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Supply Chain Disruption: Long-Term and Short-Term Effects of COVID-19 in the Textile Supply Chain

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ABSTRACT

The paper will attempt to understand some of the changes to the textile business environment due to the COVID-19 pandemic. Specifically, it will explore which of these changes are of a temporary nature and which are likely to constitute a more long-term, strategic change.

Keywords: Covid-19

Introduction:

As companies around the globe react to the sudden drop in demand due to the COVID-19 pandemic, many reduced their business volume, restructured their business models, or sought protection through Chapter 11 bankruptcy filings or their global equivalents. Examples of the many bankruptcies in the textile arena include the Tailored Brands group (Men's Wearhouse, Jos. A. Bank, Moore's Clothing for Men and K&G Fashion Superstore) (1) and J.C, Penney (2). In many cases, business analysts state that the pandemic simply accelerated strategic shifts (or downfalls) (3). There is discussion if accelerating change strategies is the best way out of the crisis (4) and what kind of change is likely to become a permanent part of new business models (5).

It is of great importance to the integrated textile complex, ranging from fiber processing through textile manufacturing and finished product assembly through retail, to understand what changes were made within the pipeline, which of them are likely to remain permanent, and what changes are likely to be still necessary.

Methodology:

A survey was developed with open-ended questions to determine the changes made within the textile industry in response to the COVID-19 pandemic. After IRB approval was granted (approval # 21220), the survey was emailed (as a link and as an attachment) to a wide range of industry representatives within the textile pipeline. The survey was also distributed via newsletter by industry organizations. Between the end of August 2020 and the end of September 2020, 64 companies responded to some or all of the questions in the survey. Due to the open question nature of the survey, qualitative analysis was performed to analyze the survey responses.

Results:

General information and market:

The respondents came from a wide range of industry segments, ranging from fiber, yarn, and fabric production to apparel manufacturers, from traditional and industrial textile producers to equipment, auxiliary and service suppliers to the industry. Technical, automotive, medical, and consumer markets were represented. The number of employees ranged from 1 to 13,000.

Due to the wide range of markets, there was also a wide range of impacts felt due to COVID-19. Some segments, namely producers of personal protective equipment or suppliers of materials into that sector, felt a significant increase in demand, in some cases leading to the need to allocate shipments to customers rather than selling traditionally. The increase of demand in medical textiles was considered by many as long-term or permanent, but by others seen as more temporary until inventories are filled again.

Most companies however saw a significant reduction in demand, typically between 35% and 65% of the pre-pandemic demand, but in some cases demand "went to zero". Many of the companies saw improvement after one to two quarters, i.e., by the time of the survey they saw some improvement, and they were hopeful this would continue. However, most companies indicated that some of the drop may be permanent, and that depending on the market segment, recovery may take well into 2021 (e.g., hospitality sector). In some cases, the respondents indicated that the drop in demand from 2019 was not solely due to the pandemic, but also to losing customers due to recently imposed tariffs, which permanently hurt their export business.

In general, it appeared that respondents considered the overall demand reduction due to the pandemic as temporary with a range of timeframes, while they considered structural shifts as more permanent. Some of the temporary demand reductions became more permanent as customers started to close their doors.

In terms of customer reactions, most interaction with customers continues to take place via Zoom, Skype, or phone, with no visits and no travel. Several respondents indicated that they pretty much gave up on market forecasts and predictions for now; this means that they are reacting to the market more than they are trying to shape it. Many reported that customers stopped all capital spending, increased payment terms almost immediately, and cancelled orders or put them on hold. In some cases, the order frequencies increased with lower order sizes. In other cases, both frequencies and volume decreased. Terms typically went up in further sales discussions, and many customers took a "wait and see" approach. Time-to-sale has increased because of this, but also because customers request more information before buying; some is about technical information, as presumably needed when exploring medical textile markets, but also in general product development. Projects are taking more R&D time and effort, and product development cycle times have increased due to delays "in every aspect". As many companies considered responding to the medical textile needs that became apparent early in the pandemic, much R&D and product development work was done on behalf of customer inquiries, hoping to replace some of the missing demand.

In reacting to the drop (and shift) in demand, companies of course reacted with a change in product mix. In most cases this was a shift toward more medical textiles, especially PPE. This resulted in cross-training employees and reassigning them accordingly. At the same time, to compensate for the drop in demand, cost in all areas was cut to a minimum, which is of course identical to what the respondents experienced from their customers. These cuts in many cases led to layoffs and workforce reductions (e.g., short pay), furloughs, shift or hours reductions, and in some cases temporary shutdowns. As some companies return to more business volume, there are some adjustment issues associated with rehiring crews. Some companies considered diversification to reduce business risks, but such efforts are extremely difficult during the pandemic.

Work environment:

In terms of the work environment, all companies followed the general CDC guidelines and provided hand sanitizers, extra cleanings, required social distancing, and posted reminder signs. Most utilized work-from-home as much as possible, especially for office work. Some implemented alternate work weeks for two groups of employees, where one group works from home while the other works in the office, and then alternate in the next week. Many required facemasks as well as temperature checks and health questions before entering the buildings.

Several companies made cleaning and disinfecting supplies available for employees to take home, and most limited the use of conference room or limited the capacities of their conference rooms. Meeting were replaced by virtual meetings, mostly Zoom and Skype. Many of the companies already used the technology for meetings with offshore entities, and they now also use it domestically and within a facility. Where travel is required, many companies discourage ridesharing and limit their vehicles to one person only. Visitor groups are no longer invited, and individual visitors follow the same protocol as employees (health screening, social distancing, handwashing, and facemasks). In some cases, no visitors are allowed in the building at all, and video conferencing was used instead. Within the offices, furniture was moved around where necessary to ensure social distancing, and bathroom stalls were distanced by closing every other station.

With respect to work systems etc., some companies used the existing reporting system and frequency of communications. While most replaced in person meetings, especially team or customer/supplier meetings, with conference calls or video conferencing, several companies added additional video meetings to supplement meetings or replace missed informal interactions. IT departments were used more intensely as companies enabled or increased remote access to company systems and work-from-home arrangements, and policies on taking home computing equipment were simplified.

Reporting systems remained the same for most companies, but in some cases the frequency of reports increased, e.g., going from monthly to bi-weekly or weekly. This would be typical for any times of higher forecast uncertainty and is especially true for larger companies that are globally active.

Supply Chain Management:

In terms of supply chain management changes, most companies reported some changes early on as a reaction to supply chain interruptions like cost or availability issues. Typically, this resulted in focusing more on domestic sources. In the beginning of the pandemic, this increased the order frequencies, and more focus on domestic suppliers, but others indicated that changes to their offshore supply chain already started prior to the pandemic due to the trade war. Several companies noted that their accounts receivable increased significantly as customers stopped payments. A few companies also increased their inventory of critical raw materials or common, non-specific raw materials as a precaution when they noticed early warning signals prior to the pandemic causing supply chain disruptions. Other companies indicated that requests and sales for medical or protective products went up, causing problems in raw material procurement. Planning and forecasting became extremely difficult due raw material interruptions that led to stop-and-go production, and on the sales side due to inconsistent forecasts by government agencies.

After the initial adjustments, order frequencies and supply chains returned mostly to a pre-pandemic state, except that several companies became more cautious in terms of risk management. This included a lot of cross-training of employees to be able to faster adapt to change, developing alternate suppliers, and moving to reduce accounts receivable back to more cautious levels. Inventories and inventory policies were adjusted to the changing demand patterns, with some companies trying to reduce inventory as much as possible and using up old inventory, while others increased their minimum stock for more safety. These opposing approaches reflect the range of markets the textile industry serves. In a similar fashion, some companies utilized more global sourcing in reaction to supply chain disruptions, while others used less.

The pandemic impacted all countries and regions around the globe, however the impact differed somewhat in timing, magnitude, and reactions, i.e., in terms of how local shutdown rules etc. were applied. Global and domestic sources experienced delays and shortages, and while global activity should presumably enable early warning signals, it also created very challenging work, as rules and reactions to COVID-19 varied significantly by country. It appeared that companies that were active globally felt that there was some advantage in that, while acknowledging the extra struggles of global activities, especially when local protocols and rules were frequently changing. Companies that were primarily active domestically felt that this may have been to their advantage as well. This would indicate that pre-pandemic strategies based on a company's market and product range continued to be valued by the respondents.

Risk management approaches of companies addressed health and hygiene concerns with a focus to protect the employees, as well as the business risk, primarily through inventory rules and general decision-making approaches. Most companies stuck to their existing risk management, possibly being more cautious ("look before we leap", as one responded described it). In addition to considering alternative suppliers, a common approach to reducing supply chain risk upstream, companies also looked at broadening or diversifying their customer base to reduce risk downstream.

Organizational Changes:

In terms of organizational changes, most companies considered adjustments due to reduced staffing, including a lot of cross-training. While organizational changes were not formally initiated, there was an increase in group and team discussions. This includes more discussions across functions and business units, which is likely due to trying to coordinate corporate wide changes in response to market and cash flow adjustments.

Some organizational (while not formal) changes were made to accommodate extended sick leave, and work from home accommodations. Similarly, some changes were due to social distancing and protective shields. In line with reduced staffing, some automation steps were moved ahead of previous plans or even introduced newly. It did not appear that there were changes in succession planning or other long-term organizational changes.

General Outlook:

Overall, there were a lot of issues in companies revolving around uncertainties in the market, the raw material supply chain, attendance or sickness of employees, and with respect to official guidelines, and of course cash flow. In some cases, safety protocols, especially around social distancing, etc. were difficult to implement or enforce, and this impacts literally all aspects of a business. In addition to this, pay reductions (and furloughs) led to lower moral, which may have a long-term effect.

At the same time, companies reported increased and improved collaboration within and across departments, and between groups, companies and the industry. Having to plan through the pandemic in many cases led to better and more frequent communication, and several companies expressed that they intend to keep the more frequent communications post pandemic. Some felt that their company will come out of the pandemic stronger than it was before.

The limits of remote work became clear for jobs that entailed tools and equipment at the traditional workplace. Some felt that remote work is possible at reduced capacity, but not at full capacity. While telework had already been studied and discussed prior to the pandemic(6), the pandemic forced most companies into at least partially implementing it and thus seeing its limitations and benefits, technology needs, and organizational adjustments. Overall, the crisis forced companies to allow some flexibility in their work environment, and showed in several cases that having different arrangements for different workers can function within one organization or team. It remains to be seen if such differentiated approaches (e.g., some people working from home, some from the office) remain acceptable after the crisis passes.

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