IlLUminate Blog Transcript: Zach Zacharia on Supply Chain Risks - 3rd Quarter 2022

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ANNOUNCER: 00:01	[music] This podcast is brought to you by Illuminate, the Lehigh Business blog. To learn more, please visit us at business.lehigh.edu/news.
JACK CROFT: 00:13	Welcome. I'm Jack Croft, host of the Illuminate podcast for Lehigh University's College of Business. Today is June 22nd, 2022. And we're talking with Zach Zacharia about the biggest threats facing the global supply chain for the third quarter of 2022, as reported in the latest Lehigh Business Supply Chain Risk Management Index. Dr. Zacharia is an associate professor of supply chain management and director of the Center for Supply Chain Research at Lehigh. The Lehigh Business Supply Chain Risk Management Index, or LRMI for short, was developed in 2020 by the Center for Supply Chain Research at Lehigh University and the Council of Supply Chain Management Professionals. Zach teaches graduate and undergraduate courses in supply chain operations management and logistics and transportation. Welcome back to the Illuminate podcast, Zach.
ZACH ZACHARIA: 01:10	Thank you.
CROFT: 01:12	Now, since we last talked in December, I guess it was, the global supply chain has been disrupted by a seemingly unrelenting number of adverse and even devastating events, going back to the global COVID-19 pandemic, more recently, Russia's invasion of Ukraine, gas and oil prices soaring to new highs, energy shortages, labor shortages, inflation at the highest level in decades, and increasing examples of extreme weather events caused by climate change, just to name a few. So before we look in detail at the latest LRMI results, I'd be curious to get your thoughts on a more global perspective on the current state of the supply chain.
ZACHARIA: 02:01	That's an excellent question, Jack. And actually, any one of those things that you mentioned would have a significant impact on the supply chain, from COVID-19 to high inflation to labor issues and obviously climate change issues. But I think the key factor is Russia's invasion of Ukraine, which has really sort of turned down the whole geopolitical system. So this is a huge issue, and you can see the repercussions all throughout the supply chain. One of the things that it's kind of important to understand is that businesses in general prefer certainty. In other words, they like to know that if the shipment is late as early as possible so that they can plan for it. We tend to plan for the future. Whenever you have greater uncertainty, there is greater risk because now you don't know what is going to happen. You can't be prepared for it. Do you have enough inventory? Do you have enough staff? And all of those things really matter. So when we have the issues that are going on now, you have a lot of uncertainty in the environment, in sort of the business environment, and you can see some of the consequences. Now, I don't know if you read this, but Walmart and Target last week announced that they had too much inventory. And in a normal situation, this is extremely surprising because Walmart and Target, over the years, have perfected how much inventory they're going to carry. But this is what Russia's invasion of Ukraine has done. It has completely upended the way that these things work. And so what you have is that you have demand for product, but consumers willing to buy those products has decreased because there is a huge spike in inflation.

And this has led to what is called the classic bullwhip effect. And the basic point of the bullwhip effect is that that is where you have initially high demand and not enough inventory. So, therefore, you order a lot of inventory, the demand cools off, and now you have excess inventory. And by definition, we talk about that as a bullwhip effect because small changes in consumer demand have huge or increasing effects as you go further up the supply chain. So the bottom line is that, in this economy right now, there's greater uncertainty. And you're going to see companies have to adapt into this uncertain environment, and that's why we have some of the major issues that we're seeing in the index.

CROFT: 04:53 Then turning to the latest report in the Lehigh Business Supply Chain Risk Management Index, and just to recap quickly up front, as we've discussed on previous podcasts, the risk index is a number between 0 and 100, where greater than 50 suggests increased risk, 50 suggests the same risk, and less than 50 suggests decreased risk. Looking at the third quarter report that just came out, the overall average risk was 72.36, the second highest since you launched the index two years ago and only slightly behind the first quarter of 2022. So what does that tell us, and how concerned should we be?

ZACHARIA: 05:40 So remember, this number is an average of 10 different supply chain risks. So this is a significant number because, on average, what you're seeing is that out of all those 10 supply chain risks, supply chain managers think there has been a significant increase in the economy as far as risk is concerned. And what is interesting is that this risk is greater than what people saw when COVID happened. So this is concerning, and this is something that businesses will have to take into account as they go forward.

CROFT: 06:23 In the third quarter LRMI, economic risk, for the second time this year, has set a new record for the highest risk index number we've seen in any category in any quarter in the two years you've been doing the index. In fact, economic risk tops the third quarter list at 90.72, the first time any category has risen above 90 so far. So let's take a closer look at that. To start, what factors go into economic risk?

ZACHARIA: 06:57 So the economic risk index is asking supply chain managers about increasing energy costs, commodity price volatility, labor shortages, sudden demand shocks, global energy shortages, and border delays. And as you can just see with that listing, all of those areas in the economy have been significantly impacted with what's happened in the last quarter with all the things that you talked about. So clearly economic risk has significantly increased.

CROFT: 07:29 What are the main concerns regarding economic risk that you heard from the supply chain professionals participating in the index?

ZACHARIA: 07:37 I think that the real thing-- and I think this is something that is not apparent. And I think that that's really insightful, is that the economic risk is particularly high because demand is decreasing at the transportation level. And remember, transportation is always a leading indicator of what's happening in the economy. When the number of trucks, the demand for trucks goes down, then you know that the economy is slowing down because not as many factories are actually shipping product, not as many retailers are bringing in product. And here's an interesting statistic that just came out, that a container price to ship from China to the U.S. was $15,551 in April 18. And two months later, it went to $9,177, a 40% drop. What clearly this means is that all the big container shippers, in this case usually big box retailers, they’re pulling back. They’re cutting back on the demand. So what this means is that there is going to be a significant decrease in demand going forward. And as I mentioned earlier, there is going to be excess inventory. So you have the situation where you have too much inventory and not enough demand, then you are going to have significant decreases in prices as retailers start to try and unload that product. One of the things that supply chain professionals are talking about is that, for example, there is definitely a decrease in trucking demand. They’re seeing two kinds of things happening at the same time. You still have increased operational costs, like labor costs, but reducing demand means that they’re sort of going in opposite directions, and therefore, that really does increase the risk of not being able to meet your payroll or have enough to make, break even because clearly raw material costs, lead time, those are all increasing. And that's all a function of the war in Ukraine, that has an impact on fuel and material prices. So supply chain managers who filled out the survey were talking about the fact that you're going to have-- inflation is very high. The Ukraine conflict is significantly impacting the supply chain across the entire world. And so as you continue to have this price volatility, you are going to have increased economic risk. And this is going to be a major problem in this upcoming quarter, and maybe the quarter after that.

CROFT: 10:23 Is that 90.72 index number for economic risk as scary as it sounds?

ZACHARIA: 10:32 Absolutely. 90 is incredibly high. I never expected the number to ever reach that high, which essentially means that everybody who filled out the survey believes that there's increased economic risk because the number is just weighted. So when average, when normal is 50, you're 40 points above normal. And remember, it's always comparative risk. The question to ask, "Compared to this quarter, what is the upcoming risk for next quarter?" And so clearly, they're seeing even greater risk. So to me, 90 is significantly high. And I believe that people think that that risk is simply going to get worse.

CROFT: 11:19 And as I went back through the previous LRMI reports, I noticed that this 90 is kind of the culmination, hopefully, the culmination, of a trend that's been ongoing that, in the first year you were doing it, the categories that top the reports had index numbers in the 70s, which is now the average risk number for the report. And a year ago, those leading risk index numbers started to push up into the mid and then the high 80s. And now we've seen economic risk top 90. So what does that trend tell us? Have things gotten that much worse?

ZACHARIA: 12:01 Well, I'm not sure the word is gotten worse. I would say that, instead, the data tells you there has been a significant increase in uncertainty. So when you have an increase in uncertainty, then there is greater risk. So you can't plan. Businesses can work if you know that the tax is going to be this much or the tariff is going to be this much or the demand is going to be this much or the actual shipment lead time, instead of it being 30 days, is now 60 days. We can plan for it, and then we can make adjustments accordingly. It's when you have volatility that you can't plan for. Do you have enough people working for you? That's when you have problems. And that's where businesses will continually face the risk of losing money, of not breaking even, of not being able to pay their workers. So clearly, that increased risk has definitely been increasing, but I don't necessarily know that it is worse. All we can say for sure is that risk has increased.

CROFT: 13:18

Now, you had mentioned the role of transportation, discussing economic risk. And transportation disruption risk, which is second in the list for the third quarter, has pretty consistently been near the top of the risk categories along with economic risk since you've been doing this. And in fact, in the previous quarter, the second quarter, report, transportation disruption set the previous record for highest rating in any category at 89.5. And for this quarter, it's dipped a little to 85.86, which is obviously still very high. So what is included in the transportation disruption risk category? And what are the biggest threats supply chain professionals foresee there?

ZACHARIA: 14:07

The sample examples that we think of when we think of transportation risk is fuel prices, driver shortage, infrastructure conditions, and demand volatility. And clearly, you can see if you've driven up to the gas pump recently, clearly, you can see that fuel prices have been increasing significantly. And there's always been a driver shortage in the over-the-truck, the long-term truck hauling freight business. So this is a significant threat. And then as far as supply chain professionals, you know that we get them to write comments when they fill out these risks. And here's some sample quotes, "Lead times and equipment costs have increased dramatically. And parts are back ordered, extending equipment downtime." “International politics have ramped up, so transportation issues globally have increased in risk.” “Again, diesel prices are currently at record highs." You're going to have-- truckload market is beginning to loosen. But this means that as demand looks like it's going to soften less in truckload market, as opposed to full truckload market. Driver issues, equipment issues, fuel issues are all major issues they're going to face in the remainder of 2022. So all of these suggest that transportation is still highly volatile. And companies are going to have a hard time predicting what to do. And therefore, this is an area of high risk.

CROFT: 15:40

Now, in the area of disruption and transportation, there have been a couple of topics that have been receiving extensive media coverage recently. One is the severe shortage of truck drivers, and the other is the looming move to self-driving trucks. If the industry views self-driving trucks as the future, it would seem to me, at least, that that would provide some additional motivation for current drivers to retire or change careers, kind of like getting out of vaudeville as the talkies were coming in, and would make it even more difficult to attract the new drivers that we obviously need. Is that part of what's going on here?

ZACHARIA: 16:25

Well, let me be clear here. Truck driving or getting drivers for trucks has been a perennial problem since I've been doing transportation research from the late 1990s. We've always had that. And primarily, there are two or three things that could make the transportation job more palatable. One is that we could figure out ways that truck drivers could actually come home. In other words, it's very possible to create a system where the truck driver drives five hours in one direction, drops his load, and takes another load and drives five hours back, so they're back home. And you could have this idea of these trucks that are actually working in concert. There are some companies who have done really well with keeping their drivers because they make sure that by the second night, for example, the truck driver's at home. So they don't have any problem attracting drivers. The second thing is that ridiculous pay, the salaries have been very, very low. And so comparatively, when you have Walmart or Starbucks offering you $15, $16 or Amazon $18 an hour, and then you have manufacturing companies at $21, $22 an hour, why would you want to go on the road for 20 days at a time before you ever make it back home? So those are all things that could definitely make transportation jobs more palatable. Now, the other idea about having self-driving trucks, the research, they've been doing very well. They have gone faster and faster. And now they have, what we call, fleets of trucks, where you could have an owner, operator, truck driver at the very beginning, and the other two trucks could follow. And they've been doing these tests. There's a lot of legal ramifications in things like this. So the people that I've talked in the industry say that the possibility is there, but it's got to be in very, very limited capacity where it would be ideal. And so perhaps in city to city, where you're just in a highway, is very clean. These automated systems do run to issues as you increase the number of variables. So your first point, I don't think it’s going to happen anytime soon as far as automated trucks. And the second point, yes, there is a truck driver shortage. But I think that's what the industry has sort of lent itself to. So I think that we can figure out ways to attract more drivers to the industry.

CROFT: 19:07

Now, supplier risk has also been right up near the top in most of the reports in recent years. And it's the third category in the current report that tops 80, at 81.96. So what are some of the main factors that make up supplier risk, and what are the main threats suppliers are facing?

ZACHARIA: 19:32

According to the LRMI index, some of the things we're looking at is having a singular source, sole source supplier, having suppliers from one geographic location, having quality issues with the supplier, high price volatility, or counterfeit products. So this is, "Is your supplier reliable?" And so what's happened, though, is that there has been an increase in lead time. And I'm sure many of you have actually seen that, "Hey, I want to get a particular product." And now you have lead times from, based on the chip shortage that's going on to other factors, just having enough labor to actually be able to do that work. So having suppliers being able to provide the products you need has always been a big issue. And lead times have been a big issue. And the fact, again, you have COVID issues that's still yet out there. So these are all factors that affect it, and that's why supplier risk remains relatively high.

CROFT: 20:32

Now, the single source supplier, in particular, would seem to be an example of what you've been talking about, which is the uncertainty that if you're relying on only one supplier as the source for a certain product, if anything goes wrong with that supplier, you're stuck. You can't get your product. Is that basically it?

ZACHARIA: 20:55

Absolutely. So it's rare for companies. It's called sole source. Now, it could be that you have a single supplier who has been going through a lot of the approval and quality check processes so that you just can afford to just have one supplier. Honda was very famous for reducing their number of suppliers down to three. And this allowed suppliers to invest and make sure they knew that they're going to get maybe a third of the demand that Honda would have. So sole source suppliers is a problem. Very, very few companies actually rely on sole source. They typically want to have more than one supplier. What's interesting, though, in the supply chain is that people started to have suppliers who are in the same geographical location. So many were coming out of China or out of Taiwan. And now when you ran into a problem-- they're out of Japan when you ran into-- you had that tsunami that happened. Well, it didn't matter that you had different suppliers. They're all in the same location. So it affected your capability of being able to get your product. So those are all issues that we face with suppliers. But again, I think it's Russia's invasion of Ukraine that has sort of overshadowed, made everything that much more risky.

CROFT: 22:15 Now, you had mentioned the comments that the supply chain professionals make as they fill out the survey each quarter. And in this one, one of the comments really struck me: "Small to medium suppliers are in a more delicate spot and will be failing at a much higher rate." What do you see as the prospects that that's going to be the case?

ZACHARIA: 22:40 I think there's a lot of validity in that statement. Basically, the smaller you are, the less economic strength that you're going to have. So Walmart and Target, Walmart is probably the single largest buyer of container ships or container capacity coming out of China. So they could make some significant decisions, and they could exert a huge pressure on their suppliers. The smaller you are as a supplier, the less likely that you are going to be able to get your product from your supplier, the less likely you are going to meet your demand. And I think what that comment was specifically talking about the fact is, the smaller you get, the less you are going to be able to meet the requirements of your customers. And so there's a chance that some of them are going to go bankrupt because they just cannot get the product available because their suppliers are also not able to get it. And if they don't have any economic leverage, suppliers that they have will only serve their larger customers. So this is a problem.

CROFT: 23:42 All right. Now I'd like to touch on the other two categories that appear in the top five of this report. And as you had mentioned, there are 10 categories that are looked at for each of these quarterly reports. And those two are cybersecurity and data risk and government intervention risk, both of which are also pretty much mainstays toward the top of the reports. Both of them are in the mid-70s. And interesting, both of those categories, as well as transportation disruption risk, were actually down slightly from the second quarter. And those were the only 3 categories out of the 10 where the risk index trended downward. So I'm wondering is there any cause for optimism in that? [laughter] I'm looking for something here.

ZACHARIA: 24:36 That is excellent. So yes, it has gone down a bit. And from there, I could say that before everyone was-- in the first quarter, we were still worried about getting products. We still have huge container delays where you had 100 ships waiting to get into Los Angeles. Now people are saying, "Okay. Well, that's not that much of an issue because you don't have the demand we are seeing." So that has become a bigger issue. So I think what you've seen is that-- for example, transportation disruption went from 89 to 85, which is still very, very high. You had cybersecurity went from 79 to 76, and then you had government went from 76 to 74. So they did go down slightly. And I guess it is a sign of optimism compared to some of the others, that all the other 7 out of 10 increased. So yes, I think that, again, more companies are aware of cybersecurity, and they've gotten better at managing it. Everyone just sees this economic risk as so huge that-- and they're not necessarily saying that the government is going to try and figure out something. So all of those risks have sort of gone down.

CROFT: 25:51 All right then, as we look ahead to the third quarter, are there any other trends you've spotted in the latest LRMI report that we should be aware of?

ZACHARIA: 26:02 Well, as I mentioned earlier about the fact, and it's shocking, the container demand price has gone down by 40% in the last two months. This really indicates that the big box retailers, the people who are constantly shipping in products, see a real softening of demand in the economy. They're all predicting there's going to be a decrease in demand. People are going to become very concerned with inflation, and they're not going to buy as much product. And the U.S. economy has been saved by the consumer so many times. And I think that's a little bit scary. If everyone is predicting the consumer demand is going to go down, that's going to affect the entire economy. So there's a really good chance that we're going to be headed in for a recession. Whether the feds can actually make that a soft landing, I don't know. But I think the overall thing that you have to think about is that if everybody is predicting that there is that much of excess inventory, there's probably going to become some significant price cutting, and you're going to see some good sales and significant discounts for products, where, for the last little while, we've just been seeing increasing prices and increasing product unavailability. And now you're going to see these products come in, and then they're going to sit there. And you're going to see some real movement to get those products out. So I think it might be worthwhile to hold off on some of your big purchases because I do think that some of that pricing is going to come down.

CROFT: 27:31

All right. That's an almost optimistic. [laughter] So I think that would be a good place for us to stop. I want to thank you, again, for being with us on Illuminate today. It's always a pleasure, Zach.

ZACHARIA: 27:46

Thanks so much, Jack. I really appreciate these opportunities that you give me to come and talk about the Lehigh Risk Management Index.

CROFT: 27:53

As director of the Center for Supply Chain Research at Lehigh, Zach Zacharia and the faculty and students at Lehigh Business are generating new ideas for education and future knowledge in the field of supply chain management. This podcast is brought to you by Illuminate, the Lehigh Business blog. To hear more podcasts featuring Lehigh Business thought leaders, please visit us at business.lehigh.edu/news. And don't forget to follow us on Twitter, @LehighBusiness. This is Jack Croft, host of the Illuminate podcast. [music] Thanks for listening.