

# DISRUPTIONS IN THE GLOBAL SUPPLY CHAIN INDUSTRY: FIRM AND INDIVIDUAL VIEW OF COVID-19 PANDEMIC VERSUS THE FINANCIAL CRISIS OF 2008-2009

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*While the COVID-19 pandemic and financial crisis originated from different sources, both caused significant impacts on global supply chains. This paper qualitatively investigates supply chain impacts from the perspective of business owners and global supply chain executives. Each shock is analyzed both from an executive or business owner's perspective, having lived through each event, as well as comparing the actual impact on the supply chain itself. These occurrences of extreme uncertainty can inflict high levels of cognitive load. This abnormally high cognitive load can impact decision-making – both at the firm and individual level. The firm-level investigation included resource availability, planning uncertainty, cost management, long-term commitment to the business, profitability expectations, and buying cycles. Research at the individual level included stress, decision authority, job security, and career growth. All ten (10) of these constructs were researched through five entrepreneurs and five executives in global supply chains. These combined business owners and global supply chain executives had visibility in excess of \$250B of annual revenues.*

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## INTRODUCTION

In the last 13 years, two once-in-a-lifetime events have occurred, involving both a financial and health crisis. In each circumstance, recessions resulted in all OECD countries and most emerging economies (Notteboom, Pallis, & Rodrigue, 2021). Global supply chain trade flows fundamentally changed as governmental and economic intervention reached record levels. Supply chain footprints and just-in-time business models were brought into question. Periods of growth are commonly followed by adjustment phases to correct misallocations from a business cycle perspective. This readjustment occurred after the 2008-2009 financial crisis and is occurring in supply chains as society works through COVID-19 (Notteboom et al., 2021).

The COVID-19 pandemic has presented new and novel impacts on global supply chains. Sudden drops and spikes in consumer demand have presented unprecedented implications on global supply chains. Ten constructs are

investigated from a global supply chain business and individual standpoint when comparing the financial crisis of 2008-2009 to the global pandemic of 2020-2021. The scope of this article is to understand how the COVID-19 pandemic and its implications on supply chains differ in their impacts of other significant shocks, like the financial crisis of 2008-2009.

The analysis revolves around two central research questions: First, from a firm perspective - how does planning uncertainty, cost management, long-term commitment to the business, profitability expectations, and buying cycles differ between the global COVID-19 pandemic and financial crisis of 2008-2009? Second, as an executive or business owner living through each of these times of uncertainty - how does stress, decision authority, job security, and career growth relate between the global COVID-19 pandemic and financial crisis of 2008-2009? These two questions are applied to executives in large multi-national global supply chains and business owners to better understand similarities and differences between personal and firm-level constructs in times of chaos. To extract conclusions from the 2008-2008

financial crisis and 2020-2021 COVID-19 pandemic, chosen interviewees had to be executive-level employees or business owners during both time periods.

### LITERATURE REVIEW

This section is organized as follows. First, there is an overview of the literature and its fit with this manuscript. This is followed by an explanation of social cognition theory.

No articles have been found that compare global supply chain differences and similarities with the financial and pandemic crisis. Research into impacts on global supply chains during the pandemic are still evolving. The current literature stream does offer guidance (e.g., Chesbrough, 2020; Hartmann and Lussier, 2020), albeit more conceptual in nature on the global pandemic. While a few studies are emerging that are qualitative (e.g., Cortez and Johnston, 2020) or use some form of secondary data (e.g., Habel et al., 2020; Sharma, Adhikary, and Borah, 2020), this stream of literature is still in a nascent state. Additional understanding of (e.g., supply chain complexities and changes within B2B markets) issues relating to the impact of the COVID-19 pandemic is needed. Table 1 provides a summary of eight recent manuscripts examining the COVID-19 pandemic. This manuscript differentiates from current literature in its early attempt to compare and contrast similarities and differences from each global event (financial crisis and pandemic).

The financial crisis of 2008-2009 and pandemic of 2020-2021 have provided an excellent opportunity to better understand how business owners and global supply chain executives made decisions in times of uncertainty. Uncertainty has multiple definitions, depending on the literature stream. For the purpose of this manuscript, uncertainty will be defined as a state of being unsure about something, which could prevent action by impacting an individual's belief (McMullen & Shepherd, 2006). Cognitive load can increase in highly uncertain environments. By shutting the economy down for 6-8 weeks, COVID-19 presents an excellent opportunity to better understand the impacts of high cognitive loads and how individuals respond to uncertain situations and opportunities. High cognitive

load can impair an individual's effective conscious thinking (Baumeister, Masicampo, & Vohs, 2011).

Social cognition theory complements and helps explain how people make sense of themselves and other people. With social cognition theory (Fiske & Taylor, 1984), a linkage between 'thinking' and 'doing' was initiated in the field. This linkage has been necessary for the expansion of cognition research. Social Cognition Theory (SCT) was expanded from traditional research streams 'within the mind' or 'thinking' to include 'doing' in the 'external environment' (Fiske & Taylor, 1984, 2008; Wood & Bandura, 1989).

### THEORY

#### Social Cognition Theory (SCT).

Social cognition theory's core principles explain how people make sense of themselves and other people. Fiske & Taylor (1984) expanded the literature to include making sense by initiating a linkage between "thinking" and "doing," with "thinking" being a core element of social cognition. Thinking is known as having a mind that is adaptive or enables its owner to override robotic action plans (Macrae & Bodenhausen, 2000). The doing portion of social cognition is a result of thinking, upon which the action that controls behavior is in a manner that is flexible (Macrae & Bodenhausen, 2000). Studies have additionally shown interactions between external (manager support) and internal resources (effort and optimism) affect decision making (Murshed & Sangtani, 2016). Basic components of social cognition include social schema, along with concerns for real-world matters (Fiske & Taylor, 1984, 2008). Social schema is defined as a cognitive structure that represents one's inclusive knowledge about a given subject (Fiske & Taylor, 1984, 2008). Decision-making in times of chaos, like a financial crisis or global pandemic, would be a great example. This knowledge includes both relevant characteristics (independent, friendly, competitive) and relationship characteristics (what an individual's independence has to do with relationships). Overall knowledge about others and ourselves can permit us to be effective in a competitive society.

**TABLE 1:  
Pandemic Background Literature**

<u>Authors</u>	<u>Year/Journal</u>	<u>Article Type</u>	<u>Study Focus</u>	<u>Summary</u>
Chesbrough	2020 IMM	Conceptual	Innovation recovery due to pandemic	Analyzing the pandemic from a perspective of lessons learned from the pandemic to date and applying lessons learned on a forward basis.
Cortez and Johnston	2020 IMM	Qualitative – 31 practitioners from the U.S., Europe, and Latin America	Crisis management due to the pandemic	Propose multiple intertwined areas to classify managerial practices.
Habel, Jarotschkin, Schmitz, Eggert, and Plotner	2020 IMM	Secondary Data	The purchase of industrial products during the pandemic	Studied industrial buying patterns by looking at sales opportunities in dozens of countries.
Hartmann and Lussier	2020 IMM	Conceptual	B2B sales force management during the pandemic	B2B sales organizations were evaluated to assist sales leaders in better understanding the impacts of and responses to the pandemic.
Sharma, Adhikary, and Borah	2020 JBR	Secondary Data Analysis of Tweets	The impact of the pandemic on supply chain decisions	The study focuses on Twitter data from NASDAQ 100 firms. Results provide Tweet frequency.
Sharma, Leung, Kingshott, Davcik, and Cardinali	2020 JBR	Conceptual	Uncertainty in international business environments during the pandemic	The study identifies different forms of uncertainty and outcomes of uncertainty. Applies coping strategies that can be used to mitigate the impact of uncertainty in international business environments.
Kumar and Sharma	2021 JBR	Qualitative	Marketing and operations	Pandemic interruption on global supply chains
Paul, Chowdhury, Mokterdir, and Lau	2021 JBR	Delphi – Ten Respondents	Identify categorize the major supply chain recovery challenges	Post pandemic challenges in supply chain recovery

From a real-world issues standpoint, social cognition includes encountering feelings and translating cognitions into behavior (Fiske & Taylor, 2008). An example of encountering feelings could be stress and its impact on behavior. Stress can lead to a higher cognitive load, while negatively impacting the quality of cognitive demand, leading to lower levels of creative unconscious thinking (Baumeister et al., 2011). As stress counters creativity, the working memory may reach a level of impairment, leading to shorter-term experiential thinking when making decisions (Baumeister et al., 2011; Christoff, Gordon, & Smith, 2011).

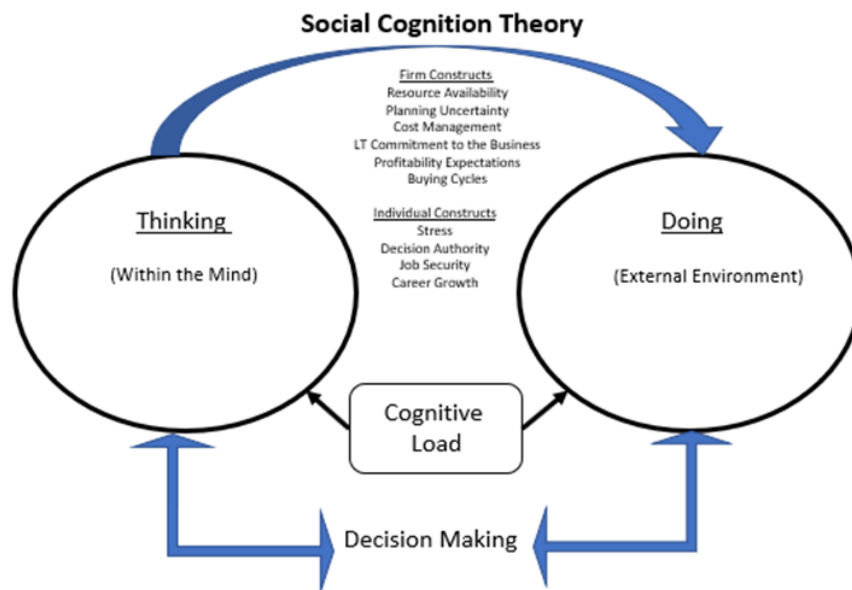
Social cognition theory states that a cognitive structure is an orderly depiction of individuals' prior knowledge and experiences, which are heavily dependent on significant amounts of stored knowledge (Fiske & Taylor, 1984, 2008). From an individual's standpoint, SCT emphasizes an individual's prior knowledge from experience, as opposed to human capital theory, which emphasizes an individual's knowledge through education or training. For the purposes of this study, individuals are the focus due to their experience. In order for individuals to be eligible for this research project, they had to be a business owner or have been in senior ranks through both the 2008-2009 financial crisis and the 2020-2021 COVID

-19 pandemic. Prior knowledge and alertness (Tang, Kacmar, & Busenitz, 2012) are two attributes that are more influential among individuals; therefore, SCT is the most applicable theory for the purpose of this study.

Also crucial to SCT is why some individuals are more efficient at filtering unimportant or irrelevant information (balancing conscious and unconscious types of thought) and capitalizing on information of higher value (Tang, Kacmar, & Busenitz, 2006). This filtering is impacted by the level of cognitive demand. Social cognition theory suggests that external environments play a pivotal role in shaping an individual's cognition and, ultimately, his/her behavior (Fiske & Taylor, 1984, 2008; Wood & Bandura, 1989). Social cognition theory embodies a methodology of studying human cognition (conscious and unconscious) and information processing, along with how an individual interprets the social world. Social cognition theory expands our understanding of individual dissimilarities affecting understandings and reactions of the individual "thinker" (Arora, Haynie, & Laurence, 2013).

Listed below in Graphic 1 is a visual depiction of the interactions and linkages to 'thinking' and 'doing' with social cognition theory.

**GRAPHIC 1:  
Literature and Theory Linkage**



This manuscript expands the theory by delving deeper into the ‘thinking’ and ‘doing’ linkage during once-in-a-lifetime outlier economic events. By interviewing experienced entrepreneurs and executives who have lived and worked through both the 2008 financial crisis and the COVID-19 pandemic, each event can be deeper understood with human behavior. It is a rare opportunity to have such extreme events occur while the same sample population is in the workforce.

### RESEARCH METHODOLOGY

Interpretative phenomenological analysis (IPA) was applied with this research. Jonathan Smith and colleagues (Smith, Jarman, & Osborn, 1999) developed this approach in order to inform both research design and analysis. The IPA approach has gained momentum in the entrepreneurial and individual domains (Berglund, 2007). Developing situational insight, rich details, and visual descriptions are a strength of IPA and this qualitative research. A descriptive richness is provided by paying close attention to the process, context, and details. Opportunities like the COVID-19 pandemic and the financial crisis of 2008-2009 are extraordinary situations to apply IPA diligence and rigor.

In-depth research of global supply executives and business owners that experienced both the financial crisis of 2008-2009 and the global COVID-19 pandemic of 2020-2021 was core to this research. Developing a detailed “phenomenological hermeneutical” conceptualization of business owners and global supply chain executives was also important from each of the time periods. Interpretative phenomenological analysis by design moves beyond description to provide “theoretical insight” into the global supply chain executives and business owners, as they experienced both times of supply chain shock. Detailed thematic descriptions at the firm level included planning uncertainty, cost management, long-term commitment to the business, profitability expectations, and buying cycles. Detailed descriptions at the individual level included stress, decision authority, job security, and career growth.

### SAMPLE AND DATA COLLECTION

IPA is designed for smaller sampling sizes. The sample population should be specific and purposeful. Having senior executives and business owners is vital to this research in order to get the proper depth of thought and results. The ten participants were responsible for over \$250B in annual revenue. A unique feature of IPA is its ability to produce a detailed account of an individual’s unique lived experience. Depending on the quality and experience, six to eight participants are suggested as a sufficient number of participants in a typical IPA study (J. A. Smith & Eatough, 2006). It is crucial for IPA researchers to choose participants that are unique, accessible, and willing to participate. Finding global supply chain executives from multi-national companies that were in senior ranks through both the financial crisis of 2008-2009 and the COVID-19 global pandemic was challenging to obtain. In addition, it was also difficult to obtain small business owners willing to take time out of their day while operating with such limited resources. Each of these groups of people were initially very hesitant to disclose their thoughts and re-live the early parts of COVID-19 and think back to the financial crisis of 2008-2009. IPA’s strength and credibility with smaller sample sizes rest on theoretical (not empirical) generalizability (Ram & Jones, 2008).

The fieldwork phase of a study is a critical element and is often described as the most important means of attaining an in-depth understanding of another person’s experiences (Thompson, Locander, & Pollio, 1989). Developing the first-hand description of an individual’s account of the financial crisis and COVID-19 pandemic was a primary goal with an emphasis on “thinking and doing.” The interview began with a broad question – “Can you tell me about your business experience of working through COVID-19?” Following this open-ended question, the interview questions were loosely structured. The connection between “thinking” and “doing” was the principle construct in delving deeper into business owners and global supply chain executive experiences. After discussing COVID-19 for a while, comparisons to the global financial crisis were introduced. Subsequent questions were derived from the dialogue. A list

of open-ended questions was asked if the conversation did not have a natural flow. Introduction questions included basic questions like name, firm name, role, years of experience, an overview of the business, the number of employees, regions served, and industries served. General discussion questions ask reflection and a day in the life type of questions. Deeper-level discussion topics were open-ended and followed up with detailed questions. Probing questions were used to follow up on insights and to encourage elaboration. Please see the interview guide below for complete listing of demographic and open-ended questions.

The objective of this research was to target a mixed sampling of business owners and executives within global supply chain organizations from multi-national corporations. Business owner industries included outdoor recreation, real estate, engineering, marina, and

e-commerce. Supply chain executives included commercial vehicles, medical, restaurant, automotive, and home improvement industries. Please see the two tables below (Table 3 and Table 4) for detailed demographics on each of the interview participants. Participant business owners were required to own the same businesses from 2007 to present. Supply chain executives were also required to have worked at the same companies during the periods of 2007 to present. The average age of each respondent was 53 years of age. The average years of experience were 27 years. Please note that the five (5) global supply chain executives have revenue visibility of over \$250B in annual revenues. Each individual was identified through a personal network.

Each discussion for business owners ranged from 25 to 45 minutes. Each discussion for global supply chain executives ranged from 40 to 90 minutes. Global supply chain executives'

**TABLE 2:  
The Interview Guide**

<p><b>Demographic Questions</b></p> <ul style="list-style-type: none"> <li>Respondent Name</li> <li>Firm Name</li> <li>Role</li> <li>Title in Firm</li> <li>Age</li> <li>Industrial Firm - Annual Revenue in 2019</li> <li>Years in Industry</li> <li>Regions Served</li> <li>Industries Served</li> <li>Revenue Responsibility</li> <li>Executive Direct Revenue Responsibility</li> </ul>
<p><b>Open-Ended Questions</b></p> <ul style="list-style-type: none"> <li>Can you tell me about your business experience of working through COVID-19 and the financial crisis of 2008?</li> <li>What has been the biggest change to your business during the pandemic and in 2008?</li> <li>How has the strategy of your business changed during the pandemic vs. 2008?</li> <li>Explain supply and demand differences during COVID and the financial crisis of 2008?</li> <li>What are the biggest concerns that you heard from customers during 2020 and 2008?</li> <li>How did technology impact your sales process or supply chain during COVID and in 2008?</li> <li>What are the biggest differences and similarities between the financial crisis of 2008 and the 2020 global pandemic in each of the ten constructs (resource availability, planning uncertainty, cost management, long-term commitment to the business, profitability expectations, buying cycles, stress, decision authority, job security, and career growth)?</li> </ul>

**TABLE 3:  
Overview of Interview Respondents**

	<u>Name</u>	<u>Role</u>	<u>Current Industry</u>
Global Supply Chain Executives	Executive A	Director Commodity Sourcing	Commercial Vehicle
	Executive B	Director Purchasing	Medical
	Executive C	Senior Director	Restaurant Industry
	Executive D	Purchasing Executive	Automotive
	Executive E	Purchasing Executive	Home Improvement
Business Owners	Owner A	Owner	Outdoor Recreation
	Owner B	Owner	Real Estate
	Owner C	Owner	Engineering
	Owner D	Owner	Marina
	Owner E	Owner	E-Commerce

**TABLE 4:  
Overview of Interview Respondents**

	<u>Name</u>	<u>Age</u>	<u>Years in Industry</u>	<u>Responsibility of Revenue</u>	<u>Region of Country</u>	<u>Multinational Annual Revenue (\$B's)</u>
Global Supply Chain Executives	Executive A	48	24	\$12M	Global	\$18B
	Executive B	60	30	\$20M	Global	\$40B
	Executive C	46	24	\$8M	West	\$8M
	Executive D	44	22	\$18M	Global	\$100B +
	Executive E	52	24	\$15M	Global	\$100B +
Business Owners	Owner A	61	29	\$10M	Midwest	
	Owner B	72	38	\$50M	Midwest	
	Owner C	55	32	\$5M	Midwest	
	Owner D	51	28	\$25M	Midwest	
	Owner E	46	20	\$10M +	West	

interviews were longer due to the richness and depth of discussion provided. Many of the global supply chain executives provided examples global in nature, from other product lines, as well as of competitors and industry related companies. Additionally, global supply chain executives were living with supply chain disruption 24/7, while business owners may have been involved up to 25% of their daily time with supply chain issues. All interviews occurred from April to May 2021. Two of the interviewees were female and eight were male.

**DATA ANALYSIS**

It is critical to demonstrate rigor during data analysis, while articulating research in a qualitative format (Leitch, Hills, & Harrison, 2010). Even though IPA is a newer approach, it provides a clear set of guidelines. IPA allows for individual flexibility and is not prescriptive in its methodology (J. A. Smith & Eatough, 2006). IPA is a fundamental process in moving from descriptive to interpretative, and is systematic in its procedures.



IPA is inductive and ideographic, starting with a comprehensive analysis of one interview and then moving through analysis of subsequent interviews (J. Smith, 2004).

Generalizability can and often does occur when a small sample size exists in qualitative research. Given this, IPA was sought to obtain individualized knowledge that provides contextualized, detailed, and fine-grained accounts. Such interviews and discussions are capable of developing new theoretical constructs and enhancing research by developing and bridging gaps in life occurrences (Berglund, 2007).

Outcomes from this analytical process are developed in the following FINDINGS sections. The first section of the FINDINGS section includes constructs from the firm level. They include planning uncertainty, cost management, long-term commitment to the business, profitability expectations, and buying cycles. The second section of FINDINGS comprises constructs from an individual level. These include stress, decision authority, job security, and career growth. Each of these ten (10) constructs were chosen by reviewing literature and from the authors' experience of having worked through each of the times of crisis (financial crisis and global pandemic).

**FINDINGS**

The table below compares different constructs to the financial crisis of 2008-2009 with the

COVID-19 global pandemic. A core difference between each of these events is the externality of the causal factors. The financial crisis was derived from weaknesses internal to the financial system with several ignored warning signs, like asset inflation and malinvestments in real estate. The pandemic resulted in an external global health shock with few short-term warning signs. These times of chaos are as different as they are similar.

Interview saturation was reached after completing eight interviews. By the tenth interview, very similar answers were being repeated. The results below are based on five interviews of business owners and five interviews of global supply chain executives. Interview summaries are provided below for each of the ten constructs. The first six constructs are from a firm level. The last four constructs are from an individual perspective.

**Resource Availability**

*Automotive.* In 2009, rows of employees were cut in rolling waves. The cuts went pretty deep. Most of the departments had employee cuts in excess of 20%. It was something that I hope I never have to go through again. After some of the cuts, there were only a few people left standing in some of the departments. It wasn't very long after the cuts that management started to hire a lot of the same people back. It is almost like they are trying to manage the older pension people out of the organization, and they were trying to then reset. The reset would then

**TABLE 5:  
Theory and Construct Linkage**

2008 Financial Crisis & 2020 Global Pandemic		
(Entrepreneurs and Global Supply Chain Executives)		
Firm-Level	Social Cognition Theory (SCT) "Thinking" and "Doing"  Similarities & Differences	Individual-Level
Resource Availability		Stress
Planning Uncertainty		Decision Authority
Cost Management		Job Security
Long-Term Commitment to the Business		Career Growth
Profitability Expectations		
Buying Cycles		



let them rebuild the organization to where they want to go in the next five years. Now we are in 2021, and the company is in a hiring frenzy. Everyone is working, and the company is trying to hire. There is definitely more work than capacity. There was a significant reduction in force pre-2020 and the business is still working on limited resources.

*Healthcare.* Healthcare has had continued consolidation over the last 10 – 12 years. In 2009, a person may have been responsible for purchasing with a portfolio of ten hospitals. In 2021, they could be responsible for purchasing for a group of 140 hospitals. Resources are thinner now than I remember in 2008-2009.

*Commercial Vehicle.* In 2008, there were significant employment reductions across the industry. In 2020, there were no significant headcount reductions. The theme for 2020 was reduced hours and benefits. Everyone in our organization had to take one week off without pay every quarter and 401K matching was reduced.

### Planning Uncertainty

*Automotive.* In 2009, people were more concerned if they had a job or not. They weren't really worried about the next five years. In 2020, it was a health concern. There were planning issues, but it was more like we just needed to bridge ourselves through until we get past the virus and then we could go again. It is hard to plan for the unexpected. You just have to hope you have the right strategy, resources in the right place, and people with the right skill sets to make things happen. Having a global structure that can adjust to different regions if there is a shock is important. It is also important to have the right resources around the globe that can enable quick reaction.

*Commercial Vehicle.* Everyone felt with COVID-19, there was going to be a dip in demand and that it would come back in the near future. From a planning standpoint, there definitely was a pause in ordering. The supply chain planned as if demand would come back in late 2020 or early 2021 and that is what happened. This industry is used to 50% volume swings and the supply chain organization is designed for these types of shocks.

*Outdoor Recreation.* It is extremely difficult to plan inventory when manufacturers and distributors are taking 3X-8X longer to fill orders. Sales are up 40% - 80% during COVID-19, and inventory delivery is so uncertain that we are ordering inventory at 200%-250% over traditional periods. We have no idea when orders will be received. My concern is that the channel will get caught back up and our inventory will be excessive as sales slow.

### Cost Management

*Automotive.* In 2009, purchasing was mechanical in its ways. When it came to cost, relationships did not matter. Suppliers would get cut off at the knees and it did not matter. Today, cost management is the highest priority, but we don't sacrifice quality and safety. Relationships are also important and valued today. Relationships are valued and managed every day because you don't know when you are going to need it later. The approach today is about being tough, but fair in negotiations. The data needs to speak for itself. You highlight the areas that are uncompetitive and make the supply base respond. This approach has really worked. Supplier surveys have improved in how issues are handled and relationships have improved. Now, when we get into a crisis (weather, military, and or virus), suppliers jump through hoops to make sure we keep our plants running over our competitors.

*Marina.* Inflation is a major concern. In the last 30+ years, 2020-2021 have been the only years that two rounds of price increases have been implemented. Traditional boat inflation is 3 – 4% per year. There will easily be 10%+ inflation in 2021.

*Outdoor Recreation.* Cost management was not a consideration in 2020-2021. The goal is getting inventory and it will sell. Orders that used to dropship in 2 – 3 weeks are taking 5 – 8, and the order may only be 40% - 60% complete. Ports are backed up and US manufacturers are backlogged 3X – 6X longer than usual. Hopefully, the supply chain will work itself out in the next 6-12 months.

### Long-Term Commitment to the Business

*Automotive.* The auto company has taken a much longer-term view with its supply chain in managing long-term relationships. It has really been a paradigm shift.

*Commercial Vehicle.* In 2020, there was an openness to sign longer-term contracts with stable suppliers that made sense. Some contract commitments were as far out as 3 – 5 years. This was not happening in 2008 or 2009.

*Real Estate.* In 2008, times were very difficult, but there was inventory to sell. The year 2020 started out to be a record year, and then inventory was gone. No one wanted to sell by October 2020. It is extremely difficult to be long-term focused when there is nothing to sell. The worst year in my 30+ year career could be 2021 because there is nothing to sell.

*Marina.* In 2008-2009 and 2020-2021, we did not lay off a single employee. The foundation of our business is a long-term commitment to all stakeholders ... owners, employees, customers, and suppliers. This has bought us much goodwill as employees and suppliers know we are committed to the long-term.

### Profitability Expectations

*Healthcare.* Many healthcare institutions are non-profit and it is not uncommon for an organization to give away \$4 - \$5B of healthcare per year on \$40B of revenue. In order to fund new projects and new hospitals, hospitals have to make money, but not like a traditional for-profit organization. It has gotten harder for healthcare systems to serve underserved areas to make money in the last ten years.

*Commercial Vehicle.* Early on in COVID-19, there was fear that it was going to be similar to 2008. Actually, 2020 turned out to be a profitable year in our organization. There may have been one quarter with negative EBITDA. It turned out to be a really good year considering the disruption in the supply chain. Looking back, government stimulus definitely helped with keeping things from getting out of hand.

*Restaurant Industry.* In 2008-2009 revenues decreased 40% - 60%. In 2020, revenues went to zero (0) as the government forced us to shut our restaurants. There were millions of dollars of losses both times. In 2020, there wasn't much of a demand interruption; it was a supply or ability to be open issue.

PPP definitely provided life support. We did not receive funding in round one but did in round two. The process was full of highs and lows with many unknowns. There was also a separate fund for the restaurant industry. The restaurant revitalization program was immediately oversubscribed with \$40B - \$50B in claims to the \$20B - \$30B allocated. This did not look like a feasible option from day one.

*Engineering.* In 2008-2009, survival was a higher priority than profitability. Both time frames of 2008 and 2020 were very similar. There just wasn't business to be had. By the end of 2020 and so far in 2021, business is available everywhere.

Price is not an issue, but we are constrained by the supply chain and lack of labor availability.

### Buying Cycle

*Healthcare.* Over the last 20+ years, supply chains focused on being lean. This included offshoring and moving the supply chain by boat. Currently, airfreight is a significant component. More than likely, supply chain executives are going to be looking to shore up critical supplies to their organization. People will more than likely look at safety stock in a much different light, in addition to having a supply chain that is closer to production. This additional cost will be expensive and need to be built into the business model.

*Commercial Vehicle.* The supply chain of global manufacturers is mature and built to manage through shocks and find ways to reduce costs. These global supply chains have processes and tools. Whether it is through value-add activities, aggressive negotiations with existing suppliers, negotiating with new suppliers, exchange for productivity, or applying digital tools to have better information in the negotiations with suppliers to manage costs. One of the outputs from 2020 may be digital outputs. Specifically, the ability to get

data and aggregate it. To know where you are at and be more refined. Digitization will have an impact on the buying cycle.

Inflation is starting to nickel and dime us from all angles. We will be able to push out most of the price increase in 2021 and delay buying cycle price increases. From there, our surcharge agreements will kick in, and price increases will start occurring through the surcharge process. In 2022, the cost side of the business will be a big challenge. The outcome will be on the ability to pass the cost increase on to the customer.

*Restaurant Industry.* In 2021, there has been a 30% increase in food costs on many food items. Fresh fish and seafood are not consistently available even at the 30% price increase. The price has more than likely not leveled off yet. Hopefully, the supply chain can catch up by the end of 2021 and pricing will level off.

The FINDINGS sections now make a transition from a firm perspective to constructs from an individual perspective. Stress, decision authority, job security, and career growth will be discussed. The perspective is from business owners and global supply chain executives in senior leadership ranks during the financial crisis of 2008-2009 and global pandemic of 2020-2021.

## Stress

*Marina.* Stress can be summarized very easily. In 2008-2009, there were two years that I could not sleep all night. In 2020, the last two weeks of March, I could not sleep all night. The last two weeks of March 2020 brought back flashbacks of 2008-2009. In early April 2020, business took off stronger than in my 25+ years and has not slowed down. In 2008-2009, times were so bad we met with a bankruptcy attorney to understand our options.

*Automotive.* The stresses are much different between the two time periods. In 2009, it was a financial crisis vs. 2020 being a health scare. In 2009, the biggest stress was around if you were going to have a job or not and you were worried about maintaining your livelihood. Maintaining the life that families were accustomed to living was a top priority.

*Automotive.* In 2020, stress was working from home and taking care of the kids while maintaining your work responsibilities. You were worried about the sickness of family, friends, and peers specific to your employment. Additionally, it has been extremely stressful because we are spread extremely thin at work. Work continues to get piled on. The workload is stressful in normal times, and now it continues to get piled on. What was being done in 14 weeks is now expected to be done in 10 weeks. In order to execute at the speed required, you have to cut to the chase quickly. Inputs have to be correct, precise, and accurate. Process and strategy need to be correct. A lot of things have to be true to be successful.

*Medical.* Stress in 2020-2021 is significantly higher than in 2009. Medical is delivered person to person. This is extremely difficult to accomplish during a global pandemic vs. a financial crisis. Medical is one of the most regulated industries in the country. There is very little room to make changes with all the regulations.

*Commercial Vehicle.* Stress was significantly higher in 2008 than in 2020. In 2020, I wasn't worried about losing my job because everybody knew that this was a temporary bump in the market and governments were kicking in stimulus to bridge the time.

Because of COVID-19, I was able to work from home for nine months which was really nice. You weren't having to travel, had extra time in the morning, no evening commute, and could step away for lunch to go for a walk. My quality of life really improved.

*Restaurant Industry.* In 2008, I was glad to have a job. In 2020, it was a struggle to balance the needs of employees with the needs of customers. Trying to take care of everyone was extremely difficult while still offering a superior product. The timeframe of 2020-2021 definitely feels more stressful.

*E-Commerce.* Stress was significantly higher in 2020 than in 2008. Every few months had its own theme. We thought 90% of the organization was going to be laid off, and then 2<sup>nd</sup> round PPP hit - providing a lifeline. I do not want to live 2020 over again.

### Decision Authority

*Automotive.* Decision authority is higher now, given the acceleration of decision-making. There are still certain dollar thresholds that everyone has to work within. Some of this is experience-based, situational, logical, and your ability to explain your thought process for leadership to back you up.

*Healthcare.* Decision-making is shifting out of the standard matrix. Involving the relative stakeholders through advisory groups has become popular for large purchases. Every division and function gets involved in the purchase of large capital equipment. Medical is unique in that doctors are taught at many different schools with many different types of equipment and processes. Bringing all these doctors together into one technology can be complicated to get consensus.

*Commercial Vehicle.* There wasn't much of a change from 2008 to 2020. Large organizations are still highly controlled with sign-off signature approvals at specific dollar thresholds.

*E-Commerce.* Employee decision authority was extremely high in 2020. Every employee is remote by organizational design. As a newer start-up, we are entrepreneurial by nature and employees have a wide autonomy to make decisions quickly.

### Job Security

*Automotive.* Trying different types of networking to maintain job security is imperative, given the remoteness of work over the last 15+ months. Reaching out to people as if you are in the office is critical. It is up to the person to take the initiative to get what they want. Reaching out to the hiring manager, introducing yourself, and learning about the position for thirty minutes goes a long way in both parties learning if there is a fit. Studies have found that networking behavior plays a critical role in creating adaptive behavior (Krush, Agnihorti, Macintosh, & Kalra, 2017).

*Healthcare* – People are more secure with their jobs now. In 2009, nobody knew where the bottom was. In 2009, 30% - 40% of the people were gone and we just didn't know who was

going to have a job and who wasn't. In 2008, there was survivors' remorse. You felt bad for everybody who lost their job, but then you were happy to have survived.

*Commercial Vehicle.* In 2008, there was significant job insecurity as sales kept dropping. In 2020, people were not very concerned, as volume did not contract like in 2008. In 2020, the government had an extreme amount of stimulus in the system, creating a higher level of comfort.

*Restaurant Industry.* At the beginning of COVID-19, job security was a major concern for everyone because of the unknown. When are we going to be able to reopen? Will we be able to make it financially? Is there going to be a business at all? Job security for everyone was doom and gloom. We didn't know if there was going to be a company at the end of this – very similar feeling in 2008/2009. I think that during the shutdown in the peak of COVID-19, job security was more of a concern than in 2008.

### Career Growth

*Healthcare.* Opportunity is available every day. In the stock market crash of 1929, 2000, and 2008 a lot of people went broke, but some people made millions of dollars. There is opportunity, but each person needs to be prepared and seize the moment.

*Commercial Vehicle.* In 2008, everyone was happy just to have a job. In 2020, it felt like managers wanted to hire someone they really knew and trusted. Managers are diving deep into their network to try to find people. As an example, at the end of 2020 and early 2021, there were 70 openings globally in supply chain. There was a concerted effort to go back to people who used to work in the supply chain to reach out to them to try to get them to come back on board.

### Summary

Please refer to Table 6: Key Summary of Construct Findings for a summary of similarities and differences between the ten constructs from the financial crisis and global pandemic. The first six constructs summarize the firm level

while the bottom four constructs summarize the individual level.

**DISCUSSION**

Global supply chains are no stranger to core challenges like disruptions and maintaining resilience. Along with standard business cycles, the global supply chain industry has had to manage through two extreme events in the last

13 years – the global financial crisis of 2008-2009 and the COVID-19 global pandemic of 2020-2021. A crisis represents an event involving sudden adjustments in expectations to which an industry is forced to reach (Kumar & Sharma, 2021). Each crisis becomes an opportunity to test the adaptability of global supply chains to rapidly shifting circumstances.

**TABLE 6:  
Key Summary of Construct Findings**

	Financial Crisis (2008 - 2009) Differences	Financial and Pandemic Similarities	Gobal Pandemic (2020 - 2021) Differences	
<b>Firm Constructs</b>	<b>Resource Availability</b>	Significant job eliminations	Fewer available resources	Reduction in hours and benefits
	<b>Planning Uncertainty</b>	Demand side reductions Not sure when financial crisis will end	Throughput bottlenecks during initial phases of crisis	Supply side reductions Viewed as short-term health scare that will end
	<b>Cost Management</b>	Decisions mostly cost reduction driven Cost decisions in deflationary environment	Cost decisions are significant contributor in management decisions	Cost driven with quality and relationship focus while trying to secure inventory Cost decisions in inflationary environment
	<b>Long-Term Commitment to the Business</b>	Short-term focus on business survival and will focus on rebuilding the business at a later time	Varying levels of long-term commitment depending on levels of uncertainty	Focus on working through health scare while keeping the business in tact with longer term focus
	<b>Profitability Expectations</b>	Demand reductions were significant and profitability decreased significantly	Reductions in revenues were common with limitations from demand, supply, or governmental	Demand was strong in most segments, but limited by government regulations or supply chain bottlenecks
	<b>Buying Cycle</b>	Offshoring to reduce costs adding longer lead times and logistics complexity Focused on global supply chains for lowest cost	Continuous buying cycle focus	Bringing supply chains closer to demand, reducing logistics complexity Willingness to commit to longer-term agreements
<b>Individual Constructs</b>	<b>Stress</b>	High stress from uncertainty of future employment and ability to maintain livelihood.	High levels of stress created from different external variables	Higher stress in medical industry from virus uncertainty Significant government stimulus reduced some unknown stress Accelerated levels of stress in having to take care of kids while working from home
	<b>Decision Authority</b>	Decision authority was tightly held as cost management was critical to survival	Decision authority changes during times of chaos - adjusting to environment	Decision authority was more decentralized as people worked from home and were not in an office
	<b>Job Security</b>	Job security was low. There were many rounds of job cuts. No one knew where the bottom was and how long the crisis would last.	Traditional job security is interrupted during times of chaos by different external factors	Higher levels of job security from an aspect that crisis was viewed as short-term in nature Networks were important to getting jobs as traditional networking and interviewing was interrupted with the pandemic
	<b>Career Growth</b>	Many companies cut 30% - 40% of the workforce and it took years for opportunities to be created	Opportunities are available everyday. They do come in different forms.	Managers wanted to hire someone they knew and trusted

Industries in 2008-2009 were more correlated with each other, given a more consistent 20% - 40% reduction in sales. In the pre-vaccine portion of the global COVID-19 pandemic, industries results were more bifurcated. Outdoor recreation, marina, and real estate companies had some of the most profitable times in 20+ year careers. Companies in restaurants, hospitality, and air travel struggled with minimal demand no matter what the price.

A common theme on resource availability was the deep contraction in 2008-2009. In 2020-2021, all industries experienced some level of contraction, in B2B being more impacted with wage and benefit reductions. Listed below are findings from the six firm-level constructs. Cuts were deeper in cost management during 2008-2009, as people were not sure when the economy would bottom. In 2020-2021, the view was more of a short-term health crisis that would work itself out. The stimulus help from the US government also put people at ease while the health crisis was resolved. Long-term commitment to the business was shorter-term focused in 2008-2009. Profitability expectations were higher in 2020 as government stimulus well exceeded 2008-2009 dollar contributions. The buying cycle in 2008-2009 was more offshoring and cost-reduction mindset, while 2020 was focused on getting and setting up supply closer to the point of need. The resources and global breadth of these multi-national supply chain organizations are well-built to withstand global shocks (war, pandemic, weather ...).

Of the four individual constructs, stress and job security stood out the most. Stress varied depending on the business industry. In 2008-2009, stress was significantly higher in business manufacturing industries. In medical, stress was much higher during COVID-19. Delivering medical care during a global pandemic added a new level of stress beyond any financial shock. From the interviews, job security seemed to have a correlation with stress. In 2008-2009, employees in B2B manufacturing companies felt significantly more stress than during the COVID-19 global pandemic. Decision authority was more tightly controlled in 2008-2009 as companies focused on cost management. In 2020, employees had more decision authority as people worked from home

and had to make decisions quicker. Career growth may have some interesting longer-term impacts as people were not able to network in traditional ways during the COVID-19 pandemic. During the COVID-19 pandemic, hiring managers tended to hire within their network or through existing relationships. This could impact people's networks in future hiring.

### **Theoretical Implications**

This study makes two main theoretical contributions to the knowledge of social cognition theory and crisis management. First, a framework is developed to apply the social cognition theory "thinking and doing" at a firm level (resource availability, planning uncertainty, cost management, long-term commitment to the business, profitability to the business, buying cycles) and at an individual level (stress, decision authority, job security, and career growth). Second, this research evaluates specific constructs and qualitatively delineates the degree of impact in times of chaos. The contribution is not to just look at times of chaos, but to look at different scenarios/impacts at different chaotic times, along with different levels of impacts to specific constructs.

### **Managerial Implications**

This study was undertaken to understand how entrepreneurs and global supply chain executives manage through crisis differently – like the financial crisis of 2008-2009 and the global pandemic of 2020-2021. Even though these were two of the biggest crises of the last 75+ years, each created its own bifurcation and unique consequences, while having many similarities. Developing lessons learned from and linking the "thinking and doing" portion of the business to drive effectiveness in a time of crisis can be beneficial to all executives and business owners. Assisting practitioners in thinking through antecedents of a crisis, responding to a current crisis, and working to minimize the impact of future crises are all beneficial. Entrepreneurs and global supply chain executives should frequently be meeting to discuss changes in the environment to accurately and quickly diagnose at the beginning of a crisis. When firms are

responding to a chaotic situation, they need to understand the different drivers and impacts, such as from a financial or health crisis. Executives also need to collect accurate information and disseminate it efficiently and accurately through their organization. Lastly, firms need to enhance their strategic ability to analyze and better understand the microenvironment (employees, stress, decision authority, job security ...) and macro environment (profit expectations, commitment to the business, buying cycles ...). Additionally, we suggest that firms create a group to perform risk analysis and forecasting throughout the business cycle and environment.

### Limitations and Future Research

This study has certain limitations that call for future research. First, the article focused on global supply chain executives from multinational organizations. Future research could include different sizes of organizations. Second, entrepreneurs from smaller-sized organizations (<\$100M annual revenue) from the United States were targeted. Future research could select entrepreneurs that are global in nature and/or are responsible for revenues in excess of \$100M per year. Third, conducting qualitative research on executives beyond a broader range of industries to understand implications deeper. Future studies could also explore the interrelation among a more comprehensive set of constructs from different chaotic environments.

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