William Blair & Company® **Equity Research**

SmartHeat Inc.

Initiating Coverage With Outperform Rating; SmartHeat Offers Opportunity to Invest in Energy-Efficiency and Pollution-Control Themes Within China

- **Demand for SmartHeat's products is driven by China's aspiration to reduce air pollution.** SmartHeat produces heat exchange equipment that can result in a better- than-50% reduction in coal use and, as a result, better-than-50% reduction in emissions compared with other forms of heat exchange technology. The Chinese government is aggressively pursuing the goals of 1) reducing emissions by 10% by 2010 and 2) reducing energy use per unit GDP by 20% by 2010. The China stimulus package should also support growth in the near term, with $31 billion earmarked for energy-saving projects.

- **SmartHeat is well positioned in several rapidly growing Chinese markets.** SmartHeat offers three product lines: plate heat exchangers (PHEs), PHE systems (or PHE units), and heat meters. The PHE market in China is expected to continue growing at an approximate 30% annual rate, while the PHE system market is expected to continue growing at an approximate 70% annual rate, according to the China District Heating Association. The market for heat meters in China is relatively new, and while no data is available regarding the market's rate of growth, we believe the heat meter market is likely the fastest-growing market the company serves. To date, over 99% of the company's sales have been generated in China.

- **Solid recent financial performance.** While limited performance data is available given the company's brief history as a public company, recent results have been impressive. For the 2006-2008 period, the company reported 100% annual growth in revenue and 176% annual growth in net income. Recent operating margin expansion has been driven primarily by operating leverage and the implementation of a relatively sophisticated information technology system.

- **Multiple sources of competitive advantage.** Compared with Chinese competitors, we believe SmartHeat generally offers relatively higher-quality product, with faster delivery and superior customer service. Compared with international competitors, we believe SmartHeat offers product of comparable quality. The company's advantages over international competitors include lower costs (leading to better pricing flexibility) and the ability to deliver more quickly and offer generally better customer service.

- **Risks/Challenges.** We believe primary risks investors should consider include: currency/legal/political risks related to doing business in China, cyclicality/seasonality, limited liquidity for shareholders, relatively slow cash conversion, supplier concentration, and the typical volatility in the valuations of China-based companies. In addition, SmartHeat is a young, fast-growing company with limited operating history and high expectations. Failure to meet investor expectations, even if only temporary, would likely pressure the valuation.

Business Services: Industrial
¦ Industrial Technology

September 28, 2009

Stock Rating:	**Outperform**
Company Profile:	**Aggressive Growth**

Symbol:	HEAT (NASDAQ)
Price:	$11.65 (52-Wk.: $2-$13)
Market Value (mil.):	$282
Fiscal Year End:	December
Long-Term EPS Growth Rate:	30%
Dividend/Yield:	None

	2008A	2009E	2010E
Estimates*			
EPS Q1	$0.03	A$0.05	NA
Q2	$0.03	A$0.11	NA
Q3	$0.18	$0.27	NA
Q4	$0.03	$0.16	NA
FY	$0.29	$0.59	$0.74
CY		$0.59	$0.74
Valuation			
FY P/E	40.2x	19.7x	15.7x
CY P/E		19.7x	15.7x

* Estimates do not reflect the adoption of FAS 123R.

Trading Data (Thomson Financial)

Shares Outstanding (mil.)	24
Float (mil.)	NA
Average Daily Volume	299,907

Financial Data (Thomson Financial)

Long-Term Debt/Total Capital (MRQ)	NA
Book Value Per Share (MRQ)	NA
Enterprise Value (mil.)	302.1
EBITDA (TTM)	75.5
Enterprise Value/EBITDA (TTM)	4.0x
Return on Equity (TTM)	41.4

Two-Year Price Performance Chart

Source: Thomson Financial, William Blair & Company estimates

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- **Forecast.** For 2009, we forecast revenue growth of 145%, to $80 million, and EPS growth of 107%, to $0.59. For 2010, we forecast revenue growth of 45%, to $116 million, and EPS growth of 25%, to $0.74. Our forecast is in line with management's guidance.

- **Valuation and conclusion.** Shares of SmartHeat currently trade at 15.7 times our 2010 EPS estimate, while the peer group trades at about 16.2 times. We believe shares have recently traded with a slight discount to the peer group primarily due to the limited time SmartHeat has had to build a positive reputation with investors. In the long term, we anticipate valuation expansion as the company continues to establish itself as a leader in the markets it serves. Given the risks mentioned above, we believe an investment in SmartHeat carries relatively high risk, but also a potentially high reward. We view shares of SmartHeat as a rare opportunity to invest in the long-term growth trends of increasing focus on energy efficiency and pollution control in China and believe shares are best suited for those with a high-risk or speculative orientation. We are initiating coverage of SmartHeat with an Outperform rating and Aggressive Growth company profile.

Investment Highlights

Leader in the Fast-Growing Chinese Heat Exchanger Market

Demand for energy-efficient heat exchangers is increasing at a rapid rate in China. We expect this trend to benefit SmartHeat's two primary product lines: plate heat exchangers (PHEs) and PHE systems (a.k.a. PHE units). According to the China District Heating Association, annual growth rates for the PHE and PHE system markets have been about 30% and 70%, respectively, for several years. The association forecasts these growth rates going forward as well. While SmartHeat has only a small share (about 1%) of the fragmented PHE market, we believe the company is continuing to gain share. In the PHE system market, SmartHeat is recognized as the market leader, with about 8% share.

Portfolio of Products Should Help China Meet Goals of Current Five-Year Plan

China's current five-year plan includes stated goals of 1) reducing emissions by 10% by 2010 and 2) reducing energy use by 20% by 2010. SmartHeat is positioned to benefit from efforts to achieve these goals. First, PHEs are an energy-efficient alternative to other forms of heat-exchange equipment. More specifically, PHEs are considered to be up to five times more energy efficient than less sophisticated shell-and-tube heat-exchange technology. Second, a primary initiative in China related to emissions reductions is the buildout of the district heating infrastructure, which can capture energy that would otherwise be wasted from power plants for use in heating homes and buildings. SmartHeat's PHE systems are critical components in a district heating network. The table below illustrates the potential cost savings associated with the implementation of SmartHeat PHE systems compared with incumbent technology.

Case Study: Product Benefits

Estimated cost of heating 100,000 m^2 (1,000 households) for one month with coal priced at $85/ton				
Heating Method	**Coal Consumption (metric tons)**	**Heat Produced (Kcal, million)**	**CO_2 Emitted (tons)**	**Costs in Coal, USD (excluding water and other costs)**
WITH SMARTHEAT PRODUCTS: District heating system connected to a co-generation power plant	550	1,680 - 1,870 Kcal	1,944	**$46,750**
WITHOUT SMARTHEAT PRODUCTS: Small boiler with traditional shell-and-tube heat exchanger	1,496	1,680 - 1,870 Kcal	5,293	**$127,160**

Equipment: 1-2 PHE units would be required in the given example
Payback Period: 1-2 years (just for the PHE units)
Equipment Lifespan: 20 years

Note: Real costs may differ significantly depending on a number of variables.

Source: Company presentation

China Stimulus Package Should Boost Growth in the Near Term

The $586 billion stimulus package designed by the Chinese government and put in place in November 2008 designated approximately $31 billion for energy-efficiency projects. SmartHeat anticipates additional orders from various municipal governments in China as they continue to receive government funding allocated to these projects. In addition, the stimulus package includes $59 billion for affordable and efficient housing, which should drive growth in the district heating market, a key market for SmartHeat. We expect the stimulus to support the residential and commercial construction markets, as well as result in the construction of new power plants and retrofitting of existing plants. We expect the trends discussed above, along with support from government stimulus, to continue to fuel the recent momentum in SmartHeat's business, which is illustrated in the following compendium of contracts secured within the last 12 months.

Selected Recent Business Wins

Date	Customer	Detail
Jul 2009	PetroChina and Chinese Municipalities	SmartHeat signed contracts representing $3 million in revenue with PetroChina (the largest oil company in China) and several Chinese municipalities. Almost all of the $3 million in revenue is expected to be recognized in third quarter 2009. The products to be supplied are pressure vessels and PHE systems, manufactured primarily at the company's recently acquired facility in Siping, China.
May 2009	Municipality in Inner Mongolia	SmartHeat signed a $3 million contract with a municipality in Inner Mongolia to supply plate heat exchanger systems which will be used to provide heat for approximately 60,000 households. Almost all of the revneue from this contract is expected in third quarter 2009.
Apr 2009	Municipality in Northwestern China	SmartHeat signed an initial contract to supply heat meters with a value of $500,000 to a municipality located in China's northwest regions.
Feb 2009	Uda Heat Power Company	$1.2 million equipment supply contract with Uda Heat Power Company located in Inner Mongolia. This region is one of China's major coal production areas and is heavily polluted due to coal burning. SmartHeat delivered 16 plate heat exchange units in February.
Nov 2008	Various Chinese Municipalities	SmartHeat was awarded product supply contracts totaling $8 million from various Chinese municipalities for plate heat exchanger systems. Shipment began in fourth quarter 2008.
Oct 2008	Dalkia	SmartHeat was awarded product supply contracts totaling $5 million from Dalkia (Jiamusi), a subsidiary of Dalkia International. Dalkia International is a Fortune 500 company generating approximately $5.5 billion in annual revenue.

Source: Company reports

Management Incentives Aligned with Shareholders Through Lock-Up Agreement

On January 29, 2009, shares of SmartHeat commenced trading on the NASDAQ stock exchange under the ticker HEAT. Shares previously traded on the OTC Bulletin Board under the ticker SMHT.OB. In conjunction with the NASDAQ listing, SmartHeat also announced that its entire senior management team (representing approximately 61% of the company's total outstanding common stock at the time, about 45% after the recent stock offering) has voluntarily entered into lock-up agreements that restrict the sale of shares for three years (through 2011). In our view, the agreement strengthens the company's corporate governance and investor perception by aligning management's interests with those of shareholders.

The Relatively New Heat Meter Market Creates the Potential for a Meaningful Third Product Line

While in the developed world the heat meter is considered a commodity that has been in use for decades, this device represents an exciting market opportunity for SmartHeat. Historically, Chinese residents and commercial customers have been billed for their heat usage based on the square footage of their home or building. As a result, there was no incentive in place for people to regulate their energy consumption. The government saw the opportunity to reduce energy usage by requiring the installation of heat meters, allowing for more-precise billing based on actual energy consumption. In July 2003, a national law was passed in China requiring heat meters to be included in all new construction. In April 2008, the law was extended and now requires all existing buildings to be retrofitted. As a result, a multibillion-dollar heat meter market was created. SmartHeat has developed a quality heat meter product to serve this market and has experienced rapid growth in this product line over the last two years.

Relationship With Sondex, a World Leader in the Heat Transfer Industry
SmartHeat's early business model was founded in part on its relationship with Sondex, a Danish manufacturer of heat exchange equipment recognized worldwide as an industry leader. Since the time of its inception through May 2009, SmartHeat sourced 100% of its plates (the core of the heat exchanger) from Sondex. The Sondex brand has helped SmartHeat build its reputation as a quality manufacturer. SmartHeat continues to buy plates from Sondex, but has recently embarked on an initiative to vertically integrate a significant portion of its plate production (discussed in more detail later in this report).

SmartHeat Products Recognized for Their Quality
Based on our conversations with SmartHeat's customers and our tour of the company's facilities, we believe the quality of SmartHeat's products is similar to that of leading Western PHE manufacturers. In January 2009, SmartHeat announced that it had passed rigorous product quality testing performed by a subsidiary of Siemens AG (SI $93.54). We view this vote of confidence in SmartHeat's product quality from a recognized global leader in the energy market as a significant step in building the strength of SmartHeat's brand. To ensure quality, the company closely inspects incoming raw materials and puts PHEs and PHE systems through extensive pressure, temperature, and electrical testing before shipment. To conduct this testing, the company has a comprehensive testing station at both the Shenyang and Shanghai facilities. The superior quality of SmartHeat products relative to those of most Chinese manufacturers is a key competitive advantage for SmartHeat in the Chinese market, in our view.

Partnerships With Major Engineering and Contracting Firms in China
SmartHeat counts among its customers major multinational and domestic firms such as AVIC Air, Beijing International Airport, Dalkia, Motorola (MOT $8.16), and Sinopec. And the list of reputable customers continues to grow. In January 2009, SmartHeat signed a project cooperation agreement with Fluor (China) Engineering and Construction Co., Ltd, a subsidiary of Fluor Corporation (FLR $51.45), a *Fortune* 500 company and a world leader in project management. As discussed previously, the company has built in-roads with Siemens this year as well. We believe the receipt of product quality approval from Siemens will likely lead to significant supply contracts going forward.

Sophisticated Information Technology System Is Key Competitive Advantage
The foundation for SmartHeat's information technology system is a customized version of Baan enterprise resource planning software, which gives the company several capabilities many competitors lack. The systems primary components are: 1) a product configuration application; 2) an enterprise resource planning application; and 3) a customer relationship management application. While none of these applications on its own is particularly novel, in our view, the streamlined integration of the applications is impressive. We believe that most of the company's competitors in the Chinese market lack even basic information technology applications, let alone something similar to SmartHeat's rather sophisticated system. The system provides SmartHeat with several key advantages:

> ***1) The SmartHeat sales team can offer quotes to customers within minutes.*** After collecting customer application parameters (which are entered into the product configuration application), the salesperson is able to quote a PHE in about one minute and a PHE unit in three minutes. In addition, SmartHeat can send the customer a three-dimensional drawing of the product in less than an hour. This compares with the model of the typical competitor, which usually involves the filling out of paperwork followed by up to a week of analysis before a quote is delivered. SmartHeat's ability to quickly configure a customized product is critical in the Chinese market. Whereas the European market is more standardized, rapid industrialization over the years in China has resulted in many different standards, and, as a result, a more diverse set of heat exchanger needs.
>
> ***2) Delivery time is minimized.*** Information associated with an order is instantly sent to the production line. Production is supported by the company's inventory management system,

making part shortages a rarity. In the end, the lead-time for a PHE is about two to five days and the lead time for a PHE unit is about 10 days. This compares with the three- to six-*month* lead time typical of the company's competitors. SmartHeat's manufacturing efficiency is also due to a high-degree of process automation and the use of standardized components.

3) Intelligent technical support. The system archives and manages all technical data, enabling technicians to respond quickly to customer needs and allows technicians to work together (given all information is stored in a centralized location).

Customer Service Is Key Differentiator in the Chinese Market
According to management, SmartHeat is the only Chinese supplier of PHEs and PHE systems that offers 24-hour customer service. SmartHeat offers customers a 24-hour hotline. In addition, the company guarantees to customers that they can have a service technician at the customer's facility anywhere in China within 24 hours. The foundation for the company's customer service model is its information technology system, which enables customer service technicians to quickly access details regarding a customer's system. The ability to maintain this type of extensive database with customer information is rare in the industry.

Broad Customer Base
SmartHeat benefits from a broad customer base, with more than 250 customers and little customer concentration. The company's 10 largest customers accounted for 32% of revenue in 2008, as shown in the table below.

Diverse Customer Base

Customer	2008 Sales ($ in millions)	% of 2008 Sales
Shanghai Goushe Electromechanical Engineering Co., LTD	$1.8	6%
Dalkia (Jiamusi) City Heat Co., LTD	$1.8	5%
Shanghai Langu Mechanical Engineering Co., LTD	$1.1	3%
Eerduosi Dongsheng District House Property Bureau	$1.0	3%
Urumqu Heat Head Office	$0.9	3%
Dalkia Sunny (Harbin) Thermoelectricity Co., LTD	$0.8	3%
China Precision Machinery Import and Export Co., LTD	$0.8	2%
CPCC Shengli Oil Field	$0.8	2%
Jiangxi Saiwei LDK SolarEnergy Hightech Co., LTD	$0.7	2%
Wuhu Qiaohong International Co., LTD	$0.7	2%
Total	**$10.4**	**32%**

Source: Company reports

Recent Equity Offering
SmartHeat completed a common stock offering on September 17, 2009, selling 8.333 million shares. The offering was priced at $9 per share, for an aggregate purchase price of $75 million. Net proceeds to the company after expenses related to the offering (including consulting and legal fees) were about $65 million. The company plans to use the proceeds in the following manner:

- $15 million for working capital needs in the core PHE and PHE system businesses
- $8 million to $10 million for expansion of the heat meter business (which may include an acquisition)
- $6 million to upgrade existing facilities (including likely investment in laser welding equipment to enable expansion into the welded PHE market)
- $4 million directed at debt repayment (debt associated with Siping acquisition)
- $30 million investment in new product development and associated production start-up over the medium term

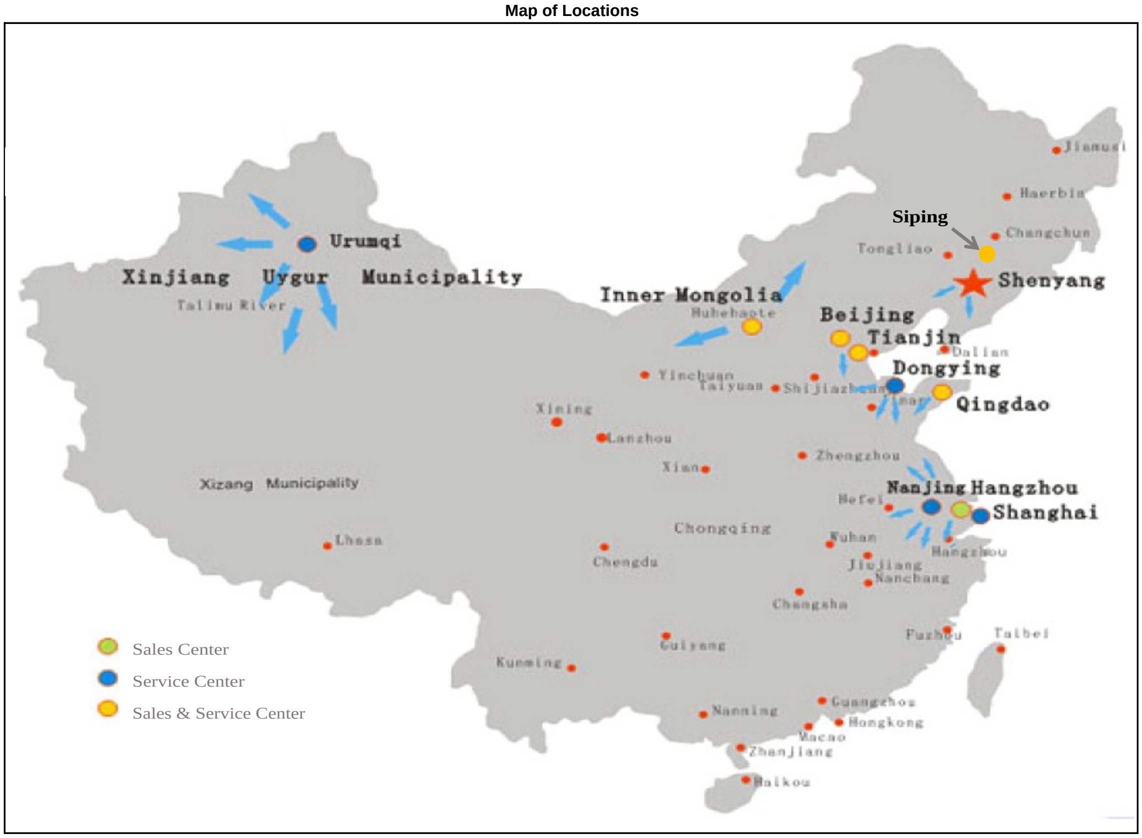
After the offering, senior management owns approximately 45% of the company's equity on a diluted basis (approximately 61% before the offering). William Blair & Company, L.L.C. and BMO Capital Markets acted as placement agents in the offering. SmartHeat (HEAT) shares trade on the NASDAQ exchange, and, accordingly, the company is a U.S. filing entity, with financial statements audited by California-based accounting firm Goldman Parks Kurland Mohidin LLP (GPKM).

Company Overview

With headquarters in Shenyang, China (about 400 miles northeast of Beijing), SmartHeat designs, manufactures, and markets heat transfer equipment, heat meters, and pressure vessels for the Chinese market. The company's heat transfer equipment product offering consists of plate heat exchangers (PHEs) and plate heat exchanger systems (referred to as PHE units by management). This heat transfer technology is described in more detail later in this note.

SmartHeat has approximately 500 full-time employees (with 35 dedicated to research and development) and operates 4 manufacturing facilities in Shenyang, Shanghai, and Siping (about 120 miles northeast of Shenyang). The company's headquarters and flagship manufacturing facility (65,000 square feet) are on the same campus in Shenyang. About 20 miles away in Shenyang, the company operates a heat meter manufacturing facility (22,000 square feet). The flagship facility currently has the capacity to produce about 10 PHEs and 4 PHE systems per day, while the heat meter facility has the capacity to produce 200 heat meters per day and the Shanghai facility (22,000 square feet) has the capacity to produce about three PHEs per day. The Siping facility (160,000 square feet) was recently acquired and currently produces PHEs, PHE systems, and pressure vessels for petrochemical and general industrial end-markets. This facility has the capacity to produce six PHEs and one PHE system per day. The Siping facility is also in the early stages of production of the company's internally developed plates for use in PHEs. In addition to these manufacturing facilities, the company maintains sales and service centers throughout China.

Map of Locations

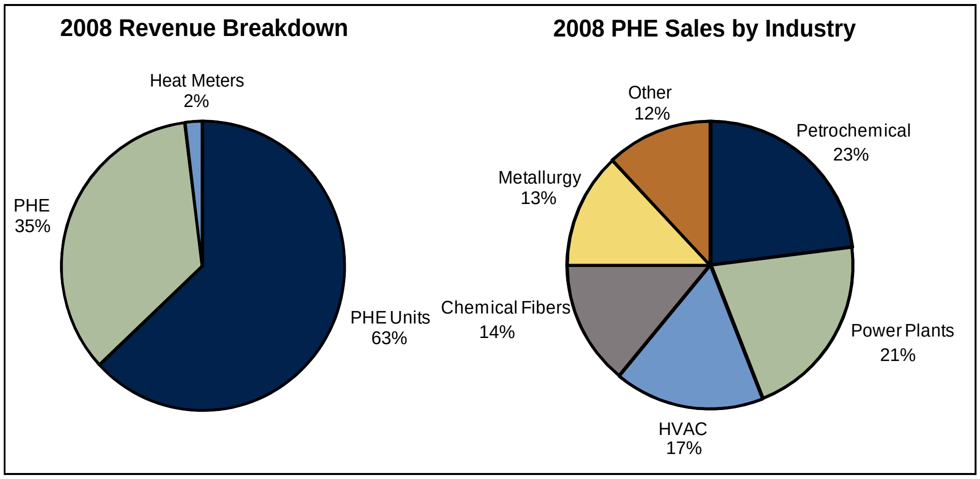


Source: Company presentation

SmartHeat sells in 15 of China's 34 provinces through a direct salesforce of about 120 employees, as well as through a network of 29 distributors. Approximately 68% of sales are made directly to customers, with about 32% going through distribution.

SmartHeat's serves a diverse set of end-markets with its product portfolio, as summarized in the figure below.

Revenue Breakdown



Source: Company presentation

History

The company was not known as SmartHeat until a name change, which came in April 2008. Previously, the company was known as Shenyang Taiyu Machinery & Electronic Equipment Co., or Taiyu. The complete story of Taiyu's transition into SmartHeat is, however, somewhat more complicated.

SmartHeat was actually formerly known as Pacific Goldrim Resources, a company that was incorporated in August 2006 in the United States (Nevada, Utah). Pacific Goldrim Resources was a nonoperating public shell (an early-stage company in the unrelated business of lead, silver, and zinc exploration). In April 2008, Pacific Goldrim Resources entered into a share exchange agreement with Taiyu, a privately held company in China engaged in the manufacturing and sale of PHEs and heat usage calculators. As a result, Taiyu became a wholly owned subsidiary of SmartHeat. For accounting purposes, the transaction was treated as a reverse merger.

Taiyu was incorporated in Shenyang (located in the Liaoning province of The People's Republic of China) in July 2002. Jun Wang, the company's chairman, president, and chief executive officer, was one of the company's founders. In its early days, Taiyu was exclusively a manufacturer of PHE systems, but quickly added stand-alone PHEs to the product portfolio. In 2004, Taiyu partnered with Denmark-based Sondex, one of the world's leading PHE manufacturers. Through the agreement, Taiyu became one of three dealers of Sondex equipment in China. (Today, SmartHeat is the only Sondex dealer on mainland China.) Taiyu imported stainless steel plates from Sondex used in the assembly of customized PHEs based on clients' specifications. With the help of the Sondex brand, Taiyu (now known as SmartHeat) has become one of the leading manufacturers of heat transfer equipment in China. In 2006, SmartHeat began the design and production of heat meters, further diversifying the company's product portfolio.

More recently, SmartHeat acquired Shanghai-based SanDeKe Co. in September 2008 to expand its heat exchanger business in China. In June 2009, SmartHeat acquired Siping Beifang Heat Exchanger Manufacture Co., a PHE manufacturer based in China. This acquisition was made as part of the company's strategy to vertically integrate the manufacture of heat exchanger plates, which form the core of a PHE or PHE system.

Management

SmartHeat is led by chief executive officer Jun (James) Wang, who is also one of the company's founders. Mr. Wang, 41, has extensive experience in the heat transfer equipment industry. He has undergraduate and graduate degrees in heating, ventilation, and air conditioning (HVAC) systems and building automation. After obtaining his master's degree, he lectured for two years at the university level on these topics. In 1994, he joined Alfa Laval, a Swedish company and world leader (in terms of market share) in the PHE market. In 1996, Mr. Wang joined Honeywell; during his three-year tenure with the company, he focused on heating system automation. Mr. Wang then spent a few years with a Chinese state-owned company before starting Taiyu (later to be named SmartHeat) in 2002. We believe Mr. Wang's technical background, wide range of relevant experiences, and understanding of the Chinese market make him well suited to lead SmartHeat. In addition, he has demonstrated the ability to rapidly grow the business and continue to build relationships with important customers in the Chinese market.

Details regarding other key members of the management team are included in the table below.

Key Management

Name	Title	Highlights
Jun Wang	Chairman, President, and CEO	-Co-founder in 2002 -Vice General Manager of Beijing HotNet Company (2000 to 2002) -Former sales manager for Honeywell International Inc. (1996 to 1999) -Former sales manager for Alfa Laval (1994 to 1996) -Obtained master's degree in engineering from Tsinghua University (1989)
Zhijuan Guo	CFO and Treasurer	-CFO since SmartHeat's inception -Served as production planning director of Shenyang Thermoelectric Co. Ltd (2000 to 2002) -Served as auditing director of Shenyang Dongyu Group Corp. (1999 to 2000) -Served as finance manager of Shenyang Dongyu Real Estate Development Company (1993 to 1999) -Obtained her MBA from Shenyang Northeastern University (2001)
Wen Sha	VP, Marketing	-Joined SmartHeat as a regional sales manager in 2005 -Served as the general manager of Nanjing Hui Dun Ltd and APV in Shanghai, a leading international PHE firm -Extensive sales experience

Source: Company reports and presentation

Business Segments

The following table provides an overview of the company's three different product lines: PHEs, PHE systems, and heat meters.

Business Overview

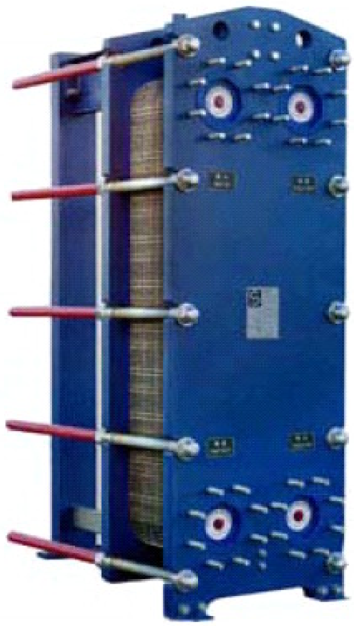
Product Line	End-Markets	Product Description	Average Selling Price	Estimated 2008 Market Size (China)	Expected Annual Market Growth	Market Share (China)	2008 Sales	% of 2008 Sales	Operating Margin	Principal Competitors
Plate Heat Exchangers (PHEs)	-Petroleum refining, energy generation, HVAC, food/beverage processing -Various manufacturing applications: chemicals, electronics, medical, petrochemicals, steel, etc.	-Device used for heat transfer between fluids in industrial applications	$15,000	$3B	30%	<1%	$11M	35%	23%-25%	-Western competitors: Alfa Laval, APV, GEA, Sondex, SWEP -Chinese competitors: Jiuyuan, Lanshi, and many other small competitors
Plate Heat Exchanger Systems (also called PHE units)	-Commercial, industrial, and residential HVAC applications	-Device consisting of PHE and various pumps, temperature sensors, valves, and control systems -Used primarily to transfer heat from steam generated by power company to useable form in building heating systems and domestic hot water	$45,000 (range $2,000-$100,000+)	~$250M	70%	8%-10% (No. 1 share position)	$21M	63%	23%-25%	-Accessen, Danfoss
Heat Meters	Commercial and residential buildings	-Device used to measure customer heat usage (replaces old, less-accurate Chinese system of billing customers based on square footage)	$100	New Market	NA	NA	$1M	2%	23%-25%	Fragemented market (60-70 competitors) Primary competitors: Hydrometer (Germany) Minol (Germany) Schlumberger (France)

Source: Company reports, company management, and William Blair & Company, L.L.C. estimates

I. Plate Heat Exchangers (PHEs)

Product description. PHEs are used to transfer energy from one fluid to another without allowing the two fluids to come in contact with one another. PHE technology has been used for decades to facilitate heat transfer in various industrial applications. The PHE, shown in the illustration below, is composed of two primary components: 1) plates and 2) the frame. Depending on the requirements of the application, a PHE is customized by varying the number, size, and design of the plates. Plates are most often made of steel, but can also be titanium, nickel, or various alloys. The design of the plate, which forms the core of the PHE, is critical to the efficiency of heat exchange. Plate designers take into account properties such as fluid viscosity, pressure, and temperature when making decisions regarding the material to be used for the plate, plate thickness, and the orientation and size of the various corrugations in the plate.

Plate Heat Exchanger (PHE)



Source: Company presentation

The PHE is an alternative to older and less efficient shell-and-tube technology. While simple shell-and-tube systems were once the most prominent form of heat exchange technology (in part because shell-and-tube systems are typically less expensive than PHEs), the market for shell-and-tube heat exchangers is declining globally, and particularly within China. Given increasing focus on energy efficiency, demand for PHEs—which can be up to five times more energy efficient than shell-and-tube heat exchangers—is increasing.

In 2008, SmartHeat sold approximately 40% of its PHEs under the Sondex brand. In 2009, management expects approximately 20% of PHEs to be sold under the Sondex brand. The balance of PHEs are sold under SmartHeat's own Taiyu brand.

Customers. While PHEs are used to facilitate heat transfer in many industrial applications, the technology is most commonly used by power utilities and within the petrochemical and chemical processing industries. SmartHeat typically sells its PHEs to an engineering and construction company that is building a plant for an industrial company.

Market dynamics. The China District Heating Association estimated the Chinese PHE market to be approximately $2.4 billion in 2007. Based on a survey of its more than 400 members, the association estimates the market has been growing at an annual rate of about 30% annually (a growth rate the association continues to forecast for the next several years). Drivers of growth in this market include high-single-digit GDP growth in China, government pressure on firms to reduce energy usage (specifically with the 2007 China Energy Saving Law), and ongoing replacement of shell-and-tube equipment with PHEs.

Competitive environment. According to the Chinese District Heating Association, Swedish competitor Alfa Laval holds the No. 1 position in the Chinese PHE market, with 30% share. Various other foreign competitors hold about 20%, with the balance split among about 100 domestic suppliers. We estimate SmartHeat's share of this market is 1%.

II. Plate Heat Exchanger Systems (PHE systems, a.k.a. PHE units)

Product description. A PHE system is a combination of a PHE with various pumps, temperature sensors, valves, control systems, and other components. SmartHeat's PHE systems are used primarily in residential and commercial heating systems. The PHE system is a critical component in a district heating network, facilitating the transfer of energy from the steam or hot water flowing through the network to 1) the water circulating through a radiant heating system in a home or building or 2) domestic hot water (the water used for showering, etc.). All of SmartHeat's PHE systems are sold under the company's Taiyu brand.

PHE System (PHE Unit)

Source: Company presentation

Customers. SmartHeat sells PHE systems primarily to municipalities (see the list of business wins earlier in this report). The municipality typically initiates and coordinates the installation of a district heating system, of which the PHE system is an important component.

Market dynamics. The China District Heating Association estimated the Chinese PHE system market to be $140 million in 2007. The association estimates the market has been growing at an annual rate of about 70% annually (a growth rate the association continues to forecast for the next several years). We believe the primary growth drivers in this market include high-single-digit GDP growth in China, increasing investment in district heating systems, and replacement of shell-and-tube technology in existing district heating networks. According to the International Energy Agency, district heating area in China increased at an annual rate of 17% from 2000 to 2005, a rate we would not be surprised to see accelerate in the near term given increasing focus on energy conservation and government stimulus.

Competitive environment. The China District Heating Association estimates SmartHeat is the market share leader in the PHE systems industry in China, with approximately 8% share. The association estimates competitors Accessen and Danfoss hold about 7% and 5% market share, respectively.

III. Heat Meters

Product description. Throughout the world, the heat meter is considered a commodity product. The meter simply measures the heat usage for a home or building. In China, however, the government recently created significant demand for this commodity by passing national laws now requiring heat meters to be installed in new and existing buildings. In 2003 the government passed legislation requiring heat meters to be installed in all new buildings, and in 2008 the law was extended to include the retrofit of all existing homes and buildings. Heat meters are used to measure consumers' heat usage. In the past, consumers in China were billed for heat usage based on the square footage of their home or building. With a heat meter in place, consumers can now be more precisely billed for their energy use, creating an incentive for them to conserve energy.

Heat Meter

Source: Company presentation

Customers. Power utilities are the primary customers in this market.

Market dynamics. Given this market was only recently created by new national policy in China, no market data is available. We, however, believe the market size is likely measured in billions, given the enormous number of existing homes and buildings that need to be retrofitted, along with about 13 million new homes being built annually in China.

Competitive environment. The heat meter market in China is highly fragmented, with approximately 60 to 70 international and domestic competitors.

Earnings Growth Strategy

Vertical Integration

In May 2009, SmartHeat acquired Siping, a manufacturer of pressure vessels and PHEs. Most important to SmartHeat's strategy, Siping possessed equipment for the manufacture of the plates that form the core of PHEs. SmartHeat can now begin to vertically integrate its operations and reduce its dependence on Sondex. The process of ramping up production of plates at Siping will likely take some time, however. According to SmartHeat management, the quality of the plates that were being produced at the Siping facility did not meet SmartHeat standards. As a result, SmartHeat has essentially started from scratch, retooling the Siping equipment to manufacture its proprietary designs and instituting stringent quality control. SmartHeat manufactures only two different plates in Siping, whereas it has historically purchased about 40 different types from Sondex.

Management estimates it will cost about 15%-20% less to manufacture plates in-house than sourcing them from Sondex. Given that plates account for 30%-40% of raw material purchases, and that raw materials account for approximately 70% of the company's cost of goods, we estimate vertical integration of plate manufacturing could reduce SmartHeat's cost of goods by 4%-5% (assuming the manufacture of all plates is eventually brought in-house). Management expects gross margin expansion of about 200 basis points over the medium term, and this vertical integration project is expected to be the primary driver of this potential margin expansion.

Management indicated that some of the additional flexibility in the company's cost structure created by vertical integration will also go toward lowering price on a segment of its PHE product line. By offering a line of PHEs at a price about 10%-15% lower than its average PHE, the company expects to gain market share.

New Product Introductions

SmartHeat has consistently spent about 3% of sales on research and development. Management has indicated the company's new-product focus will in large part be centered on development of heat exchange equipment for the petrochemical and nuclear industries. Specifically, SmartHeat is in the early stages of developing a product to compete in the welded PHE market. Welded PHEs are typically used in high-pressure environments such as those found in petrochemical and nuclear applications. The welding associated with the manufacture of welded PHEs makes their production relatively more labor intensive. Given the relatively low cost of labor in China compared with that of international competitors, we believe SmartHeat would likely enjoy a cost advantage in this market. With support from the Chinese government for alternative sources of energy, such as nuclear, we believe there is great opportunity for SmartHeat in the nuclear market. According to a Resources for the Future (RFF) policy briefing, three to five nuclear power plants are being built every year in China. Nuclear power plants require about three to six large-scale PHEs, which can cost nearly $1 million each. Including the cost of smaller, ancillary PHEs, SmartHeat sees potential revenue of $5 million to $10 million through the sale of PHEs to a new nuclear plant. We expect the company to direct a significant portion of recently raised funds toward development of new products and the purchase of equipment necessary to manufacture them.

Broadening the Sales Network

SmartHeat continues to increase its number of branch sales offices and sales staff throughout China in an effort to develop new customers in new regions. The company's 2008 results are evidence the strategy is working, with about $4.2 million in revenue coming from new customers. The $4.2 million represented 13% of total revenue in 2008 and added 32 percentage points to the company's total revenue growth rate of 146% in that year.

Establishing Solid Foothold in High-Potential Heat Meter Market

Early in 2009, SmartHeat was selected by the Chinese government to be one of the two main contributors in the drafting of China's national standards for the heat transfer industry. The other contributor is the China Standardization Committee on Boilers and Pressure Vessels (CSCBPV).

In our view, the company's selection to participate in the setting of standards for the heat transfer industry provides an advantage over competitors in the heat meter market (and likely the heat exchanger market) due to: 1) enhancement of perceived product quality and strengthening of the SmartHeat brand; 2) the company's real-time access to information regarding the new standards, which can rapidly be incorporated into its products; and 3) the company's opportunity to promote more stringent and precise standards, which could create challenges for competitors with lower-quality products.

Acquisitions

SmartHeat has executed two acquisitions since its inception. The acquisition of SanDeKe in 2008 expanded the company's reach into the PHE market and the acquisition of Siping in 2009 created the opportunity to vertically integrate plate production and gain pressure vessel technology. We anticipate acquisitions to be a component of the company's growth strategy going forward, with likely targets in the heat meter market in an effort to quickly gain share. Management has also shown interest that would further the company's presence in nuclear and petrochemical markets.

Acquisition Chronology

Date	Target	Description	Estimated Annual Revenue	Estimated Purchase Price	Estimated Price/Sales Multiple
Sep 25, 2008	SanDeKe Co.	SanDeKe was a PHE manufacturing company located in the Pudong district of Shanghai.	$3 million	$1 million	0.3
May 29, 2009	Siping Beifang Heat Exchanger Manufacture Co.	Founded in 2004 and located in the city of Siping (about 120 miles northeast of Shenyang), this company was a leading manufacturer of plate heat exchangers. SmartHeat's primary reason for acquiring Siping was to acquire equipment for production of plates used in plate heat exchangers. Previously, SmartHeat did not have the capability to produce its own plates. Siping also manufactures pressure vessels, primarily for the oil refinery and petrochemical markets. The acquisition is expected to add $1.8 million to net income in 2009 (about $0.07 per share).	$20 million	$10 million	0.5

Source: Company reports and William Blair & Company, L.L.C. estimates

Opportunity for International Expansion

Our discussions with multinational customers, such as engineering and construction firm Fluor Corporation, lead us to believe that SmartHeat has established itself as a producer of high-quality heat transfer equipment at a competitive price. As a result, we believe it is likely these multinational companies will begin to use SmartHeat equipment in some projects outside China. Management said it plans to begin exporting products to Europe in the next two to three years.

Expanding Installed Equipment Base Should be Followed by Higher-Margin Service Revenue

SmartHeat derives less than 1% of sales from spare parts and service, revenue that management said generates gross margin of greater than 50% (above the company’s overall historical average gross margin of 33%-37%). The primary reason spare parts and service account for such a low proportion of total revenue is that, in general, only minimal service is required until the equipment is about five years old. At this point, SmartHeat has been shipping equipment at significant volume for just over five years. After about five years, PHEs and PHE systems usually require new gaskets around valves, and after about 10 years some plates may need to be replaced. We anticipate that ongoing rapid growth in the installed base will eventually lead to a meaningful higher-margin service and spare parts revenue stream. SmartHeat provides warranty service for a period of one or two heating seasons depending on the terms negotiated with the customers.

Risks/Challenges

Supplier Concentration/Strained Relationship With Sondex

We believe that SmartHeat’s relationship with Sondex has become strained since SmartHeat acquired Siping in May 2009 and signaled that it intends to begin bringing some plate manufacturing in-house. In our view, SmartHeat’s plan to vertically integrate is a wise business decision—reducing lead time and manufacturing costs—and seems inevitable. In addition, SmartHeat appears to be developing its own designs and manufacturing processes with a staff of highly trained and experienced engineers, which should yield a high-quality product.

If Sondex continues to have a negative perception of this development, however, we believe there is risk Sondex could discontinue supply of plates to SmartHeat. We believe this is a worst-case scenario that could significantly affect SmartHeat’s operations in the near term. Historically, plate purchases from Sondex have accounted for about 40% of raw material purchases (and raw material purchases account for about 70% of the company’s cost of goods). Further, SmartHeat purchases about 40 different types of plates from Sondex and has the capability to manufacture only 2 different types internally. (These two types of plates, however, account for about 20% of SmartHeat’s heat exchanger volume. SmartHeat plans to manufacture four internally designed plates by the end of 2010, which would account for about half of the company’s heat exchanger volume.)

While all SmartHeat PHE systems are sold under the Taiyu brand, about 20% of stand-alone PHEs will be sold under the Sondex brand in 2009. Given that PHEs account for about 35% of sales, Sondex-branded equipment accounts for a total of about 7% of sales. These sales, which we assume are made to customers to which the Sondex brand is important, would likely be at risk if Sondex terminated its relationship with SmartHeat. Also, we believe many customers are aware that almost all SmartHeat PHEs and PHE systems contain Sondex plates (even if the products carry the Taiyu brand) and have based their decision to purchase from SmartHeat, at least in part, on this information.

Customers may decide to source heat transfer equipment from a different supplier if they perceive substitute plates to be of lower quality.

Mitigating this risk somewhat is the importance of SmartHeat as a customer to Sondex. We estimate that SmartHeat represents approximately 4%-6% of Sondex's total sales. Also, the existing contract defining the partnership between SmartHeat and Sondex does not expire until December 2010, according to management. Lastly, we believe it would be difficult for Sondex to develop a replacement distribution network given the challenges associated with doing so in China. While Sondex pursues development of its own sales channel, it would likely maintain a relationship with SmartHeat to continue to benefit from exposure to the fast-growing Chinese PHE market. Today, SmartHeat represents Sondex's only channel into the Chinese market.

Transition From Sondex Plates to Proprietary Plates
SmartHeat's strategic decision to manufacture plates internally rather than source them from Sondex brings other risks besides a strained relationship with its key supplier, in our view. Specifically, given the plate is considered the core technology in a PHE or PHE system, there is a risk that SmartHeat will not be able to manufacture plates that perform at the same level Sondex plates do, which might lessen product quality and damage the company's brand.

Political/Legal/Currency Risks Associated With Any China-Based Company
All of the company's assets are located in China and all sales to date have been generated within China. A substantial portion of productive assets in China are controlled by the government. The government also has control over capital investment, industrial policies, and allocation of resources. A related risk specific to SmartHeat lies in the company's status as a foreign holding company. As such, any loans from the holding company to the operating subsidiaries in China could be restricted by the Chinese government. We are also concerned that SmartHeat likely cannot depend on China's evolving judicial system to protect the company's patents, which have all been issued in China. Currency translation is another risk, with almost all of the company's revenue and expenses denominated in Renminbi (RMB). This issue is of particular interest given 21% appreciation in the RMB versus the U.S. dollar since the beginning of 2005.

Raw Material Price Volatility
Raw materials account for about 70% of the company's cost of goods (with labor and overhead accounting for about 20% and 10%, respectively). With steel plates accounting for about 40% of raw material purchases, the company is exposed to volatility in the price of steel. SmartHeat typically orders stainless-steel plates two to three months in advance, based on production needs and projected sales. As a result, a rapid change in the price of this commodity could make it challenging to pass on the price change to customers. With a rather sophisticated, automated pricing system, however, SmartHeat is typically able to maintain net income margin of about 20% for almost all orders. When calculating the price quote for the customer, the system takes into account the company's estimated costs to maintain a relatively fixed margin level. The selling price varies on each sale and mainly depends on each customer's specific needs and negotiation of the contract amount and term.

Relatively Slow Cash Conversion
In 2008, SmartHeat's cash conversion cycle was about 160 days (278 days in 2007). Based on average inventory, receivables, and payables during the 2008 period, inventory days were 118, days' sales outstanding were 90, and days payable were 47. The slow conversion cycle is in part attributable to the structure of the company's typical sales agreements. The usual agreement dictates that 30% of the purchase price is due upon placement of the order, 30% is due on delivery, 30% is due upon installation and customer acceptance, and the final 10% is due before the end of the warranty period (which can range from three to 24 months). Several other factors contribute to the extended cycle. Payment delays are common in the heating equipment industry in China. Also, deliveries from SmartHeat's primary supplier, Sondex, have experienced delays historically. As a result, SmartHeat orders plates well ahead of time and holds excess inventory during the seasonally slow period. While a faster cash conversion cycle would be ideal, we do not view the slower cycle as a material risk, as the company's customers do not have a history of defaulting on payments and there is little risk of SmartHeat's inventory becoming obsolete in the near term. We expect the cycle to shorten as management becomes able to reduce inventory levels as a result of moving the manufacture of some plates in-house. The limited published operating history for SmartHeat allows us to calculate only a

snapshot of the company's cash conversion cycle. We believe the current cycle length will be a useful benchmark for use in measuring management's ability to improve working capital management going forward.

Favorable Tax Status May Be Temporary

SmartHeat benefits from favorable tax treatment under current Chinese government policy. We believe there is uncertainty around the sustainability of these policies. A change in the policy could result in an increased tax rate, reducing the company's profitability. SmartHeat was awarded "National High Tech Enterprise" status by the Chinese government at the beginning of 2009. This national-level high-tech certification formally recognizes the company as a market leader in China's energy-saving industry. With this status comes a favorable corporate tax rate of 15% for the company's flagship facility in Shenyang, which is valid through 2010, at which time the company will have the opportunity to reapply for favorable tax treatment. China's normal corporate income tax rate is 25%. The tax rate at the company's Shanghai facility is 0% currently due to its exemption from income tax since it has not yet been profitable for two full years. We expect the income tax at this facility to be 9% for the period from 2010 to 2012. The Shanghai facility accounts for only about 5% of revenue. The tax rate at the company's new Siping facility was 25% at the time of acquisition, but the government has communicated to SmartHeat that this rate will likely be adjusted to closer to 15% in the near term.

Seasonality/Cyclicality

SmartHeat's sales are typically strongest in the third and fourth quarters because most shipments are usually made leading up to or at the beginning of the heating season. The company's primary market is northern China, which experiences extremely cold weather in the winter months. (For example, in Shenyang, the average high temperature in January is 22 degrees Fahrenheit and the average low is 2 degrees Fahrenheit.) In 2009, we estimate more than 75% of revenue will be generated in the second half of the year. This seasonality can result in operational challenges, including production and inventory management.

SmartHeat's business is also somewhat susceptible to cyclicality of the economy, with exposure to industries such as residential and commercial construction, as well as construction of new industrial facilities. In addition, SmartHeat's sales are largely dependent on capital expenditures in the general industrial sector, which typically slow in an economic downturn.

Limited Liquidity for Investors

Although the share base expanded with the recent stock offering of 8.333 million shares, the stock remains relatively illiquid, with approximately 32.5 million shares outstanding (about 45% of which are owned by senior management and subject to a lock-up period running through January 2012).

Potential for Dilution to Equity Holders

Given that we expect the company to be a cash user (negative free cash flow) in 2009 and 2010 (and likely beyond 2010), we believe SmartHeat may need to access the capital markets again over the next few years to fund the company's rapid growth.

Small Company With Brief History in Early Stages of Growth

While we believe SmartHeat is well positioned for long-term success and increasing profitability, the company is still in the early stages of growth, resulting in limited historical performance data for use in measuring the company's performance. The company's small size also adds to risk associated with an investment in SmartHeat.

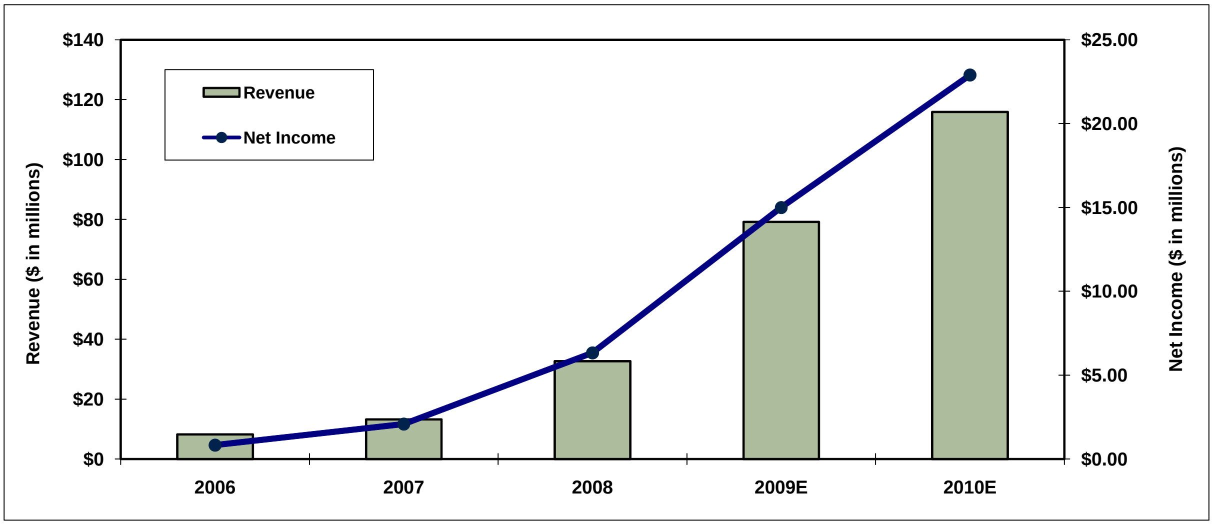
Volatility in Sentiment Regarding Chinese Economy Could Drive Swings in Valuation

While we expect valuation expansion for shares of SmartHeat over the long term, shifts in investor sentiment regarding the outlook for growth in the Chinese economy could result in near-term volatility.

Financials and Forecast

SmartHeat has a track record, albeit brief, of rapid growth in both revenue and earnings. For the 2006-2008 period, the company reported 100% annual growth in revenue and 176% annual growth in net income. Recent operating margin expansion has been driven primarily by operating leverage and the implementation of a relatively sophisticated information technology system.

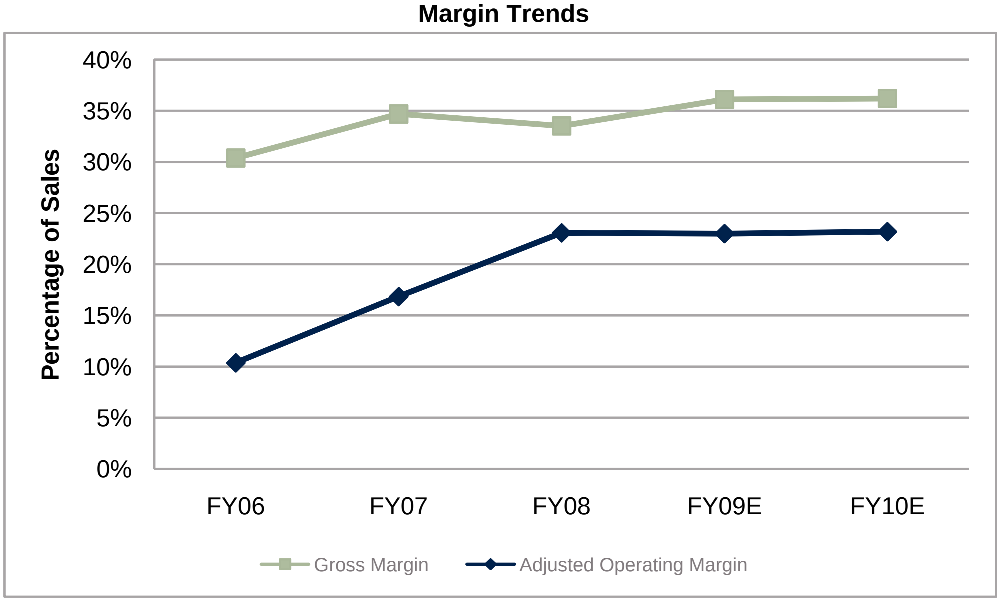
Revenue and Net Income (2006-2010E)



Note: Forecast periods reflect management estimates.

Source: Company reports and presentation

Margin Trends



Source: Company data and William Blair & Co. estimates

Recent Financial Performance—2009 Year to Date (1Q09-2Q09)
Sales in the first six months of 2008 increased 117% compared with the comparable period in 2008. Organic revenue growth was greater than 110%, with the acquisition of SanDeKe contributing about five percentage points of top-line growth. Net income increased 202% during the period, supported by margin expansion due to increased operating leverage on higher volume.

Recent Financial Performance—Second Quarter 2009

SmartHeat reported solid second quarter 2009 results, including a 125% year-over-year increase in revenue, to $12.5 million. While the company did not offer detail regarding growth by product line, we believe the result represents rapid growth in PHE, PHE system, and heat meter sales. Recent acquisitions added less than $500,000 to second-quarter revenue. Accordingly, we estimate the organic revenue growth rate in the quarter was approximately 120%.

Operating margin improved to 24.4%, up from 15.7% in second quarter 2008, driven primarily by operating leverage on increased volume. Diluted EPS increased 224%, to $0.11.

Management raised revenue and earnings guidance with the second-quarter press release. For the third quarter, the company expects 69% revenue growth, to $35 million, and 57% growth in net income, to $6.8 million. Based on our estimate for a weighted average diluted share count of 25.6 million for third quarter 2009, this level of net income translates to $0.27 EPS.

Balance Sheet and Cash Flow

At the close of second quarter 2009, SmartHeat reported a cash balance of $3 million and debt-to-total-capital of 23%. In July 2009, the company signed a six-month, $9 million credit facility with an institutional investor. The loan carries an interest rate of 10%. We expect the loan, which was intended to fund working capital needs in the company's seasonally strong third quarter, to be repaid in the near term with funds from the recent stock offering. The table below offers a summary of key balance sheet data.

Balance Sheet Summary

	2Q09 June 2009	July 2009 Additional $9M Loan	WB Estimate Post-Offering[1]
Cash	$3.3M	$12.3M	$73.1M
Debt	$6.3M	$15.3M	$11.3M
Net Debt	$3.0M	$3.0M	-$61.80
Debt/Total Capital	23%	42%	13%
Op Inc/Int Exp	47x	~18x	~25x
Debt/EBITDA	0.6x	~1.5x	~1.1x

(1) Post-offering estimates assume immediate repayment of $4 million in short-term debt.

Source: Company reports and William Blair & Company, L.L.C. estimates

Given our expectation that SmartHeat will continue grow quickly in the near term, we believe the company will be a user of cash over the next several years. We forecast free cash flow (defined as operating cash flow less capital expenditures) of negative $9 million in 2009 and negative $6 million in 2010.

Third Quarter 2009 Forecast

For third quarter 2009, we forecast 69% revenue growth, to $35 million, with strong growth in all three product lines and revenue contribution of approximately $6.5 million from the Siping facility. Management indicated that recent order flow has been strong and that the company is working off a solid backlog, supported by stimulus spending. Our forecast includes a decline in operating margin of 200 basis points, driven primarily by additional operating expenses associated with the Siping operation. We estimate a 61% increase in net income, to $6.9 million (compared with management's net income guidance of $6.8 million). We forecast a 51% increase in EPS, to $0.27.

Fiscal 2009 Forecast

For the full year 2009, we forecast 145% revenue growth (95%-100% organic), to $80 million (in line with management's guidance). We forecast strength in all three product lines for the balance of 2009, supported in part by stimulus spending. The company will enjoy easy comparisons in the fourth quarter, given the difficult operating environment experienced in fourth quarter 2008 as a result of the global economic crisis.

Our forecast includes flat operating margin year-over-year, with operating leverage on increased volume offset by higher operating expenses due to the acquisition of Siping. Our model incorporates a 15% tax rate.

Based on the above dynamics, we forecast a 148% increase in net income, to $15.6 million. We believe our net income estimate is slightly above management's guidance of $15.5 million, only because interest income on cash raised in the deal was likely not contemplated in management's guidance (which was offered in early August). We estimate 107% growth in EPS, to $0.59, for full year 2009. Our forecast includes approximately $0.05 of dilution associated with the recent stock offering.

Fiscal 2010 Forecast

For the full year 2010, we forecast 45% revenue growth, to $116 million (approximately 40% organic). Including approximately 30%-35% growth in revenue generated by both the PHE and PHE system product lines. We forecast revenue generated by heat meters to approximately double. Our forecast for revenue growth in the company's PHE business is in line with expected market growth of 30%. Our forecast for revenue growth in the PHE system business is well below the expected 70% market growth. While we do not expect the company to lose share—in fact, we assume SmartHeat will continue to gain share in this market—we have opted to be relatively conservative in our forecast for this business based on our intuition that continuation of a 70% growth rate may be ambitious.

Our forecast includes 30 basis points of gross margin expansion, to 36.4%, driven primarily by cost savings as vertical integration of plate manufacturing proceeds. We forecast 60 basis points of operating margin expansion, to 23.7%, driven by improving gross margin and leverage of fixed operating expenses on increased volume. Our forecast includes interest income of $1.2 million and a tax rate of 15%.

Based on the above dynamics, we forecast a 53% increase in net income, to $24.1 million. We forecast a 25% increase in EPS, to $0.74, for full year 2010. Our forecast includes approximately $0.19 of dilution associated with the recent stock offering.

Valuation and Conclusion

We assembled a peer group of what we consider to be comparable companies to aid us in valuing shares of SmartHeat. Our peer group consists of small- and midcap China-based companies whose shares trade on U.S. exchanges. We focused on companies that cater to markets similar to those that SmartHeat caters to, as well as companies with exposure to energy and "green" trends.

Shares of SmartHeat currently trade at 15.7 times our 2010 EPS estimate, while the peer group trades at 16.2 times. We believe shares have recently traded at a slight discount to the peer group primarily due to the limited time SmartHeat has had to build a positive reputation with investors. In the long term, we anticipate valuation expansion as the company continues to establish itself as a leader in the markets it serves. In our view, the company deserves a modest premium to the peer group given its superior operating margin, return on equity, and expected EPS growth rate. We provide more detail regarding the peer group in the table on the following page.

Given the risks highlighted in this report, we believe an investment in SmartHeat carries relatively high risk, but also a potentially high reward. We view shares of SmartHeat as a rare opportunity to invest in the long-term growth trends of increasing focus on energy efficiency and pollution control in China and believe shares are best suited for those with a high-risk or speculative orientation.

Valuation Data
($ in millions, except per share data)

					EBITDA		EV/EBITDA		EPS			P/E			
		9/25/09	Market	Enterprise	Calendar		Calendar		Calendar		2007-2010	Calendar		LTM Op	LTM
Ticker	Name	Price	Cap	Value	2009	2010	2009	2010	2009	2010	EPS CAGR	2009	2010	Mg	ROE
HEAT	**SmartHeat Inc.**	**11.65**	**379**	**317**	**19**	**28**	**16.7**	**11.3**	**0.59**	**0.74**	**89%**	**19.7**	**15.7**	**24.6%**	**60.0%**
Chinese Small/Mid-Cap Industrial Products Manufacturers (Traded on U.S. Exchanges)															
CFSG	China Fire & Security Group Inc.	18.89	521	490	35	44	14.1	11.2	1.06	1.30	29%	17.9	14.5	36.4%	35.0%
HNP	Huaneng Power International Inc.	26.66	2,036	18,811	2,410	3,026	7.8	6.2	1.89	2.14	-9%	14.1	12.5	NA	-3.0%
JST	Jinpan International Ltd.	30.60	251	260	31	36	8.4	7.2	2.82	3.07	15%	10.9	10.0	17.3%	23.5%
STP	Suntech Power Holdings Co.	15.75	2,770	3,681	173	267	21.3	13.8	0.21	0.58	-17%	75.0	27.2	5.2%	3.0%
YGE	Yingli Greet Energy Holding Company Ltd.	12.60	1,606	2,172	166	257	13.1	8.5	-0.12	0.75	23%	NA	16.8	NA	-5.0%
	Average[1]						**12.9**	**9.4**			**8%**	**29.5**	**16.2**	**20%**	**10.7%**
S & P 500		**1,044.38**							**54.27**	**69.73**		**19.2**	**15.0**		

(1) Averages do not include HEAT.

Source: Thomson ONE and Yahoo! Finance

Earnings Model

($ in thousands, except per-share items)

Fiscal year end:December 31	FY05	FY06	FY07	F1Q08	F2Q08	F3Q08	F4Q08	FY08	F1Q09	F2Q09	F3Q09E	F4Q09E	FY09E	FY10E
Income Statement														
Net Sales	$5,539	$8,205	$13,273	$3,079	$5,558	$20,708	$3,331	$32,676	$6,208	$12,498	$34,997	$26,311	$80,014	$116,020
Cost of Goods Sold	4,033	5,711	8,667	2,113	4,115	13,274	2,216	21,718	3,901	7,974	22,398	16,839	51,112	73,789
Gross Profit	1,506	2,495	4,606	966	1,443	7,434	1,115	10,958	2,307	4,524	12,599	9,472	28,902	42,231
Selling Expense	508	1,181	1,682	197	411	1,057	(100)	1,565	461	699	2,135	1,868	5,162	7,193
General & Administrative Expense	568	461	687	284	162	1,024	381	1,852	460	771	2,100	1,921	5,251	7,541
Operating Profit	430	852	2,237	485	870	5,353	834	7,542	1,386	3,055	8,364	5,683	18,489	27,497
Interest Expense		81	231	67	96	94	57	314	53	65	323	155	596	310
Interest Income & Other	(48)	121	256	158	120	52	77	407	16	90	127	427	660	1,213
Nonrecurring Income									(110)				(110)	
Income Before Taxes	382	891	2,262	576	893	5,312	854	7,635	1,239	3,080	8,169	5,955	18,443	28,400
Income Tax Provision	29	73	176	105	161	981	47	1,294	218	463	1,225	893	2,799	4,260
Income After Taxes	353	819	2,086	471	732	4,331	807	6,341	1,021	2,618	6,943	5,062	15,644	24,140
Minority Interest		(14)	(2)			6	0	6						
Income Available to Common	353	833	2,088	471	732	4,325	807	6,335	1,021	2,618	6,943	5,062	15,644	24,140
Diluted EPS														
Average Diluted Shares Outstanding	18,500	18,500	18,500	18,500	21,927	24,056	24,223	22,176	24,184	24,206	25,595	32,539	26,631	32,639
Reported Diluted EPS	0.02	0.05	0.11	0.03	0.03	0.18	0.03	0.29	0.04	0.11	0.27	0.16	0.59	0.74
- A/T Nonrecurring Income									0.00				0.00	
Adjusted Diluted EPS	0.02	0.05	0.11	0.03	0.03	0.18	0.03	0.29	0.05	0.11	0.27	0.16	0.59	0.74
Adjusted EBITDA	430	920	2,341	533	925	5,423	912	7,794	1,483	3,153	8,504	5,828	18,968	28,077
Adjusted Net Income Available to Common	353	833	2,088	471	732	4,325	807	6,335	1,112	2,618	6,943	5,062	15,738	24,140
Effective Tax Rate	7.6%	8.1%	7.8%	18.2%	18.0%	18.5%	5.5%	16.9%	17.6%	15.0%	15.0%	15.0%	15.2%	15.0%
% of Sales														
Net Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of Goods Sold	72.8%	69.6%	65.3%	68.6%	74.0%	64.1%	66.5%	66.5%	62.8%	63.8%	64.0%	64.0%	63.9%	63.6%
Gross Profit	27.2%	30.4%	34.7%	31.4%	26.0%	35.9%	33.5%	33.5%	37.2%	36.2%	36.0%	36.0%	36.1%	36.4%
Selling Expense	9.2%	14.4%	12.7%	6.4%	7.4%	5.1%	-3.0%	4.8%	7.4%	5.6%	6.1%	7.1%	6.5%	6.2%
General & Administrative Expense	10.3%	5.6%	5.2%	9.2%	2.9%	4.9%	11.4%	5.7%	7.4%	6.2%	6.0%	7.3%	6.6%	6.5%
Operating Profit	7.8%	10.4%	16.9%	15.7%	15.7%	25.9%	25.0%	23.1%	22.3%	24.4%	23.9%	21.6%	23.1%	23.7%
Adjusted EBITDA	7.8%	11.2%	17.6%	17.3%	16.6%	26.2%	27.4%	23.9%	23.9%	25.2%	24.3%	22.2%	23.7%	24.2%
Adjusted Net Income Available to Common	6.4%	10.1%	15.7%	15.3%	13.2%	20.9%	24.2%	19.4%	17.9%	20.9%	19.8%	19.2%	19.7%	20.8%
Growth Rates														
Net Sales		48.1%	61.8%	137.1%	379.5%	586.7%	-57.3%	146.2%	101.6%	124.9%	69.0%	690.0%	144.9%	45.0%
Cost of Goods Sold		41.6%	51.8%	150.8%	444.1%	537.9%	-55.6%	150.6%	84.6%	93.8%	68.7%	660.0%	135.3%	44.4%
Gross Profit		65.6%	84.6%	111.7%	258.3%	695.2%	-60.4%	137.9%	138.8%	213.5%	69.5%	749.6%	163.7%	46.1%
Selling Expense		132.5%	42.4%	-9.1%	53.4%	230.1%	-111.4%	-6.9%	133.5%	70.1%	102.0%	*n.m.*	229.9%	39.3%
General & Administrative Expense		-18.8%	49.0%	80.5%	14.8%	346.5%	139.3%	169.4%	61.7%	374.7%	105.0%	404.0%	183.6%	43.6%
Operating Profit		98.1%	162.6%	492.4%	*n.m.*	1289.4%	-53.1%	237.2%	186.1%	251.1%	56.2%	581.7%	145.2%	48.7%
Adjusted EBITDA		113.8%	154.6%	552.1%	*n.m.*	1038.9%	-49.0%	233.0%	178.0%	240.7%	56.8%	538.7%	143.4%	48.0%
Adjusted Net Income Available to Common		135.9%	150.8%	191.2%	22652.8%	1865.5%	-52.6%	203.4%	135.9%	257.4%	60.6%	527.3%	148.4%	53.4%
Adjusted Diluted EPS		135.9%	150.8%	191.2%	19096.9%	1411.5%	-63.8%	153.1%	80.5%	223.7%	50.9%	367.0%	106.9%	25.2%

Source: Company data and William Blair & Company, L.L.C. estimates

Balance Sheet

($ in thousands, except per share)

	FY06	FY07	F1Q08	F2Q08	F3Q08	F4Q08	FY08	F1Q09	F2Q09	F3Q09E	F4Q09E	FY09E	FY10E
ASSETS													
Cash	572	930	553	1,015	2,382	1,897	1,897	1,175	3,342	69,186	53,407	53,407	47,524
Accounts Receivable - Trade	2,321	4,763	6,132	7,954	11,797	11,390	11,390	10,144	8,998	13,282	18,633	18,633	27,018
Retentions Recievable	109	191	656	27	271	291	291	388	358	384	288	288	318
Net Inventory	5,282	7,928	7,638	5,474	8,454	6,108	6,108	8,151	8,220	10,961	15,354	15,354	22,166
Advances to Suppliers	76	159	1,075	2,111	154	413	413	1,260	2,909	2,914	2,919	2,919	2,939
Other Current Assets	425	766	1,222	1,101	3,360	699	699	662	1,367	1,372	1,377	1,377	1,397
Note Receivable					204	15	15	53	15	15	15	15	15
Due From Related Party	27	119	101	225	252								
Total Current Assets	8,811	14,856	17,377	17,907	26,873	20,812	20,812	21,833	25,208	98,113	91,993	91,993	101,377
Net Prop Plant & Equip	1,150	2,041	2,102	2,174	2,434	2,437	2,437	2,391	7,363	9,423	17,278	17,278	31,698
Other Intangibles	472	534	563	621	1,176	1,155	1,155	1,113	4,179	4,179	4,179	4,179	4,179
Restricted Cash						219	219	196	23	23	23	23	23
Accounts Receivable, net	437	950				311	311	57	740	740	740	740	740
Retentions Recievable	297	169				167	167	645	1,421	1,421	1,421	1,421	1,421
Total Assets	11,168	18,551	20,041	20,702	30,484	25,101	25,101	26,237	38,935	113,900	115,635	115,635	139,438
LIABILITIES													
Current Portion LTD & ST Debt	3,603	5,066	5,040	5,221	3,549	2,443	2,443	2,443	6,325	10,000	5,000	5,000	5,000
Accounts Payable - Trade	1,969	3,129	3,986	4,725	4,636	1,211	1,211	2,451	1,621	2,161	3,028	3,028	4,371
Unearned Revenue	1,688	3,125	3,642	1,565	2,282	850	850	1,089	1,692	2,553	3,356	3,356	4,676
Accrued Liabilities and Other Payables	255	808	740	1,295	1,398	1,331	1,331	1,136	5,969	4,066	4,071	4,071	1,071
Income Taxes Payable	152	503		362	1,424	1,328	1,328	163	559	559	559	559	559
Other Current Liabs					5	5	5						
Total Current Liabs	7,667	12,631	13,408	13,168	13,294	7,169	7,169	7,282	16,165	19,340	16,013	16,013	15,676
Other Liabilities									1,201	1,201	1,201	1,201	1,201
Deferred Taxes					39	39	39	39	23	23	23	23	23
Total Liabilities	7,669	12,631	13,408	13,168	13,333	7,208	7,208	7,321	17,389	20,564	17,237	17,237	16,900
Total Shareholders' Equity	3,499	5,920	6,633	7,535	17,151	17,893	17,893	18,916	21,545	93,336	98,398	98,398	122,538
Total Liab & Shareholder Equity	11,168	18,551	20,041	20,702	30,484	25,101	25,101	26,237	38,935	113,900	115,635	115,635	139,438

Source: Company data and William Blair & Company, L.L.C. estimates

Cash Flow Statement

($ in thousands, except per share)

	FY06	FY07	FY08	FY09E	FY10E
Net Income Available to common	833	2,088	6,335	15,644	24,140
+ Depreciation & Amortization	68	104	253	479	580
+ Minority Interest	(14)	(2)	6		
+ Deferred Taxes			(0)		
+ Other Noncash Items	82	(122)	(122)		
Gross Cash Flow	968	2,068	6,472	16,123	24,720
- Increase in Net Working Capital	(1,269)	(2,070)	(7,233)	(13,384)	(15,603)
+ Other				(1,337)	
Operating Cash Flow	(301)	(2)	(761)	1,402	9,117
- Increase in Capital Expenditures	(889)	(909)	(440)	(10,439)	(15,000)
- Net Acquisitions & Disposals			55		
- Other Investments	159	(136)	(123)	(5,000)	
Cash Flow before Financing	(1,031)	(1,047)	(1,268)	(14,037)	(5,883)
+ Increase in Debt Financing	922	1,775	(2,448)	292	
+ Increase in Equity Financing	375		5,100	64,847	
- Dividends Paid					
Other Financing Activities	(240)	(558)	(345)		
Exchange Rate Changes on Cash	7	21	3		
Change in Net Cash	34	191	1,042	51,103	(5,883)

Source: Company data and William Blair & Company, L.L.C. estimates

Ratio Analysis

($ in thousands, except per share)

	FY06	FY07	F1Q08	F2Q08	F3Q08	F4Q08	FY08	F1Q09	F2Q09	F3Q09E	F4Q09E	FY09E	FY10E
Working Capital - (CA-CL)	1,144	2,226	3,969	4,739	13,579	13,643	13,643	14,551	9,043	78,773	75,980	75,980	85,700
Current Ratio	1.15	1.18	1.30	1.36	2.02	2.90	2.90	3.00	1.56	5.07	5.74	5.74	6.47
Quick Ratio	0.39	0.47	0.55	0.68	1.09	1.89	1.89	1.61	0.79	4.28	4.52	4.52	4.78
Receivables turn (LTM, days)	103	131	149	149	116	127	127	103	77	85	85	85	85
Inventory turn (LTM, days)	338	334	281	150	126	103	103	127	110	110	110	110	110
Payables turn (LTM, days)	126	132	146	130	69	20	20	38	22	22	22	22	22
Leverage Ratios													
Total Debt / Debt + Equity	50.7%	46.1%	43.2%	40.9%	17.1%	12.0%	12.0%	11.4%	22.7%	9.7%	4.8%	4.8%	3.9%
Total Sr. Debt/Debt + Equity	50.7%	46.1%	43.2%	40.9%	17.1%	12.0%	12.0%	11.4%	22.7%	9.7%	4.8%	4.8%	3.9%
Total Liabilities/Total Shareholder's Equity	219.2%	213.3%	202.1%	174.8%	77.7%	40.3%	40.3%	38.7%	80.7%	22.0%	17.5%	17.5%	13.8%
Debt Service Ratios													
Operating Income/Interest Exp	10.51	9.69	7.27	9.02	56.91	14.61	24.00	26.23	47.18	25.89	36.67	31.04	88.70
Total Debt/LTM Gross Cash Flow	3.72	2.45				0.35	0.38				0.31	0.31	0.20
Total Debt/LTM Adj EBITDA	3.92	2.16	1.80	1.40	0.41	0.31	0.31	0.28	0.58	0.71	0.26	0.26	0.18
Incremental Analysis													
Change in W.C./Change in Sales	156.6%	43.1%					40.3%					28.3%	43.3%
Capital Expenditures/Change in Sales	33.4%	17.9%					2.3%					22.1%	41.7%
Change in Operating Income/Change in Sales	15.8%	27.3%					27.3%					23.1%	25.0%
DuPont Formula													
Net Margin (Adjusted NI/Sales)	10.1%	15.7%	15.9%	16.1%	19.5%	19.4%	19.4%	19.5%	20.7%	20.1%	19.7%	19.7%	20.8%
Asset Turnover (Sales/Average Assets)	1.47	0.89	1.50	1.88	2.44	1.50	1.50	1.55	1.43	0.79	1.14	1.14	0.91
Leverage (Average Assets/Average Common Equity)	3.19	3.16	3.02	2.75	1.78	1.83	1.83	1.81	2.05	1.31	1.21	1.21	1.15
Return on Average Equity	47.6%	44.3%	72.3%	83.0%	84.3%	53.2%	53.2%	54.6%	60.9%	20.8%	27.1%	27.1%	21.9%
Enterprise Value													
Market Value of Equity				100,863	114,266	144,127	131,950	143,412	165,812				
Total Debt	3,603	5,066	5,040	5,221	3,549	2,443	2,443	2,443	6,325				
PV of Non-Capitalized Leases						87,000	174,000	174,000	159,059				
Cash	(572)	(930)	(553)	(1,015)	(2,382)	(1,897)	(1,897)	(1,175)	(3,342)				
Total Enterprise Value	3,031	4,136	4,487	105,069	115,433	231,673	306,496	318,680	327,854				

Source: Company data and William Blair & Company, L.L.C. estimates

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Market Perform (Hold)	39	Market Perform (Hold)	1
Underperform (Sell)	0	Underperform (Sell)	0

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