Further, if we reduce the reimbursement rate to the CMS 2003 proposed rate of \$1,446.53, we arrive at a break-even point of 4.75 cases per day.

2003 reimbursement	breakeven	established
Cases per day	4.75	8
Reimbursement per case	1,447	1,447
Annual revenue	1,717,754	2,893,060
Equipment lease	400,000	400,000
Maintenance	120,000	120,000
FDG dose price	400	400
FDG	494,000	832,000
Personnel	700,000	900,000
Net income	3,754	641,060

c. Since the economics of owning and operating a PET scanner are not very favorable for most hospitals, many smaller hospitals lease mobile units for a specified period of time. Typically, the mobile unit serves small hospitals one day a week. The mobile unit comes with the technologist to operate the equipment and all the supplies necessary to perform the PET scan procedure. We spoke with a couple of imaging equipment companies that own a number of mobile PET scanners. Typically the hospital will either pay a low fee per patient to the mobile PET service provider and get reimbursed from the insurance for the scan or the PET service will file for reimbursement and pay the hospital a nominal fee for scheduling overhead. Either way, the hospital comes out ahead financially with no capital expenditure outlays or investment in training personnel to operate the equipment.

4. Growth in the number of PET scan procedures

a. Bulls anticipate that the newly approved indications (as of July, 2001) and the breast cancer indication that went into effect October 1, 2002 will result

in a surge of growth in new scans. One “street” report quotes market potential of 5.5 million annually reimbursable PET procedures. However, breast cancer cases make up 2 million or 44% of the “street” overall market figure. Based on our research, we think that the market potential is more realistically at about 1.5 million annually in total for all cancer indications reimbursed thus far for PET.

The “street’s” 5.5M figure includes all occurrences of a particular disease. Oncologists and insurance company people with whom we spoke tell us that many of the cases included in the “street” numbers would generally not be evaluated with PET. Similarly, the very late stage patients who have reached a point where treatment is no longer available would not be scanned with PET. PET scans benefit most in either diagnosing a malignancy that cannot be diagnosed through other means or deciding on treatment for advanced-stage, metastatic cancer.

We spoke with a number of oncologists about the role of PET in diagnosis and treatment of cancer. Oncologists told us that in cancer treatment PET is primarily used in staging metastatic disease and restaging the disease in case of recurrence. Staging is the process physicians use to assess the size and location of a patient’s cancer to determine the most optimal form of treatment. Staging metastatic disease refers to assessing the size and location of cancer that has spread from one part of the body to another. The original location is called the primary tumor. Metastatic tumors are tumors that arise at sites away from the original location. Restaging the disease means assessing the size and location of cancer that has come back.

Below is a list of PET indications reimbursed by CMS along with effective dates of coverage. PET is now reimbursed for about 70% of all potential cancer applications in the U.S.

Clinical Condition	Coverage	Effective Date
Solitary Pulmonary Nodules	Characterization	1/1/98
Lung Cancer (non small cell)	Initial Staging	7/1/99
Lung Cancer (non small cell)	Diagnosis, staging & restaging	7/1/01
Esophageal Cancer	Diagnosis, staging & restaging	7/1/01
Colorectal Cancer	Determining location of tumors if rising CEA level suggests recurrence	7/1/99
Colorectal Cancer	Diagnosis, staging & restaging	7/1/01
Lymphoma	Staging and restaging only when used as an alternative to a Gallium scan	7/1/99
Lymphoma	Diagnosis, staging & restaging	7/1/01
Melanoma	Evaluating recurrence and restaging	7/1/99
Melanoma	Diagnosis, staging and restaging; non-covered for evaluating regional nodes	7/1/01
Head & Neck Cancers (excluding CNS and Thyroid)	Diagnosis, staging & restaging	7/1/01
Breast Cancer	Staging recurrence/restaging & monitoring therapy	10/1/02
Myocardial Viability	Covered only following inconclusive SPECT	7/1/01
Myocardial Viability	In addition to above, primary or initial study to determine Myocardial Viability to revascularization	7/1/02
Refractory Seizures	Covered for pre-surgical evaluation only	7/1/01
Perfusion of the Heart	Covered for non-invasive imaging	3/14/95

We estimate a market potential of 1.4M annual PET scan procedures for cancers currently approved based on our conversations with oncologists, insurance companies, and radiologists. For each indication, we took the percentage of cases that are advanced or metastatic at diagnosis for all indications except lymphoma, where PET is used routinely in place of a gallium scan in a majority of the cases and lung cancer, where PET is clinically well understood. Further, we were told by oncologists that they would only order a PET scan if a change in treatment is contemplated after other methods of assessment have been performed, and not simply as a monitoring method.

Indication	New Diagnosis per Year	Potential PET scans for diagnosis /staging	Number of people living with disease	Number of people living with disease in stage where PET is helpful	Potential PET scans for recurrence staging	Total potential PET scans per disease per year
Lung Cancer	180,000	162,000	350,000	300,000	300,000	462,000
Colorectal Cancer	148,300	44,490	790,700	200,000	200,000	244,490
Melanoma	45,000	9,000	384,000	35,000	26,250	35,250
Lymphoma	61,000	61,000	228,390	228,390	456,780	517,780
Head and Neck cancer	30,000	9,000	259,000	50,000	50,000	59,000
Esophageal Cancer	10,000	7,500	11,000	10,000	5,000	12,500
Breast Cancer	180,000	36,000	1,820,000	24,000	24,000	60,000
Total	654,300	328,990	3,843,090	847,390	1,062,030	1,391,020

OWS estimates based on medical literature and conversations with oncologists

Oncologists further emphasized the importance of establishing clinical utility of PET. They told us that in a number of cases PET was shown to have better sensitivity and specificity than conventional treatment, but few studies have evaluated the clinical impact of PET on staging a patient and on clinical management of a patient. Having results of clinical utility for a new diagnostic treatment is critical for the adoption process. Insurance companies confirmed this. Some insurance companies do not reimburse all the indications covered by CMS because they think that there is “inadequate data regarding how the use of PET scans may be used to benefit health outcomes, primarily due to the lack of data regarding diagnostic performance in the different settings.”

The only indication that is clinically well understood in conjunction with PET is non-small cell lung cancer. According to the oncologists with whom we spoke, this is the only indication where clinical utility of PET has been fully validated. Even in these cases PET is only used when X-ray and CT scan results are not conclusive. About 180,000 new cases of lung cancer are diagnosed in the U.S. every year. Initial staging of lung cancer has been approved since January of 1998.

PET is also widely used in staging and restaging of lymphoma, as few alternatives are available. This indication went into effect on July 1, 1999. About 61,000 new cases of lymphoma are diagnosed in the U.S. every year (7,000 cases of Hodgkin lymphoma and 54,000 cases of non-Hodgkin lymphoma). Approximately 289,390 people in the United States are living with non-Hodgkin lymphoma.

The biggest discrepancy between our market size potential and the “street’s” is the size of the breast cancer population that would benefit from a PET scan. About 180,000 new cases of breast cancer are diagnosed per year, 20% of which are at an advanced stage. There are approximately 50,000-60,000

women living with advanced stage breast cancer in the U.S. According to the breast oncologist with whom we spoke, PET is only useful (and reimbursed) in (1) staging for metastatic breast cancer and (2) to determine if cancer has come back. Still, there is no standard indication with PET in diagnosis and treatment of breast cancer. The breast oncologist with whom we spoke estimates that only 2,000-4,000 PET scans were done in monitoring of advanced stage breast cancer last year. This number is expected to increase. However, the population of breast cancer patients that would benefit is limited to about 60,000. Oncologists tell us that PET was shown not to be sensitive enough in initial staging of breast cancer. A number of studies were performed with PET to help screen for breast cancer in women under the age of 50, as well as to see if cancer could be detected in the lymph nodes pre-surgery. None of these studies have given encouraging results. The PET modality is at this point simply not sensitive enough to be useful in anything but what is currently reimbursed.

Every year in the U.S, about 45,000 new cases of melanoma are diagnosed and 7,500 people die from the disease. For the approximately 20% of patients diagnosed with regional or metastatic melanoma, the 5-year survival rate is only 55 % and 13% respectively. The risk of recurrence is high and the median survival in patients with metastatic disease is only about 6-9 months.

According to the American Cancer society an estimated 148,300 new cases of colorectal cancer (cancer of the colon or rectum) will be diagnosed in 2002 Colorectal cancer. About 57,000 deaths from colorectal cancer occur every year.

Head and neck cancer occurs in about 30,000 new cases per year and results in about 7,500 deaths per year. Average life expectancy is three years. About 50%-75% of new diagnosis relapse, so PET would be used in staging the relapses.

An industry insider told us that CTMI has hired part-time sales people to call oncologists and sell them on the use of PET. According to our source the sales people have described the process as a challenge, saying that it is tough to influence and change physicians' habits. Many physicians want evidence of clinical utility to change habits. So far, lung cancer is the only indication where clinical utility is reasonably well understood. Frost and Sullivan has listed "a lack of referring physician education and awareness" as the main obstacle that prevents PET adoption into mainstream clinical practice.

There is no question that oncologists in general are excited about the promise of PET, and that their usage of PET is growing. However, the picture they painted calls for a more conservative growth than the "street" presents.

b. Bulls are also very excited about the potential for reimbursement approval for Alzheimer's, as this almost doubles their market potential estimate. Alzheimer's, in their opinion, would add another 4 million potential cases to the "street's" current estimate of 5.5 million. The "street" estimates approval for Alzheimer's in 2004. We don't think that the approval is likely to be granted. Even if it does pass, radiologists tell us that adoption of PET in treating this

population will be minimal and slow.

On January 10, 2002, the Diagnostic Imaging Panel of the Medicare Coverage Advisory Committee recommended that CMS not cover the use of FDG PET in the diagnosis and management of Alzheimer's disease. Voting unanimously, the panel found that the evidence is not adequate to demonstrate "...that PET has clinical benefit in evaluating patients..." with possible or probable AD or with mild cognitive impairment as defined by the current American Academy of Neurology guidelines. On April 16, 2002, the executive committee of the Medicare Coverage Advisory Committee (MCAC) unanimously endorsed a diagnostic imaging panel's earlier recommendation not to cover PET for Alzheimer's disease (AD) and mild cognitive impairment (MCI).

We are told that the medical community in general is opposed to having a patient undergo a costly test to diagnose a disease that cannot be treated. This has been one of the objections by some in the medical community against reimbursing PET for Alzheimer's diagnosis. In the WSJ story that appeared earlier this month the vice president of the Alzheimer's Association, the largest patient advocacy group, elaborated on the reasons why her organization is opposing coverage at this time.

"It's a debate going on within the scientific community, and our best advisers say the evidence isn't there yet" to justify PET scans for routine diagnosis of Alzheimer's disease, said Judy Riggs, the group's acting vice president for public policy. "At best, there are a small subset of cases where PET scans might add some further element of certainty, but that additional precision wouldn't have any impact on patient outcomes at this time."

c. The "street" assumes that scanner placements will fuel growth in the number of PET studies performed per year. The bulls are also optimistic in their projections estimating how many people will benefit from newly approved indications for PET. In particular, the "street" expectations concerning the number of PET scans performed each year in the U.S. are summarized in the table below.

"street" estimate	2000A	2001A	2002E	2003E	2004E	2005E	2006E
PET scan procedures	102,000	195,000	359,000	670,000	1,000,000	1,350,000	1,804,000
U.S. PET units – beg	143	220	327	517	797	1,175	1,679
U.S. PET units – end	220	327	517	797	1,175	1,679	2,301
U.S. PET units – ave	182	274	422	657	986	1,427	1,990
scans / scanner / day	2.25	2.85	3.40	4.08	4.06	3.78	3.63

We differ with the "street" on the PET scanner device growth rate, as well as procedure growth rate. We think that the market potential for PET procedures is smaller than the "street" estimates, but that it will be penetrated faster than the "street" estimates in patient populations where PET can make a difference in decision regarding treatment. Our projections are summarized in the table below. Radiologists and PET scanner operators have told us to expect the number of scans to double roughly every couple of years for the next 3-4 years and then to

level off, given the currently reimbursable indications.

OWS estimate	2000A	2001A	2002E	2003E	2004E	2005E	2006E
PET scan procedures	102,000	195,000	359,000	590,000	800,000	1,050,000	1,315,000
U.S. PET units - beg	143	220	327	515	726	950	1,189
U.S. PET units - end	220	327	515	726	950	1,189	1,447
U.S. PET units - ave	182	274	421	620	838	1,070	1,318
scans / scanner / day	2.25	2.85	3.41	3.80	3.82	3.93	3.99

5. PETNet

If Siemens exercises its call option to buy out the remainder of CTMI's scanner business, PETNet will essentially represent what is left of CTMI. Management is focusing efforts to grow the number of facilities and improve gross margins in its PETNet business. We think that the PETNet business is a commodity business, and its current strong position in the market may not be long lived as a result of competitive pressures. Further, given the expansion efforts to double the size of the pharmacy network, we expect gross and operating margins to remain under pressure.

To image a patient with a PET scanner, the patient must first be injected with a radioactive substance or a radiotracer. The radiotracer used in most PET procedures is F-18-Fluorodeoxyglucose (FDG). FDG has a half-life of 110 minutes, which necessitates manufacturing the substance in relative proximity to the customer PET site where it will be used. CTMI's PetNet division manufactures and distributes FDG through its thirty-two facilities across the U.S. A piece of capital equipment called cyclotron is required to manufacture FDG. CTMI manufactures its own cyclotrons.

a. Competition. Three national companies produce and distribute FDG: PetNet (owned by CTMI), Syncor (will be purchased by Cardinal Health), and Eastern Isotopes (owned by IBA). Management and the "street" both claim that PetNet's share of the market is in excess of 60%, as defined by total PET scanners served. They claim that IBA's share is about 20%, and that Syncor's share is even smaller. We don't think that this is a good way to define market share, as scanner usage and FDG need varies with each scanner. Instead, if we look at the number of FDG doses sold by CTMI in 2001 vs. number of all PET scans performed in 2001, we arrive at a 33.1% market share for PetNet.

We note that Syncor has a network of 130 nuclear pharmacies across the country, 60 of which deliver FDG. After its purchase of Syncor is complete, Cardinal Health will have 62%-64% share of the radiopharmaceutical market, as well as an extensive delivery network. Cardinal (with Syncor) also has solid relationships with 7,000-7,500 customers. This allows Cardinal to easily adjust its production of FDG depending on market conditions. In contrast, PetNet has 32 pharmacies and plans to add 6-8 annually until it reaches 60 locations. PetNet does not distribute other radiopharmaceuticals.

In 2000 GE and Syncor started a strategic relationship. Under terms of the agreement, GE Medical Systems distributes Syncor's FDG radioisotopes to

health providers. In turn, Syncor has agreed in principal to purchase multiple units of GE Medical's Advance PET scanner and GE PETtrace cyclotron.

In addition to competitive pressures from Syncor and IBA, PetNet may lose some bigger customers as they decide to make their own FDG. We spoke to a few large users who operate more than five scanners. They tell us that they are seriously exploring making their own FDG. The up-front investment would be \$1.5M for the cyclotron and another \$2M for construction of housing for the cyclotron. The move to make one's own FDG certainly does not seem to be a trend currently, but as the number of PET procedure grows it may be more likely to occur.

b. Price. FDG is a commodity chemical. Except for reliable delivery and low cost, PET centers did not express any other requirement in choosing a supplier. Many markets are currently served by only one supplier and the PET center is thereby forced to pay a higher price. The average market price of FDG is \$400 per dose. PETNet charges higher than the competition at \$400-\$500 per dose in markets where competitors do not yet have a presence. We think that PETNet's higher prices are not sustainable. In highly competitive markets, such as New York, PETNet was already forced to come down in price. The price we were quoted by all suppliers was \$275 per dose. We think that PETNet's ability to maintain high prices will be short-lived. Syncor and IBA are both aggressively expanding their networks.

In California, PETNet was the only option (other than making FDG in-house) for supply of FDG for PET scanner operators. Syncor entered the market a few months ago and it seems that nearly everyone in the area has already switched to Syncor or is planning to do so when their PETNet contract runs out. One PET scanner facility manager told us that two years ago PETNet charged \$700 per dose, then it went down to about \$500 per dose before this facility terminated the contract a couple of months ago. The pricing from Syncor is much better, at \$300 per dose. The facility manager thinks that the price will go into the \$200-\$275 range per dose next year, as he has heard it is already happening on the East Coast with IBA driving down the price. IBA plans to open a California location by mid-November, so the pricing competition should intensify. We note again that California has the largest number of PET scanners per state.

As competition and volume per scanner increase, FDG prices will decrease. The "street" projects a 11% Y/Y price decrease in 2002, 25% Y/Y price decrease in 2003, and a 16% Y/Y price decrease in 2004. The average price per dose was \$447 in 2001. The "street" assumes an average price of \$398 per dose in 2002, \$297 per dose in 2003, and \$250 per dose in 2004. We use the same assumptions in our model, but think that the prices will erode a few percentage points further in 2003 and 2004, mainly due to increased competition.

c. Customer Service. In interviewing different PET scanner site managers we learned that PETNet ranks third in customer service behind Syncor and IBA. We were told that Syncor is good at creating relationships with its PET site clients. Syncor offers perks that PETNet does not, such as support services,

tungsten shielding of the radioactive FDG compound to ensure safer handling, and a deeper network of cyclotrons to protect against production failures. IBA also offers marketing and support services that were appreciated by the facility managers. We heard from all the facility managers with whom we spoke that PETNet simply drops off the dose and “disappears” until the next dose is needed. Everyone with whom we spoke who has tried either IBA or Syncor prefers either of their customer service to PETNet’s.

d. PETNet profit model. FDG is produced in batches, typically of 70-90 doses each. Doses not used or sold have to be disposed of because of limited half-life. Management claims that PETNet centers operate at 20%-25% capacity. However, PETNet centers we interviewed indicated that at this point they sell about 50% of their batches. We learned that most locations are scheduled to receive a cyclotron upgrade shortly, which is planned to double capacity.

Management’s plan is to increase capacity so as to preserve gross margins in response to falling FDG prices. Management claims that at 25% capacity, fixed cost per dose is \$200, and variable cost is \$100 per dose. If a dose is sold at \$400, it yields 25% gross margin. At 50% capacity, the fixed cost falls to \$100 per dose, and variable cost is \$100 per dose. If a dose is sold at \$300, it yields \$100 of profit or 33% gross margin.

If we examine the trend in the last 3.5 years we see improvement in gross margin in 2000, then deterioration for 2.5 years. Part of this is explained by lower prices charged every year and opening of new locations. Although volumes of doses sold went up, the doses were manufactured in more locations, which increased the fixed cost.

(\$MM)	1999	2000	2001	1H02
PETNet Revenue	10.7	20.5	35.6	25.6
COGS	8.4	15.2	27	20.3
Gross Margin	21.5%	25.9%	24.2%	20.7%
SG&A	2.3	3.2	5	4.5
SG&A Margin	21%	16%	14%	18%
R&D	0.4	1	1.7	1.1
R&D Margin	3.7%	4.9%	4.8%	4.3%
Operating Income	-0.4	1.1	1.9	-0.3
Operating Margin	-3.7%	5.4%	5.3%	-1.2%

Source: Company reports

Going forward, CTMI plans to add 6-8 stores annually until it reaches 60 stores. We expect this to cause further pressure on PETNet gross margins. Increase in volume of doses sold at more established pharmacies should offset the decline somewhat; however, we think that the net effect will be a decline in gross margins. As a reference, gross margin declined in 1H02 with only the addition of one radiopharmacy.

e. The “street” also projects that by 2006 PETNet will sell over 70% of FDG doses sold in the US. This is far too aggressive. Our estimates are more reasonable given the competitive landscape and are summarized below.

"street" estimate	2001A	2002E	2003E	2004E	2005E	2006E
PET scan procedures	195,000	359,000	670,000	1,000,000	1,350,000	1,804,000
PETNet doses sold	64,600	123,843	234,490	402,451	797,500	1,309,000
PETNet share	33%	34%	35%	40%	59%	73%

OWS estimate	2001A	2002E	2003E	2004E	2005E	2006E
PET scan procedures	195,000	359,000	590,000	800,000	1,050,000	1,315,000
PETNet doses sold	64,600	123,843	210,000	290,000	380,000	460,000
PETNet share	33%	34%	36%	36%	36%	35%

6. Financial Considerations

a. As of June 30, 2002 CTMI had \$3.88 per share in cash. Its book value was \$5.74 per share and tangible book was \$5.41 per share. Short term debt was \$5.6M and long term debt was \$83M. CTMI went public on June 21, 2002 and raised approximately \$172 million, after deducting underwriting discounts and commissions and estimated offering expenses in the offering.

(\$MM)	1999	2000	2001	1H 2002
Cash from operations	0.107	-10.647	-10.884	2.562
Capex	0.379	6.275	10.362	9.345
Free cash	-0.272	-16.922	-21.246	-6.783

b. Related party transactions.

CTMI has three agreements with Concorde Microsystems, Inc., a company partially owned and operated by children of the CTMI CEO. In the MicroPET Agreement, CTI PET Systems assigned its rights to develop positron emission tomography for laboratory animals (call it pet PET). Concorde was granted a non-exclusive royalty-free license for the sole purpose of production by Concorde of products for use in the high resolution animal PET tomography market. All technology developed by Concorde useful in the design, development or production of PET tomographs for humans belongs to CTI PET Systems. All technology developed by Concorde that is useful in the development of PET tomographs for animal applications belongs to Concorde.

The prospectus reads: "Effective October 1, 1999, CTI PET Systems and Concorde entered into a Development and Exclusive Supply Agreement pursuant to which CTI PET Systems engaged Concorde to develop, manufacture and supply application specific integrated circuits (commonly referred to as ASICS) used in the PET scanners manufactured by CTI PET Systems. CTI PET Systems agreed to pay Concorde for its development costs, production set-up costs and design maintenance procedures incurred in connection with the development and production of the microchips or ASICS. CTI PET Systems agreed that upon the successful development of the ASICS, Concorde would be the exclusive supplier of the ASICS. CTI PET Systems also agreed to acquire at least \$50,000 worth of ASICS from Concorde during the term of the agreement. All technology developed by Concorde in the performance of the agreement belongs to CTI PET Systems. Concorde agreed for a period of five years after the new ASICS are

developed not to engage in or own an interest in a business competitive with CTI PET Systems or to design ASICS for any competitor of CTI PET Systems. The agreement has a five-year term. The Company paid Concorde for this development \$79,000, \$429,000 and \$554,000 for the years ended September 30, 1999, 2000, and 2001, respectively.”

CTI also acquired land and is leasing space from a general partnership owned in part by certain directors and officers of the company.

The prospectus reads: “Pursuant to a Real Estate Purchase and Sale Agreement dated August 16, 2001, we acquired approximately six acres of land from Technology Center Partners for an aggregate purchase price of \$1,453,760. Technology Center Partners is a Tennessee general partnership owned in part by Terry D. Douglass, J. Kelly Milam, Ronald Nutt and Michael Crabtree. The ongoing expansion of our manufacturing and administrative space is being constructed on the land purchased from Technology Center Partners. We have been granted a right of first refusal to purchase an adjacent piece of property from Technology Center Partners which expires on August 16, 2006.”

“On September 15, 2000, we entered into a Lease Agreement with Corridor Park Limited Partnership II for approximately 8,100 square feet of office space located at 830 Corridor Park Boulevard, Suite 100, in Knoxville, Tennessee. Certain of our officers, directors and principal stockholders, including Terry Douglass, Ronald Nutt, J. Kelly Milam and Michael Crabtree are partners of Corridor Park Limited Partnership II. The Lease Agreement had an initial twelve-month term that expired on September 15, 2001, but was extended for an initial twelve-month period through October 31, 2002. We have a right during this renewal period to terminate the Lease Agreement upon 60 days notice to Corridor Park Limited Partnership II. We pay \$9.00 per square foot to rent this space plus a pro rata share of maintenance, taxes, insurance and other expenses. We also pay as additional rent the unamortized cost of certain build-out construction that was completed at our request. Currently, we use this property for administrative offices.”

c. Valuation

“Street” estimates currently call for CTMI to generate \$255M in sales and to earn \$0.26. We do not quarrel with this estimate. However, we begin to part ways with the “street” in 2003. The “street” expects \$344M in revenue and \$0.57 EPS in 2003 and \$427M in revenue in 2004 with EPS of \$0.78, a 37% increase over 2003. The share currently trade at \$24.25, 31x 2004 estimates.

We think that by some time next year it will be clear that the “street” expectations are far too high, as even nearer term 2003 estimates are unlikely to be achieved. This will cause a total re-evaluation of CTMI’s long term prospects, which will be found to be wanting. We expect EPS to grow by about 32% in 2004, but prospects will also look substantially rosier than is now thought to be the case. Indeed, we project revenues of \$415M in 2005 with EPS of \$0.63, just 11%

increase year over year. We think a 20x multiple on 2004 EPS is generous, and we set our price target at \$12.50.

Alternatively, CTMI has a market valuation of about \$1B today. This is about 2.7x our 2004 sales estimate and about 2.5x our 2005 sales estimate. We think that CTMI should sell at no more than 1x 2005 sales, given its poor long-term prospects, which would be about \$9.00 per share. Book value is \$5.74.

7. Financial Projections

We assume CPS revenue growth of 38% Y/Y in FY2002, 6% Y/Y in FY2003, 13% Y/Y in FY2004, and 5% Y/Y in FY2005. The “street” estimates CPS revenue growth of 38% Y/Y in FY2002, 19% Y/Y in FY2003, and 25% Y/Y in FY2004. We project PETNet revenue growth of 57% Y/Y in FY2002, 18% Y/Y in FY2003, 26% Y/Y in FY2004 and 31% Y/Y in FY2005. The “street” estimates PETNet revenue growth of 57% Y/Y in FY2002, 36% Y/Y in FY2003, and 31% Y/Y in FY2004. We expect overall revenue growth of 35% Y/Y in FY2002, 16% Y/Y in FY2003, 24% Y/Y in FY2004, and 13% Y/Y in FY2005. The “street” estimates overall revenue growth of 35% Y/Y in FY2002, 35% Y/Y in FY2003, and 24% Y/Y in FY2004.

We assume gross margin of 41% in FY2002, 39.5% in FY2003, and 39.5% in 39% in FY2004 and FY2005. The “street” assumes gross margin of 41% in FY2002, 39.5% in FY2003 and 41.5% in FY2004. We expect the SG&A expense to be 13.3% of revenue in FY2002, 11.6% of revenue in FY2003, 11% of revenue in FY2004, and 10% of revenue in FY2005. The “street” assumes it to be 13.3% of revenue in FY2002, 11.3% of revenue in FY2003, and 11.3% of revenue in FY2004. We estimate the R&D expense to be 9% of revenue in FY2002, FY2003, FY2004, and FY2005, in line with the “street”. We arrive at an operating margin of 19% in FY2002, FY2003, FY2004, and 20% in FY2005. The “street” projects operating margins of 19% in FY2002 and FY2003, which then increases to 21% in FY2004. We assume tax rate of 38% going forward, in line with the “street”.

(\$MM)	FY2001A	FY2002E	FY2003E	FY2004E	FY2005E
CPS	133.6	184.5	195.6	221.5	231.6
PETNet	35.7	56.1	66.4	83.5	109.0
Detector	18.4	28.7	37.4	48.4	60.0
Other	45.2	66.6	87.1	115.0	135.0
Eliminations	-44.3	-80.9	-90.0	-100.0	-120.0
Total Revenue	188.6	255.0	296.5	368.4	415.6
COGS	110.1	150.5	179.3	224.7	253.5
R&D	18.9	22.1	26.2	33.9	38.2
SG&A	29.4	33.8	34.4	40.5	41.6
Operating Income	30.2	48.6	56.6	69.3	82.3
Interest Expense	3.8	4.8	4.0	4.2	4.4
Other Expense	-0.3	-0.8	-0.8	-0.8	-0.8
Income before tax	26.7	44.6	53.4	65.9	78.7
Tax	9.9	16.8	20.3	25.0	29.9
Income before MI	16.8	27.8	33.1	40.8	44.8
Minority interest	6.4	12.8	13.2	14.4	15.0
Preferred Div	2	4.7	0.0	0.0	0.0
Net Income	8.4	10.3	19.9	26.5	29.8
Reported NI	3.8	-9.6	19.9	24.9	28.2
EPS	0.27	0.25	0.43	0.57	0.63
EPS-reported	0.12	-0.34	0.43	0.57	0.63
S/O	31.4	45.80	45.8	46.2	47

Y/Y Change	FY2001A	FY2002E	FY2003E	FY2004E	FY2005E
CPS	55%	38%	6%	13%	5%
PETNet	74%	57%	18%	26%	31%
Detector	72%	56%	30%	29%	24%
Other	21%	47%	31%	32%	17%
Eliminations	43%	83%	11%	11%	20%
Total Revenue	52%	35%	16%	24%	13%
COGS	61%	37%	19%	25%	13%
R&D	-13%	17%	18%	29%	13%
SG&A	98%	15%	2%	18%	3%
Operating Income	63%	61%	17%	22%	19%
Interest Expense	65%	26%	-17%	5%	5%
Other Expense	-108%	167%	0%	0%	0%
Income before tax	110%	67%	20%	23%	19%
Tax	155%	69%	21%	23%	19%
Income before MI	90%	65%	19%	23%	10%
Minority interest	44%	99%	4%	9%	5%
Preferred Div	5%	n/a	n/a	n/a	n/a
Net Income	240%	23%	92%	33%	13%
Reported NI	54%	-352%	-308%	25%	13%
EPS	206%	-5%	71%	32%	11%
EPS-reported	36%	-389%	-227%	32%	11%
S/O	10%	46%	0%	1%	2%

% Revenue	FY2001A	FY2002E	FY2003E	FY2004E	FY2005E
CPS	71%	72%	66%	60%	56%
PETNet	19%	22%	22%	23%	26%
Detector	10%	11%	13%	13%	14%
Other	24%	26%	29%	31%	32%
Eliminations	-23%	-32%	-30%	-27%	-29%
Total Revenue	100%	100%	100%	100%	100%
COGS	58%	59%	60%	61%	61%
R&D	10%	9%	9%	9%	9%
SG&A	16%	13%	12%	11%	10%
Operating Income	16%	19%	19%	19%	20%
Interest Expense	2%	2%	1%	1%	1%
Other Expense	0%	0%	0%	0%	0%
Income before tax	14%	17%	18%	18%	19%
Tax	5%	7%	7%	7%	7%
Income before MI	9%	11%	11%	11%	11%
Minority interest	3%	5%	4%	4%	4%
Preferred Div	1%	2%	0%	0%	0%
Net Income	4%	4%	7%	7%	7%
Reported NI	2%	-4%	7%	7%	7%

(\$MM)	1QFY02A	2QFY02A	3QFY02A	4QFY02E
CPS	30.5	40.8	49.3	63.9
PETNet	12.3	13.3	14.9	15.6
Detector	5.6	5.0	7.6	10.5
Other	9.4	11.5	22.7	23.0
Eliminations	-10.2	-15.1	-25.5	-30.1
Total Revenue	47.6	55.5	69.0	82.9
COGS	28.4	32.6	41.1	48.4
R&D	4.6	4.9	5.9	6.7
SG&A	7.2	8.5	8.9	9.2
Operating Income	7.4	9.5	13.1	18.6
Interest Expense	1.2	1.2	1.2	1.2
Other Expense	-0.2	-0.2	-0.2	-0.2
Income before tax	6.4	8.5	12.1	17.6
Tax	2.5	3.4	4.2	6.7
Income before MI	3.9	5.1	7.9	10.9
Minority interest	1.7	3.2	3.7	4.2
Preferred Div	0.6	1.0	3.1	0.0
Net Income	1.6	0.9	1.1	6.7
Reported NI	-0.7	-12.9	-2.3	6.3
EPS	0.05	0.03	0.03	0.15
EPS-reported	-0.02	-0.40	-0.06	0.14
S/O	32.9	32.6	36.8	45.8

Y/Y Change	1QFY02A	2QFY02A	3QFY02A	4QFY02E
CPS	41%	40%	80%	16%
PETNet	84%	66%	52%	39%
Detector	81%	47%	38%	64%
Other	13%	64%	149%	11%
Eliminations	104%	110%	86%	64%
Total Revenue	37%	37%	81%	10%
COGS	39%	43%	83%	9%
R&D	15%	32%	23%	5%
SG&A	24%	35%	17%	-5%
Operating Income	64%	25%	309%	25%
Interest Expense	9%	20%	50%	33%
Other Expense	100%	0%	n/a	n/a
Income before tax	83%	25%	404%	25%
Tax	67%	26%	367%	39%
Income before MI	95%	24%	427%	18%
Minority interest	113%	100%	825%	15%
Preferred Div	20%	100%	520%	-100%
Net Income	129%	-55%	83%	32%
Reported NI	17%	1190%	-560%	29%
EPS	110%	-57%	58%	-8%
EPS-reported	7%	1146%	-498%	-10%
S/O	9%	3%	16%	44%

% Revenue	1QFY02A	2QFY02A	3QFY02A	4QFY02E
CPS	64%	74%	71%	77%
PETNet	26%	24%	22%	19%
Detector	12%	9%	11%	13%
Other	20%	21%	33%	28%
Eliminations	-21%	-27%	-37%	-36%
Total Revenue	100%	100%	100%	100%
COGS	60%	59%	60%	58%
R&D	10%	9%	9%	8%
SG&A	15%	15%	13%	11%
Operating Income	16%	17%	19%	22%
Interest Expense	3%	2%	2%	1%
Other Expense	0%	0%	0%	0%
Income before tax	13%	15%	18%	21%
Tax	5%	6%	6%	8%
Income before MI	8%	9%	11%	13%
Minority interest	4%	6%	5%	5%
Preferred Div	1%	2%	4%	0%
Net Income	3%	2%	2%	8%
Reported NI	-1%	-23%	-3%	8%

(\$MM)	1QFY03E	2QFY03E	3QFY03E	4QFY03E
CPS	29.9	41.0	50.3	74.5
PETNet	15.2	16.9	17.3	16.9
Detector	7.6	8.0	9.5	12.3
Other	13.9	15.0	28.4	29.9
Eliminations	-10.0	-21.0	-27.0	-32.0
Total Revenue	56.6	59.8	78.5	101.6
COGS	36.4	35.2	47.4	60.5
R&D	5.6	5.8	6.8	8.0
SG&A	6.8	6.9	9.0	11.7
Operating Income	7.8	12.0	15.4	21.4
Interest Expense	1.0	1.0	1.0	1.0
Other Expense	-0.2	-0.2	-0.2	-0.2
Income before tax	7.0	11.2	14.6	20.6
Tax	2.7	4.3	5.5	7.8
Income before MI	4.4	6.9	9.0	12.8
Minority interest	2.1	2.9	3.6	4.6
Preferred Div	0.0	0.0	0.0	0.0
Net Income	2.2	4.0	5.5	8.2
Reported NI	2.2	4.0	5.5	8.2
EPS	0.05	0.09	0.12	0.18
EPS-reported	0.05	0.09	0.12	0.18
S/O	45.8	45.8	45.8	45.8

Y/Y Change	1QFY03E	2QFY03E	3QFY03E	4QFY03E
CPS	-2%	0%	2%	17%
PETNet	24%	27%	16%	8%
Detector	36%	60%	25%	17%
Other	48%	30%	25%	30%
Eliminations	-2%	39%	6%	6%
Total Revenue	19%	8%	14%	23%
COGS	28%	8%	15%	25%
R&D	22%	18%	14%	20%
SG&A	-6%	-19%	1%	27%
Operating Income	6%	26%	17%	15%
Interest Expense	-17%	-17%	-17%	-17%
Other Expense	0%	0%	0%	0%
Income before tax	10%	32%	21%	17%
Tax	7%	25%	32%	17%
Income before MI	12%	36%	14%	17%
Minority interest	25%	-9%	-3%	11%
Preferred Div	n/a	n/a	n/a	n/a
Net Income	39%	347%	397%	21%
Reported NI	-419%	-131%	-338%	29%
EPS	0%	218%	299%	21%
EPS-reported	-329%	-122%	-291%	29%
S/O	39%	40%	24%	0%

% Revenue	1QFY03E	2QFY03E	3QFY03E	4QFY03E
CPS	53%	69%	64%	73%
PETNet	27%	28%	22%	17%
Detector	13%	13%	12%	12%
Other	25%	25%	36%	29%
Eliminations	-18%	-35%	-34%	-32%
Total Revenue	100%	100%	100%	100%
COGS	64%	59%	60%	60%
R&D	10%	10%	9%	8%
SG&A	12%	12%	12%	12%
Operating Income	14%	20%	20%	21%
Interest Expense	2%	2%	1%	1%
Other Expense	0%	0%	0%	0%
Income before tax	12%	19%	19%	20%
Tax	5%	7%	7%	8%
Income before MI	8%	12%	12%	13%
Minority interest	4%	5%	5%	5%
Preferred Div	0%	0%	0%	0%
Net Income	4%	7%	7%	8%
Reported NI	4%	7%	7%	8%