

CEO: Moss Thornton
 CFO: Brenda Pedersen
 VP of Food Products: Claire Meyer
 VP of Instruments: Rob Suchecki
 Investor: Van Muur

if lever up → debt beta ↑ (assume 0 in Hamada) → $\beta_E^L = \beta_E^U \left[1 + \frac{D}{E} (1 + \tau) \right]$
 higher debt → credit may change → to get tax benefits → equity part cost of capital ↓
 $\beta_E^L|_{T=0} > \beta_E^L|_{T>0}$
 Mkt I $V^U = V^L$ if no tax
 want change bcs of tax shield
 cost of debt can increase if borrow more!
 debt beta ≠ 0

$$\frac{DTS}{DTS + V_U} \beta_{DTS} + \frac{V_U}{DTS + V_U} \beta_U^E = \frac{D}{D+E} \beta_D + \frac{E}{D+E} \beta_E^L$$

$$\frac{tD}{D+E} \beta_{DTS} + \frac{V_U}{D+E} \beta_U^E = \frac{D}{D+E} \beta_D + \frac{E}{D+E} \beta_E^L$$

$$tD \beta_{DTS} - D \beta_D + (D+E-tD) \beta_E^L = E \beta_E^U$$

$$[E + D(1-t)] \beta_E^L = E \beta_E^U$$

$$\left(1 + \frac{D}{E} (1-t) \right) \beta_E^L = \beta_E^U$$

assumption

Chestnut Foods (A)

- ① Tax shield (perpetual)
- ② $\beta_{DTS} = \beta_D$
- ③ $\beta_D = 0$

tax shield

$$\frac{DTS}{A} \beta_{DTS} + \frac{E}{A} \beta_U^E = \beta_A$$

This is correct Beta equation

$$\beta_A = \frac{D}{D+E} \beta_D + \frac{E}{D+E} \beta_E^L$$

80% lever up cannot use Hamada!

In early 2014, stock performance at Minneapolis-based Chestnut Foods (Chestnut) had failed to meet expectations for several years running, and senior management was hard-pressed to talk about much else. **CFO Brenda Pedersen**, eager to reverse the trend, had begun advocating two strategic initiatives: a \$1 billion investment in company growth and the adoption of a more progressive corporate identity. At a restaurant overlooking the Mississippi River, Pedersen hosted an informal meeting of company VPs to build support; exchanges had been highly spirited, but no consensus had materialized. Then, on her drive home from the restaurant, she received a call from **Claire Meyer**, VP of Food Products, who had attended the dinner. Given the tone of the meeting, Pedersen wasn't surprised to get a call so soon, but what Meyer shared floored the CFO. "It just came up on Twitter. My admin saw it and texted me. I'm not going to say I told you so."

Meyer read her the tweet. "Van Muur buys 10% of Chestnut, seeks seats on board and a new management direction." Meyer filled in the details: based on filings earlier in the day with the US Securities and Exchange Commission, Rollo van Muur, a high-profile activist investor, had quietly and unexpectedly purchased 10% of the company and was asserting the right to two seats on the board. In addition, van Muur was recommending that the Instruments division be sold off "to keep the focus where it belongs."

Pedersen drove in shocked silence and processed the information while Meyer waited patiently on the line, not sure what to expect. When Pedersen finally responded, she fell back on humor: "Well, that's one way to move the discussion along, but he could have just come to dinner with us." By the end of the night, she had spoken with **CEO Moss Thornton** and organized a team of lawyers and finance staff to assess the company's options.

The Company

Chestnut Foods began in north Minneapolis in 1887, when 22-year-old Otto Chestnut (born Otto Kestenbaum in Bavaria) opened a bakery that made lye rolls and pretzels, then stumbled into success as a supplier of sandwiches to the St. Paul, Minneapolis, & Manitoba Railway. Six years later, on a trip to Chicago to visit the Columbian Exposition, Chestnut happened to come upon the Maxwell Street Market, a vibrant melting-pot community of merchants of eastern European descent. At the market, he had a chance meeting with Lem Vigoda and George Maszk, founders of V&M Classic Foods, which provided a range of meat and fish products as well as preserves and condiments. Through them he witnessed a nascent ad hoc distribution system to neighborhood groceries in the rapidly growing city. A vision of wholesale food production and distribution struck him, and he returned to Minneapolis determined to realize it.

This case was prepared by Michael J. Schill, Professor of Business Administration, and Donald Stevenson, Gist Learning LLC. The individuals and entities in this case are fictitious. The case draws on an antecedent case "Teletech Corporation, 2005" (UVA-F-1485) by Robert F. Bruner and Sean D. Carr. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation. Copyright © 2015 by the University of Virginia Darden School Foundation, Charlottesville, VA. All rights reserved. To order copies, send an email to sales@dardenbusinesspublishing.com. No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the permission of the Darden School Foundation. Our goal is to publish materials of the highest quality, so please submit any errata to editorial@dardenbusinesspublishing.com.

By 1920, as regional grocery chains had begun to materialize, Chestnut, since joined by his sons Thomas and Andrew, had purchased V&M among other food businesses. Their plan was for the expanded Chestnut to stock the regional grocery chains across the upper Midwest, while also continuing to supply railroad dining cars and, beginning in 1921, a Chestnut chain of automats in Chicago and Detroit. Otto Chestnut died in 1927 at age 62, but the company was well positioned to weather the Great Depression; in 1935, the Chestnut brothers sold the automat division to Horn & Hardart, then used the proceeds to purchase farmland in Florida and central California. In the postwar period, as the supermarket model emerged, Chestnut grew with it, both organically and through acquisition, going public in 1979. By 2013, the company was valued at \$1.8 billion, with annual profits of more than \$130 million.

Chestnut sought to “provide hearty sustenance that gets you where you’re going.” The firm had two main business segments: Food Products, which produced a broad range of fresh, prepackaged, and processed foods for retail and food services, and Instruments, which delivered systems and specialized equipment used in the processing and packaging of food products. Instruments provided a variety of quality control and automation services used within the company. The company took increasing pride in the high quality of its manufacturing process and believed it to be an important differentiator among both investors and consumers.

In recent years, Chestnut’s shares had failed to keep pace with either the overall stock market or industry indexes for foods or machinery (see Exhibit 1). The company’s credit rating with Standard & Poor’s had recently declined one notch to A⁺. Securities analysts had remarked on the firm’s lackluster earnings growth, pointing to increasing competition in the food industry due to shifting demands. One prominent Wall Street analyst noted on his blog, “Chestnut has become as vulnerable to a hostile takeover as a vacant umbrella on a hot beach.”

Food Products division

The Food Products division provided a range of prepackaged and frozen products related to the bread and sandwich market for both institutional food services and retail grocery distribution throughout North America, and some limited distribution in parts of Central and South America. Revenues for the segment had long been stable; the company achieved an average annual growth rate of 2% during 2010 through 2013. In 2013, segment net operating profit after tax (NOPAT) and net assets were \$88 million and \$1.4 billion, respectively. Looking to the foreseeable future, operating margins were expected to be tight such that return on capital for the division was expected to be 6.3%.

From its long association with the sandwich market prior to the advent of fast food, through its expansion in the 1950s and 1960s, Chestnut had consistently retained portions of the market for institutional ready-to-bake frozen bread dough, bread and rolls, and ready-to-bake soft pretzels. Premium-quality versions of these were packaged and sold in supermarkets under both the Chestnut brand and store brands.

Despite repeated efforts over the years to expand into other markets, the specialty bread and pretzel market remained Chestnut’s primary driver of growth, reliant on scale, multiple outlets and packaging formats, and product innovation, most recently with Chestnut Classic Rapid-Rise Soft Pretzels, a newly formulated ready-to-bake product that produced oven-fresh pretzels in 10 minutes, including preheating. Particularly since the 1980s, after Chestnut had gone public and as demand for fresh produce, diverse ethnic cuisines, and health-conscious snacks had begun to increase, the firm made a series of moves designed to broaden its range of offerings, but the industry remained highly competitive and the returns on those alternative products modest. Nevertheless, customer surveys reflected consistently high ratings for product quality, freshness, and flavor. Chestnut was frequently referred to in popular culture, particularly in the northern states. Its well-known catchphrase “You’ll make it with Chestnut,” was synonymous with warm, hearty bread for people on the move.

Instruments division

Since its earliest days amid the bustling flour mills and rail lines of Minneapolis, Chestnut's management had maintained a shared value that technology, properly harnessed, could improve quality and efficiency across production processes, and over the years, the company had developed a strong expertise in food process instruments. The success of companies such as Toledo Scale, founded in Toledo in 1901 before merging to become Columbus, Ohio-based, Swiss-owned Mettler-Toledo in 1989, was not lost on Otto Chestnut himself, although thoughts of such diversification were repeatedly deferred. Yet as a more cyclical and diverse industry (with products providing advanced capabilities to utilities, military and aerospace programs, and industrial and residential applications in addition to food production), precision instruments seemed to complement the food industry and to present opportunities for growth overseas. In 1991, Chestnut capitalized on an opportunity to purchase Consolidated Automation Systems, a medium-sized food-processing-instrument equipment company based in Thunder Bay, Ontario, and the Instruments division was born. This proved very successful and was followed by the purchase in 1997 of Redhawk Laboratories, a small manufacturer of food filtration material using computer-controlled precision equipment based in Troy, New York.

Although 20% of the division's revenue was derived internally from the Chestnut's Food Products division, the Instruments division produced equipment and automation support for a wide range of food producers in North America. Demand, much of it from overseas, was strong, but required substantial investments in R&D and fixed assets. Instruments division sales had increased by nearly 20% in 2013. Segment NOPAT was \$46 million, and net assets were \$600 million. The expected return on capital for the division over the foreseeable future was 7.7%.

Recent Developments

Concerned above all else with the poor stock-price performance, and mindful of the importance of scale to profitability in the precision instrument industry, Pederson hoped to sustain corporate growth opportunities by raising \$1 billion to invest in the expansion of the Instruments division. She had been delighted with the market's strong interest in the high-value-added offerings the division maintained and believed that funneling investment in its direction was the way forward for Chestnut. She believed that the 7.7% expected returns for this division could be maintained with additional company investment. She also believed that the tradition-laden company name failed to capture the firm's strategic direction and that the name "CF International" better reflected the growth and modern dynamism envisioned by leadership.

At the dinner meeting, as over the past few weeks, her initiative had generated partisan reactions from the company's two divisions. Curiously, much of the discussion at dinner focused on the rather pedestrian topic of the company hurdle rate. Meyer had strongly contended from her perspective in Food Products that the two segments of the business were different enough that they warranted separate hurdle rates; Rob Suchecki, VP of Instruments, was ardent in his opposition.

- ☛ Suchecki: Look, Claire, to investors, the firm is just a big black box. They hire us to take care of what's inside the box and judge us by the dividends coming out of the box. Our job as managers should be to put their money where the returns are best. Consistent with this reality, our company has a long-standing policy of using a single common hurdle rate. If that hurdle rate takes from an underperforming division and gives to a more profitable division, isn't that how it's supposed to work? We're all well aware that investors consider past profits unacceptable.¹

¹ Recently, the company's return on capital had been 6.7%. Company management applied a corporate hurdle rate of 7.0% to all capital projects and to the evaluation of business unit performance. See Exhibit 2 for the company weighted average cost of capital (WACC) calculation, Exhibit 3 for the prevailing capital market rates, and Exhibit 4 for comparable firm information.

△ Meyer: Rob, the question is how you define profitability. High-return investments are not necessarily the best investments, and to be fair, our investors are way more savvy than you are giving them credit for; they have a wide range of information sources and analytic tools at their disposal and have a firm grasp on what is going on inside the company. They appreciate the risk and return of the different business units, and they adjust performance expectations accordingly. So to this type of investor, different hurdle rates for the different levels of risk reflects how things really are.

✂ Sucheki: But Claire, multiple hurdle rates create all sorts of inequities that are bound to create discord among the ranks. If you set the hurdle rate for Food Products lower than the firm-wide hurdle rate, you're just moving your division's goalposts closer to the ball. You haven't improved performance, you've only made it easier to score!

△ Meyer: You've got to realize, Rob, that we are playing in different leagues. Each part of the business has to draw on capital differently, because the rules for each unit are different. If Food Products was on its own, investors would be happy with a lower return because Food Products' risk is so much lower. Stability has its perks. And likewise, if Food Products could raise capital on its own, we'd surely get that capital at a cheaper rate.

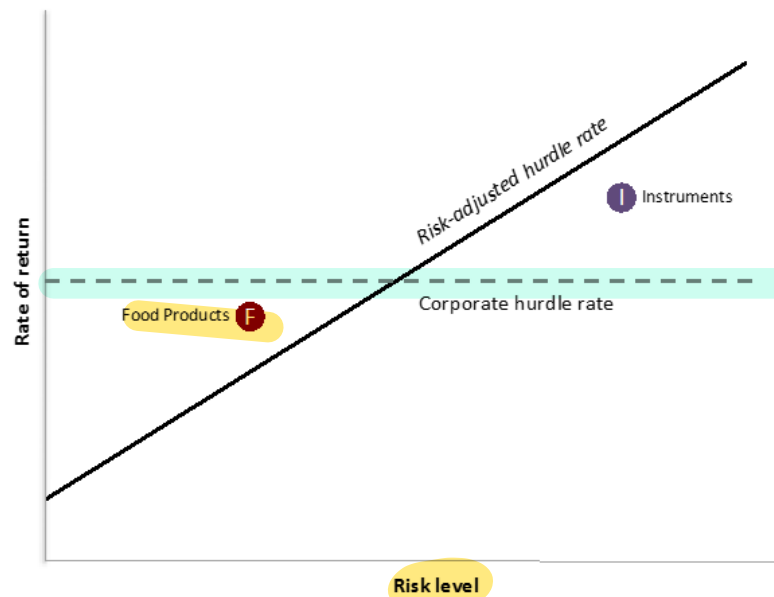
✂ Sucheki: Different leagues? The fact is that we don't raise capital separately; we raise it as a firm, based on our overall record. Our debt is Chestnut debt and our equity is Chestnut equity. It's a simple fact that investors expect returns that beat our corporate cost of capital of 7.0%. It is only by growing cash flow company-wide that investors are rewarded for their risk capital. In fact, being diversified as a company most likely helps reduce our borrowing costs, letting us borrow more as a unit than we could separately.

Meyer: Rob, you know very well the kind of problems that thinking creates. If 7.0% is always the hurdle, the company will end up overinvesting in high-risk projects. Why? Because sensible, low-risk projects won't tend to clear the hurdle. Before long, the company will be packed with high-risk projects, and 7.0% will no longer be enough to compensate investors for the higher risk. By not accommodating multiple hurdle rates, we are setting ourselves up for all sorts of perverse investment incentives. The Food Products division is getting starved for capital, penalized for being a safer bet, while the Instruments division is getting overfed, benefitting from a false sense of security.

Sucheki: Hold on, I object! The reason Food Products is not getting capital is because there's no growth in your division. Instruments is coming on like gangbusters. Why would investors want us to put additional capital into a business that is barely keeping up with inflation?

At this point, pens and paper napkins were procured for Meyer, who presented the group with a diagram illustrating her argument (**Figure 1**) before continuing.

Figure 1. Meyer's diagram of constant versus risk-adjusted hurdle rates.



Source: Created by author.

Meyer: With a plot of risk versus return, the dashed line is our current corporate hurdle rate based on the average risk of the company. The solid line is a theoretical hurdle rate that adjusts for the risk of businesses within the company. Food Products is marked with an “F.” It is expected to earn 6.3% on capital, which doesn’t clear the corporate hurdle rate, but if you adjust for risk, it *does* clear it, and it *is* profitable! Instruments is the opposite. It’s marked on the graph with an “I.” It can expect 7.7% returns, which clears the corporate hurdle. But since it is inherently riskier, the risk-adjusted hurdle rate exceeds 7.7%. Unless we are careful to adjust for that risk, it remains a hidden cost, and we are fooling ourselves.

Suhecki: Claire, I believe it is pure speculation to claim that the risk adjustment line you’ve sketched out is anywhere close to that steep. Second, even if you are theoretically correct, I believe there is practical wisdom in maintaining a single, simple, consistent, and understandable performance criterion. A single measure of the cost of money makes NPV results consistent, at least in economic terms. If Chestnut adopts multiple rates for discounting cash flows, the NPV and economic-profit calculations are going to lose their meaning, and business segments won’t be able to make comparisons.

At this point, Pederson had finally managed to rein in the heated debate and redirect the conversation to matters that were less controversial.

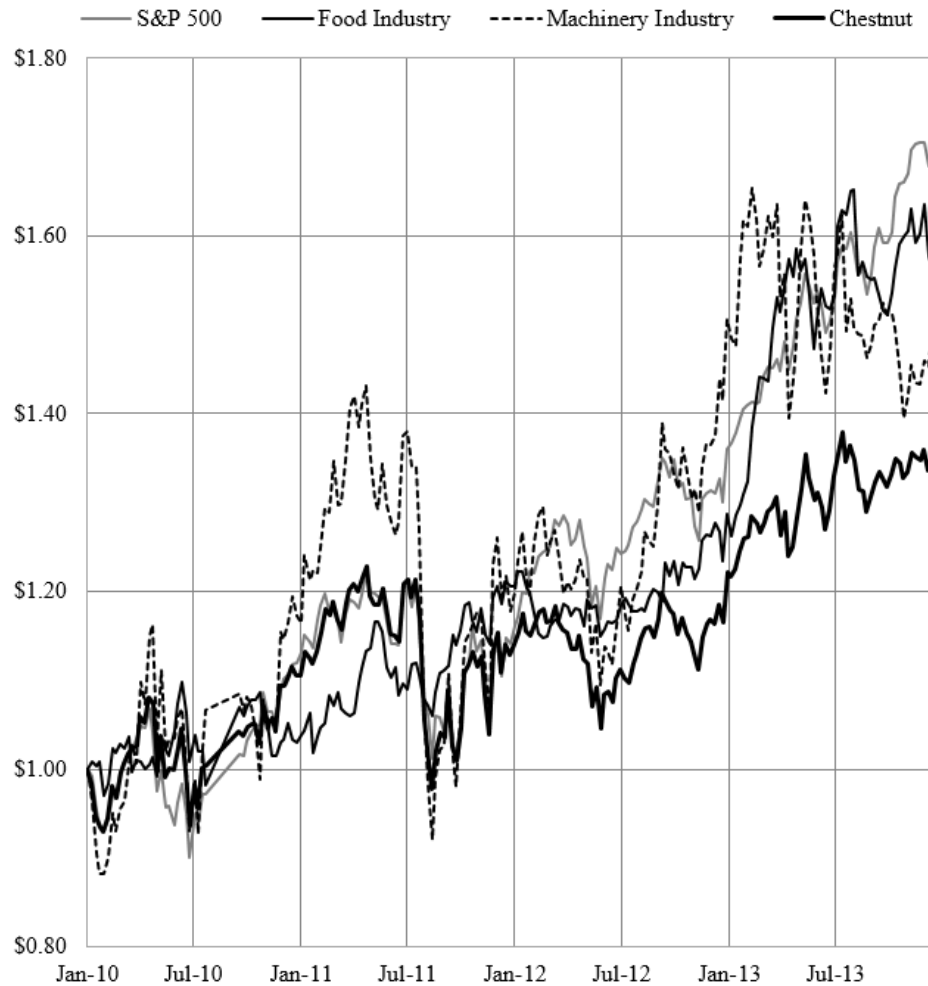
The Future of Chestnut

It had been quite a night. Pedersen realized that she didn’t have the time to resolve all the issues before her to influence Rollo van Muur’s attack on management, but any proposal she made needed to be clear on its merits. Her thoughts returned to the discussion between the VPs. Was the historical Chestnut way of doing business as defensible as Suhecki made it sound? Was Instruments underperforming, as van Muur and Meyer asserted? She knew that van Muur’s purchases had been prompted by Chestnut’s depressed share price. In light of this development, weren’t her investment and identity proposals all the more relevant?

Exhibit 1

Chestnut Foods (A)

Value of \$1.00 Invested from January 2010 to December 2013 (weekly adjusted close)



Data source: Yahoo! Finance and author data.

Exhibit 2

Chestnut Foods (A)

Estimation of WACC for Chestnut Foods
(year-end 2013)

Chestnut Foods Hurdle Rate as of December 2013: 7.0%

Chestnut uses a hurdle rate that reflects prevailing rates of return in financial markets using a weighted average of both debt and equity securities. The current mix of debt and equity in Chestnut's capital structure on a market-value basis is 20% debt and 80% equity. The prevailing yield on debt of similar credit risk is estimated at 3.5%. Based on a marginal corporate tax rate of 37%, the after-tax cost of debt is 2.2%. The cost of equity for Chestnut is estimated at 8.2% based on the Capital Asset Pricing Model (CAPM) with a beta of 0.9, a market risk premium of 6.0%, and a risk-free rate of 2.8%.* Based on these estimates, the WACC is 7.0%.

* An alternative model that uses a market risk premium of 9% and a risk-free rate of 0.1% gives a similar cost-of-equity estimate.

Source: Created by author.

Exhibit 3

Chestnut Foods (A)

Capital Market Data, December 2013

	Yield
30-Day Treasury Bill	0.1%
10-Year Treasury Bond	2.8%
10-Year Corporate Bonds of Industrial Companies	
AAA	2.8%
AA	2.9%
A+	3.2%
A	3.3%
A-	3.5%
BBB+	3.8%
BBB	4.1%
BBB-	4.6%
BB+	5.8%
BB	6.5%
BB-	6.5%
B+	6.8%
B	8.4%
B-	9.0%
Historical Market Risk Premium (Equity Market Index Less Government Debt)	6.0%

Data source: Bloomberg, author estimates.

Exhibit 4

Chestnut Foods (A)

Financial Data for Industry Comparables, December 2013
(dollar figures in millions)

	Equity Beta	S&P Bond Rating	Total Debt	Total Equity (Book Value)	Total Equity (Market Value)
Chestnut Foods	0.90	A-	461	1,544	1,840
Food Processing					
Boulder Brands	0.55	B+	298	355	958
Campbell Soup	0.60	BBB+	4,832	1,349	13,223
ConAgra Foods	0.70	BBB-	9,590	5,472	13,805
Diamond Foods	0.75	B-	593	167	578
Flowers Foods	0.50	BBB-	923	1,076	4,429
General Mills	0.55	BBB+	8,645	6,633	31,245
Hormel Foods	0.65	A	250	3,311	11,759
Kellogg	0.60	BBB+	7,358	3,545	21,841
J. M. Smucker	0.70	BBB+	2,241	5,168	10,904
Tyson Foods	0.80	BBB	1,942	6,285	11,469
Instruments					
Badger Meter	1.06	BBB-*	89	197	723
Dresser-Rand	1.40	BB	1,287	1,297	4,549
Flowserve	1.30	BBB-	1,200	1,870	10,767
Honeywell	1.25	A	8,829	17,467	74,330
Ilex	1.15	BBB	774	1,573	5,933
Measurement Specialties	1.35	BBB*	129	331	944
Mettler-Toledo	1.10	A*	413	935	7,154
Wendell Instruments	0.52	NA	0	98	230

* Identifies bond ratings that are estimated by author.

Exhibit 4 (continued)

Financial Data for Industry Comparables, December 2013 (dollar figures in millions)

Food Processing	Company Description
Boulder Brands	Food products focusing on health and wellness, including gluten-free, diabetic-friendly, and low-fat offerings such as soy milk, buttery spreads, snack bars, and entrée alternatives; based in Boulder, CO.
Campbell Soup	Condensed and ready-to-serve convenience food products; based in Camden, NJ.
ConAgra Foods	Consumer and commercial food products across frozen, refrigerated, and shelf-stable temperature classes; based in Omaha, NE.
Diamond Foods	Packaged nuts and snack products for consumer and commercial channels; based in San Francisco, CA.
Flowers Foods	Baked goods for warehouse and direct-to-store delivery; based in Thomasville, GA.
General Mills	Branded and unbranded food products for consumer and commercial distribution; based in Minneapolis, MN.
Hormel Foods	Fresh and refrigerated meat, snack, and specialty food products for retail and food service distribution; based in Austin, MN.
Kellogg	Ready-to-eat cereals and convenience food products; based in Battle Creek, MI.
J. M. Smucker	Coffee, fruit spread, beverage, and specialty food products for retail and wholesale distribution; based in Orrville, OH.
Tyson Foods	Fresh beef, pork, and chicken, and related prepared food products for retail and wholesale distribution; based in Springdale, AR.
Instruments	
Badger Meter	Water meters for municipal water utilities; pipeline flow measurement for food and beverage, pharmaceutical, utility, and HVAC industries; based in Milwaukee, WI.
Dresser-Rand	Rotating equipment for oil, gas, and petrochemical industries; based in Houston, TX.
Flowserve	Pumps, valves, seals, and boiler systems for petroleum, chemical, water, mining, pharmaceutical, and other industries; based in Irving, TX.
Honeywell	Electric controls, surveillance, monitoring, and associated software for defense, air traffic control, utilities, and industry; based in Minneapolis, MN.
Idex	Pumps, flow measurement for food, chemical, industrial, and energy industries; pumps, air compressors, and optical components for health, scientific, defense, and aerospace applications; based in Lake Forest, IL.
Measurement Specialties	Equipment sensors for vehicle, medical, home appliance, aerospace, and industrial applications; based in Hampton, VA.
Mettler-Toledo	Weighing, chemical, and assorted laboratory instruments for food retail, industrial, and scientific research applications; based in Columbus, OH.
Wendell Instruments	Control and monitoring instrumentation for fast-food restaurants; young company based in Tucson, AZ.

Data sources: Bloomberg, Yahoo! Finance, Value Line, and author estimates.