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IlLUminate Blog Transcript: Zach Zacharia on Red Flags in the Supply Chain

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ANNOUNCER: 00:02	[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 28th, 2021 and we're talking with Zach Zacharia about what the latest Lehigh Supply Chain Risk Management Index suggests are the biggest risks that supply chain businesses face heading into the third-quarter of 2021. If there's time, we'll also briefly discuss President Biden's executive order regarding supply chain disruptions. Dr. Zacharia is an associate professor of supply chain management and director of the Center for Supply Chain Research at Lehigh. The Lehigh 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. Dr. Zacharia teaches graduate and undergraduate courses in supply chain operations management and logistics and transportation. Dr. Zacharia, welcome back to the ilLUminate podcast.
ZACHARIA: 01:16	Thanks very much, Jack. Looking forward to talking to you some more about LRMI.
CROFT: 01:21	Great and first, congratulations. The LRMI is past its first birthday, actually, we're five quarters in now since you started this last year. So let's start with just a brief description of how the LRMI came about, what it's intended to tell us, and what the numbers assigned to each risk type mean?
ZACHARIA: 01:45	The Lehigh Risk Management Index came about because when you look at the landscape, there really isn't an index for supply chain managers that helps them distinguish from those kinds of risk that are not serious compared to extremely high risk, sort of the low risk versus the high risk. And understand that risk is always relative, so the beauty of having an index where you have supply chain managers across the country weigh in on what they think is high risk helps other supply chain managers plan on how to mitigate risk. Remember, we realize risk always exists, but we also want to have processes in place for those situations where the risk is particularly high. And that way, then you're much more capable of handling that risk because supply chain is all about forecasting, we need to get that product to that right location at the right time, the right cost, so you need to have backups, redundancies in place. And so that's really important for us to understand areas of high risk.
ZACHARIA: 02:52	Now, the actual physical risk index is a number between 0 to 100, and when you're below 50, that is an area of lower risk. The greater or the further you were away from 50, the greater the level of risk. So in a sense, when you have extremely high numbers, you know that that risk is much--the potential for that is that the risk is increasing significantly in comparison to the previous quarter. And I guess when we look at the-- we're going to go into those specific numbers. But you'll get a chance to see that the way that we calculate this is that we ask supply chain professionals to indicate whether they think the risk is increasing, staying the same, or decreasing in comparison to the previous quarter. And that number, the numbers they give us, we then aggregate it and we come up with an overall risk for each particular kinds of risk that we're going to discuss, and we'll have a chance to discuss that in more detail.

CROFT: 03:52 Just starting out a little more broadly because this is the first report we've talked about where you've got a little more than a full year's worth of results behind you. So kind of looking at it across all of the five quarters that you've been doing the index, what are some of the most striking trends you've noticed over the course of what has been a very difficult and often even surreal year?

ZACHARIA: 04:21 One of the things that we noticed, so this is the first time in one of our LRMI reports actually has a graph showing the values for each of the risks in comparison over the last four quarters. And one thing that just sort of leaps out at you is that for the first time in this particular quarter, the estimated risk for the third quarter coming up is--three of the risks are the highest numbers we've ever seen ever since we started doing this risk index. The numbers of 86.02 for transportation disruption, 81.99 for economic, and 80.12 for supplier risk are our three numbers that are higher than any number we've seen so far across all the risks. So that is a significant change and that is a significant trend that I'd like to go into each of those things in a bit more detail. But that's the thing that strikes you with this particular quarter coming up.

CROFT: 05:24 So let's focus on the third-quarter results. At 69.35, the average index for the third quarter is the highest it's been since you started, and looking at the individual categories, as you mentioned, I see an awful lot of red which indicates increasing risk. In fact, I believe seven of the 10 types of risk that you measure have increased, while only three have decreased. So, again, as usual, we'll start kind of more broadly and then zero in on the individual risks, but what does that tell us about the state of the supply chain, and how concerned should we be about that?

ZACHARIA: 06:08 We should be very concerned. I mean, as I said earlier, three of the risks have been significantly higher than any other risk in the past. And as you correctly pointed out, seven out of the 10 risks are showing as increasing. What this tells you, in the economy supply chain professionals are seeing that they're going to have a lot more problems with transportation, with the economy, with getting suppliers, with cybersecurity, with the idea of technology as far as competitiveness is concerned, lower quality, greater operational risk. So all of these kinds of things suggest that the general trend is for the third quarter, the economy, there is a lot of risk out there. A lot of the executives are very concerned about being able to meet customer demand, being able to get the products delivered. And all these areas sort of send a clear message that the third quarter is going to be even more challenging than the first and second quarter of this year.

CROFT: 07:17 Yeah. Now, as you mentioned, there are 10 categories. And this time checking in it at number one, which is not a good thing, is transportation disruption risk, which, as you mentioned, came in at a whopping 86 index number, higher than anything we've seen. So what are some of the examples of factors that go into transportation disruption risk, and is it as bad as it sounds?

ZACHARIA: 07:49 Absolutely. So some of the examples of transportation risk is driver shortage, fuel prices, a lot of demand volatility. And you can actually talk about transportation disruption in terms of two things, there's inbound transportation or domestic transportation where there has been a significant shortage. Many of the companies are looking, for example, for drivers, people who are in warehouses, labor is a huge issue. And so from the people that we're talking to, we're seeing that there is significant shortages in terms of drivers and equipment. Second thing is, is that there has been a real problem in getting products out of China. Now, we don't have as long a delay of container ships waiting outside of the Port of Los Angeles, but instead of it-- still, we're looking at an additional three to four weeks where it is just sitting there waiting to come into port. So that has improved from previous time, but it's still a significant amount of time. One of the executives I talked to last week told me that once you get the product in port, it still has taken up to nine days for it to get off the ship, off the rail, and onto a truck.

ZACHARIA: 09:14 So these are additional times, so what this means is, is that these are delayed. So products are not coming in, supplies are not coming in and these are problems. So both transportation, global transportation coming into the country, domestic transportation are significantly problematic. And you have very, very large companies, in fact, FedEx three weeks ago announced that they were just not going to be able to meet very, very large customers. They gave a one-day notice, basically, because they didn't have people. So all this is telling you that there is a huge issue coming in in terms of transportation. And as one executive told me, "Look, domestically, they're moving more volume, but because of e-commerce, there's less tonnage and smaller shipments because there's really been sort of a growth in retail demand." It's sort of the perfect storm. Demand is really increasing, supplies are not able to keep up, and then you have this issue of transportation. So that's the transportation problem.

CROFT: 10:20 And I take it the delays in getting products that have arrived in port off the ships, onto trucks, and out of the port is probably largely responsible with the driver shortages. Are there other factors, too?

ZACHARIA: 10:37 So no driver shortages is simply a fact that labor-- for the first time, you are now getting retail and the service industry, like food and those kinds of industries, are actually starting to offer significant salaries, which has meant that you're not seeing that same growth in salaries in manufacturing and even in driving trucks. So people are choosing not to drive trucks they'd much rather go in, perhaps, the retail industry. So, again, what this means is that we have to take those-- that that is really affecting the availability of labor, and that's all that is. Now, getting products off of the ship there are two or three constraints to that. One is, is that again, COVID, dockworkers and that kind of manufacturing labor there of unloading the material from the ship, that is definitely there. But the labor shortage actually just is we're not getting drivers to get on trucks and we're not attracting enough people to come to the warehouse.

CROFT: 11:51 Okay, economic risk checks in at number two, as you mentioned, almost 82%. Again, what are some examples that go into that, and how much does the continuing COVID-19 global pandemic that you just mentioned factor into that?

ZACHARIA: 12:07 So some of the examples of economic risk we talk about is increasing energy costs, commodity price volatility, labor shortages, demand shocks, global shortages, and border delays. And so actually we have already sort of talked about all of this. There was a significant problem in one of the ports in-- actually several ports in China where they again had a second influx of COVID, which shut down several areas, which meant that containers weren't leaving China. Then when it got over here, again, you had labor shortages, so that was an issue of just filling those products. And then I talked to executives who tell me that we have got products that are 90, 95 percent done, but we can't ship the product because we need a particular-- chips are an example, we need particular parts that only come from China. And so we're waiting for that product to come in. So you cannot ship a vehicle that's 95% done, you need to get it

100% done. It doesn't matter that most of it is done. If you're missing a critical part, you need to get that product over.

ZACHARIA: 13:22 And another thing that actually happened that people kind of forget is that we had that freeze in Texas and that freeze in Texas we're still dealing with that because one of the major suppliers of resin, which is used in manufacturing for plastics all over the country, it was shut down and it was shut down for a number of weeks. And so that really constrained the amount of resin that you had and that affected manufacturing all over the US. So when you have these kinds of strong demand shocks per se or supply shocks, and then, of course, on the demand side, you also have this significant increase in demand because people now have more money to spend, so they want to buy more products. But then there is, again, a shortage. So prices start going up. I'm sure you've noticed that certain commodities, the prices have increased significantly, like lumber and so on. So all of these things affect the economy. And that's one of the reasons why the economic risk index was so high.

CROFT: 14:29 Mentioning the power outages in Texas, I think kind of underscores yet again the global nature of the world economy now and the supply chain that you have power outages in Texas, you have rolling brownouts in southern China. All of this matters. It all kind of winds up mattering to those of us wherever we are.

ZACHARIA: 14:56 Absolutely. And in fact, for example, we're still recovering from that ship that got stranded in the Suez Canal. So this is something that happened, everyone thinks, several weeks ago. But you realize that all those ships that were supposed to go through there, so there were several weeks where they had to-- it might have only been about four or five days. But you've got to realize that it's like a conveyor belt, when it stops, then everything just keeps piling up. And so all of that still has to go through that same narrow channel. And so to your point, you can clearly have effects that are across the globe on the other side of the world that can have significant effects on our supply chain, on our economy over here.

CROFT: 15:49 The third category and the other one that's in that 80 and over club this month is the supplier risk. What's driving that? How is it affecting the supply chain and the larger economic picture?

ZACHARIA: 16:03 Well, again, so the examples of supplier risk are things like single sourced-supplier or supplier from one geographic location, supplier quality, price volatility, counterfeit products, and all of these things are good examples of the issues that we have with suppliers. Some of the executives that I'm talking to told me that they realize their suppliers can't get the parts that they need because either the suppliers that they're depending on who don't have access to-- they're still not at 100% capacity, they're about 80% because they don't have, for example, enough labor. Quite a few people I've talked to, one of the executives said that many people who were close to retirement just decided to take early retirement when COVID happened. And it's hard to attract some of these people because the jobs that-- as I said earlier, people are getting jobs maybe in other industries, so they're not rushing to get back to manufacturing.

ZACHARIA: 17:05 So suppliers are dealing with a very, very tight labor market. Suppliers are also dealing with the lead times, again, going back to transportation, where it's taking much, much longer to get the raw materials so that they can actually make the product. And so, in fact, I was talking to one executive who said that "Now, the suppliers we're working with, they are booked solid until 2022. They're taking orders, they're already thinking about 2022 because they can't take anymore as far as meeting continuous demand." So all of these things affect the ability to be able to produce product, and if you don't have-- suppliers are not capable of giving you the kind of products you need, you cannot sell your product. And so you can see that that's, again, a huge impact in terms of supply risk.

CROFT: 17:58

Now, the fourth-highest category and this is one that there's certainly been a lot of coverage in the news about lately, cybersecurity and data risk. There have been two very high-profile ransomware attacks as part of this, the Colonial Pipeline attack that spiked gasoline prices here on the East Coast in May and not long after, the attack that briefly shut down the world's largest meat supplier, JBS, in early June. So along with increasing cyberattacks, what are some of the other main factors that are driving cybersecurity and data risk this quarter?

ZACHARIA: 18:38

According to our survey that we did, several people weighed in and said it really is the number one concern of any company today, basically because so much of our work is now being done remotely. In fact, I had a comment where someone said that once you get back into working in an office environment, then there's a greater chance that you will actually have more of those kinds of protocols and rules in place. And there will be greater face-to-face communication so that there'd be less risk of phishing and some of these social engineering attacks that enabled these companies to come in and actually start taking over your company network. This is clearly identified as a significant issue because people are aware that that's an opportunity for these kinds of attacks to happen. And actually, I had a great line that is that basically it seems we are producing more and more material that can be hacked because we are using more e-commerce, we're using more products that really rely on the internet and electronic networks to actually operate. So as we continue producing more products in that area, it is obvious that we're going to get more and more attacks in this place because it's lucrative for companies. And when you allow people to work remotely, you're going to have to face this risk.

CROFT: 20:16

So to recap, it looks like we're in for a bumpy ride, certainly through the third-quarter. Looking ahead, do you expect the fourth-quarter report to perhaps show some stabilization or even improvement, or is it going to take a while for the myriad risks to the supply chain that we're seeing now to resolve?

ZACHARIA: 20:36

I would be more optimistic. Everyone that I'm talking to is very concerned about the third quarter, basically because of the as identified labor issues and transportation issues, and so on. But many of the people that I'm talking to are suggesting that we're going to see, first of all, the kids are going to go back to school, more and more people are being vaccinated, more and more times COVID is being under control. So when the schools open and more people will come back to work, that should really help with our labor. Products still need to arrive for the fourth quarter. In fact, people are getting concerned that if you want enough products available by December, well, you need that product to come in August, September, so that it'll be ready by November when the big push comes in. But overall, everyone is seeing that everything is sort of trending in the right direction. As you know, lumber, just the lumber prices for the first time started to go down because we could see that we're handling the demand, availability is happening. So I would tend to be more optimistic that the fourth quarter should see a lot of these things reduce in severity. Doesn't mean they're going to go away, but I expect overall the risk numbers should be down in the fourth quarter.

CROFT: 22:02

Now, obviously, supply chain disruptions and vulnerabilities have gotten on the radar of the Biden administration pretty early on. In February, the president issued an executive order directing what the administration called a whole of government approach to assessing the vulnerabilities in, and strengthening the resilience of, critical supply chains. So I'm just wondering, what was your reaction to that?

ZACHARIA: 22:30

Well, first of all, I was gratified. As a person who has worked in the supplies industry for many, many years, it's really nice for someone at President Biden's level to actually realize what a critical role the supply chains have in the economy. If you don't get the right product, at the right time for the right place to the right customer for the right price, that is a problem. And so supply chain professionals we're kind of sort of the forgotten or shall we say the invisible part of the company, because you only hear about us if there's a problem. If we're doing our job well, then everything goes perfectly. So it's kind of good to see that the supply chain is finally getting some of the attention it needs because it has a critical role to play in the economy. And the more you can make the supply chain more resilient, the ability to withstand significant shocks and come back and still provide support, be able to deliver the product, the better the economy as a whole. So overall, I think that that's really beneficial for companies to start thinking about the critical role that the supply chain plays in their company.

CROFT: 23:49

We've talked about quite a few things here today, I usually close by asking if there's anything we have not discussed that you think listeners should know about what's going on with the supply chain during these turbulent times?

ZACHARIA: 24:04

Well, the one thing that we didn't actually quite discuss that I think does have a role to play, again, the executives that I'm talking to, many of them are revisiting or re-looking at their strategy on outsourcing such a significant portion of their manufacturing processes to China. And so they are starting to look at reducing that exposure. And as you know, Jack, we have two conferences a year. We have the spring symposium and the fall forum and in our next fall forum, which will be November 5th on a Friday, we have one of the top experts on reshoring, and that's the idea of bringing manufacturing back to the U.S. And so Harry Moser [founder and president of the Reshoring Initiative] is going to be coming and he's going to give us a great presentation. And I've had a chance to look at his data, and I've also been looking at some other data along this, and one of the things that we're starting to realize is that we might not be calculating the true costs of outsourcing your entire manufacturing process to countries outside the U.S. because it all relies on the fact that we have no transportation disruptions, no quality issues, no supplier issues. And once you start allowing a little bit of variability of probability that you are not going to have perfect transportation, perfect quality, perfect suppliers, then all of a sudden the cost is not that much of a saving. And I think that I would encourage people who are listening to this podcast to consider registering for our conference in the fall where we're going to be looking at this idea, or one of the presenters will be looking at reshoring.

CROFT: 25:51

Great. Well, Dr. Zacharia, thanks so much for being with us once again on ilLUminate today. It's always a pleasure.

ZACHARIA: 25:59 Thanks very much, Jack. I really appreciate this opportunity to talk about the Lehigh Risk Management Index.

CROFT: 26:05 I want to again thank our guest Zack Zacharia, he's director of the Center for Supply Chain Research at Lehigh. Dr. 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 at Lehigh Business. I'm Jack Croft, host of the ilLUminate podcast. Thanks for listening. [music]