WHITE PAPER

Building Resilient Supply Chains: What Past Experiences Taught Us About Gaining Advantage in the Current Recession

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Executive Summary

Researcher Morgan Swink and the Association for Supply Chain Management RISC Committee conducted an extensive study on over 1,800 publicly held firms in 2019 to determine why some supply chain organizations were able to better withstand the economic downturn of the Great Recession of 2008 to 2009, experience less of a drop in profitability, and thrive in the following years. They compared the return on assets and sales growth for each organization in the years before, during, and after the recession. Results of the analysis concluded that organizations that invested in supply chain excellence by being leaner, maintaining a variable cost structure, and investing in early warning systems performed better than their competitors in every industry studied. Conversations with executives leading their firms through the current recession, happening concurrently with the COVID-19 pandemic, confirmed that organizations who had maintained focus on resilience, agility and risk management were performing better than their peers in today's ever-changing global conditions. They also advise supply chain managers struggling today on how to use organizational data and the research results to prepare for future market disruptions by building resilience into their supply chains immediately, investing in scanning and smart technologies and focusing on scalability, shiftability and sustainability.

Introduction

Today, in the wake of the COVID-19 pandemic and the ensuing recession, supply chain organizations all over the globe are looking for solutions to the problems they're facing in their businesses, from supply shock to risk management. However, the lessons learned from the Great Recession of 2008-2009 confirm that there are steps supply chains can take to build resilience — through this recession and for the next one.

In 2019 Morgan Swink, Ph.D., professor, Eunice and James L. West Chair of Supply Chain Management, and executive director, Center for Supply Chain Innovation, at Texas Christian University's Neeley School of Business, his graduate assistant Peeyush Soni, and the ASCM RISC Committee embarked on a research project to determine a through line of critical success factors for supply chains that were able to rebound from the Great Recession. This study was done before the effects of the COVID-19 pandemic forced businesses around the world to either temporarily close or drastically alter their processes to maintain safety guidelines, which plunged the world into another recession. Although experts have been predicting an impending recession for a few years, no one could have anticipated the cause of the 2020 recession (a health care crisis) or the effects.

Data is crucial to how supply chains function, says ASCM Chief Executive Officer Abe Eshkenazi, CSCP, CPA, CAE. "The more data, the better the forecasts as an organization and as a supply chain." Using data, he says, supply chain organizations can plan for a variety of different outcomes, otherwise known as scenario planning. Organizations can use prior disruptions as a guide, and they can understand and apply challenges and benefits in responding to future disruptions. Despite the current state of the economy, supply chain organizations still have time to take advantage of the lessons learned in this research and apply the findings to their business practices today.

"Developing a more resilient supply chain puts money in the bank and makes the world a better place."

—Morgan Swink

Methodology

Data were collected on more than 1,800 publicly held, medium and large firms (greater than $200M in sales) in five industries (extraction, manufacturing, communications, trade, and services). They compared the performance of these companies across industries from 2008 to 2009. They also looked at how the companies were doing before the recession, in 2005 to 2007, as well as immediately afterward, in 2010. From these timelines they were able to determine the average performance of each supply chain on many key metrics, before, during, and following the recession.

The ability for these supply chains to bounce back is a signal of their resilience. Developing more resilient supply chains "puts money in the bank and makes the world a better place," Swink says. They characterized resilience in two ways:

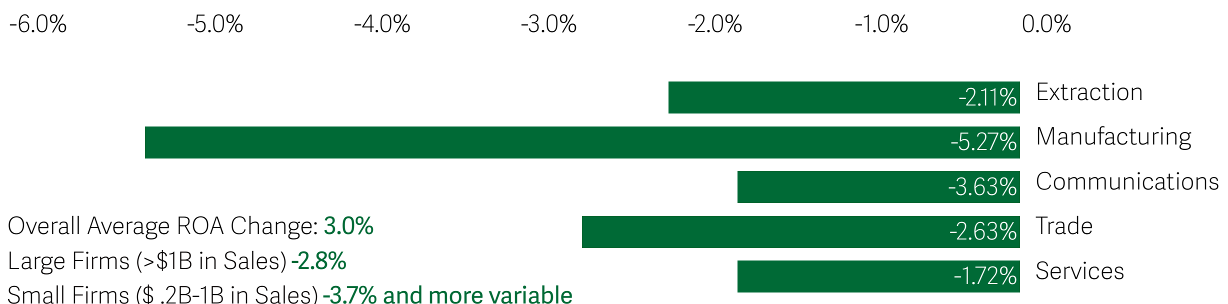
Recession impact, or the average profitably during the recession minus the average profit in the three years prior to the recession. The difference is almost always negative during a recession, so in this study, they looked at how much of a dip the profits took in that period (2008-2009).

Recession recovery. Here, they looked at profitability in the year post recession (2010) minus the average profit before the recession (2005-2007). That number gave researchers a sense of how far companies climbed back up the curve.

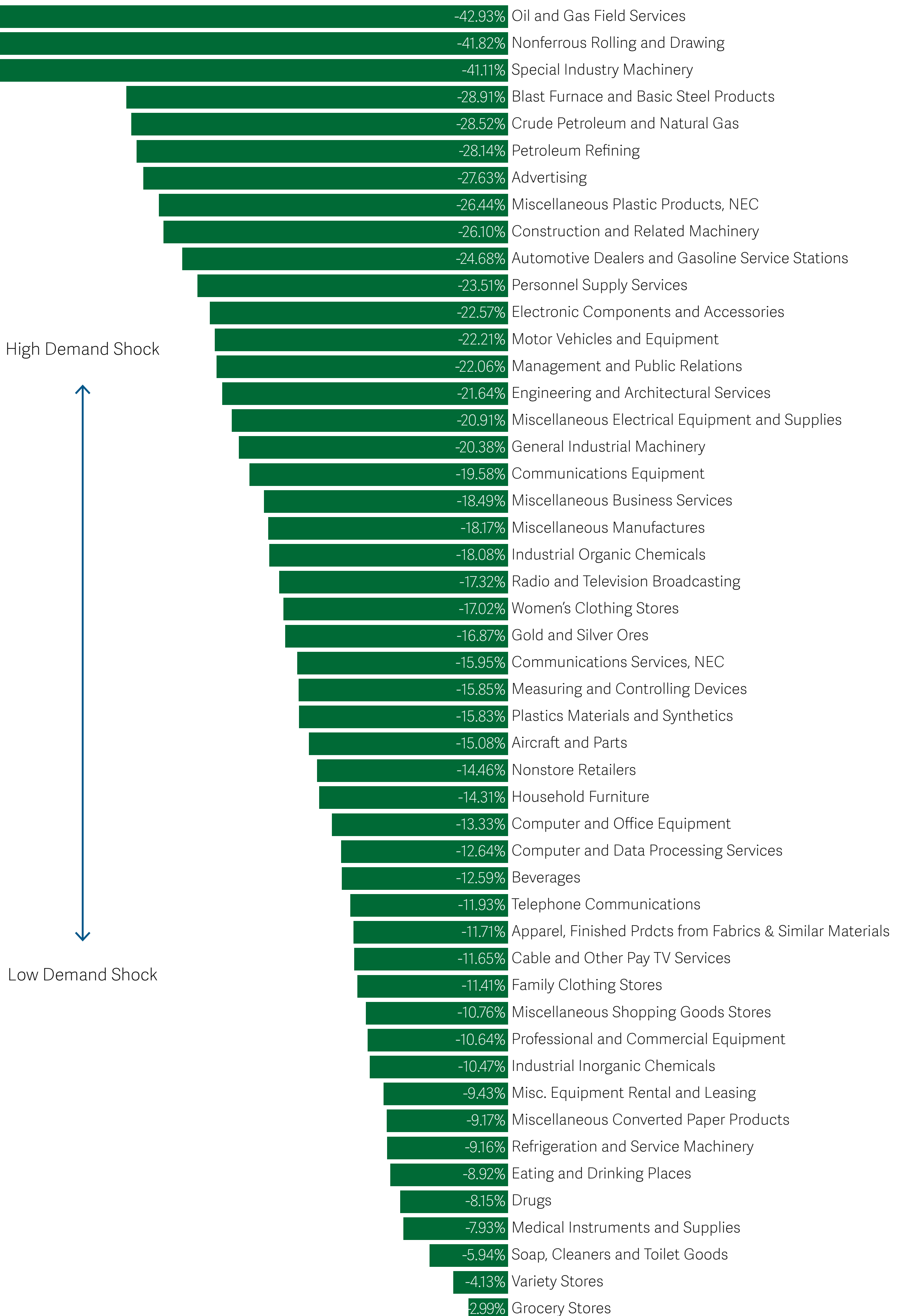
Researchers looked at different supply chain management factors, including assets, labor and working capital, to identify the key differences that made companies more resilient. They also looked mainly at profitability, measured as return on assets (ROA). ROA is the return on sales times asset turnover — so it provides an indication of the net income, or profit, companies generate given the total asset mix in that company.

According to the research, the manufacturing industry was most affected in terms of ROA change, or the profitability drop. Overall, everyone lost about three points on ROA. Although large firms did better than small ones, there was some variability there too.

ROA Change: Average 2008-09 compared to average 2005-07



Sales growth was also analyzed and compared with sales during the recession versus just prior to it. For companies selling staple goods — for example, groceries, soap and medical supplies — their sales growth change was relatively less negative, with losses ranging from 0 to 10%, whereas businesses specializing in discretionary goods, construction, cars, or services such as advertising, were hit the hardest, losing 25-30% of sales. But everyone had some decrease in demand during that recession.


Sales Growth Change: Average SG 2008-09 compared to average SG 2005-07
-42.93% Oil and Gas Field Services
-41.82% Nonferrous Rolling and Drawing
-41.11% Special Industry Machinery
-28.91% Blast Furnace and Basic Steel Products
-28.52% Crude Petroleum and Natural Gas
-28.14% Petroleum Refining
-27.63% Advertising
-26.44% Miscellaneous Plastic Products, NEC
-26.10% Construction and Related Machinery
-24.68% Automotive Dealers and Gasoline Service Stations
-23.51% Personnel Supply Services
-22.57% Electronic Components and Accessories
-22.21% Motor Vehicles and Equipment
-22.06% Management and Public Relations
-21.64% Engineering and Architectural Services
-20.91% Miscellaneous Electrical Equipment and Supplies
-20.38% General Industrial Machinery
-19.58% Communications Equipment
-18.49% Miscellaneous Business Services
-18.17% Miscellaneous Manufactures
-18.08% Industrial Organic Chemicals
-17.32% Radio and Television Broadcasting
-17.02% Women's Clothing Stores
-16.87% Gold and Silver Ores
-15.95% Communications Services, NEC
-15.85% Measuring and Controlling Devices
-15.83% Plastics Materials and Synthetics
-15.08% Aircraft and Parts
-14.46% Nonstore Retailers
-14.31% Household Furniture
-13.33% Computer and Office Equipment
-12.64% Computer and Data Processing Services
-12.59% Beverages
-11.93% Telephone Communications
-11.71% Apparel, Finished Prdcts from Fabrics & Similar Materials
-11.65% Cable and Other Pay TV Services
-11.41% Family Clothing Stores
-10.76% Miscellaneous Shopping Goods Stores
-10.64% Professional and Commercial Equipment
-10.47% Industrial Inorganic Chemicals
-9.43% Misc. Equipment Rental and Leasing
-9.17% Miscellaneous Converted Paper Products
-9.16% Refrigeration and Service Machinery
-8.92% Eating and Drinking Places
-8.15% Drugs
-7.93% Medical Instruments and Supplies
-5.94% Soap, Cleaners and Toilet Goods
-4.13% Variety Stores
-2.99% Grocery Stores
High Demand Shock
Low Demand Shock

Results

Interestingly, Swink first conducted a similar study, on a much smaller scale, about 10 years ago, immediately following the last recession. He looked at Gartner's top-ranked companies and their closest competitors to see who recovered more quickly after the recession. One key takeaway: companies that invested in supply chain excellence performed better than their peers during the recession and immediately afterward.

This more recent study reinforces the results of that initial research. The key traits that make companies more resilient to recession — in other words, those with structures in place to better weather recessions and experience less of a drop in profitability — had several key things in common before the recession.

- **Leaner.** The resilient companies maintained lower levels of working capital, had more velocity through the system, and less inventory. Those companies with a greater proportion of inventory in raw materials tended to do better because they were able to postpone the production and shipment of goods. They also had better relationships with suppliers, which led to lower transaction costs. (In turn, they helped their suppliers maintain resilience.)
- **Variable cost structure.** Companies that were more labor intensive (versus asset intensive) tended to do better during the recession. It was easier to reduce labor than reduce fixed assets; their employees were more productive; and they were able to outsource asset-intensive and less productive processes.
- **Early warning.** Companies who had invested in monitoring and risk assessment capabilities had more advanced warning of the pending economic downturn and were therefore able to respond more quickly.

To determine what these organizations had in common, a variety of key performance indicators were reviewed, including expenses, working capital, asset and debt profile, productivity. On the output side, they considered growth, profit and market value. After the recession, those firms that were able to quickly recover shared several metrics statistically associated with greater resilience, and the important metrics were consistent across industries. Attributes of these companies include the ability to:

- Quickly minimize costs by cutting operating expenses, including COGS (direct costs, labor costs) and SG&A (overhead).
- Reduce working capital and the cash-to-cash conversion cycle. At the same time, they decreased payables — in other words, they paid suppliers faster and didn't reduce capital at the expense of their suppliers. They reduced inventory as a fraction of sales but increased inventory as a fraction of their assets, because they were able to reduce all other non-inventory assets.
- Rationalize inventory while preserve the items necessary to capture demand during the recovery.
- Eliminate excess property and equipment to reduce depreciation expenses.
- Streamline processes to retain their most productive assets and resources.
- Focus on a cross-functional effort. They recognized that these changes cannot be wholly accomplished by supply chain managers alone. These companies had the ability to work together across functions, a true indicator of workplace agility.

Overall, when comparing the ROA in 2010 to the period before the recession, the 20% most resilient firms grew 11.9%. Their sales also grew 4%. They captured market share (0.24% of the market) versus the competitors' loss of an average of 0.1%. This result is remarkable as the resilient firms only had 1% of the total market from the outset. Resilient firms also recovered 34.8% more market capitalization and were able to reduce their inventory's days on hand by about three days. For context, the average manufacturing firm has their inventory on hand for 50 to 60 days — a 5% difference.

Looking Ahead

Data on supply chain performance during the current recession is still being collected while the world gets a handle on COVID-19; as things change and progress, indicators may shift. But current signals about resilience demonstrate that:

1. Resilient supply chains sensed the pandemic earlier (in November 2019 vs. February 2020).
2. Those early sensors — the more resilient supply chains — had higher than average factory utilization from November to March, likely due to wanting to get ahead of any potential slow down or halting of production.
3. In this recession, everyone was affected by the sudden results of the pandemic, but resilient supply chains didn't get hit as badly — and they got back to baseline faster.
4. Resilient supply chains shifted focus to a circular business model; for example, producing net zero waste.

Eshkenazi suggests there is a lot to take away from the study that can be applied to organizations today. For instance, the pandemic has affected every aspect of the supply chain, and as data points bounce wildly, it's difficult to plan accordingly. However, as organizations start to understand the impact of the pandemic and the recession, they can start to plan for different disruptions in the immediate and distant future.

Many supply chains were caught by surprise by the surge in demand for certain products, like paper goods and personal protective equipment, and were unable to meet those demands. Similarly, some food production companies struggled to shift from making goods for businesses and restaurants instead of for direct-to-consumer use. There needs to be a focus on scenario planning and achieving resilience.

How to Become a Resilient Supply Chain

Today, resilient supply chains are already making significant changes to react to current conditions and proactively protect themselves against any future disruptions by becoming more agile and responsive which includes the following:

- Double down on digital investments.
- Rebalance the supply chain to be more agile.
- Focus on full integration of risk management with synchronized planning.
- Consider how to identify risks early and scenario plan.
- Think about more effective public/private collaboration.
- Provide critical care. Major manufacturers and distributers, especially, need to think about critical care as part of their portfolio.
- Rebalance global supply networks. Don't get caught out with a single source supplier on the other side of the world, for example.
- Update risk management playbooks for global health, climate change, and other catastrophic events.

Swink urges companies to start building resilience right away. He suggests that companies can even take advantage of the downturn to improve their businesses. As reported by the Harvard Business Review in 2010, companies that strike a balance between cost-cutting and strategic investment are the ones that survive and thrive after economic downturns. Whether it's investing in digital transformation, reassessing the talent mix to put the right people in the right jobs, or buying up struggling companies, now is the time to act in order to survive this recession and come out stronger on the other side.

"5 S's" for building a resilient supply chain to prepare for the next recession

1. Scanning. Invest in scanning technology and capabilities. Few companies have good enough visibility of the market to know what is happening past two tiers deep in their supply chain. Scan market activity for impending sources of market disruption, such as weather, politics, and disease.
2. Smart. Invest in predictive analytics, such as artificial intelligence, to create a learning organization. A supply chain that learns from small disruptions can apply that knowledge and data to large disruptions.
3. Scalable. Scale up and down to match supply and demand, and create a variable cost structure with on-demand capacity. Buying automation can make companies less scalable due to the fixed operating costs, so organizations should consider leasing technologies.
4. Shiftable. Shift from one product to another (e.g., fabric companies shifting to make personal protective equipment such as masks). Invest in generalized, multipurpose resources, including equipment and employees. Develop lots of options — don't single source. (Note: This technique, is more expensive, but it may be worth it as a combined cost + risk minimization strategy — like buying insurance.)
5. Sustainable. Become economically sustainable, avoiding lower risk options. In addition to prioritizing people's livelihoods and the planet, consider sourcing from local suppliers, stable economies, and more mature sources, who are in turn more scalable and shiftable. Sustainability may come at a price, but it is likely to be worth it.

ABOUT ASCM

The Association for Supply Chain Management (ASCM) is the global leader in supply chain organizational transformation, innovation and leadership. As the largest nonprofit association for supply chain, ASCM is an unbiased partner, connecting companies around the world to the newest thought leadership on all aspects of supply chain. ASCM is built on a foundation of APICS certification and training spanning 60 years. Now, ASCM is driving innovation in the industry with new products, services and partnerships that enable companies to further optimize their supply chains, secure their competitive advantage and positively influence their bottom lines. For more information, visit ascm.org.

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