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The Supply Chain Manager as GLOBAL ECONOMIST

By David Bovet

*David Bovet (dbovet@norbridgeinc.com) is a partner in the management consulting firm of Norbridge, Inc. He is the co-author of **Value Nets: Breaking the Supply Chain to Unlock Hidden Profits** (John Wiley & Sons, Inc.).*

Uncertain economic times can bring great opportunity. For supply chain professionals, that opportunity lies in applying economic logic to global supply chain design and operation—or thinking like a global economist. Here's a guide to what the supply chain manager can do and how to make it happen.

We are bombarded these days with dramatic economic news: The U.S. dollar is headed south, crude oil has reached all-time highs, and our economy is in trouble. So far, 2008 feels like one of the most unsettled and unsettling economic times in years.

What is a supply chain manager to do, faced with these troubling trends and, even worse, with variability and volatility? Basically, he or she must think more like a global economist. The current external economic pressures can often lead to a single-minded focus on costs—and the supply chain manager is clearly expected to help drive operating costs down. But rather than merely reacting, this article argues that supply chain executives are uniquely positioned to take the lead in uncertain economic times. They can champion change, never more so than when the chips are down and corporate anxiety is running high.

Here is a guide to what the supply chain manager can do and how to make it happen. First, let's briefly review the tectonic economic shifts that are driving unprecedented changes in United States and worldwide business—and forcing the supply chain manager to think and act more like an economist.

Three Major Economic Shifts

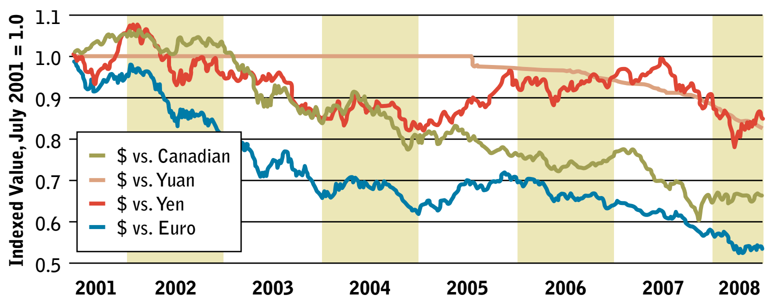
From a supply chain perspective, we can focus on three major and interrelated trends among the myriad of economic indicators: (1) plummeting U.S. dollar; (2) soaring fuel price; and (3) a slowing U.S. economy. These developments are discussed in turn below.

Plummeting U.S. Dollar

Anyone who has traveled recently to Europe is painfully aware that the U.S. dollar doesn't buy what it used to. In fact, since mid-2001 the dollar has dropped by 45 percent against the Euro. It has also declined by 15 percent against the Japanese yen and 17 percent against the Chinese Yuan (see Exhibit 1).

EXHIBIT 1

U.S. Dollar's Decline



Note: Noon buying rates.
Source: Federal Reserve Bank of New York.

Exchange rates vary, of course, when they aren't fixed as they were through 1971. And major swings have occurred before—in the 1980s, the yen nearly doubled against the dollar in three years' time (1985-1988). Still, today's levels are largely unprecedented. The Swiss franc, locked at 4.30 to the U.S. dollar during the 1950s-60s, trades today roughly at parity with the dollar. The Canadian dollar has also now reached equivalency with the U.S. unit of currency—significant because Canada remains our largest trading partner.

In addition, exchange rates are highly volatile. The value of the dollar often changes by a cent or more daily against the Euro. We know that exchange rates are more driven by interest rate differentials than by physical trade flows. And the pressures on U.S. and foreign central bankers make these differentials murky in the future. Policy makers in the U.S. have been more focused on the downside to economic growth while European authorities have been more concerned about inflation. How these outlooks will change in coming months, in particular with a new administration in the United States, will make for continued uncertainty in the foreign exchange markets.

Soaring fuel price

Energy prices are soaring. Crude oil (at $140 per barrel in early July 2008) stands at a level five times its mid-2001 price. Today's diesel price at the pump ($4.73 per gallon, US average retail, in early July 2008) is up by 64 percent just since the 2007 annual average (see Exhibit 2).

Fuel price directly impacts freight cost, of course, thus affecting the entire supply chain. Fuel surcharges are well established in most modes. For truckload (TL) and less-than-truckload (LTL) freight, as well as for rail intermodal, this is usually presented as a percentage increase (or cents per mile) tied to the weekly EIA retail diesel price. For LTL rates, the surcharge is often a percentage of the base rate per hundredweight. This year the container ocean carriers also added a fuel surcharge to most shipper contracts, after years of being the only mode without an explicit fuel price adjustment. Hardly a day goes by without an announcement by a carrier that they are raising their fuel surcharge.

Trucking, which accounts for the vast majority of transportation activity in the United States, has been severely affected. The trucking industry witnessed 935 bankruptcies during the first quarter of 2008. Independent truckers protested against high diesel prices across the country on April 1. Truckers worldwide are frustrated, as evidenced by recent protests in Spain, Portugal, Korea, Thailand, and Australia.

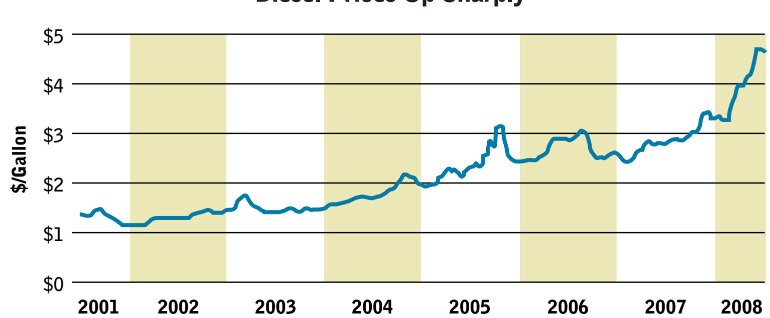
Shippers are impacted as well. Building products and other relatively low value-to-weight ratio commodities that move long distances are hurting. A food manufacturer, for example, relying heavily on domestic truckload and LTL freight for nationwide distribution is currently facing a 26 percent increase in freight budget, at July 2008 diesel prices vs. their 2007 average. This is a reversal from years of flat or declining freight rates.

Slowing U.S. Economy

The U.S. economy is also slowing dramatically. Taking the broadest measure, real GDP growth, we see a steady decline from 2004 when the economy powered ahead

EXHIBIT 2

Diesel Prices Up Sharply



Note: US No. 2 Diesel Retail Sales by All Sellers (dollars per gallon), weekly averages.
Source: US Retail Motor Gasoline and On-Highway Diesel Fuel Prices, Energy Information Administration.

by 3.6 percent in real terms, following the slowdown of 2001-02. Each year since 2004 has seen lower growth, down to an anemic 1.0 percent during the first quarter of 2008.

Overall economic weakness impacts the supply chain on many fronts. From faltering sales in many cases, to increased sales in others (discounters, for instance) and on to credit crunches and layoffs, these domestic effects are substantial. But the focus of this article is on global ramifications.

The U.S. economic slowdown, combined with weakened purchasing power due to the declining dollar, has resulted in reduced imports. U.S. imports from China, for example, have fallen off dramatically from the fast-growing trend of earlier years. The nominal dollar value of U.S. imports from China grew by an average of over 20 percent per year from 2004 to 2007; it was only 2 percent (on a year-to-year basis) during the first four months of 2008.

This is directly reflected in physical trade volumes as well. Import container volumes were down at many US ports during the first four months of 2008. These declines, generally ranging from 5 to 10 percent, represent striking changes from steady growth over the past decades.

The flip side for U.S. trade is the boom in exports. Driven by the weak dollar, manufactured exports are up sharply in the early months of 2008. Most U.S. ports are seeing strong increases in containerized exports. Year-to-date volume at Long Beach, for example, is up close to 30 percent. The increases at Los Angeles and New York are 22 percent and 19 percent respectively. One result is that the supply of empty outbound boxes is tight in places where they're most needed.

Thinking Like a Global Economist

How can a supply chain manager use these broad economic trends to advantage? By applying global economic logic to supply chain design and operation. Change creates not only pain but also opportunity—and today's tectonic shifts in the global economic landscape offer many intriguing openings for the enterprising supply chain manager.

In a nutshell, supply chain leaders can use applied economics to benefit their companies in four ways:

• Reflecting updated cost-to-serve economics in product prices for specific customer segments and locations.

• Sourcing closer to point of use, partially reversing past globalization norms, in order to reduce freight intensity.

• Exploring efficient ways to manufacture and export more from the United States, leveraging the currently weak dollar.

• Downshifting transportation modes and adding distribution locations to save fuel and reduce cost.

These strategies can form the core of a supply chain playbook that will set your company apart from the competition. Rather than merely responding to tough times, the supply chain leader can build strategic advantage through differentiated services and performance. This is a goal truly worth pursuing.

Twelve potential supply chain moves are grouped under four headings around these themes: Pricing, sourcing, making, and moving. In each case, we outline the intelligent supply chain actions to take in light of the major economic trends identified above.

Pricing

1. Set the right offer. Costs are rising, margins are squeezed, and sales are tougher to close. This is a good time to review the total offer—products wrapped with related services, including delivery, installation, and warranty. Are there specific customer segments for which we are offering too much? Can we explicitly charge for delivery in certain cases? Can we change our bracket pricing to drive ordering behavior toward slower, cheaper delivery modes? Are there other aspects of the current offer that raise supply chain costs, such as end-of-quarter spikes due to counterproductive sales force incentives? Should we review pricing and costs by channel to discern whether we are better off serving the client direct? These are analyses that take on special urgency and provide opportunity for margin gains in the current difficult economic environment.

2. Update pricing with cost-to-serve. Freight and commodity prices have been soaring. It may be time for a significant price rise. A food manufacturer we assisted recently reviewed its zone pricing system. Major fuel price increases had made the zone differentials inadequate. This led to a significant increase in product prices particularly for more distant zones. Reviewing customer cost-to-serve frequently is critical in these times—and many manufacturers are raising prices at unprecedented rates as a result. Supply chain managers should lead the charge to review pricing. Don't leave it to sales and marketing, as many of the cost impacts are best known (and first detected) by sourcing and logistics professionals.

Sourcing

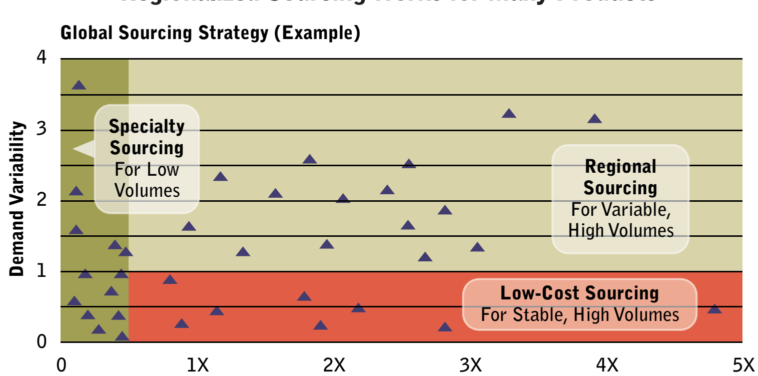
3. Balance supply and demand by world regions. Regionalization is a critical means to address fluctuating exchange rates and higher fuel costs. The idea is to minimize risk of unforeseen currency shifts by matching supply and consuming market currencies. Also, fuel costs are generally linked to distance, so a more regional sourcing strategy can yield benefits for certain products and demand profiles. Products that are in the mid-range of their lifecycle, but that still experience high demand variability, are well-suited to regional sourcing, as shown in Exhibit 3. The ability to shorten the supply chain and respond rapidly to fluctuating demand can offset lower but more distant labor costs. This is especially true when demand spikes require costly airfreight from remote manufacturing locations.

Mexico is likely to be one of the big beneficiaries of regionalization. Even before the most recent run-up in oil prices, manufacturers were beginning to compare Mexican sourcing with China for the U.S. market. A business case originally made for China on the basis of economical ocean freight to North America looks shaky when much of the volume moves by air instead. As fuel prices rise, Mexico becomes increasingly cost-competitive, particularly where labor content is relatively low. Emerson, for example, recently acknowledged that it is pulling back some production of appliance motors from Asia to Mexico, as part of its "global best cost sourcing" to drive business efficiency (See Exhibit 4).

4. Find sources closer to home. Higher fuel prices, a greener supply chain, and the weak dollar are encouraging more localized sourcing. A clear example of this is seen in the "locavore" movement, whose proponents typically aim to consume food grown within 100 miles of home for sustainability and philosophical reasons. But expensive trucking drives change from a purely economic perspective as well. Recently, a 170-acre farm in Bowdoinham, Maine, began shipping organic vegetables to the Boston market. At a distance to market of only 144 miles vs. 3,000 from California, Locally Known can sell five ounces of its mesclun at Whole Foods in Boston for a dollar less than the equivalent California-sourced product.

EXHIBIT 3

Regionalized Sourcing Works for Many Products



Retailers are beginning to tout the virtues of other U.S.-made products as well. Room & Board, an upscale furniture store, devoted a two-page spread in its latest catalog to the theme, "Close to home—furniture made in your own backyard." Craftmaster Furniture, sold two years ago to Chinese owners, stopped offshoring more production to China as Chinese wages and currency rose, making continued U.S. production more attractive.

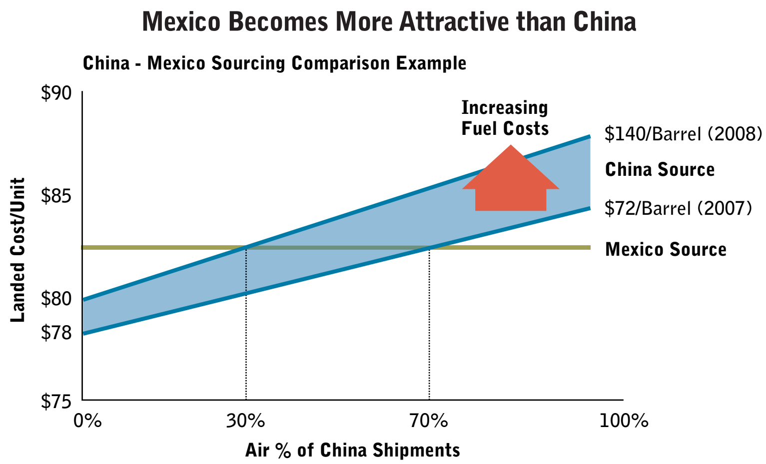
5. Seek situations where "farshoring" still works. International sourcing still makes sense in many situations. But the sources are shifting, reflecting wage increases and exchange rate shifts that impact attractiveness. U.S. footwear imports, for instance, are now growing at a faster rate from Vietnam than from China, while Brazilian shoe imports are declining. Many mid-sized companies have yet to exploit lower-cost sources for products with steady demand and relatively high labor content. In a project for an airline, as an example, we found that onboard food service items (cups, trays, tablecloths, porcelain) could be sourced from China with delivered savings of over 25 percent. In several cases, the goods were already being sourced from China but via American distributors who were not passing on the full benefits of the low-cost source.

6. Mitigate commodity and exchange risk rate. Fuel is the most obvious commodity for which to consider hedging, but the approach can be valid for other commodities as well as for currencies. Of course, timing is crucial. Southwest Airlines is a great example of a company that got it right and acted aggressively. Southwest hedged its jet fuel buy to a far greater extent than its competitors. As of late 2007, the airline had hedged 70 percent of its fuel needs through 2008 at an attractive price cap of $51 per barrel. Other airlines were way behind Southwest's lead, at 14 percent for American, 10 percent for Continental, and zero for United. You needn't be a giant corporation to hedge against commodity price increases. But don't leave it solely to the CFO—supply chain and sourcing executives are often the best placed to raise the issue, do the research, and act on this critical issue.

Making

7. Maximize plant utilization. For manufacturers, weaker demand and higher input costs mean re-examining production economics. If plant utilization has declined, choices include taking on work for others to better use installed capacity, downsizing to small-

EXHIBIT 4



er (and more modern) facilities, or selling plant and equipment in order to outsource. These make-or-buy decisions become more critical in a difficult economy. Newspapers, for example, have seen their circulation drop sharply in recent years. In light of this trend and underutilized facilities, the Boston Herald announced in June 2008 that it would close its printing plant in Boston and outsource production to a Dow Jones Co. plant in Chicopee, Mass. The fact that the printing plant occupied six acres of prime real estate in Boston's South End was a further impetus to close the facility and extract the real estate value of the site.

8. Move closer to market. Adding a plant or a co-packer closer to the major markets makes sense, given higher fuel costs—as long as scale economies are respected. Network modeling for a food manufacturer selling nationally showed that no amount of distribution tweaking could generate the freight savings that a second plant, on the opposite coast, could produce. With the era of cheap transportation at an end, plants aimed at serving different parts of the United States can be economically justified far more easily than five years ago. We can expect to see an increase in manufacturing plants in America and at smaller scales than before, particularly for lower value-to-weight products that don't travel well. A case in point is the wood furniture plant opened by IKEA's manufacturing subsidiary in Danville, Va., in May. This is IKEA's first U.S. plant and it reflects the favorable delivered cost of U.S. manufacturing to serve the company's growing base of U.S. stores.

9. Export to growing markets. Has the United States become a low-cost country? Judging by foreigners' eagerness to travel to the U.S., shop in the U.S., acquire U.S. companies and buy our exports, the answer is yes, at least relative to many other places. Automobiles are a prime example. The traditional Big 3 are ramping up their exports: Chrysler is shifting production from Europe to the United States, while General Motors plans to export from the U.S. to Europe, Latin America, and China. BMW is boosting its production of the X3 premium SUV in South Carolina, much of which is aimed at European markets.

Other manufactured products are flying abroad at a rapid pace. Caterpillar's sales in this year's first quarter jumped 30 percent outside of North America (vs. only 4 percent inside the region) and accounted for 58 percent of total sales. Evergreen Solar, a fast-growing manufacturer of wafer technology-based solar panels, has built a new plant in Devens, Mass., in large part based on booming exports to Germany.

Agricultural products are also being exported at record levels. In addition to traditional bulk exports of grain, Midwesterners are stuffing empty containers with bulk soybeans, corn, and ethanol byproducts for shipping to Asia. Major markets there include Taiwan, China, Japan, Korea, and Vietnam. North Star Rail Intermodal, for example, has gone from initial startup in the spring of 2007 to shipments of 400 grain-filled containers per week, out of western Minnesota and other parts of the Midwest.

As long as the United States remains cheap and the rest of the world grows more rapidly than we do, opportunities will exist for increased exports. The supply chain manager should be the first to suggest an export focus and the one to explain how this can be done efficiently and economically.

Moving

10. Move freight more slowly and cheaply by downshifting modes. Slowing down the movement of freight is a rational economic response to higher fuel prices. Rail, for example, is roughly three times as fuel efficient as truck, while barge is about four times as efficient as truck. Typical downshifting involves moving more Asian imports via all-water service to the East Coast rather than via West Coast ports and intermodal service. In fact, intermodal container volumes are down slightly in the U.S. in 2008 to date after decades of strong growth, according to the Intermodal Association of North America (IANA). Meanwhile, Savannah's import volumes are up, reflecting its strong role as the first stop for many Asian all-water services transiting the

Panama Canal. The all-water route will become even more attractive in 2014, when the maximum vessel size via the canal will rise from 4,500 to 14,000 TEUs.

We are also witnessing an historic reversal of modal growth rates between rail and truck (see Exhibit 5). After decades of truck volume growth at the expense of rail, we are now seeing an absolute reduction of truck tonnage and a widening gap with rail volumes. This reflects the fuel and economic efficiency of rail as well as other factors. Within rail, carload volumes are rising even as intermodal declines. (See Exhibit 5)

11. Get closer to customers with more DCs. The optimal network equilibrium between cost and service shifts with higher fuel cost. Many U.S. distribution networks were designed and implemented five or ten years ago when fuel was one-fifth its current level. The new tradeoff favors more distribution centers in order to partially offset the new, higher fuel charges embedded in transport costs.

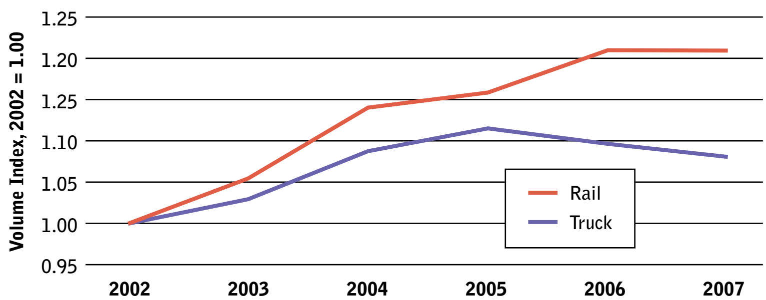
Overall, if the "old" optimum called for five warehouses across the country, the "new" optimum expands to seven or eight DCs. This has many ramifications. We are likely to see an end to the historical downward trend in the inventory-to-sales ratio in the United States (which has declined by 14 percent from 2001 to 2008), as manufacturers add DCs to get closer to their customers. We will see more DCs in secondary markets or less-traditional locations in order to minimize outbound transportation costs (which are typically the highest-cost mode in the system).

Supply chain managers should take the current opportunity to dust off their network models, re-optimize the number and location of DCs, and then put warehousing and transportation out to bid. Weakness in the trucking sector makes this a good time for RFPs, and new rates will be needed in any case if additional DC locations are added.

12. Create a more flexible distribution network. While no one can predict the future accurately, we can be confident that more change lies ahead. Thus, whatever changes are made to supply net-

EXHIBIT 5

Rail Rolls While Truck Declines



Source: Rail tonnage based on DOT (BTS) revenue ton-miles, truck tonnage based on ATA truck tonnage index.

works, globally and domestically, and to transportation modes and nodes, flexibility must be designed into the system. Supply chain managers can take the lead here by promoting solutions that are inherently adaptable and scalable. Flow control on both the Asian end and at West Coast port gateways can add dynamic routing options to import volumes. Importers can transload and redirect freight once it hits Los Angeles/Long Beach to a DC that is running short of inventory. Loads can be expedited by team-driver trucks in place of intermodal in case of need. And routing tools (for example, GT Nexus) can be used to track international flows and flag movements that need attention or re-routing.

The capability to rapidly slot new product sources into a global supply network will be a key differentiator for many companies in coming years. As soon as one optimization is complete, something else will require additional changes. Adaptability—of people and tools—is now critically important to supply chain managers.

Making it Happen: The Enablers

Thinking like a global economist, or applying the lessons of global economic shifts to a company's supply chain, is the essential starting point for today's supply chain manager. How to make change happen is crucial as well.

To make it happen, the supply chain manager needs an agenda and the right resources. Here is a simple checklist of key enablers that will allow the enlightened supply chain executive to realize the promise of effective global economic thinking.

• *Build a pipeline of initiatives.* Review the 12 actions outlined above and create a coherent pipeline of short- and longer-term initiatives that will take out cost and build performance and flexibility into the supply chain.

• *Gain analytical insights.* Build an internal analytical team, as Limited Brands did when it created its Supply Chain Solutions Center three years ago. Or use consultants. Identifying the right moves for your company at this inflection point in the economic environment must be based on sound analysis of the situation and a wide range of alternatives.

• *Acquire the right tools.* Research and buy the practical tools you need to manage a far-flung and fast-changing supply network. These can range from full supply chain planning and execution suites (for example, i2 Technologies or SAP), to specific tools that create supply chain visibility (such as Kinaxis or E2open), or custom models to choose routing of each truckload of finished goods (direct ship to customer or via regional warehouse).

• *Integrate the supply chain organization.* Extend supply chain's reach so that end-to-end integration becomes a reality. Ideally, the supply chain should include sourcing, manufacturing, logistics, and customer service. Too many companies today still lack this fundamental horizontal view that's needed to serve customers well with the least operating cost and inventory.

• *Name a Chief Global Officer.* Companies should consider appointing someone who focuses on key aspects of global management—from marketing to supply and human resources. U.S. firms in particular can benefit from greater emphasis on opportunities that do not necessarily begin or end at home. Cisco recently appointed a chief globalization officer. Think about it.

• *Stimulate innovative thinking.* Find ways to be pushed toward out-of-the-box solutions. Try attending a new conference this year, maybe one in Shanghai, Singapore, or Mumbai. Launch an innovation program in your department aimed at getting everyone to air their good ideas, then winnow them down and feed the best into your initiatives pipeline.

• *Brush up your global economic skills.* Consider one of the many seminars offered on global supply chain management, global sourcing, world trade or doing business in China. Read *The Economist* magazine.

Nothing will impact supply chain executives more in coming years than the broad economic changes currently sweeping the globe. For supply chain professionals to play their role at full potential, global economic thinking is essential. The right direction and resources can turn these thoughts into successful reality.