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Caso de empresa
Competitive Strategy in a Global Industry
Joy Global faces Caterpillar's Acquisition of Bucyrus

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1. Introduction

Mike Sutherlin, CEO of Joy Global Inc. ("JOY"), a global mining equipment manufacturer, was having lunch, in downtown Milwaukee, Wisconsin, with his wife, in November of 2010 when his cell phone began ringing. He hesitated answering, but recognizing the name, picked up to hear surprising news. It was a courtesy call from a friend at Caterpillar Inc. ("CAT"), the $85 Billion USD juggernaut, letting him know that CAT had just purchased JOY's cross town rival, Bucyrus International, Inc. ("BI"), for $8.8B USD.

Joy Global, MBA Candidate Carlos E. Fonseca prepared this note under the supervision of Professor Ismael Oliva B. This case was developed for class discussion and is not intended to be an endorsement, source of primary data or an example of effective or ineffective management.

JOY and BI were 2 Milwaukee, Wisconsin based mining equipment manufacturers who competed head to head on a worldwide stage. Evenly matched, with a market cap around $7B USD each, these two companies had spared in the surface and underground mining equipment market for heavy duty extraction mining equipment for over a hundred years since their founding in 1888 and 1889, respectively. All of a sudden, with this acquisition, what had always been a cross town rivalry would take on new proportions. CAT was the undisputed world wide heavy machinery giant with a market cap 10 times the size of JOY. Regarding the acquisition, Sutherlin comments, "Instead of a smaller competition across town all of a sudden this changed the world for us." CAT brought to the table revenues which were 12 times larger than JOY, a global brand that stood for reliable heavy machinery, exceptional service through its army of worldwide distributors, and the ability to win deals by financing equipment through CAT financial.

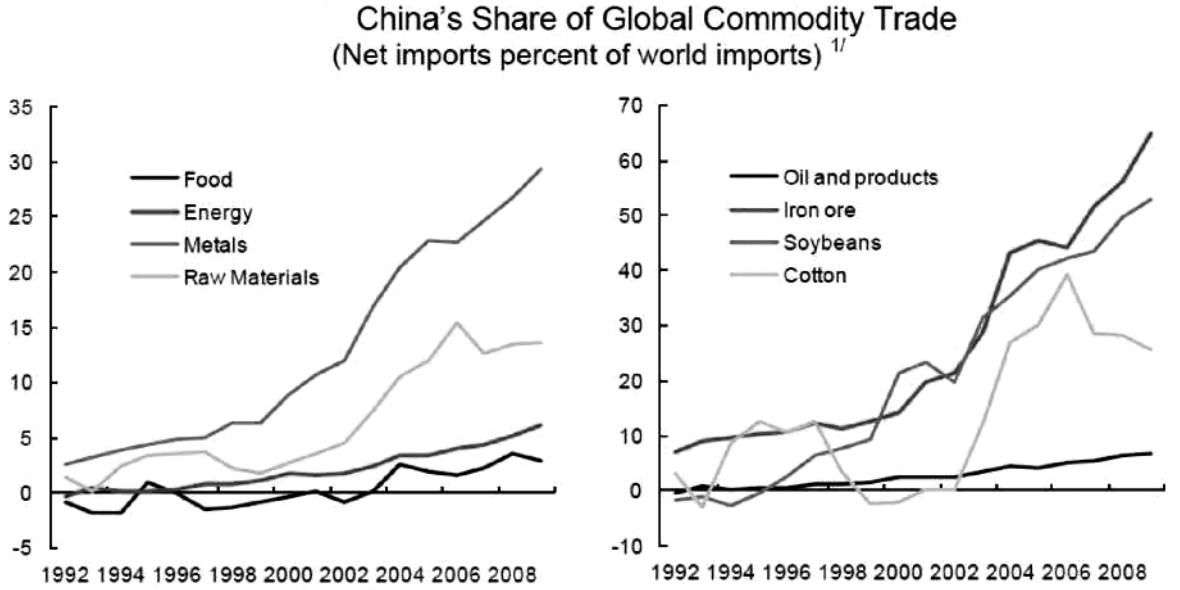
Sutherlin's team had just put the finishing touches on their strategic plan for 2010. The exercise had reaffirmed some of JOY's strategies, such as a continued commitment to focus solely in the mining equipment industry (versus including construction and farming equipment markets like CAT), a direct sales and service go to market model (versus third party distributors like CAT), and a focus on premium products with premium pricing (versus wining deals on price like BI). The plan also called for some changes such as moving beyond the dependence on a single product for their surface mining division and a move beyond coal specific products for its underground division. Would this strategy need to be revised? Would the plan withstand this new challenge? Sutherlin knew it was time to get his leadership team together, circle the wagons, and figure out, what, if anything, JOY could do to respond to this new competitive threat from CAT.

2. Mining

JOY and BI manufactured, sold and provided maintenance and repair services, for mining equipment. As its name implies, mining equipment were machines used in mining, which is the extraction of valuable minerals or other geological material from the earth. The industrialized world requires minerals such as coal, iron ore, oil, copper, gold, silver, molybdenum, lithium, and others to generate the energy and to make the products that we consume. Coal is mostly used to generate the energy that produces steam to move turbines to generate electricity around the world. Iron ore is used mostly to produce steel which is the skeleton of all modern construction, from buildings, to bridges. Copper, due to its electrical and thermal conductivity properties is mainly used in electrical wires, plumbing and industrial machines. Gold and silver have for ages been used mainly for jewelry and as currency, but are also used in electronics and medicine. Molybdenum, often mined with Copper, is used mainly in alloys such as structural steel and stainless steel. Industrialization drives the need for these commodities, especially steel, coal and copper. In 2010 industrialization in China and India were driving the demand and the prices for these commodities. In 2009 China was the number one consumer of iron ore, copper, aluminum, nickel and coal (Exhibit 1, 2).

All these minerals were extracted from the earth either through underground mining or surface mining, often in some of the most remote and inhospitable areas of the world. One such example was the open pit copper mine Doña Ines de Collahuasi at almost 15,000 feet (4,500 meters) above sea level in the remote desert plateau of the Andes mountain range in northern Chile, where JOY and BI mining equipment operated 7 days a week, 365 days a year. A mine like Collahuasi was the result of years of exploration, undertaken at great risk and cost. Of the thousands of sites explored by a mining company, only a few were actually exploited. Once a mine was given the green light, profits were still years away.

Exhibit 1

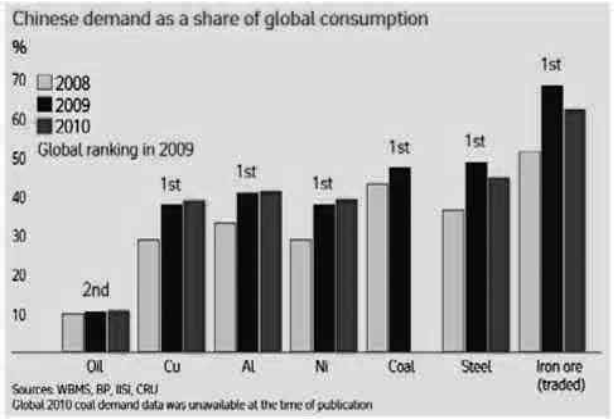


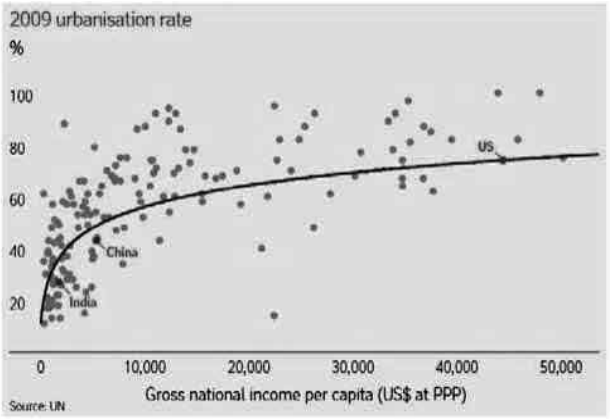
Source: United Nations COMTRADE database

1/ Commodity groups are IMF Primary Commodity Price Index-weighted. Net imports are calculated as commodity *i* imports less commodity *i* exports as a percent of world commodity *i* imports. A positive (negative) number indicates that China is a net importer (exporter).

SOURCE: Excerpt from Chinas Impact on World Commodities Markets. IMF Working Paper. Shaun K. Roache. May 2012.

Exhibit 2





SOURCE: Rio Tinto Annual Report 2010.

Environmental impact studies and permits often took years and sometimes doomed an otherwise promising mine. Depending on the location, all of the infrastructure to exploit the mine, process the mineral, and transport it to the market, had to be built. Even before the mine owner purchased mining equipment, investment in the construction of processing facilities to transform the minerals for sale could cost billions of dollars. If the mine was remote, in order to take the mineral to market, roads, bridges, train tracks, airports and ports were needed to be built potentially costing more billions of dollars. All this investment even before the day to day operating cost of people and equipment took place. As a result, large scale mining operations were extremely capital intensive.

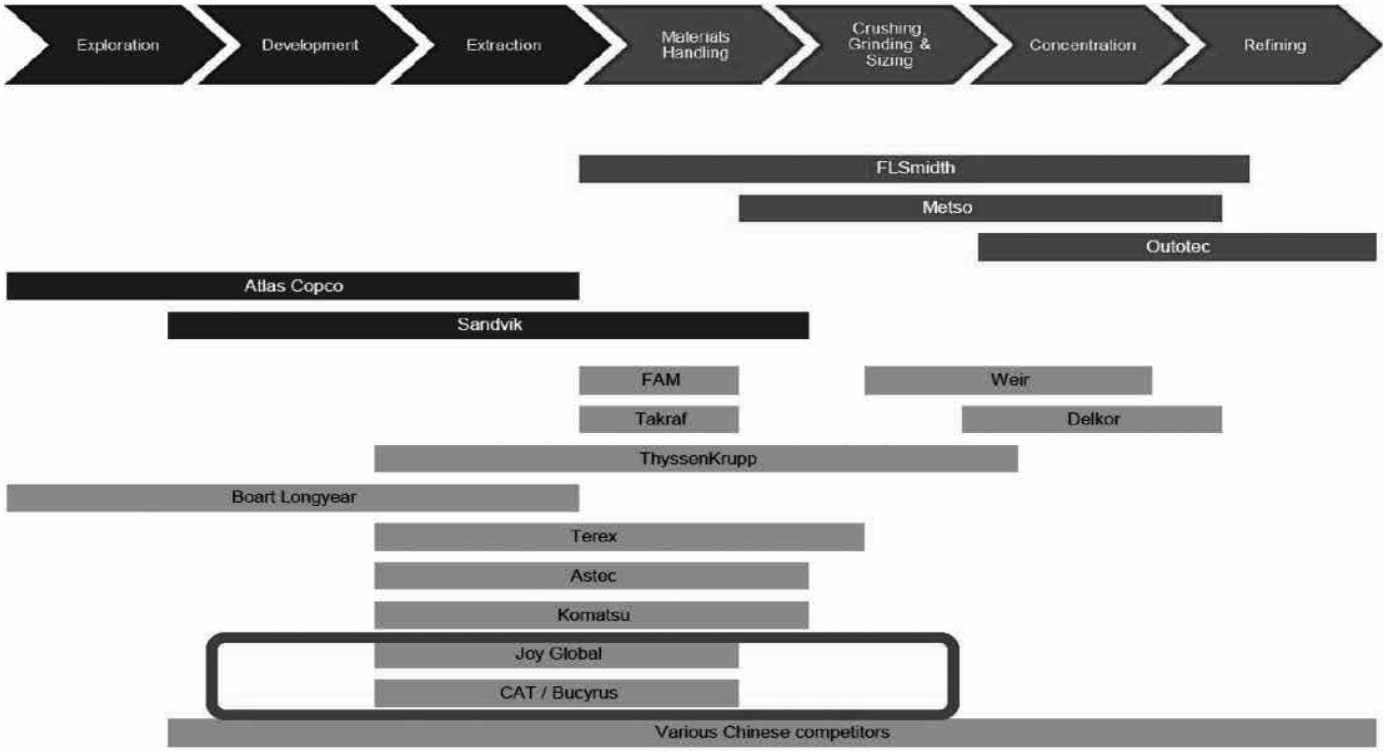
3. The Mining Equipment Industry

A. Mining Equipment

JOY estimated that in 2010 the global mining equipment market was around $53 billion USD. This number included the mining equipment which went hand in hand with the requirements of each stage of the mining process. (Exhibit 3) Ancillary construction and infrastructure equipment was not included. The mining process started with the exploration of the mineral resource. From there, the process moved into development of the ore body with modeling and drilling. Once the mine was ready, the first operational step was the extraction and mining of the ore body which was done with surface or underground mining techniques, using mining equipment like the kind offered by JOY and BI. (Exhibit 4.1 and 4.2) For surface mining, the equipment required at the extraction step were blast hole drills, draglines, electric rope shovels, hydraulic shovels, or large wheel loaders. For underground mining, the equipment required at the extraction step was continuous miners, roof bolters, scalers, road headers, or longwall systems.

Exhibit 3

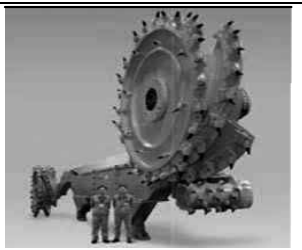
Mining Process and Equipment Suppliers



SOURCE. *LSmidth, DNB Markets*

Exhibit 4.1

Underground Mining Equipment offered by Joy Global's JMM Business (Joy Mining Machinery Inc.)

Continuous miners - Electric, self-propelled continuous miners cut material using carbide-tipped bits on a horizontal rotating drum. Once cut, the material is gathered onto an internal conveyor and loaded into a haulage vehicle or continuous haulage system for transportation to the main mine belt.	**Longwall shearers** - A longwall shearer moves back and forth on an armored face conveyor parallel to the material face. Using carbide-tipped bits on cutting drums at each end, the shearer cuts 1.2 to 6.5 meters of material on each pass and simultaneously loads the material onto the armored face conveyor for transport to the main mine belt.
	
Shuttle cars - Shuttle cars, a type of rubber-tired haulage vehicle, are electric-powered with umbilical cable. They are used to transport material from continuous miners to the main mine belt where selfcontained chain conveyors in the shuttle cars unload the material onto the belt. Some models of Joy shuttle cars can carry up to 22 metric tons of coal.	**Flexible conveyor trains (FCT)** - FCT's are electric- powered, self-propelled conveyor systems that provide continuous haulage of material from a continuous miner to the main mine belt. Available in lengths of up to 570 feet, the FCT is able to negotiate multiple 90-degree turns in an underground mine infrastructure.
	

(*Continue*)

Conveyor systems - Conveyor systems are used in both above- and under-ground applications. The primary component of a conveyor system is the terminal which itself comprises a drive, discharge, take-up and tail loading section. 	**Underground Services -** Joy's service and support infrastructure quickly and efficiently provides customers with high- quality parts, exchange components, repairs, rebuilds, whole machine exchanges, and services. Joy's cost-per-ton programs allow its customers to pay fixed prices for each ton of material mined in order to match equipment costs with revenues, and its component exchange programs minimize production disruptions for repair or scheduled rebuilds. Both programs reduce customer capital requirements and ensure quality aftermarket parts and services for the life of the contract. Joy sells its products and services directly to its customers through a global network of sales and marketing personnel.

Exhibit 4.2

Surface Mining Equipment offered by Joy Global's P&H Business (P&H Mining Equipment Inc.)

Electric mining shovels - Mining shovels are primarily used to load copper ore, coal, iron ore, oil sands, gold, and other mineral- bearing materials and overburden into trucks or other conveyances. There are two basic types of mining loaders: electric shovels and hydraulic excavators. Electric mining shovels typically feature larger dippers, allowing them to load greater volumes of material, while hydraulic excavators are smaller and more maneuverable. The electric mining shovel offers the lowest cost per ton of mineral mined. Its use is determined by the size of the mining operation and the availability of electricity. Dippers can range in size from 12 to 82 cubic yards.	**Walking draglines** - Draglines are primarily used to remove overburden to uncover coal or mineral deposits and then to replace the overburden as part of reclamation activities. P&H's draglines are equipped with bucket sizes ranging from 30 to 160 cubic yards.
	

(*Continue*)

Blasthole drills - Most surface mines require breakage or blasting of rock, overburden, or ore using explosives. A blasthole drill creates a pattern of holes to contain the explosives. Drills are usually described in terms of the diameter of the hole they bore. Blasthole drills manufactured by P&H bore holes ranging in size from 9 7/8 to 17.5 inches in diameter and can exert a pull down force up to 150,000 lbs. 	**Surface Services** - Joy Global Services provides life cycle management support, including equipment erections, relocations, inspections, service, repairs, rebuilds, upgrades, used equipment, new and used parts, enhancement kits, and training. The term "life cycle management" refers to our strategy to maximize the productivity of our equipment over the equipment's entire operating life cycle through the optimization of the equipment, its operating and maintenance procedures, and its upgrade and refurbishment. Each life cycle management program is specifically designed for a particular customer and that customer's application of our equipment. Under each program, we provide aftermarket products and services to support the equipment during its operating life cycle. Under some of the programs, the customer pays us an amount based upon hours of operation or units of production achieved by the equipment. The amount to be paid per unit is determined by the economic model developed on a case-by-case basis, and is set at a rate designed to include both the estimated costs and anticipated profit.

SOURCE: From Joy Global 2010 10K Annual Report.

Once the mineral was extracted, the material needed to be handled which means transported to the processing site. For surface mining, at the material handling step, the mining equipment required were off road haul trucks, mining loaders, scrapers, water trucks, and conveyors. For underground mining, at the material handling step, the mining equipment required were underground trucks, underground loaders, haulage systems, utility vehicles, and underground conveyors. Material handling lead to the next step which was crushing, screening and grinding to allow the material particles to become as small as possible. The mining equipment at this stage both surface and underground was various sized crushers, screeners and grinders. The last two steps which were known as processing could be broken down into concentration and refining, where the minerals were purified through large scale Crushing, Screening and Grinding segments of the mining equipment market, which JOY estimated to be $32 billion USD in 2010.

B. Manufacturing

Most mining equipment, to simplify, is made of steel, metal alloys, motors, transmissions, gears, electronic control systems, a great deal of labor and the know how to put it all together. Steel plate, the second largest contributor to cost, after labor, is a commodity and most equipment manufacturers were not big enough consumers to negotiate prices. As a result, mining equipment manufacturers had to purchase steel at spot market prices which fluctuated over time, and could wipe out the margin on a machine. For instance, a dragline (for surface) or a longwall (for underground) could each cost over $150M to make and the lead time to build was over a year, and then many months to install onsite. Many mining equipment sales were made more than 2 years ahead of the date the customer required the equipment working at the mine site. Therefore, the price of steel involved in the quote to come up with the price to charge the

customer could vary significantly from the price of the steel actually purchased to make the equipment. Companies like JOY protected themselves from the risk associated with purchasing steel at market prices by including a steel surcharge in contracts with customers. The steel surcharge would take the price of the equipment agreed to with the customer and add a surcharge based on the price at the time of manufacture, protecting the margin. JOY and BI had developed their own electric motors and transmissions. Mining Equipment companies were experts at manufacturing, but not at software and electronics. Most mining equipment companies had to work closely with suppliers such as ABB Ltd., Siemens AG, or General Electric to develop the electronic control systems to operate and run their machines. Once you developed the control system with one supplier you were basically stuck with them, as the control systems were the brains and nervous system of the machines, and the cost and complexity associated with switching was considerable.

Fixed assets required for mining equipment manufacture were substantial. Cavernous manufacturing facilities with state of the art machining tools and hundreds of workers were the norm. However, the largest barriers to entry were know how and economies of learning built over decades which if properly calibrated would result in rugged hard working equipment which would make a brand. Mining equipment is critical to the operation of a customer and most would find it difficult to experiment with a new untested supplier.

C. Aftermarket

For both JOY and BI the sale of the mining equipment was only the first step in a long term commitment with the customer. The repair and maintenance of the mining equipment is where the real earnings were, and this was referred to as the aftermarket. Although mining equipment is rugged, the working conditions are extremely

rough and maintenance and repairs are a must. To keep customers happy and mines producing, mining equipment required the right kind of aftermarket support, which consisted of both service and replacement part sales. Companies like JOY and BI handled the aftermarket through wholly owned subsidiaries and thereby kept strict controls over this part of their business and kept the margin to themselves. On the other hand, companies like CAT gave away the aftermarket to distributors, thereby sharing some of the margin, but ensuring worldwide coverage.

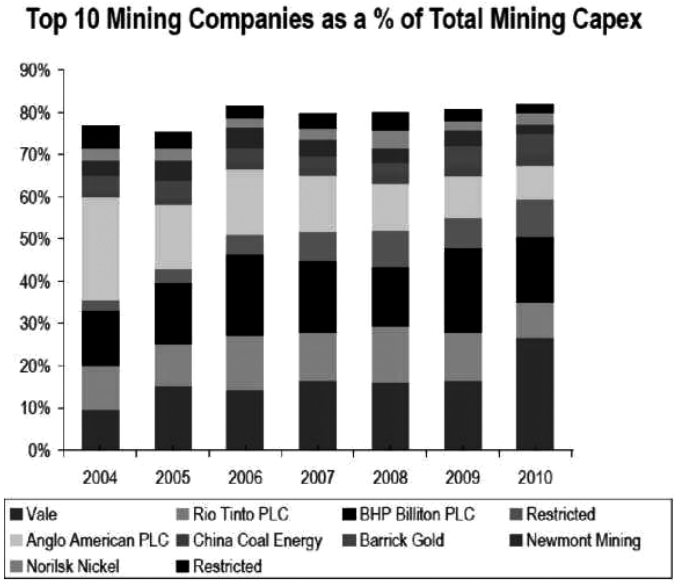
D. Customers

By 2010, years of consolidation in the mining industry had resulted in a few major multinational players, and fewer national or regional players. The top 40 mining companies, by revenue, were all the main customers of JOY and BI in 2010. According to consulting firm Price Waterhouse, for 2010 the combined revenue of the top 40 mining companies increased 32% since 2009, breaking $400 billion. Net profits were up 156% to $110 billion. Operating cash flows grew 59%, leaving more than $100 billion cash in their coffers. Total assets of the top 40 mining companies in 2010 approached $1 trillion (Exhibit 5).

No one customer of JOY or BI accounted for more than 10% of their revenue, but the number of customers was finite since large scale mining operations capable of purchasing JOY or BI mining equipment were a known variable. These were large multinational companies like BHP Billiton, Rio Tinto, Anglo, Xtrata, Glencore and Freeport-McMoRan which had both surface and underground mines. For example, Australian based BHP Billiton (BHP) owned over 70 different mines in 25 different countries, both surface and underground, and extracted 20 different commodities including Iron Ore, Coal, Copper, Aluminum, Lead, Zinc, Diamonds and Uranium. In 2009 BHP had revenues of $53 billion dollars and an operating

profit of $12 billion dollars. London based, Rio Tinto owned more than 50 surface and underground mines in 40 different countries and extracted iron ore, coal, copper, gold, lead, uranium and zinc. In 2010 Rio Tinto's results were $55 billion dollars in revenue and an operating profit of $14 billion dollars. The smallest customer mentioned here, United States based Freeport-McMoRan owned over 15 mines in 5 different countries, both surface and underground, where it extracted copper, gold and molybdenum. In 2010 revenues were $19 billion and net income $4.2 billion.

Exhibit 5



Even though JOY and BI were small compared with their customers, mining equipment purchases were undertaken with great care by these customers and the purchasing drivers were the same for surface mining equipment as they were for underground mining equipment. A drill, and electric mining shovel, which were surface

mining equipment and a continuous miner or longwall system, which were underground equipment, were at the front lines of production removing the mineral from the ground 24 hours a day, 365 days a year. The equipment's production capacity, speed, reliability and maintenance cost were very important to meet production targets. For instance, Minera Escondida, in Chile, the largest copper producing mine in the world, had only 10 operating electric mining shovels in operation. If one of these shovels had a catastrophic failure and was inoperable, this meant a loss of production whose consequences were in the millions of dollars. Customers also knew that an underperforming piece of equipment, over the long run, could also cost millions of dollars in lost production. Customers based their mining equipment purchases (mining capex) on the most reliable piece of equipment, the most productive piece of equipment, with the best support infrastructure at the lowest price.

Customer mining equipment purchasing decisions were driven by the price of commodities. (Exhibit 6 and 7) When there was an increased demand for commodities, such as copper, typically driven by industrialization, the prices of such commodities rose. When commodity prices rose and especially when the projection was for prices to remain high, customers invested in expanding production to sell more commodities. This meant that in anticipation of an increase in commodities demand customers would purchase additional mining equipment to increase production. In response to increased prices and increased production, customers would push equipment to its maximum capacity resulting which resulted in increased parts sales and maintenance work for the aftermarket service side. The same was also true in the reverse. When commodity prices were falling, customers would postpone new or expansion projects and would even close down unproductive mines. Customers slowing down production and not expanding reduced equipment sales and reduced parts and service dollars because equipment was not being used as much.

Exhibit 6

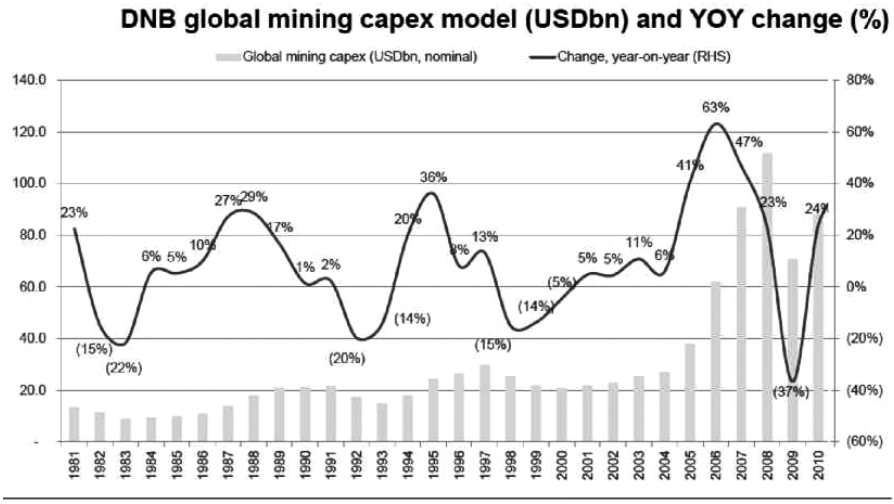
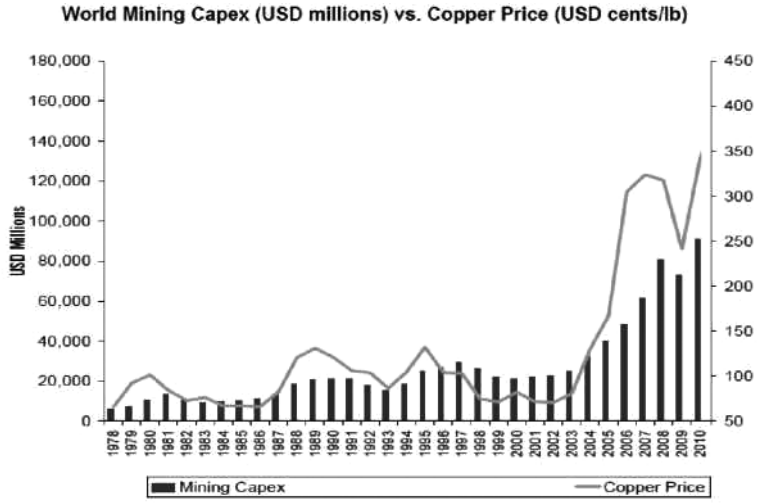


Exhibit 7



Customers had different purchasing strategies, both for original equipment and for aftermarket services. For equipment purchases, some customers made all decisions at the local mine site level. In this case sales were targeted at the local mine site level, in country. Other customers had implemented different versions of strategic sourcing initiatives to consolidate purchases in a corporate sourcing group who would take local input but ultimately make a decision. With corporate sourcing, sales had to be targeted both at the corporate level and at the local level to convince two stakeholders. It was often the case that when the purchasing decision was undertaken at the local level, the mine managers wanted the most productive piece of equipment and the customer was willing to pay a premium for it, which favored JOY products. However, when a centralized sourcing organization was involved in making the decision, if this group was focused only on price, this is where JOY could lose deals to the competition.

On the service and aftermarket parts side, customers made these purchasing decisions at the local mine site level. Some customers internalized all their service, purchasing only the replacement parts from the mining equipment manufacturer, and other customers were open to externalizing the entire maintenance service to the same manufacturer. The decision to internalize or outsource was a pendulum and historically customers would go back and forth every few years on doing the service themselves and then outsourcing. Some customers had a strategy to focus on mining and leave the maintenance to the equipment manufacturer, while others felt they could do a better job at maintenance themselves, or were restricted by their labor unions to prevent the outsourcing of maintenance.

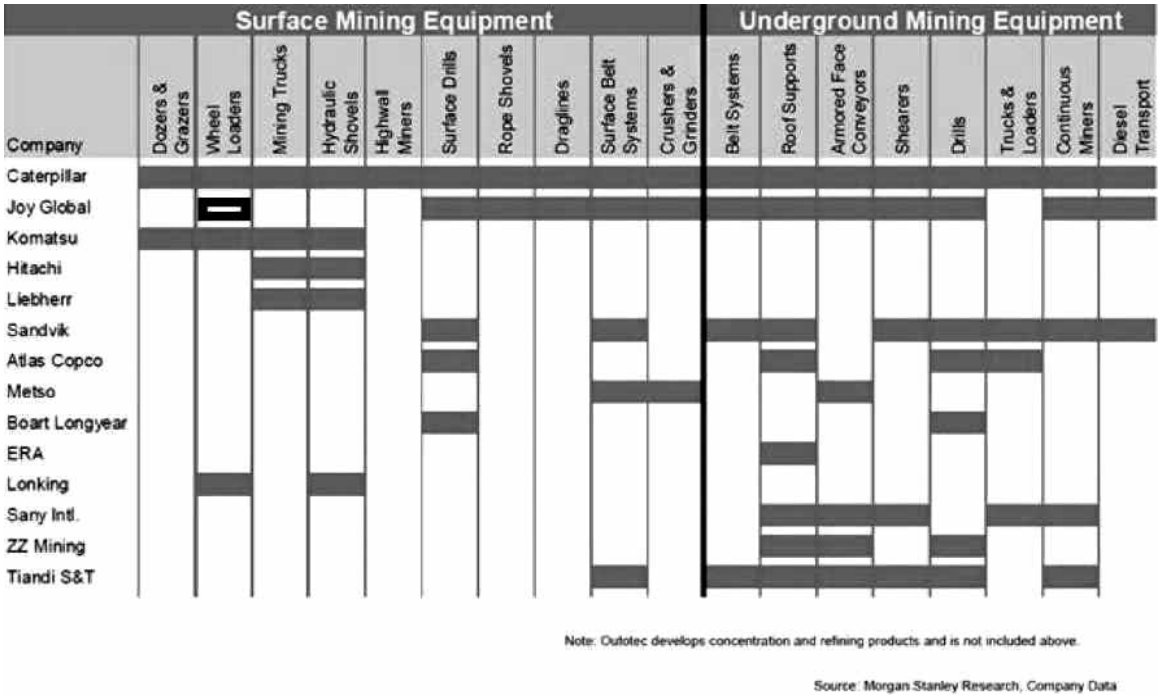
E. Competitors

Competition in the mining equipment industry was product dependent (Exhibit 8). The more specialized the product, the less competition and as a result, the less specialized a product was there were more competitors. In some of its product lines, for instance the large sized electric mining shovels and the monstrous draglines, JOY only had one competitor, BI. However, for the smaller electric mining shovel sizes, hydraulic excavators could be a substitute, and there were a handful of companies that produced these. In others products, like drills, JOY had many competitors, and in the less specialized conveying equipment, there were hundreds of competitors. On the underground side, JOY had only a couple competitors when it came to continuous miners and long wall systems, mainly BI. However, when it came to shuttle cars, and road headers there were hundreds of competitors.

Once the equipment is sold, aftermarket parts and services sales become the dividend. On the aftermarket side, however, a number of companies had reverse engineered many of the hundreds of parts that were required to be replaced in the mining equipment. These companies were referred to as "pirates" by the original equipment manufacturers, and their parts as "pirate parts". These companies, claimed to offer customers the exact same part for a fraction of the cost. The "pirates" also offered services at the mine sites around the world. On the service side, a significant part of the business, equipment manufacturers competed against every mom and pop machining repair facility throughout the world. With some machining tools, welding equipment, and the knowledge of the product, many companies had popped up near mine sites to offer repair services to the customers. These local companies had lower overhead, were nimble, and could offer cheaper prices on repairs. With the mom and pops and the pirates, on the service side, mining equipment manufacturers had to compete with higher quality and customer service.

Exhibit 8

Mining Equipment Suppliers Product Offerings



SOURCE: Morgan Stanley Global Mining machinery Handbook, November 1, 2012, modified by author

*Wheel Loaders were distributed by Joy for Letourneau Technologies Inc. the manufacturer Caterpillar Product Portfolio Post Bucyrus Acquisition.

a. Bucyrus International Inc.

BI, which began in Bucyrus, Ohio in 1880 and moved its headquarters to South Milwaukee, Wisconsin in 1893, was J O Y s main competitor for many years. Historically, BI was an early producer of steam shovels, and in 1904 BI supplied 77 of the 102 steam shovels used to dig the Panama Canal. By early 2010, BI matched JOY product for product in both underground and surface mining. However, in February 2010, BI had acquired the mining division of Terex Corporation for $1.3 billion and had added hydraulic excavators and haul trucks, which were product lines that JOY did not have.

In 2010, BI developed, manufactured and serviced mining equipment for the extraction of coal, copper, oil sands, iron ore and other minerals throughout the world. Similar to JOY, it operated in two business segments, surface mining and underground mining and similar to JOY, over the past 10 years, around 60% percentage of its revenue derived from the aftermarket services and 40% derived from original equipment. BI had around 10,000 employees and also targeted the same customers as JOY and provided the same services through wholly owned subsidiaries in the local countries. BI had manufacturing facilities in Australia, China, the Czech Republic, Germany, Mexico, the United Kingdom and the United States, and service and sales centers in Australia, Brazil, Canada, Chile, China, India, Indonesia, Peru, Russia, South Africa, and the United States

In 2010 BI reported that in 2009 it had combined revenues of $2.7 billion USD, which was a 5.5% increase from 2008, and net income of $ 313 million, which was a 25% increase from 2008. In 2009 Return on Sales (ROS) was at 18%, Return on Assets (ROA) was at 13%, and Return on Equity was at 23%. 2010 results for BI were no longer available once it was absorbed by CAT.

JOY and BI were very similar companies in size, operating structure, and products; however, BI was known in the

market for wining deals based on price. "We could normally beat BI on performance and reliability of our products. But if BI wanted to get a customer like a greenfield site, they dove in and discounted and could win the business," said Sutherlin. Greenfield sites were new projects, while brownfield sites were established mining operations.

b. Caterpillar Inc.

Caterpillar Tractor Co. was incorporated in California in 1925, and soon moved to its headquarters to Peoria, Illinois, where it eventually reorganized as CAT.

In 2010 CAT was the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. CAT was one of the world's most valuable brands, and was so well known and respected, it even licensed its trademark for a line of clothes and boots. Although some products were sold directly by CAT, most construction and mining equipment was sold through a global network of independent dealers. In addition to designing, manufacturing and selling the equipment, CAT also provided financing for equipment purchases through Cat Financial, which was something neither JOY nor BI provided.

CAT operated in three separate divisions:

1) Machinery, included the design, manufacture and selling of machinery for construction, mining, and forestry such as rack and wheel tractors, track and wheel loaders, pipelayers, motor graders, wheel tractor-scrapers, track and wheel excavators, backhoe loaders, log skidders, log loaders, off-highway trucks, articulated trucks, paving products, skid steer loaders, underground mining equipment, tunnel boring equipment and related parts.

2) Engines, which included the design, manufacture, and selling of engines for Caterpillar machinery; electric power generation systems; marine, petroleum, construction, industrial, agricultural and other applications.
3) Financial Products, which was principally Cat Financial which provided financing and leasing for customers and dealers to purchase Cat machinery, engines, turbines, marine vessels and other equipment. This division also provided insurance services.

In 2010 CAT revenues were $42.5 billion USD. In 2010 Return on Sales (ROS) was at 9%, Return on Assets (ROA) was at 7%, and Return on Equity was at 35% (Exhibit 9.1, 9.2, 9.3).

A key differentiator between CAT on the one hand and JOY and BI on the other hand was that CAT equipment was mainly distributed through a worldwide network of third parties whereby JOY and BI sold and serviced their equipment directly. In 2010 CAT had 50 dealers in the US and 138 dealers internationally serving 182 countries and operating in 3,475 locations. Many of the CAT engines were sold through an entirely different dealer network. Since these dealers were third parties, they did not exclusively sell CAT equipment, but they did service the CAT equipment. These dealers were managed through contractual relationships where a dealer was given the right to use the trademarks and sell CAT equipment in a geographic territory in exchange for an obligation to properly exploit that territory. The dealer network sold both mining, construction, forestry and other equipment and related services. It is estimated that in 2010, mining equipment sales accounted for no more than 20% of CAT revenues. Another difference between CAT and JOY and BI was the level of customization of the equipment.

Exhibit 9.1

Caterpillar Financials 2010

CONSOLIDATED RESULTS OF OPERATIONS (USD $) IN MILLIONS, EXCEPT PER SHARE DATA	12 MONTHS ENDED		
	DEC, 31, 2010	DEC, 31, 2009	DEC, 31, 2008
Sales and revenues:			
Sales of Machinery and Engines	2 39,367	329,540	$ 4S.04
Revenues of Financial Products	2,721	2,856	3,280
"ctal sales and revenues	42, 558	22,396	51,324
Operation costs:			
Cost of goods sold	30,367	23,886	38,415
Selling, general and administrative expenses	4,248	3,335	4,399
Research and development expenses	1,305	1,421	1,728
Interest expense of Financial Products	914	1,045	1,153
Other operating (income) expenses	1,191	1,522	1,181
Total operating costs	38,625	31,819	46,876
Operating pre	3,963	577	4,448
Interest expense excluding Financial Products	343	389	274
Other income (expense)	130	381	327
Consolidated profit before taxes	3,750	569	4,501
Provision (benefit) for income taxes	968	(270)	953
Profit of consolidated companies	2,782	3,548	839
Equity in profit (loss) of unconsolidated affiliated companies	(24)	(12)	37
Profit of consolidated and affiliated companies Less: Profit (loss)	2,758	827	3,585
Attributable to non controlling interests	5S	(68)	28
Profit	S2,750 [1]	$ 895 [1]	$ 3,557 [1]
Profit per common share (in dollars per share)	$4.28	$1.45	$ 5.83
Profit per common share-diluted (in dollars per share)	$4.15 [2]	$ 1.43 [2]	$ 5.66 [2]
Weighted-average common shares outstanding (millions)			
- Basic (in shares)	631.5	615.2	610.5
- Diluted i in shares;	650.4 [2]	626.0 [2]	627.9 [2]
Cash dividends declared per common share i in dollars per share)	$ 1.74	$1.68	$ 1.62

[1] Profit attributable to common stockholders.

[2] Diluted by assumed exercise of stock based compensation awards, using the treasury stock method.

SOURCE: Caterpillar Consolidated Financial Statements from Form 10-K, 2010.

Exhibit 9.2

CONSOLIDATED FINANCIAL POSITION	12 M0nths Ended		
(USD SJ in Millions)	DEC. 31, 2010	DEC. 31, 2009	DEC. 31,
Current assets:			
Cash and short-term investments	3,592	4,867	2,736
Receivables - trade and other	8,494	5,611	9,397
Receivables - Finance Deferred and	8,298	8,301	8,731
Refundable income taxes	931	1,216	1,223
Prepaid experses and other current assets	908	862	1,017
Inventories Total current assets	9,587	8,360	8.781
Property, plant and equipment - net	31,810	27,217	31,885
Long-term receivables - trade and	12,539	12,386	12,524
Other	793	971	1,479
Long-term receivables – finance:			
Investment in unconsolidated affiliated	11,204	12,279	14,264
Companies Noncurrent deferred and refundable	164	105	94
Income taxes	2,493	2,714	3,311
Intangible assets	805	465	511
Goodwi 11	2,614	2,269	2,261
Other assets	1,538	1,632	1,453
Total assets	64,020	60,038	67,782
Short-term borrowings:			
Machinery and Engines	204	433	1,632
Financial Products	3,852	3,650	5,577
Accounts payable	5,856	2,993	4,827
Accrued expenses	2,280	2,641	3,254
Accrued wages, salaries and employee benefits	1,670	797	1,242
Customer advances	1,831	1,217	1,898
Dividends payable	281	262	253
Other current liabilities	1,521	1,281	1,450
Long-term debt due within one year:			
Machinery and Engines	495	302	456
Financial Products	3,430	5,399	5,036
Total current liabilities	22,020	18,975	25,625

(*Continue*)

Long-term debt due after one year:			
Machinery and Engines Financial	4,505	5,652	5,736
Products Liability for postemployment	15,932	16,195	17,098
Benefits	7,584	7,420	9,975
Other liabilities	2,654	2,496	2,634
Total liabilities	52,695	50,738	61,068
Commitments and contingencies			
(Notes 20 and 21) Redeemable non controlling interest (note 24)	461	477	524
Stockholders`equity common stock of $1.00 par: Authorized shares:			
2,000,000,000 Issued	3,888	3,439	3,057
Shares:(2010, 2009 and 2008; 814,894,524) at paid-in amount Treasury stock: (2010 * 176.071.910 Shares; 2009; 190,171,905 shares and 2008 -213.367.983 shares) at cost	-10,397	-10,646	-11,217
Profit employed in the business	21,384	19,711	19,826
Accumulated other comprehensive income (loss) Non controlling	-4,051	-3,764	-5,579
Interests	40	83	103
Total stod^holders equity	10,864	8,823	6,190
Total liabilities, redeemable Non controlling interest and stockholders' equity	64,020	60,038	67,782

SOURCE: Caterpillar Consolidated Financial Statements from Form 10-K, 2010.

Exhibit 9.3

STATEMENT 4	CATERPILLAR INC.		
Consolidated Statement of Cash Flow For the Years Ended December 31 (Millions of dollar)	2010	2009	2008
Cash flow from operating activities			
Profit of consolidated and affiliated companies	2,758	827	3,585
Adjustments for non-cash items			
Depreciation and amortization	2,296	2,336	1, 980
Other	469	137	355
Changes in assets and liabilities, net of acquisitions:			
Receivables - trade and other	-2,320	4,014	-545
Inventories	-2.667	2,501	-833
Accounts payable	2,570	-1878	-129
Accrued expenses	117	-505	660
Accrued wages, salaries and employee benefits	847	-534	154
Customer advances	604	-646	286
Other assets – net	358	235	-470
Other liabilities - net	-23	12	-371
Net Cash provided by (used for) operating activities	5,009	6,499	4,672
Cash flow from investing activities:			
Capital Expenditures - excluding equipment leased to others	-1,575	-1,504	-2,320
Expenditures for equipment leased to others	-1,011	-968	-1,566
Proceeds from disposals of leased assets and property, plant and equipment	1,469	1,242	982
Additions to finance receivables	-8.498	-7,107	14,031
Collections of finance receivables	8,987	9,288	9,717
Proceeds from sale of finance receivables	16	100	949
Investment and acquisitions (net of cash acquired)	-1,126	-19	-117
Proceeds from sale of available-for-sale securities	228	291	357
Investments in available-for-sale securities	132	-128	197
Net cash provived by (used for) investing activities	-1,595	846	-6,171

(*Continue*)

	2010	2009	2008
Cash flow from operating activities:			
Dividends paid	-1,084	-1,029	-953
Distribution to noncontrolling interests	–	-10	-10
Common stock issued, including treasury shares reissued	296	89	135
Payment for stock repurchase derivative contracts	–	–	-38
Treasury shares purchased	–	–	-1,800
Excess tax benefit from stock-based compensation	183	21	56
Acquisitions of noncontrolling interests	-132	-6	–
Proceeds from debt issued (original maturities greater than three months)			
Machinery and Engines	216	458	1,673
Financial Products	8,108	11,833	16,257
Payments on debt (original maturities greater than three months)			
Machinery and Engines	-1,298	-918	-296
Financial Products	8,108	11,833	16,257
Short-term borrowings (original maturities, three moths or less) – net	291	-3,884	2,074
Net cash provided by (used for) financing activities	-4,613	-5,215	2,955
Effect of exchange rate changes on cash	-76	1	158
Increase (decrease) in cash and short-term investments	-1,275	2,131	1,614
Cash and short-term investments at beginning of period	4,867	2,736	1,122
Cash and short-term investments at end of period	$ 3,592	$4,867	$2,736

All short-term investments, wich consist primarly of higly liquid investment with original maturities of three months or less, are considered to be cash equivalent.
Non cash activities:
During 2010 and 2009, we contributed 1.5 million and 19.6 million shares of company stock with a fair value of $94 million and $718 million respectively; to our U.S benefit plans.

SOURCE: Caterpillar Consolidated Financial Statements from Form 10-K, 2010.

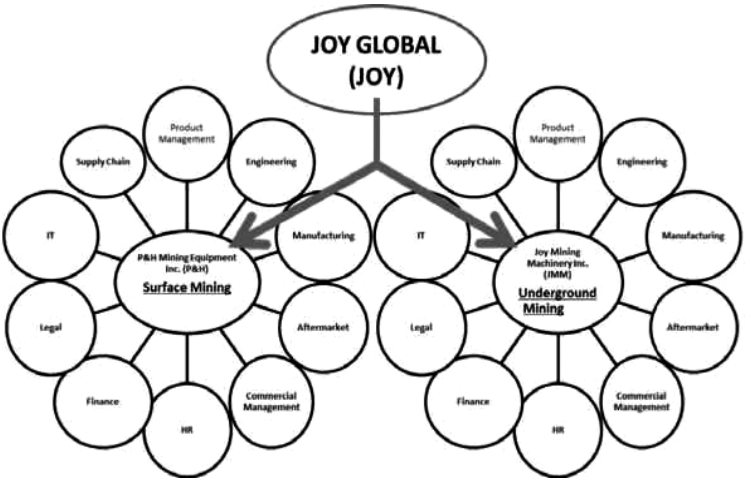
CAT had a wide selection of products, but each individual model was not customizable. Customization would be counterproductive to the manufacturing and supply chain efficiencies CAT gained through product standardization. On the other hand JOY and BI equipment was standard but in large part customized to fit each mine and customers' requirements.

Regarding the different go to market models, Sutherlin said, "mining is 200 customers and construction is thousands of customers.... that is why CAT has the distributor network. We have a different business model, we live and breathe the direct model ... distributor model is against our core competency". JOY s strategy was to sell premium mining equipment directly through wholly owned subsidiaries without distributors and to provide direct service.

c. **Joy Global Inc.**

JOY was the publicly traded holding company of two separate but related companies, P&H Mining Equipment Inc. ("P&H") and Joy Mining Machinery ("JMM"). P&H, based in Milwaukee Wisconsin, made surface mining equipment. JMM based in Lancaster, Pennsylvania, made underground mining equipment. P&H and JMM were the operating entities while JOY served as a holding company dealing with shareholders, investors and providing strategic guidance to the Presidents of P&H and JMM (Figure 1).

Figure 1



Mike Sutherlin was the JOY CEO in 2010. Reporting to him were Randy Baker, the President of P&H, and Ted Doheny the President of JMM. Each of the presidents ran their own independent company, with separate engineering, manufacturing, marketing, sales, finance, human resources and legal departments. On the one side you had "surface people" and on the other side you had "underground people" and internally they were considered different businesses. Although each segment claimed to have a different business model and customer concerns, the fundamentals of both businesses were the same. They had the same customers with the same concerns and faced the same challenges. Joint customers of P&H and JMM bemoaned the separate nature of the business lines and once at a meeting, in Australia, Sutherlin recalls that "we looked like a NASCAR racing team" when everyone put down their business cards with different logos and companies on them. There were those within JOY that called for a combined go to market strategy and felt that corporate synergies could be gained from consolidating both P&H and JMM.

Notwithstanding the costs associated with running two separate businesses, JOY was doing well and in 2010 JOY had combined revenues of $3.5 billion USD, which was a 2% increase from 2009, and net income of $461 million, which was a 1.5% increase from 2009. In 2010 Return on Sales (ROS) was at 20%, Return on Assets (ROA) was at 15%, and Return on Equity (ROE)was at 34% (Exhibit 10.1, 10.2, 10.3, 10.4).

JOY was headquartered in Milwaukee, Wisconsin, where the P&H main offices and manufacturing facility was. JMM was headquartered in Lancaster Pennsylvania. In 2010 JOY had 11,900 combined employees and approximately 50% of the employees were in the United States and the rest were spread out throughout the world, at the foreign subsidiaries, close to customers, many times within the customer mine sites. JOY serviced equipment though wholly owned subsidiaries in Australia, Botswana, Brazil, Canada, Chile, China, India, Indonesia, Mexico, Peru, Poland, Russia, South Africa, United Kingdom, United States, Venezuela and Zambia. In some countries, P&H and JMM had their own legal entity and operation, completely independent, and in some places, like South Africa, both P&H and JMM had combined into a single operation. In many of these countries, in addition to a sales and service office, JOY had built Service Centers where equipment could be repaired. Overall strategy, manufacturing and equipment sales decisions were centralized either in Wisconsin, for surface equipment, or in Pennsylvania, for underground equipment. Headquarters in the United States also controlled the capital expenditure purse strings. If a region required a capital investment to build a service center or acquire a competitor, these decisions were taken at the corporate level.

Exhibit 10.1

Joy Global Inc.

Consolidated Statement or Income

(In thousands, except share data)

	FISCAL YEAR F MIED		
	OCT 29,	OCT 30,	OCT 31,
Net Sales	3,524,334	3,598,314	3,418,934
Cost of sales	2,350,708	2,445,514	2,428929
Product development, selling and administrative	480,636	454,522	441,527
Other income	-4,113	-4,034	-2,726
Operating income	697,103	702,312	551,204
Interest income	13,195	7,.485	12,539
Interest expense	(29,964)	(32,217)	(34,237)
Reorganization items	(1,310)	5,060	(2,419)
Income from continuing operations before income taxes	679,024	682,640	527,087
Provision for income taxes	217,525	227,990	153,950
Income from continuing operations	461,499	454,650	373,137
Income from discontinued operations, net of income taxes			1,141
Net income	$ 461,499	$ 454,650	$ 374,278
Basic earnings per share:			
Income from continuing operations	$ 4.47	$ 4.44	$ 3.47
Income from discontinued operations	-	-	0.01
Net income	$ 4.47	$ 4.44	$ 3.48
Diluted earnings per share:			
Income from continuing operations	$ 4.40	$ 4.41	$ 3.44
Income from discontinued operations	-	-	0.01
Net income	$ 4.40	$ 4.41	$ 3.45
Dividends per share	$ 0.70	$ 0.70	$ 0.625
Weighted average shares outstanding: Basic	103,196	102,450	107,472
Diluted	104,905	103,104	108,425

SOURCE: Joy Global Consolidated Financial Statements from Form 10-K, 2010.

Exhibit 10.2

Joy Global Inc.
Consolidated Balance Sheet
(In thousands, except share data)

ASSETS	OCTOBER 29, 2010	OCTOBER 30, 2009
Current Assets:		
Cash and cash equivalents	815,581	471,685
Accounts receivable, net	674,135	580,629
Inventories	764,945	769,783
Other current assets	107,266	127,930
Total Current Assets	2,361,927	1,950,027
Property, Plant and Equipment:		
Land and improvements	23,478	24,971
Buildings	141,671	119,654
Machinery and equipment	521,366	455,894
	686,515	600,519
Accumulated depreciation	(308,491)	(253,461)
Total Property. Plant and Equipment	378,024	347,058
Oher Assets		
Other intangible assets, net	178,831	187,037
Goodwill	125,686	127,732
Deferred income taxes	162,682	334,589
Other non-current assets	76,891	61,836
Total other assets	544,090	711,194
Total Assets	3,284,041	3,008,279

(*Continue*)

LIABILITIES AND SHAREHOLDERS' EQUITY

Current liabilities	OCTOBER 29, 2010	OCTOBER 30, 2009
Short-term payable, including current portion of long-term obligation	1,550	19,791
Trade accounts payable	291,74	206,770
Employee compensation and benefits	128,13	116,149
Advance payments and progress billings	376,30	321,629
Accrued warranties	62,35	58,947
Other accrued liabilities	163,24	203,498
Total Current Liabilities	1,023,324	926,784
Long-term Obligations	396,32	523,890
Other Non-current Liabilities:		
Liabilities for postretirement benefits	26,53	27,817
Accrued pension costs	428,34	576,140
Other	54,11	139,909
Total Other Non-current Liabilities	508,997	743,866
Commitments and Contingencies Shareholders' Equity:Common stock, S1 par value (authorized 150,000,000 shares; 127,402,894 and 126,285,641 shares issued at October 29, 2010 and October 30, 2009, respectively)	127,403	126,286
Capital in excess of par value	1,002,1	943,046
Retained earnings	1,722,0	1,333,254
Treasury stock (23,873.159 shares)	(1,116,62	(1,116,623)
Accumulated other comprehensive loss	(379,64	(472,224)
Total Shareholders' Equity	1,355,394	813,739
Total Liabilities and Shareholders' Equity	$ 3,284,041	$ 3,008,279

SOURCE: Joy Global Consolidated Financial Statements from Form 10-K, 2010.

Exhibit 10.3

Joy Global Inc.
Notes to Consolidated Financial Statements
October 29, 2010

IN THOUSANDS	UNDERGROUND MINING MACHINERY	SURFACE MINING EQUIPMENT	CORPORATE	ELIMINATIONS	TOTAL
Fiscal 2010					
Net sales	2,126,788	1,518,605	–	-121,059	3,524,334
Operating income (loss)	433,902	336,236	-43,126	-29,909	697,103
Interest Income	–	–	13,195	–	13,195
Interest Expense	–	–	-29,964	–	-29,964
Reorganization items	–	–	-1,310	–	-1,310
Income before income taxes	433,902	336,236	-61,205	-29,909	679,024
Depreciation and Amortization	39,192	20,472	1,865	–	61,479
Capital Expenditure	37,273	35,380	821	–	73,474
Total Assets	1,803,141	856,764	624,136	–	3,284,041
Fiscal 2009					
Net sales	2,278,691	1,460,445	–	-140,822	3,598,314
Operating income (loss)	461,019	322,170	-41,759	-39118	702,312
Interest Income	–	–	7,485	–	7,485
Interest Expense	–	–	-32,217	–	-32,217
Reorganization items	–	–	5,060	–-	5,060
Income before income taxes	461,019	322,170	-61,431	-39118	682,640
Depreciation and Amortization	39,689	18,846	1,079	–	59,614
Capital Expenditure	54,903	39,054	171	–	94,128
Total Assets	1,661,642	791,480	555,157	–	3,008,279
Fiscal 2008					
Net sales	2,001,166	1,540,987		-123.219	3,418,934
Operating income (loss)	364,747	250,093	-34,897	-28,739	521,204
Interest Income	–	–	12,539	–	12,539
Interest Expense	–	–	-34,237	–	-34,237
Reorganization items	–	–	-2,419	–	-2,419
Income before income taxes	364,747	250,093	-59,014	-28739	527,087
Depreciation and Amortization	52,207	19,181	960	–	72348
Capital Expenditure	36,431	47,774	–	–	84,205
Total Assets	1,542,936	744,888	356,489	–	2,644,313

SOURCE: Joy Global Consolidated Financial Statements from Form 10-K, 2010.

Exhibit 10.4
Joy Global Inc
Notes to Consolidated Financial Statements
October 29, 2010

Geographical Segment Information

IN THOUSANDS	TOTAL SALES	INTERAREA SALES	SALES TO UNAFILIATED CUSTOMERS	OPERATING INCOME (LOSS)	LOUG LIVED ASSTS
2010					
United States	2,135,032	-601,475	1,533,537	397,966	235,021
Europe	315,836	-68,293	247,543	31,371	53,190
Australia	527-663	-20,151	507,512	91,911	38,783
Other Foreign	1,290,191	-54,469	1,235,722	279,703	120,557
Interarea Eliminations	-744,388	744,388	–	-60,722	–
	3,524,334	–	3,524,334	740,229	447,551
2009					
United States	2,333,354	-550,105	1,783,549	524,576	217,758
Europe	520,012	-260,731	259,281	82,678	44,682
Australia	597,160	-32,906	546,254	96,928	41,233
Other Foreign	1,071,284	-62,054	1,009,230	227,124	96,458
Interarea Eliminations	-905,796	905,796	–	-187,235	–
	3,598,314	–	3,598,314	744,071	400-141
2008					
United States	2.155.911	-523,378	1,632,533	393,837	213,998
Europe	573,234	-210,045	363,189	93,591	32,268
Australia	522,828	-52,278	470,550	54,334	28,179
Other Foreign	966,830	-44,168	952,662	189.662	45,804
Interarea Eliminations	-829,869	829869	–	-145,323	–
	3,418,934	–	3,418,934	586,101	324,249

Product Information

IN THOUSANDS	2010	2009	2008
Original Equipment	1,426,744	1,628,375	1,439,493
Aftermarket	2,097,590	1,969,939	1,979,441
Total revenue	3,524,334	3,598,314	3,418,934

SOURCE: Joy Global Consolidated Financial Statements from Form 10-K, 2010.

Decisions on how to properly support customers in the field were handled at the regional level and were decentralized. For example, the Americas South region which stretched from the South Western United States to the tip of South America was run by a Regional Vice President based in Santiago, Chile. Reporting to this person were the country managers of Chile/Argentina, Peru/Colombia, Brazil/Venezuela, Mexico and the South West manager. Each of these country managers managed their own P&L and had complete control to how local sales of service and parts sales were handled. For instance in Chile, the general manager had 1,300 people working for him throughout the country, working at mine sites, in Santiago at the regional headquarters and in Antofagasta at the Distribution Center and at the Service Center, where component were warehoused and repairs were made. In addition to supporting the JOY products, country managers could decide to distribute ancillary equipment or parts that customers required. For example, the ground engaging tools, the teeth of a shovel or loader bucket, were not JOY products, were made by third parties, and these were sold locally and could be different in each country.

P&H had been founded by Alonso Pauling and Henry Harnischfeger as a machining shop in Milwaukee in 1898. Initially it was a machine and pattern shop which then began to build factory cranes and developed a specialty in electric powered motors and heavy industry cranes. Eventually Pauling and Harnischfeger began making excavators and earth moving equipment and as a result of their rugged nature, the mining industry became their target market. Around the same time, in Pennsylvania, after working in a coal mine as a boy, Joseph Francis JOY began tinkering with automated underground mining equipment and later in 1920 he formed the company that became JMM.

Over a number of years, JOY grew organically through product line extensions and through acquisitions, adding new product lines, (Exhibit 11)**.** In 1988 P&H acquires the Page Engineering Company to add a new product, the walking dragline, extremely large capacity machines used to remove overburden. In

1991 P&H acquires Gardner-Denver to add a new product line of drilling rigs to its surface portfolio of mining products. At the same time, P&H grows its product line organically through developing and launching new shovels such as the 2800 electric mining shovel in 1969, and the 4100XPC in 2008. In 1995, P&H acquires JMM for its underground suite of products and the modern day JOY Global is born. The JMM side of the business had also grown through acquisition, adding new product lines and organically through product line extensions. Organic expansion also took place in underground products throughout the years, as in 1975, when JMM develops its first longwall shearer (model 1LS) and in 2002 JMM develops a high production flexible conveyor train (model 4FCT). In 1997, the combined P&H and JMM, now called JOY, acquire Longwall International, adding the longwall as a new product and merges it into JMM. In 2006 JOY purchases the Stamler Group adding feeder-breakers, continuous haulage, and battery haulers to its underground product lines. In 2008 JOY acquires Continental Crushing and Conveying Inc. adding a new product line, conveyor systems, capable of carrying minerals over a long distance on conveyors.

Unlike some of its competitors like Komatsu Ltd. and CAT, which make standardized farming and construction equipment as well as mining equipment, JOY focused exclusively on making, selling and servicing specialized mining equipment which was customized to an extent. J O Y s equipment, both surface and underground was built to order. JOY had its main product models, but prided itself on its ability to provide hundreds of options which were driven, in part, by a specific mine's requirements, such as elevation, voltage (for the electric machines), and abrasiveness of the mineral, and also driven by customer requirements, such as safety features. This meant one customer's machine could be significantly different from another customer's same machine. These were huge machines which sometimes took a year to build. There was no stock of finished equipment. There was no dealership one could visit to

see the machines lined up for sale. The only way a customer could see the machines was in operation or on the factory floor as production took place. Exhibit 3 shows the main products that JOY produced for its underground and surface mining customers in 2010. Equipment sales accounted for approximately 40% of revenues in 2010. For surface mining, these included mainly electric mining shovels, drills and conveyors. For underground mining, these included continuous miners, long wall systems and armored faced conveyors. Equipment production was generally centered in one plant, and JOY's manufacturing footprint was heavily tilted to the United States, but it also manufactured in the United Kingdom and Australia.

Exhibit 11

JOY and CAT sample growth through acquisitions and internal development

YEAR	JOY		CAT	
	Product Acquisition	Internal Product Development	Product Acquisition	Internal Product Development
1951			Tracked loaders and pipelayers	
1965			forklifts	
1969		2800 Shovel		
1975		Longwall Shearer		
1981			Industrial gas turbines	
1986				D11 Mining Dozer
1988	Walking Dragline			
1991	Drills		Paving products	
1997	Longwall			
1998			Electric generators	797 Mining Haul Trucks
2002		Flexibe Conveyor Train		
2006	Conveyors			
			Timber harvesting	
2008		4100XPC Shovel	Wheel Loaders Tunnel Boring	797F Mining Haul Truck

SOURCE: Author's research on Wikipedia and company websites