FINANCIAL INTELLIGENCE FOR SUPPLY CHAIN MANAGERS

UNDERSTAND THE LINK BETWEEN OPERATIONS AND CORPORATE FINANCIAL PERFORMANCE

STEVEN M. LEON

Financial Intelligence for Supply Chain Managers

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Contents

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Steve Leon

About the Author

Steven Leon is a Clinical Professor of Supply Chain and Operations Management in the Marketing Department of the College of Business Administration, University of Central Florida. Prior to his transition to academia, he spent many years in the air transportation industry, particularly in flight operations. Steve is also an accomplished entrepreneur. His research interests include supply chain strategy and financial performance, service operations, behavioral decision-making, and air transportation. He is the author of *Sustainability in Supply Chain Management Casebook: Applications in SCM*, *Financial Times Press*, and other peer-reviewed academic journal articles. Steve earned his Ph.D. in Transportation and Logistics from North Dakota State University, and his MBA in International Business from Loyola University, Maryland.

1

Introduction

Earnings conference calls are a routine occurrence for executives of public companies. Each quarter, while we listen to the company's CEO, president, CFO, and others recite their prepared remarks about earnings, we may be unfamiliar with the terminology that they use. Of course, we would expect executives to be comfortable speaking about financial information, but what about the rest of us? Shouldn't we be comfortable too? Shouldn't we understand how we affect our organization's economic performance from the decisions and actions we carry out each day?

We can expect that people who work in finance and accounting, and those whose daily responsibilities include financial and accounting work, feel comfortable conversing in financial terms. As an example of this, on a third-quarter 2013 earnings conference call made by Dick's Sporting Goods, Inc., we see common phrases used in most earnings conference calls.

- "Third-quarter earnings of $0.40 per diluted share"
- "We expect non-GAAP consolidated earnings per diluted share to be in the range of $2.62 to $2.65 per share"
- "Total sales for the third quarter of 2013 increased 6.7% to $1.4 billion"
- "Gross profit was $424.9 million or 30.34% of sales"
- "SG&A expenses in the third quarter of 2013 were $333.7 million or 23.83% of sales"
- "Net capital expenditures were $77 million"
- "Gross margins are expected to decline"
- "Operating margin is anticipated to decrease slightly"

These phrases can be overwhelming and somewhat confusing to a nonfinance person, but they don't have to be. Terms and phrases such as earnings, earnings per share, net income, net profit, operating profit, gross profit, gross margins, operating margins, revenue, and sales are common and often are used interchangeably. Revenue, sales, and top line are a perfect example of this. These terms have the same meaning. Another common example of this is net earnings, net income, and bottom line; these mean the same thing. Understanding the meaning of these terminologies will assist supply chain and operations organizations to perform effectively.

For those of us in supply chain and operations management, the tasks we accomplish and the decisions we make every day affect our company's financial performance. The questions are then, how exactly do we affect financial performance and why should we care? It should be our responsibility to know how we affect financial performance to make the best decisions possible. Much of the work we do involves making business cases and persuading executives to replace or add facilities, machinery, materials, and other resources. Obtaining approval depends, in large part, on financial returns. To facilitate these conversations, we ought to feel comfortable using financial terms with CFOs, creditors, owners, and other financial experts; the ability to speak fluently in financial terms makes us more effective. If we want to help our executive leadership demonstrate success during earnings calls, if we want our companies to be profitable, successful, and sustainable, or if we want to create value for our companies, we should know how we contribute to our organizations. If we have any inclination to earn greater responsibility in our companies or to take on executive leadership roles, we need to become knowledgeable in the finance and accounting aspects of organizations.

Financial standing affects our company's ability to move forward in many ways, such as:

1. Borrowing money for working capital
2. Attracting investors and raising funds for growth
3. Finding customers, paying dividends, and paying suppliers
4. Purchasing inventory
5. Innovating
6. Contributing to retirement plans
7. Providing employee growth opportunities

We aren't just talking about reducing costs either; we are talking about implementing projects that add value to our companies, projects that drive revenue growth, deliver positive cash flow well into the future, and deliver satisfactory levels of return on invested capital (ROIC).

What Is Important to the CEO?

Before exploring what we can do in supply chain and operations to help create a profitable, competitive, and valuable company, we need to identify a company's overarching purpose and what is important to CEOs. Primarily, the central purpose of a company is to increase shareholder value. Total return to shareholders (TRS) is frequently used to measure management and company performance. From a CEO's perspective, there is pressure to show returns to shareholders that either meet or exceed shareholder expectations and achieve above-average earnings compared to competitors. If they don't, share price is likely to fall due to unfavorable reviews from financial analysts. CEOs report to numerous audiences, such as:

1. Board of directors
2. Wall Street analysts
3. Shareholders and investors
4. Creditors and banks
5. Stakeholders

Each audience has its own criteria for evaluating success. In addition, many other criteria and financial performance measures are reported and used to gauge company performance. Besides total return to shareholders, other common measures used to evaluate a company and its executive management team include:

1. Earnings before interest taxes depreciation and amortization (EBITDA)
2. Earnings per share (EPS)
3. Earnings before interest and taxes (EBIT)
4. Free cash flow (FCF)
5. Gross margin, return on capital employed (ROCE)
6. Return on investment (ROI)

7. Return on invested capital (ROIC)
8. Return on net assets (RONA)
9. Sales growth

Why these? Quite simply, these measures are what are important to analysts, owners of company stock, and those who invest in or lend money to companies. If it is significant to external constituents, then it is important to the company executives. By no means is this an all-inclusive list. Several other performance measures are considered, but those listed are the most common. No single metric can tell the whole story; however, a core of key performance indicators can provide insight into the financial health of a company.

After exploring the performance measures that interest CEOs, we can ask ourselves how we can help our CEO report company performance in a positive light. In other words, what can we do to make all of the performance measures listed earlier stack up against our competitors and while meeting or exceeding the expectations of our board members, shareholders, analysts, investors, and bankers? Effective supply chain and operations management provides ample opportunity to add firm value and competitive advantage.

Supply Chain and Operations Value Proposition

Although supply chains have garnered more attention in the major business news outlets recently, many executives and up-and-coming managers do not fully grasp how important managing supply chains is to their company's sustained financial health and performance. A high level of emphasis is still placed on top-line growth instead of looking at supply chain and operations. Sales and marketing activities garner much of management's attention, while supply chain and operations are relegated to behind-the-scenes cost savings and cost containment activities. Why is this the case? Because it is much more exciting to report a 15% growth in sales than to cheer about cost savings of an equal amount achieved through supply chain and operations modifications. Although not always celebrated, the understanding of the importance of supply chain management is growing.

Management consulting firms, including many of the top tier firms, recognize the importance of supply chain management. Evidence of this exists in that several firms have established supply chain and operations consulting practices including:

1. Accenture
2. A.T. Kearney
3. Bain and Company
4. Booz & Company
5. Deloitte LLP
6. Gartner
7. KPMG
8. McKinsey & Company
9. PricewaterhouseCoopers (PwC)

In addition to consulting in this area, Gartner publishes a much-referred-to ranking of supply chains called, "The Supply Chain Top 25." This publication provides a ranking of the best supply chains among global manufacturers, retailers, and distributors. Each year, these firms publish many insightful research reports in the supply chain area ranging from managing suppliers, strategies for purchasing commodities, managing risk, sustainability, and the use of big data. The research is important in creating an understanding of the role of supply chain and operations.

The Role of Supply Chain and Operations

Supply chains, for the most part, are focused on delivering products and services to customers at the right price, in the right quantities, to the right places, and at the right time. In doing so, they keep four overarching areas in mind to create value for our organizations:

1. Increasing quality
2. Increasing service
3. Lowering cost
4. Increasing throughput (reducing time)

This is a daunting task considering supply chains are long, complicated, and complex; in addition, consumer preferences change frequently leading to shorter product life cycles along with risk and working capital challenges. In a supply chain, there is no shortage of opportunities for things to go wrong, but these are also opportunities

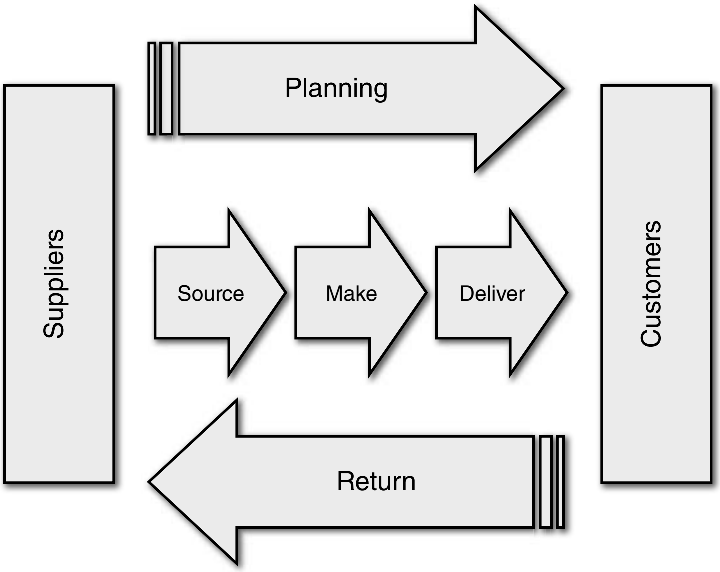

Figure 1.1 SCOR model. (Adapted from Supply Chain Council, Inc.)

for companies to gain a competitive advantage. Execute a supply chain well, and you will leave your competitors behind!

The SCOR model (Figure 1.1), a management tool, attempts to bring structure to many of the areas under the purview of supply chain managers. The SCOR model has been developed to describe the business activities associated with the phases of satisfying customers' demand. It is a process reference model that includes everything from the supplier's supplier to the customer's customer. Each area of the SCOR model, Plan–Source–Make–Deliver–Return, brings opportunity to add value for your organization. Its purpose is to structure the supply chain in a way that allows for identifying and improving supply chain processes. Process improvements are intended to create value for the firm through gaining a competitive advantage in the areas of reliability, responsiveness, agility, cost, and asset management.

In addition to the SCOR model that allows us to identify where value is created throughout the supply chain, Porter's value chain (Figure 1.2) provides an overview of where value is created in an organization. Supply chain and operations are responsible for much of the value creation for an organization. Interestingly, a large percentage of the support value activities and all the primary value activities are comprised supply chain and operations functions.

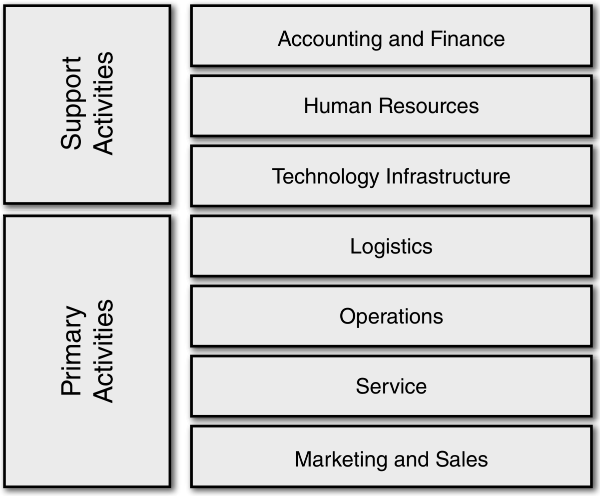

Figure 1.2 Value chain. (Adapted from Michael Porter's Value Chain. Competitive Advantage: Creating and Sustaining Superior Performance, NY: Free Press; 1985.)

Value Chain

Value is created when customers purchase goods or services at prices higher than the cost of performing the value activities. The value activities include primary activities that encompass the physical creation, delivery, and selling of the product or service, while the support activities provide the infrastructure to carry out the primary activities. From a supply chain perspective, we create value by maintaining a cost advantage in each primary and support activity and through the coordination and alignment of each activity.

Porter indicates each firm plays a role in a larger system: a value system.[1] We know this value system as a supply chain where there is supplier value (upstream), firm value, and channel and buyer value (downstream). Taken together, firms create a competitive advantage through the integration and coordination of all members of the value system. Since organizations need to create value for their shareholders, customers, and other constituents, executives and managers are wise to bring supply chain and operations into the boardroom.

[1] *On Competition*, Michael E. Porter, Harvard Business School Press; Boston (1996).

Supply Chain and Operations Financial Impact

As the emphasis on supply chain and operations grows, CEOs are beginning to more commonly use supply chain phrases such as:

1. Accountability
2. Collaboration
3. Innovation
4. Operational flexibility
5. Risk mitigation
6. Sustainability
7. Transparency

Why are these ideas so important to CEOs? It is because consumers, shareholders, and government officials demand it. However, the real challenge is in implementing these ideas, moving from discourse to action. Because supply chain and operations is still considered a functional area that exists in silos for many companies, implementing these ideas to achieve true company value is difficult. However, companies that moved their supply chains from functional department to value generator were rewarded. In 2013, PwC did a survey showing leading companies are more than twice as likely to treat their supply chain as a strategic asset.[2]

CEOs continue to grow in their understanding of supply chains and the impact to organizations, thanks in part to news outlets and business publications producing content on the topic. News articles or video segments related to supply chains have several common themes. Some themes that consistently appear are natural disasters and the resulting supply interruptions, the idea that supply chains should be more flexible and agile to meet customers' changing needs, and the need to use technology to manage the flow of information more effectively. Rarely does the conversation entertain ideas about how supply chain activities drive sales, affect revenue targets, impact shareholder value, how the stock price is affected, or the effect on financial ratios. Although these types of conversations are gaining traction, the specifics are generally left out of the dialog surrounding supply chains.

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[2] http://www.pwc.com/us/en/industrial-products/issues/supply-chain.html

Emerging topics in supply chain today revolve around sourcing goods and services for organizations that directly impact financial performance. The costs of commodities are increasing or are in a constant state of flux. For example, we have a tough time getting our heads wrapped around fluctuating fuel prices. In addition, we see greater instances of companies unable to deliver products and services due to weather interruptions. One prime example is the Northeastern United States from 2012 to 2014. Hurricane Sandy and winter snowstorms crippled transportation systems, resulting in major delivery delays of goods and services. This led to shortages of raw materials coming to production facilities and supply shortages for customers. Of course, this isn't confined to the United States. Tsunamis, hurricanes, and flooding occur globally, affecting companies everywhere. In 2011, floods in Thailand and the earthquake and tsunami in Japan caused massive supply disruptions affecting supplies of raw materials, subassemblies, and finished goods in the computer and automobile industries.

Another important area impacting financial performance is conflict minerals, which has been a topic of discussion for quite some time. These are minerals mined from areas of the world where armed conflict and human rights abuses occur. Recently, this topic has gained special attention. Section 1502 of the Dodd–Frank Act requires certain companies using conflict minerals in their products to disclose the source of these minerals. Even though an estimated 6,000 companies will be directly impacted by this rule, many private companies within the supply chains of those companies will also be affected. The U.S. Securities and Exchange Commission expects the cost of compliance to be substantial for all involved. For primary companies and their suppliers, initial estimates for cost of compliance are between US$3 billion and US$4 billion, with annual costs thereafter of between US$207 million and US$609 million.[3]

A third area of discussion that can affect financial performance is outsourcing. This includes the rights, safety, and health of workers employed by suppliers located in low cost countries. In 2012, the collapse of one Bangladesh factory and a fire in another led to more than a thousand deaths. These tragic events have resurrected the discussion around outsourcing to find the lowest-cost supplier. The backlash retailers face when it is reported that people were treated poorly or put

[3] http://www.ey.com/Publication/vwLUAssets/Conflict_minerals/$FILE/Conflict_Minerals_US.pdf

in harm's way can be devastating. Not only are events like these terrible situations for the families that lost loved ones, the companies can suffer a drop in sales, loss of brand value, and reduced stock prices. These are only a few of the many consequences faced by companies using suppliers where human rights are an afterthought.

The examples have been provided for two reasons: (1) to show that supply chain, particularly sourcing has a great deal of responsibility in managing and controlling costs in the face of enormous challenges and (2) to highlight that while knowing how to manage and control costs are essential, it is also important to know how these costs impact the business. What do we need to learn from all of this? Supply chain professionals need to become comfortable explaining how or by how much each of these significant issues can affect your organization. These issues can affect total return to shareholders, earnings per share, free cash flow, return on invested capital, net income, and other financial aspects of the organization. Remember, it is our responsibility to help our CEOs demonstrate success during earning calls.

Supply chains and operations functions are important for organizations. If you ask anyone in a supply chain or operations role, they will tell you that what they do each day is incredibly vital—and it is. Those in the field understand the importance of their roles and can articulate why, usually from the standpoint of operational performance. They can tell you the rate of defects, fill rates, order accuracy, inventory turns, and many other operational performance measures. After all, this is how their performance is measured. What is often missing from their explanations is how their actions directly affect the financial performance of the organization. Other than describing their key economic role in the organization as cost reduction, there is little more financial depth to the explanation. With the information and discussion provided by this book, we can change this.

The majority of supply chain professionals perform well in their functional roles. At the same time, many of these professionals find it difficult to see the company's larger goals or to see how their actions affect other functional areas. Furthermore, supply chain professionals fail to see how their decisions or actions connect to and affect the financial goals and objectives of the firm. Pointing this out is not to degrade supply chain professionals; they are measured by operational performance metrics, which, by all accounts, are plastered on most shop walls. These metrics are what they know and live by. Because the management of supply chains is critical to the long-term prosperity and sustainability of any firm, supply chain professionals who intend to become managers or executives with increasing responsibility must reach a new level of financial aptitude. We will accomplish this from a supply chain and operations perspective. Having this knowledge will help you understand why, how, and what you do every day is important and how it affects the firm's financial performance.

Value from a Different Perspective

If you have a conversation with the finance department or on Wall Street, you will hear different views of what value means. The definition of value from a finance person would include, of course, money. Within this book, we will begin to understand different perspectives on what value means and show how supply chain management and operations affect an organization's financial performance. In the next chapter, we will discuss the monetary value of a firm in greater depth, but for now, taken together, firm value includes ROIC, growth rate, and cost of capital.[4] It is incredibly beneficial for supply chain professionals to understand how these factors are affected by supply chain activities. In the end, you will not only know how operational metrics are affected by your decisions but you will also grasp how financial metrics are influenced by your decisions.

The connection between operations and finance is important. Only looking at a firm's current operational performance does not indicate if it is making any profit at all or that it can remain in business. If we are merely looking at the firm's financial performance, how do we know if it can sustain profitability into the future? We need to measure both financial and operational performance and connect the two to determine if we can generate value for the firm. We do this by looking at what drives value in the firm: ROIC, revenue growth, and cost of capital. Economic value is created whenever the ROIC exceeds the cost of capital (weighted average cost of capital [WACC]).

$$\text{Economic value created} = \text{ROIC} \times (\text{ROIC} - \text{WACC})$$

PwC conducted a study in 2008 that connected supply chain and operations to financial performance using 600 companies that experienced supply chain disruptions. For these companies that experienced disruption, PwC found that shareholder value plunged when compared to their peers. In addition, their stock prices experienced

[4] Koller, Chapter 20, *Performance Management*, page 417.

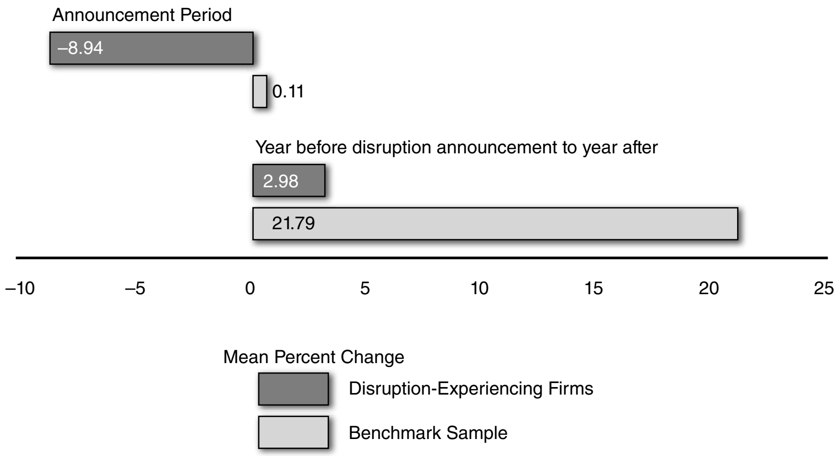

Figure 1.3 How supply chain disruptions affect stock prices. (From PricewaterhouseCoopers, From vulnerable to valuable: how integrity can transform a supply chain; Achieving operational excellence series, 2008.)

greater volatility, and they suffered sharp declines in return on sales and return on assets. Even more, these effects in many cases lasted up to 2 years.[5]

On average, affected companies' share prices (Figure 1.3) dropped 9% below the benchmark group during the day before and the day of the disruption announcement. Two-thirds of affected companies were lagging their peers in stock price performance a year after the disruption. The average stock return of those suffering from disruptions was almost 19 percentage points lower relative to the benchmark group over a 2-year period (i.e., 1 year before to 1 year after the disruption announcement date).

The investment community views disruption-experiencing companies unfavorably, and this uneasiness is likely to spread to employees, consumers, and suppliers. Compared to benchmark stocks, more than half of the affected companies experienced greater volatility for at least 2 years—a sign of diminished confidence among stakeholders. After controlling for normal market movements, the share price

[5] From vulnerable to valuable: how integrity can transform a supply chain: achieving operational excellence series, PricewaterhouseCoopers, December 2008.

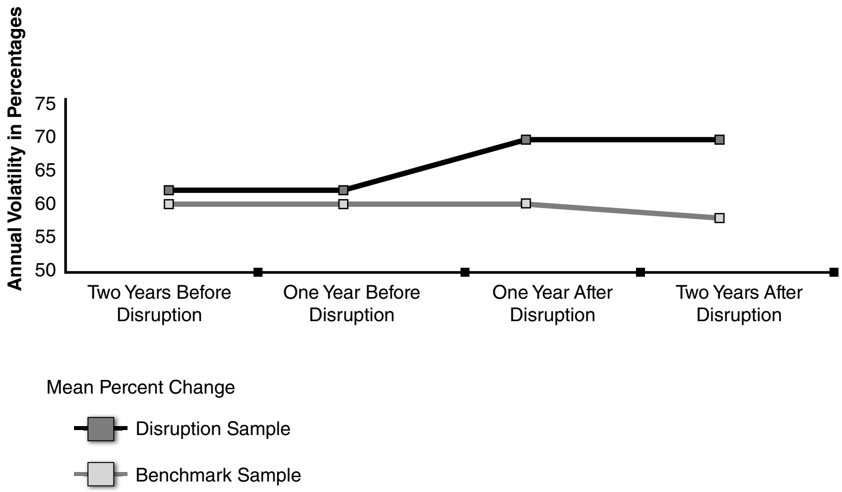

Figure 1.4 How supply chain disruptions affect share price volatility. (From PricewaterhouseCoopers, From vulnerable to valuable: how integrity can transform a supply chain; Achieving operational excellence series, 2008.)

volatility (Figure 1.4) in the year after the disruption of affected firms was around 8 points higher than the benchmark. Two years after the disruption, the affected firms were under performing the benchmark by an even higher 10 points.

Disruptions take a significant toll on profitability as reported by standard accounting measures. More than 60% of affected firms experienced lower returns on assets and sales. After controlling for normal industry and economic effects, the average return on assets (Figure 1.5) for disruption-experiencing firms was found to be down by 5 points.

Return on sales (Figure 1.6) suffered an average drop of 4 points for companies that experienced disruptions. On both measures, the returns of benchmark companies were stable over the 2-year period while those of disrupted companies fell significantly.

Structure of the Book

Throughout this book, you will think about (1) how the decisions you make each day affect the financial performance of your firm, (2) why certain decisions are typically made, and (3) to increase your fiscal aptitude. After reading this book, you will be able to

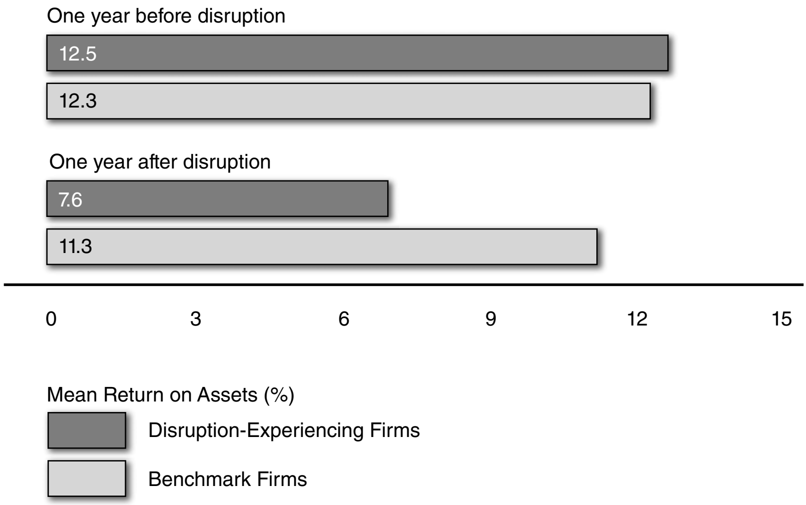

Figure 1.5 How supply chain disruptions affect return on assets. (From PricewaterhouseCoopers, From vulnerable to valuable: how integrity can transform a supply chain; Achieving operational excellence series, 2008.)

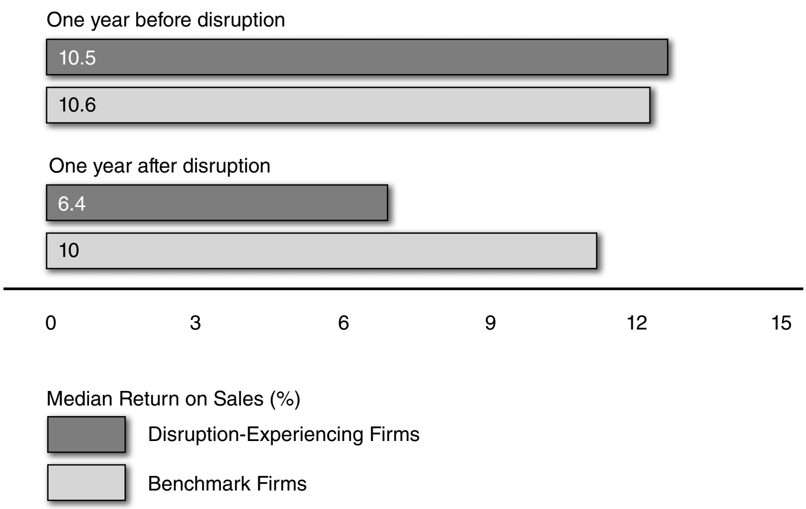

Figure 1.6 How supply chain disruptions affect return on sales. (From PricewaterhouseCoopers, From vulnerable to valuable: how integrity can transform a supply chain; Achieving operational excellence series, 2008.)

speak to finance and operation questions with confidence. Some questions you will be able to address include:

- Why are executives quick to jump on the "reduce cost bandwagon?" Why not focus more on increasing revenues?
- Which financial performance measures are affected by a supply interruption?
- How does a poor project implementation affect net earnings?
- Does poor quality affect gross margins, net earnings, ROIC, or ROA?
- Does cash equal profit?
- Which affects net earnings more, a 10% reduction in the cost of goods sold or a 10% increase in revenue, and why?

To provide you the knowledge to answer such questions, a number of subjects have been identified that will take you on a journey from myopically thinking of operational performance measures to thinking more in financial and value terms. Then you will be able to participate in financial conversations with greater confidence and a strong knowledge base.

The book began by introducing the financial performance measures that are important to company executives and an explanation of why. Then the book explored the idea of value. The remainder of the book will progress in this way.

Financial statements will be discussed, including the balance sheet, income statement, and statement of cash flows. Understanding the aspects of financial statements allows us to identify where pertinent information resides in each statement. This, in turn, helps supply chain managers as we talk about financial ratios, how we affect the ratios with our decisions, and how to calculate them. Financial statements also set the stage for the rest of the book. Once we understand financial statements, we can dive into firm valuation and what comprises value. After developing knowledge of valuation, the final chapters will discuss specific decision areas made by supply chain and operations professionals—projects, network planning, sourcing, managing assets and costs, transportation, logistics, inventory, and forecasting. Finally, we will examine how these areas contribute to value creation (or destruction).

Throughout the book, operational performance measures and their link to financial ratios and financial statements will be introduced and discussed. This will help you see exactly how operations decisions affect financial statements, thus affecting corporate economic goals and objectives. Further, you will see how operations decisions affect the corporation's ability to borrow and attract funds, its ability to reinvest in itself, and its share price and corporate valuation.

Summary

Although we focus on the financial performance of a firm in this book, money is by no means the only extent in which a corporation should be measured. As described in a popular 1992 *Harvard Business Review* article, the balanced scorecard introduced by Robert Kaplan and David Norton shows that financial performance is only one aspect of firm performance. Several other areas must be considered in the overall performance of an organization. For example, qualitative and nonfinancial measures such as environmental and corporate social responsibility measures are equally important. In addition, customer satisfaction, internal business processes, and learning each play important roles in organizations.

Most organizations are in business to create economic value and supply chain and operations greatly contribute to this goal. As such, this book will discuss how supply chain and operations decisions directly affect the financial performance of companies. Throughout the book, you will be exposed to high-level thinking related to financial impact. Then, as you are working toward improving fill rates, reducing lead times, or moving toward JIT inventory, you will understand how these actions affect your organization financially.

Those in not-for-profit or private organizations will also find this book relevant. Executives and managers of nonprofits and private companies are held accountable for raising funds and other revenue generating activities, managing costs and spending, and, just like other companies, nonprofits and private organizations have to bring in more money than they spend to remain viable.

The material in this book will touch on financial and managerial accounting, corporate finance, valuation methods, and other topics. Few other authors have combined these areas into one resource for supply chain and operations professionals. Undoubtedly, as you read this book, you will have additional or alternative viewpoints and experiences, and desire greater depth in particular subjects. If we pique your interest in the topics we cover, and we hope to, entire books have been written in great detail on each of these areas. We encourage you to obtain additional resources and continue learning.

Index