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The Financial Crisis and Global Supply Chains

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THE FINANCIAL CRISIS WHICH erupted in 2007 has already had profound effects on the global supply chains of multinational firms and will likely permanently alter some fundamental supply relationships. This essay explores what some of the consequences have been to date and speculates about future effects. Of course, the length, scope, and severity of the financial and economic crisis will determine how significant and permanent these impacts are, and it is impossible at this point in time to forecast this accurately. But in any case there have already been major developments in global supply chains that are likely to persist after the crisis ends.

Global trade is down by a third in 2009 from 2008 (*The Economist*, 2009), and the World Trade Organization (WTO) has forecast that global trade will fall by another 10% in 2009 (Jenkins, 2009). This is a very dramatic development as world trade has been on a continuous upward trajectory for many years. As globalization has rapidly advanced in the last two decades, it has provided a mechanism through global supply chains for localized economic disturbances to rapidly become global. The result has been that most countries are experiencing some negative effects of the drop in trade, with some nations and some companies being severely impacted by it. Just about every player in the global trade machine (banks, manufacturers, suppliers, service providers, transport and shipping companies) is experiencing consequences.

One of the first results of the financial crisis was the tightening of credit that is used to finance production and inventory of firms. This was followed by a sudden fall in demand for finished goods that quickly spread back through supply chains, affecting countless numbers of suppliers throughout the world. In China alone it is estimated that 67,000 factories have gone bankrupt (Green, 2009). Increased volatility in currency and commodity markets altered the cost and risk of global sourcing arrangements. Some countries responded with protectionist measures to promote exports and discourage imports. And many countries implemented economic stimulus packages that created and altered patterns of demand and supply.

The major consequences of the financial crisis as it affects global supply chains are primarily in three areas: financing problems, logistical problems, and cost effects. Permeating all three areas are heightened uncertainty and greater risk. This is leading many buyers and suppli-

ers in global supply chains to refocus on stability and risk management, with less emphasis on cost reductions than prior to the crisis (Pisano-Ferry & Santos, 2009). These consequences and others of the financial crisis on global supply chains will be discussed in this essay.

Financing Problems in Global Supply Chains

It did not take long for the liquidity problems in the global capital markets to spill over to supply chains. Most buyers and suppliers in global supply chains are heavily dependent on their banks and the securities markets to provide them with working capital to finance production, inventories, and receivables. As the large global banks that provide trade finance experienced liquidity problems in 2008, they severely restricted credit to their corporate customers. The secondary market for trade credits also essentially dried up, further reducing funds. The trade finance gap has been estimated at \$25-550 billion (Chauffour & Farole, 2009). Even companies with good credit ratings and strong balance sheets found themselves starved for liquidity. In response many firms cut purchases, reduced inventories, and lengthened payment to their suppliers. Of course, this exacerbated the crisis as demand and production fell and the suppliers were short of funds. The speed at which orders dried up and production was cut back was startling and affected companies around the world in extended supply chains. Increasingly firms are following *just-in-time* practices in regards to inventory, so cut-backs in orders were sudden and large

“ Even companies with good credit ratings and strong balance sheets found themselves starved for liquidity. ”

with the uncertain demand environment. The *bullwhip effect* of a change in demand downstream in the supply chain being amplified as it moves upstream was clearly evident in the semiconductor industry which is global and involves hundreds of suppliers. A decline in demand for consumer electronics of 8 percent year-on-year in the US led to a fall of 20 percent in demand for chips for these products (Dvorak, 2009). This squeezed the cash flow of suppliers up and down the supply chain as everyone cut back production and tried to reduce inventories to conserve cash.

Some remedies for the financing problems of firms in global supply chains are evolving. One is for the companies with stronger balance sheets, often large MNEs that are usually the buyers, to extend financial assistance to their suppliers. This can be done in several ways including paying more quickly, making loans to suppliers, working with banks to facilitate trade finance, seeking import-export financing from government agencies, and even in a few cases taking equity stakes in suppliers (Milne, 2009a; Neville, 2008b). The suppliers themselves may factor receivables to obtain funds and seek assistance from banks and government agencies. The financial crisis threatens to reverse a recent trend towards more open-account financing in international trade. With increased counterparty risk and reduced liquidity, some firms are returning to traditional letter-of-credit trade financing (Neville, 2008a). More firms are seeking pre-shipment and inventory financing, and a few banks are providing this (Hawser, 2009).

Many firms are doing more careful financial risk assessment of their supply chain partners (Banham, 2009). This is both to prevent disruptions to their supply sources and to provide an early warning signal of potential problems. They can then determine whether to provide financial assistance or seek alternative, backup sources of supply. Few firms did this type of credit evaluation before, but the financial crisis has motivated many to undertake this activity. Cisco Systems was one of the few that previously had a program which, while designed to deal with disruptions to its supply chain due to natural and political disasters, was extended to assess the impact of the current financial crisis on its supply chain (Hoffman, 2008).

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The Group of 20, meeting in London in April 2009, realizing the importance of international trade to economic recovery, obtained a commitment from its membership to provide \$250 billion of trade assistance through import-export credit agencies and development entities. They also pledged to not increase protectionist measures, but some of the stimulus and corporate assistance programs of governments have been inherently biased toward domestic firms. Banks which have received government support have been pressured to increase their lending to local firms while stimulus programs have often contained “buy local” provisions. The long term effects on global trade of these measures remain to be seen.

Logistical Problems in Global Supply Chains

The effects on global supply chains are not only financial. Many firms that have offshored their sources of supply have experienced serious disruptions in their ability to obtain materials and products. The sudden drop in orders in developed countries spread rapidly through global supply chains, resulting in severe cutbacks in production in the multiple tiers of the supply chain. In some cases suppliers failed due to lack of financial capacity to survive the sudden fall in orders. In other cases, they cut quality or lengthened delivery times in a desperate attempt to reduce costs. Some have had difficulty funding the purchase of materials, delaying fulfillment of orders. Inventories have been cut drastically along the supply chain (i.e., *destocking*), making it difficult to replenish supplies quickly (Milne, 2008).

These problems are exacerbated to some extent by the emphasis in recent years on cost reduction in supply chains. Much of the globalization of supply chains occurred because of a search for lower costs, which led to a shift of much production to developing countries. This inevitably lengthened supply chains, increasing response time and total inventory throughout the system. Many managers adopted lean practices of keeping inventories as low as possible in their firm. This system seemed to work well when the global economy was rapidly expanding, but some of its flaws are now becoming apparent such as single sourcing and inadequate inventories (*Logistics Manager*, 2009). The overemphasis on cost reduction, and lack of concern about increasing productivity and supplier collaboration and sustainability, have contributed to some of the current problems being experienced in global supply chains (Mefford, 2009).

Firms are responding in various ways to the disruption of supply chains caused by the financial crisis. There is more concern about supplier capability, both production and financial, with closer monitoring of the supply base (Smith, 2009). Although this has not happened much yet, there may be a shortening of supply chains with fewer links and sourcing at home or closer to home. The CEO of Phillips, Gerard Kleisterlee, says that he expects large companies to move away from far-flung global supply chains for both economic and environmental reasons (Tett, 2009). Countries in Eastern Europe are likely to benefit if European MNEs shift sourcing away from Asia, while Mexico and other Latin American companies will benefit if US and Canadian firms shift to closer suppliers (Milne, 2009b). This sourcing closer to home is sometimes referred to as *nearshoring*. Some firms may even consider *in-sourcing* or vertical integration to have greater control over their supply chain. For those firms continuing to outsource, there is likely

to be more emphasis on predictability and reliability, instead of cost, in selection of suppliers (Smith, 2009).

Another likely consequence of the disruptions in global supplies will be closer coordination of the entire supply chain. This, in conjunction with better supplier selection and closer monitoring of supplier performance, will allow quicker and more accurate response to demand fluctuations and less of the bullwhip effect. The supplier too has an incentive to know more about its customers to prevent sudden cancellation of orders or payment problems. Both buyer and supplier have been incentivized to know each other better because of the financial crisis (Green, 2009). Improved information technology, especially supply chain management software and demand forecasting software, will facilitate this tighter linkage of the supply chain. However, with the current credit problems, many firms have cut back on investment, particularly IT investment, and this may hinder the desired better communication (Hoffman, 2009).

There also may be an increase in outsourcing the entire supply chain management process to a specialist firm like Li & Fung Group in Hong Kong, which can manage the whole process of procurement, production, logistics, and payment. Companies including Liz Claiborne, Talbots, Toys'R'Us, Timberland, and Sanrio are using Li & Fung to manage their supply chains; they just provide product designs and Li & Fung does the rest (Einhorn, 2009). The advantage of this approach is that it not only reduces the headaches and complexity of managing the chain but also takes advantage of the specialist firm's extensive knowledge of the supply base for an industry and its ability to quickly shift suppliers as conditions change. If the entire process is not to be outsourced, at least the logistics portion could be. Third-party logistics providers (3PLs) such as United Parcel Service (UPS) and Federal Express (FedEx) provide extensive management of the shipping process throughout the supply chain and may even provide in-transit financing in some cases (Hoffman, 2008).

A variation of the shortening of the supply chain approach is to keep the suppliers in the low cost developing markets but increase their economic viability by developing products and markets in their home countries. By increasing scale and scope and improving their financial resources, the MNE is developing their capabilities to be a more reliable supplier (Sodhi & Tang, 2009).

Cost Consequences on Supply Chains

Not all of the effect on cost has been negative in supply chains. Some commodity prices have fallen substantially since the crisis began, which lowers the cost of raw materials in the supply chain. Oil, iron ore, copper, and most agricultural products are among those commodities whose prices have fallen and are significant cost factors in many industrial products. This may be a short-lived effect but currently is beneficial to many firms. Some may choose to prudently hedge

against future commodity price fluctuation via commodity futures, options, or swaps.

Exchange rates of many developing countries have fallen vis-à-vis the US dollar since 2008, resulting in another source of cost reduction to global firms sourcing from these countries. Fluctuating exchange rates also influence the attractiveness of countries as offshoring sites, and the result may be some shifting of suppliers to countries experiencing the greatest depreciation (e.g., to Mexico or Vietnam from China). How permanent these shifts in currency values are remains to be seen but ultimately may have an impact on sourcing and investment decisions. Heightened exchange rate volatility also introduces an additional element of uncertainty into global supply chains. This may discourage some offshoring decisions as well as increase the need for hedging. Hedging against currency changes can be either operational (e.g., diversifying supplier countries or markets) or financial (e.g., currency futures, forwards and options). However, the cost of financial hedges has risen and they are more difficult to obtain for many firms due to the financial crisis (*The International Economy*, 2009)

Another cost benefit of the economic crisis has been a decrease in shipping costs. Container rates have fallen substantially along with shipping rates for other modes of transportation due to the drop in demand and thus shipping volume. This is compounded by a large increase in container ship capacity coming on line in the next few years that may result in reduced shipping costs persisting even as the global economic situation brightens.

Service Supply Chains

The last decade has seen a dramatic increase in offshoring of business processes such as call centers, software development, back-office financial services, and other support activities. How have these supply chains been impacted by the global financial crisis? To date, the answer is that they have been impacted less severely than product supply chains. Imports of business, professional, and technical services to the US were 4% higher in the first quarter of 2009 than a year earlier (*The Economist*, 2009). Why are service supply chains being less affected than product supply chains? The answer may be in the basic nature of service supply chains, which are generally shorter with fewer tiers and thus are more closely linked to final demand than product supply chains. Being shorter means less of a communication lag with a demand change and a lessened bullwhip effect. Service supply chains are often much closer to true just-in-time systems with services being rendered as the work flows in rather than in large, infrequent batches or orders (e.g., processing of credit card applications in India occurs as the applications are received). Not all service supply chains are short or JIT of course, but it appears that enough are to mitigate the effects of the financial crisis. This does not mean that they are not affected by the crisis, however. They are experienc-

ing the same shortage of credit as product chains and reduction in total business crimping their financial capacity and ability to expand. Some business process outsourcers in India are attempting to move into higher value-added, more complex IT projects that are longer-term and more stable (Srivastava & Hamm, 2009).

The Future of Global Supply Chains

Global supply chains are clearly under stress with the financial crisis. Firms involved in these supply chains are learning to adapt and adjust to the problems of liquidity and supply disruptions that have resulted. There have been some cost benefits of the crisis due to lower material and shipping costs, but the volatility of commodity prices and exchange rates has increased the uncertainty of future cost structures. Many of the consequences of these adjustments remain to work themselves out. If the crisis is short-lived then inertia is likely to set in, and many firms will revert back to their old supply chain practices.

But some more forward-thinking firms may achieve permanent improvements in their supply chains as a result of the crisis. Some of the approaches discussed above hold such promise. These include a focus on more *rapid-response* supply chains that are tightly coordinated with quick response to changes in demand, short lead times, and lean inventory throughout the chain. There will probably be less emphasis on cost and more on reliability and flexibility in designing the supply chain. The future probably also foretells supply chain partners seeking a better understanding of each other's production and financial capabilities and closer monitoring of the supply chain by the dominant partner as well as better communication facilitated by improved supply chain software. Firms also may pay more attention to hedging some of the cost risks through diversification and financial derivatives. The firms that deal with the financial crisis strategically will emerge stronger (Meyer, 2009). By positioning the firm to deal with the next crisis with a tighter, more resilient supply chain they will have enhanced their global competitiveness.

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