EQUIPMENT LEASING & FINANCE
FOUNDATION
Your Eye On The Future

2009-2013
Transportation Outlook Series:
Marine Equipment Finance Market

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Table of Contents

I. PREFACE 3
A. PURPOSE OF THIS STUDY 3
B. PRIMARY AND SECONDARY INFORMATION SOURCES 3

II. EXECUTIVE SUMMARY 5

III. GENERAL TRENDS IN MARINE LEASING AND FINANCING 7
A. CURRENT CONDITIONS 7
B. CREDIT CRISIS 7
C. RISK MANAGEMENT 8
D. IMPACT OF OPA 90 9
E. MOTIVATIONS TO REPLACE MARINE EQUIPMENT 9
i. Residual Values 9
ii. Age of Fleet 10
a. Ocean-going and Lake Vessels 10
b. Coastal and Inland Waterways Vessels 11
iii. Fuel Price 12
F. SUMMARY 12

IV. MACROECONOMIC ENVIRONMENT 12
A. OUTLOOK 12
B. ECONOMIC GROWTH 13
C. LABOR MARKETS 13
D. INFLATION 14
E. EXTERNAL SECTOR 14
F. ECONOMIC POLICY 15

V. OUTLOOK FOR MAJOR MARINE AND COMMODITIES MARKETS 15
A. GENERAL FREIGHT OUTLOOK 15
B. KEY MARINE COMMODITIES MARKETS 16
i. Coal 16

ii. Agricultural Commodities 17
iii. Nonmetallic Minerals 18
iv. Manufactured Goods 18
v. Lumber and Wood Products 19
vi. Paper and Paper Products 20
vii. Chemicals 20
viii. Plastic Pellets 22
ix. Cement 22
x. Steel Mills 22
xi. Steel Scrap 22
xii. Motor Vehicles 22
xiii. Motor Vehicle Parts 22
xiv. Petroleum 22
xv. Natural Gas 23
C. KEY MARINE MARKET OUTLOOKS 24
i. International Shipping Outlook 24
a. Global Container Trade 24
ii. Coastal Shipping Outlook 25
a. The Gulf Region 25
b. North Pacific 25
c. South Pacific 26
d. North Atlantic 26
e. South Atlantic 27
iii. Great Lakes Shipping Outlook 27
iv. Inland Shipping Outlook 28

VI. CONCLUSION 28

VII. APPENDIX 29

RESEARCH STEERING COMMITTEE 31

I. Preface

Purpose of This Study

The Equipment Leasing & Finance Foundation commissioned a series of reports on the equipment finance outlook within the transportation segment. IHS Global Insight was selected to conduct the research. This, the fourth of those reports, provides an outlook on marine equipment supply and demand, offers a review of the current situation and an analysis of future trends, and provides insight into those aspects of the leasing and financing industry affecting and affected by this market.

In preparing this report IHS Global Insight utilized its pre-existing expertise in analyzing and forecasting drivers of marine equipment. In addition, broad knowledge of the macroeconomic environment and of the various markets crucial to the marine industry provided a foundation for the report.

Primary and Secondary Information Sources

Information used in this outlook comes from several sources:

- United States Census Bureau
- United States Energy Information Administration
- United States Federal Reserve Board
- United States Department of Transportation Publications
- Information provided by the United States Army Corps of Engineers and the U.S. Department of Transportation Maritime Administration
- Reports and analysis from media sources
- Congressional testimony records
- Interviews with ELFA members

II. Executive Summary

- After several years of rampant growth and investment, the marine industry is currently standing by and waiting out the 2008-09 economic slowdown.

- The current credit crunch could prove beneficial to the marine industry by preventing an oversupply situation. Ship owners and operators will have the opportunity to right-size fleets after several years of frenzied expansion activity.

- The collective flight to safety in the current uncertain marketplace, coupled with massive previous losses stemming from the financial fallout, has made lenders very resistant to issuing new financing and letters of credit.

- With capital scarce, lenders are in a position to dictate more restrictive terms and higher rates than borrowers are accustomed to seeing.

- The number of financial institutions to which the marine industry can turn for additional funding has shrunk, given major consolidation in the banking industry and higher capital reserve requirements at lending institutions.

- International shipping has been hurt the most from the global recession. Worldwide consumer demand is declining, and shippers are hard-pressed to obtain letters of credit to move cargo from origin to destination.

- Shippers raced to scrap their older vessels while iron and steel prices were on the rise in 2007 and most of 2008. Now, when traffic has slowed and the industry is suffering from excess capacity, ship breakers have a full inventory.

- Heading into 2009, the U.S. and world economies are in steep decline in what is the most severe synchronized downturn in recent times. Monetary and fiscal policies are loosening around the world, but they are battling extremely tight credit and will take some time to become effective.

- Overall, U.S. real GDP is expected to contract 2.5 percent in 2009. The first half of the year will be see negative growth and the second half only anemic positive growth, which would put the length of the current recession between 18 and 24 months.

- Declining consumer, housing and export demand, coupled with tighter credit, will make businesses retrench on capital spending. In 2009, equipment spending is projected to drop 14.6 percent.

- Private nonresidential construction had helped to cushion the blow from the rapidly deteriorating residential construction market. However, the availability of financing for commercial real estate has tightened sharply, and the final buttress for the construction sector will collapse in 2009. The segment's decline will be a further drag on transport of steel, nonmetallic minerals, and other construction materials.

- According to the latest 2007 estimates by the U.S. Department of Transportation Maritime Administration, total U.S. waterborne commerce is estimated to be 2.3 billion metric tons per year, of which approximately 40 percent is domestic freight. Coastwise freight carriage amounts to roughly 185 million metric tons, or 7.9 percent of total waterborne tonnage.

- Domestic waterborne tonnage is estimated to have to fallen 2.8 percent in 2008, with petroleum, industrial and construction commodities, and manufactured goods experiencing the worst declines.

- Coal production and exports, construction materials, petroleum, chemicals, and industrial commodities are expected to encounter rough water in 2009, and domestic waterborne tonnage will fall another 3.2 percent before rebounding to 0.7 percent in 2010 and 2.5 percent per year from 2011-2013.

III. General Trends in Marine Leasing and Financing

Many operators in the shipping industry are struggling to survive. The recession which officially began in December 2007 will be a lengthy one with repercussions well into 2010. It will cause a general review of strategies, and it will most certainly see a number of firms disappear or be taken over. Consolidation will be a positive outcome, and as assets depreciate, opportunities abound for new investors who have an interest in shipping. Not all is gloomy, however, and there will be an end to the recession. Many opportunities will come of the current situation, and those with new models and better technology will emerge on top. Pressure on shipyards will be phenomenal. They will most likely be forced to reduce prices for existing orders, as their costs have tumbled. Future orders will be cheap as competition becomes fierce. Financing deals will abound in good time. There is much to worry about that threatens the marine industry in the near-term, but one must be positive and look forward to the new opportunities that will present themselves in the coming years.

A. Current Conditions

Global ship orders reached 10,000 in August 2008, and the current backlog for new builds stands at nearly three years.[1] Long lag times between new orders and deliveries create a relatively inelastic supply situation in the marine vessel market. Through the middle of 2008, robust demand for waterborne shipping led many shippers to expand fleet capacity by extending the useful lives of older ships, adding larger capacity vessels, and ordering new vessels. When financial institutions began to crumble in September 2008, credit markets seized up, liquidity froze, and shippers struggled to secure letters of credit for shipments. The credit squeeze has resulted in a drastic reduction in freight loads and overcapacity in many markets.

The post-September 11th hiccup notwithstanding, global economic growth has been very steady over the last decade, leading to robust expansion in the flow of international goods. Waterways in the United States currently carry more than 2.3 billion metric tons of domestic and foreign freight each year.[2] Total U.S. waterborne tonnage has increased close to 9 percent since 2000. In 2000, international freight represented nearly 55 percent of total waterborne tonnage; by 2007, the percentage of foreign tonnage had risen to approximately 60 percent. Now, as the world economy slumps, the marine industry is experiencing a downturn. The U.S. recession, which officially began in December 2007, has sharply curtailed consumer spending and demand. Commodity prices and freight rates, which had risen to unprecedented levels during the first half of 2008, plummeted as the year drew to a close.

Economic conditions were further exacerbated by the collapse of the financial sector in September 2008. The ensuing credit squeeze froze liquidity and severely limited any access to financial capital. The near cessation of credit has slowed the international and domestic flow of goods. Banks are afraid to issue letters of credit, which are bank-backed payment guarantees and without which shipments cannot be made. International marine shipping has been hit the hardest by the current recession. The combined effects of deteriorating economic conditions have severely curbed shipping. Reduced domestic demand in the U.S. means that import traffic is much lighter, and U.S. export traffic has not been immune to current decline, as the general U.S. economic malaise has seeped into the global economy.

B. Credit Crisis

With the collapse of major financial institutions, such as Lehman Brothers, Bear Stearns, and AIG, in the fall of 2008 a blanket of mistrust enshrouded the entire financial system. No one knew where to turn, and credit conditions, which had tightened considerably as a result of the subprime mortgage crisis that first hit in late 2007, evaporated almost completely. Marine leasing and financing activity had been very liquid until the second quarter of 2008, but the credit crunch brought the period of easy money to an abrupt end. Banks and other marine financing companies—many already suf-

[1] "Credit Crisis Threatens Shipowners and Yards." *Marine Talk*. October 16, 2008
[2] U.S. Army Corps of Engineers

fering massive capital losses owing to bad debt stemming from the bursting of the housing bubble and the ensuing rise in credit defaults and delinquencies—have much less available capital to dole out, and further consolidation of the banking industry following the financial fallout means that there are less sources of capital to which the growing pool of applicants can turn. Where they can be found, finance deals are lender-friendly and contain more restrictive terms and higher rates than those to which the borrower has been accustomed.[3]

The credit crunch could prove beneficial in preventing an oversupply situation. Lack of available capital will greatly impact order books, which remain robust after several years of rapid growth. New orders are generally placed at the height of the business cycle, but the combination of the economic recession and the credit squeeze will make it difficult for ship owners to raise the necessary funds to pay for new deliveries. Ordering activity has already fallen off considerably due to difficulty in obtaining financing. As of yet, there have been no known cancelations, but the specter of cancelations continues to hover. Banks are scaling back on financing during the present period of uncertainty. According to Tobias Backer, head of shipping for the Americas at Fortis:[4]

> "A year ago, banks would finance as much as 80 percent of an order with twelve- to fifteen-month loan terms. Now, financing generally does not exceed 65 percent, and terms are ten years or less."

Banks are also unwilling to issues letters of credit, which facilitate the transport of goods from one place to another. The collective flight to safety is such that all potential loans are viewed through the lens of default. Without letters of credit, shippers will struggle to move all of the cargo that is currently sitting at docks or warehouses[5]. Thus, while demand is generally diminished owing to the economic slowdown, the credit squeeze further constrains shipping flows and gives a distorted snapshot of overall demand in the current market. In the mean time, shippers and shipyards are trying to right-size fleet capacity by cutting back on new orders and stacking older vessels.

C. Risk Management

Faltering confidence fanned the flame of uncertainty in an industry already in midst of a transitioning risk management paradigm. The implementation of the Basel II Accords and the recent financial crisis are forcing lenders of all shapes and sizes to carefully assess new and existing relationships. Compliance with Basel II will require more sophisticated risk calculation techniques and, potentially, higher reserve requirements. Uncertainty in the current market will lead to more pessimistic assessments of default risk, and leverage leasing, which is already losing favor in the industry, will continues to diminish in volume. For borrowers and lessees, the consequence will be fewer lenders, less available financing, and shorter and stricter terms.

The Basel II Accord, initially released in the European Union in 2004, modifies the existing Basel Accord to better capture the nuances in calculating risk. In the original accord, bank exposure to risk was determined by diversification of investments across groups, but the individual elements within these groups were not tracked. The new framework would adapt to improvements in risk management models developed since the first accord was implemented and would require careful analysis into each existing and potential borrower. Capital requirements at each lending institution would be determined by the institution's portfolio exposure to credit and operational risk. A natural consequence of these new risk assessment models is twofold. For lenders, applications will be viewed with greater scrutiny, as the impact on capital requirements will be contingent on the potential loss given default. For borrowers, there is a push to divert risk away from their own balance sheet so as to paint a brighter picture of their operational solvency. In terms of marine leasing, the combination has evolved into a growing trend toward sale-leaseback agreements,[6] in which a ship owner sells his vessel to a third party who promptly leases the vessel back to the ship owner. This serves to shift responsibility off the ship owner's balance sheet and at the same time generate cash flow—both of

[3]ELFA member interview
[4]Zeranski, Todd. "Ship Order Cancellations Propel Freight Cost Surge." *The Business Times*. May 13, 2008
[5]Stueck, Wendy. "The Shipping Blues; Shoppers will likely find fewer bargains on shelves as the global financial crisis takes its toll on the flow of goods." *The Globe and Mail*. November 7, 2008
[6]ELFA member interviews

which improves the look of the ship owner's operational risk.

Consolidation in the banking industry has been ubiquitous over the past decade or so. The latest financial upheaval jumpstarted a new round of bank mergers. This time it was among the colossuses of the industry. The mergers of Wells Fargo and Wachovia, Bank of America and Merrill Lynch, and JPMorgan and Washington Mutual among others created mega-giants in the world of finance. The formation of these mega-giants suggests that borrowers will have fewer sources of funding. Larger financial institutions will have to comply with new capital requirement standards. Smaller lenders may not be able to meet capital requirements or offer as many products as their now even larger competitors. Newer or smaller companies with less-established credit may be hard-pressed to secure finance deals. Larger, investment-grade firms can still obtain loans, but terms will be tighter than they have been previously.

Given the economic ambiguity in the marine market, the natural tenure of loan and lease agreements has shortened.[7] Widespread risk aversion has made leverage leasing unattractive. The unguaranteed residual value of the marine vessel under a leverage lease carries higher risk under the new risk management model. Further, in the event of a default, the lender's only recourse is repossession of the financed vessel.[8] Depending on market conditions, the value of the marine vessel may not be enough to recoup the debt encumbered, and the risk of such a loss is even greater in these uncertain economic times.

D. Impact of OPA 90

Appetite for marine leasing, particularly of liquid bulk vessels, waned in the wake of the Exxon Valdez oil spill near the Alaskan coast in 1989. The environment disaster prompted the U.S. Congress to draft and pass the Oil Pollution Act of 1990, or OPA 90. The basic implication of OPA 90 was simple: the polluter pays. What this piece of legislation neglects to define is precisely who the polluter is and what he must pay. With the burden of responsibility unclear, OPA 90 set up a liability structure that deterred leasing as a form of ship finance throughout the 1990s and into the early 2000s. Marine leasing was resuscitated with the passage of the Coast Guard and Maritime Transportation Act of 2004. The new bill provides a safe harbor for lenders and lessors, who do not have actual operational control of the vessel and shifts some responsibility away from someone who is financially responsible for the vessel but has no say in how or by whom the vessel is operated.[9] Thus, the new bill gave shape to the previously nebulous definition of "polluter" and reduced the risk of substantial losses for the lender and lessor.

E. Motivations to Replace Marine Equipment

i. Residual Values

Fueling the banks' reluctance to lend is the sharp tumble in marine vessel values. Rising commodities prices—particularly of iron and steel, high demand for waterborne shipping, and record freight rates sent vessel values soaring in 2007 and for the better part of 2008. Then just as suddenly, steel prices peaked during the second quarter of 2008 at nearly $500 per long ton. Since then, prices have plummeted and stood below $150 per long ton in the fourth quarter. Freight rates fell precipitously from late-summer highs. The combination contributed to a rapid decline in values. For instance, ocean-going freight ships that had been selling for $35 million during the height of the cycle are now selling at $15 million.[10] Such volatility does not inspire investor confidence. Even though values will eventually bounce back, from an asset valuation standpoint, investment at present is risky.

The most influential driver of marine vessel residual values is the price of scrap. Steel scrap prices in 2008 jumped 54 percent compared to 2007. While metal prices were steadily rising, ship owners were racing to scrap retirement age vessels, particularly hopper barges. Shippers had kept older vessels in the water when demand for waterborne shipping was high to expand existing fleet capacity. Now that demand has fallen off, vessels that have already reached the end of their useful lives and vessels now reaching that age are exiting the marine market at the same time. Declining metal prices and growing supply in the used vessel

[7]ELFA member interviews
[8]The Basel II Accord: What Does It Mean for the North American Leasing Market?", ELFA, 2003
[9]Oxton, Glen T. "The New Lender—Lessor Safe Harbor under OPA 90—Five Things You Need to Know". Blank & Rome, LLP. *Mainbrace*. June 2005
[10]ELFA member interview

market are suppressing residual values. Also, at present, ship breakers have a full inventory,[11] which does not benefit the current market downturn, as the scrap market will not be able to absorb any more excess supply. Prices and values will continue to moderate as costs and demand wane. In the interim, some vessel markets will be impacted more so than others.

ii. Age of Fleet

The U.S.-owned marine fleet consists of more than 38,000 coastal and internal waterways vessels, 652 offshore supply vessels, and 662 ocean-going and lakewise vessels.[12] Offshore vessels are the youngest among the total U.S.-owned fleet with nearly 40 percent of the fleet built after 1997. Of the more than 38,000 coastal and waterways vessels, approximately half were built before 1983. More than one-quarter of ocean-going and lakewise vessels were also built before 1983; however, this proportion is heavily skewed by the aging Jones Act ocean-going and lakewise fleet, of which 66 percent are greater than 25 years of age. The newest additions to the general fleet are the double-hulled tank vessels, which were produced at a faster clip after the passage of the Oil Pollution Act of 1990.

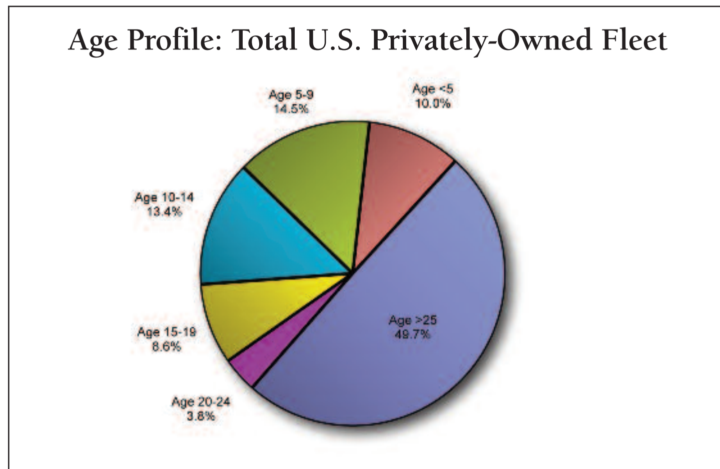

Figure 1: From U.S. Department of Transportation Maritime Administration (MARAD), 2007

a. Ocean-going and Lake Vessels

Ocean-going and lakewise vessels comprise a small fragment of the total U.S.-owned fleet. Of those, about one-quarter are Jones Act vessels, which are U.S.-built and sail under a U.S. flag. Since 2002, the size of the aging Jones Act fleet has decreased by more than 15 percent, largely owing to mass retirement or revamping of the single-hulled liquid tanker fleet. Sixty-six percent of the roughly 150-vessel Jones fleet was assembled prior to 1983 in contrast to 28 percent of the overall U.S.-owned fleet. Dry bulk carriers are the oldest among the Jones Act fleet, with none built since 1988.[13] Lake vessels, because they spend most of their lives in the freshwater of the Great Lakes and have long lay-ups every winter, are longer-lived than ocean-going counterparts.

The economic slowdown has hurt the global shipping industry the most. Lack of freight, resulting from a combination of lack of credit and sliding demand, has led shippers to pull vessels out of the water completely. The consequence has been overcapacity around the world. However, the news may not be so bad for the Jones Act fleet, and the vessels' old age could prove to be an advantage for ship owners given current conditions. As of 2007 year-end, there were 21 Jones Act vessels—all of them liquid tankers—on order with delivery expected by 2011, and the current Jones Act fleet contains 96 vessels that are more than 25 years-old. Excess shipping capacity could incentivize shippers to retire a greater portion of their Jones Act fleet, but as there are more retirement-aged vessels than new vessels expected to come online, overcapacity should not be as much of a concern.

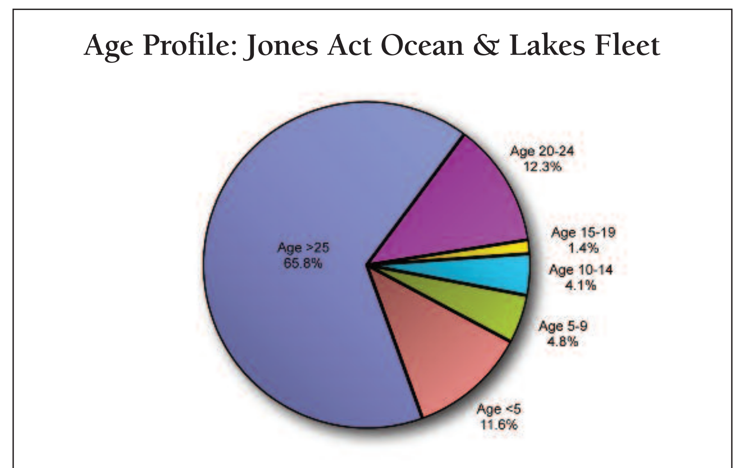

Figure 2: From MARAD

[11] ELFA member interview
[12] *U.S. Water Transportation Statistical Snapshot*. pp. 12, U.S. Department of Transportation Maritime Administration. May 2008
[13] *U.S. Water Transportation Statistical Snapshot*. pp. 14, U.S. Department of Transportation Maritime Administration. May 2008

b. Coastal and Inland Waterways Vessels

U.S.-owned vessels operating in coastal and inland waterways total above 38,000, of which nearly three-quarters are dry bulk barges. Towboats comprise another 15 percent, and tankers make up the rest. The size of the fleet has remained relatively the same since 2002.[14] Similar to the ocean-going and lakewise fleet, the largest addition to the coastal and inland waterways fleet has been the influx of double-hulled tankers to replace existing single-hulled ones. The oldest members of the coastal and inland fleet are the towboats, of which nearly 80 percent were produced before 1983 and only 11 percent since 1998. Again, the age of the fleet may be beneficial in alleviating potential overcapacity, because the number of retirements in the fleet still exceeds the number of new builds.

Demand for coastal and inland vessels will soften as the economy trudges along but most likely will not collapse. Particularly for the inland fleet, there has been no sign of overbuilding. Some ship buyers have decided not to exercise purchase options on their original contracts as a result of the weakened economy. These options, however, have generally been picked up by other buyers,[15] indicating that demand still exists and is holding steady in the coastal and inland markets. New orders, or the lack thereof, do betray weakness in the market. On the other hand, the economy is in a transition period, and the marine industry is known to sit idle during times of change.

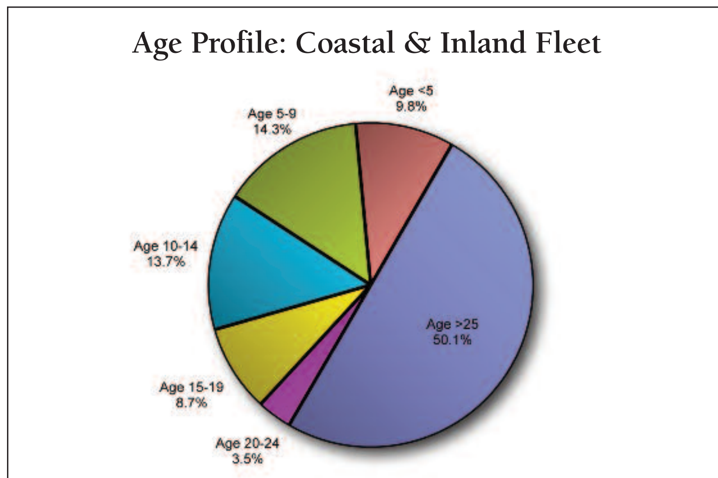

Figure 3: From MARAD

iii. Fuel Price

Using the rapid rise and equally steep fall in oil prices during 2007 and 2008 as an example, it is clear that fuel costs have a tremendous impact on how shipments are transported. One operational change stemming from record-high fuel prices has been speed. Some shippers switched to slow steaming, or operating ships for an extended period of time at slower speeds, in an effort to conserve fuel and thus reduce fuel cost. Shipping companies are also opting to operate larger vessel with less frequency than several smaller vessels with greater frequency.[16] The preference for large vessels has boosted the popularity and use of new super-Panamax container vessels, which hold up to 12,000 TEU, or twenty-foot equivalent units, for international trade.

Oil prices in 2007 and 2008 were undoubtedly volatile. Although waterborne shipping is much more fuel-efficient than trucking, the marine industry has not made the same strides as rail in terms of energy use per ton-mile. The energy intensity of rail transport has steadily declined since 1970, improving more than 51 percent while the energy intensity of water transport has improved only 5.7 percent. Further, since 1995, water transport has actually become 37.4 percent more energy intensive. Recent experience with volatile fuel prices should promote a stronger focus on developing more fuel-efficient propulsion systems.

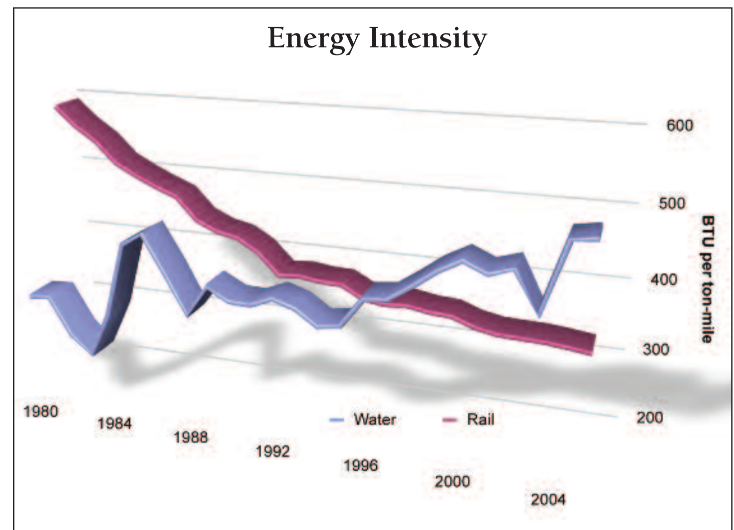

Figure 4: Transportation Energy Data Book (June 2008), U.S. Department of Energy

[14] *U.S. Water Transportation Statistical Snapshot*. pp. 13, U.S. Department of Transportation Maritime Administration. May 2008
[15] ELFA member interviews
[16] ELFA member interviews

F. Summary

The shipping industry is being squeezed by a combination of forces. Most significantly, international trade has deeply suffered. The U.S. economic slowdown reduced domestic demand and cut down import traffic, and as the recession spread globally, exports—the lone bright spot in the U.S. economy—began to drop off as well. In the face of uncertainty, banks are reluctant to offer financing or to issue letters of credit, which facilitate the transport of goods. Cargo and ships both sat idle at ports, resulting in lack of freight and creating an overcapacity situation in the marine market. Though weaker, coastal and inland waterborne commerce did not fully collapse. The drop in demand allowed shipping companies to lay up aging equipment, which comprise a higher percentage of the U.S. Jones Act fleet than of the total fleet sailing under a U.S. flag.

Declining vessel values were also detrimental to all ship owners. The price of scrap fell precipitously during the final quarter of 2008, and ship owners held on their retirement-aged vessels. Much lower iron and steel prices meant that owners would not easily recoup the value of the vessel. Further, a large number of vessels were scrapped when prices were near their highs, and ship breakers currently have a full inventory. While demand remains low and ship breakers' inventories remain full, ship owners will have to adjust by laying up extra vessels now and concentrate on right-sizing and optimizing their fleets for future operation.

IV. Macroeconomic Environment

A. Outlook

As we enter 2009, the U.S. and global economies are in steep decline, in what is the most severe synchronized global downturn of recent times. Monetary and fiscal policies are loosening around the world to varying degrees—most aggressively in the United States—but they are battling against an extreme credit crunch, and will take time to become effective. Combined with the Fed's vigorous easing, fiscal stimulus should help to stabilize the U.S. economy in the second half of 2009. One year from now, we will probably be able to look forward to 2010 with solid hope for a resumption of global growth. But first we have to get through 2009, which will likely see the first decline in world real GDP in the postwar era.

All cylinders are firing in reverse. The holiday shopping season is proving as bad as retailers had feared. U.S. Real consumption dropped 3.8 percent in the third quarter; we expect declines in the 2.5–3.0 percent range in the fourth and first quarters. The decline in the labor market is accelerating; the United States lost 533,000 jobs in November and we expect a loss of 550,000–600,000 in December. We see the unemployment rate at 9.1 percent by the end of 2009. Housing starts and prices continue to retreat, with no end in sight, and nonresidential construction is poised for a steep drop in 2009. Export growth had been propping up the U.S. economy, but with the rest of the world in recession, we now expect exports to contract 7.0 percent in 2009.

Deflation is now the threat as oil prices continue to fall further. IHS Global Insight assumes that they hit a trough of $30/barrel in the second quarter of 2009. That's good for consumers, but plunging commodity prices bring new dangers—deflation, not inflation, is now the primary price risk. By the third quarter of 2009, we expect headline CPI inflation to be as low as minus 3.8 percent year-on-year, largely on plunging energy costs. Core inflation will prove more stubborn than the headline number, but will probably fall below the bottom of the Federal Reserve's 1–2 percent comfort zone by the middle of 2009.

The Obama administration is preparing a large fiscal-stimulus package. We know that it will be a mix of infrastructure spending, support for state and local governments, increased transfer payments (e.g., extended unemployment insurance), and a "middle-class" tax cut. The message from the Obama camp is that the package will be valued somewhere between $675 billion and $775 billion over two years. But how quickly can the funds actually be spent? Infrastructure spending is a key part of the package, and it cannot be turned on and off like a faucet. We assume that the funds will take much longer than two years to spend out, and that the actual total stimulus injected over the first two years will be $500 billion. Combined with the Fed's vigorous easing, the package should help to stabi-

lize the economy in the second half of 2009 and promote some recovery during 2010.

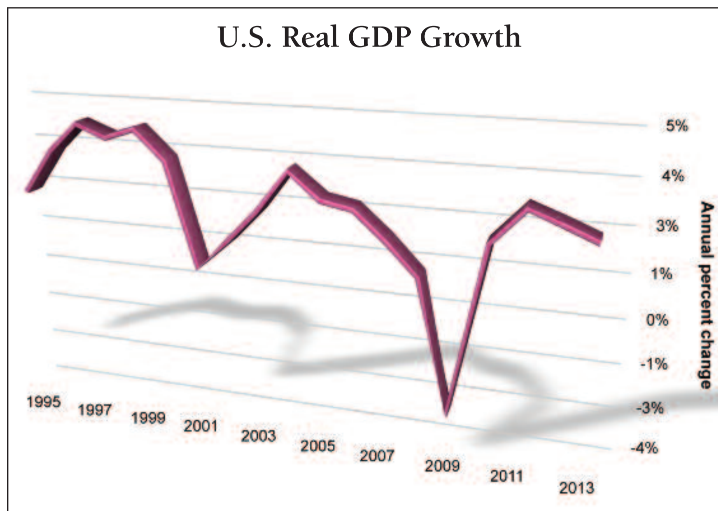

Figure 5

B. Economic Growth

We are not looking for signs of recovery yet, merely for signs that the rate of decline is becoming less severe—but cannot find them. We expect U.S. real GDP to drop 5.6 percent in the fourth quarter of 2008 and 5.4 percent in the first quarter of 2009. We expect final sales to decline less sharply in the first quarter than in the fourth, but firms will need to cut back inventories more aggressively. They are cutting production steeply, but still not fast enough to prevent the inventory-to-sales ratio from rising. We see negative growth through mid-2009 and only anemic positive growth in the second half, which would put the length of the recession at somewhere between 18 and 24 months—the longest in the postwar era. In terms of depth, we anticipate a 3.4 percent peak-to-trough decline in real GDP, exceeded only by the short-but-sharp 1957-58 recession (down 3.7 percent). The calendar-year GDP outcome for 2009 is a 2.5 percent contraction, worse even than the 1.9 percent drop in 1982.

Housing remains a major drag on growth, and until the housing market stabilizes, it will be impossible to draw a line under the financial crisis. With the broader economy now turning down, that means higher unemployment, reduced household wealth, and greater insecurity among potential purchasers. The Fed's plan to purchase mortgage-backed securities has been helpful, driving 30-year mortgage rates down to around 5 percent, but for the moment the benefits seem mainly confined to refinancing rather than home purchases. We expect housing starts to hit bottom only in the second quarter of 2009, at just 561,000 units (annual rate), and to improve only very gradually thereafter. We expect the FHFA house price index to drop 11.6 percent from the first quarter of 2008 to the first quarter of 2009, and another 9.5 percent by the first quarter of 2010.

Other key supports to growth are being knocked away. Declining consumer, housing and export demand, coupled with tighter credit, will make businesses pull back on capital spending. Equipment spending fell 7.5 percent in the third quarter, and we expect declines averaging 19.8 percent over the next three quarters. For 2009 overall, we foresee a 14.6 percent drop in equipment spending. During 2007 and the first half of 2008, rising private nonresidential construction helped cushion the blow from plunging residential construction. But the availability of financing for commercial real estate has tightened sharply, and the need for extra retail and office space is evaporating as consumer spending and employment decline. We anticipate steep declines in private nonresidential building, starting in the first quarter of 2009 and extending through the second quarter of 2010. The average spending decline is 11.9 percent in 2009 and 18.7 percent in 2010.

C. Labor Markets

While the good news is that the December jobs report was not nearly as negative as the ADP estimate of 693,000 losses reported earlier in the week, the bad news is that the reductions in November and October were revised upward. The economy lost a cumulative 2.6-million jobs in 2008—a drop of 1.8 percent from its peak in December 2007—a large reduction by any standard, with 1.9 million of those losses in the final four months of the year. Employment reductions were spread widely across the goods and services industries. There were relatively large reductions in construction (down 101,000) and manufacturing (down 149,000). On the services side, there were major cuts in trade/transport (down 121,000) and business services (down 133,000).

Prospects for the early months of 2009 are not good. The recession has deepened and many industries are facing inventory overhangs and deflationary conditions in end-use markets. Production, as a result, will continue to be cut back, leading to further reductions in hours worked and employment levels. IHS Global Insight expects that employment levels will continue to move down through most of 2009, with the unemployment rate peaking at close to 9.2 percent in the first quarter of 2010. Pending fiscal stimulus offers some hope of an improvement in domestic economic conditions during the second half of 2009. If the short-term tax-cut stimulus is set too low, then there is a serious risk that the economy will not respond as expected, and very sluggish economic conditions could persist through most of 2009.

D. Inflation

Falling oil prices set the stage for a large decline in consumer prices during October, which fell 1.0 percent during the month. The 8.6 percent retreat of energy prices accounted for nearly all of the decrease. Excluding food and energy, "core" consumer prices inched down 0.1 percent, as weakness in the retail sector led to steep discounting at apparel stores. The drop in the core rate also reflected the 0.7 percent decline of motor vehicle prices—the automotive industry is struggling as consumers shift spending away from big-ticket items toward essentials.

The rapid and severe decline in energy and commodity prices is providing immense downward pressure on every inflation index, overwhelming the slighter movements of other components. Headline CPI inflation is expected to decelerate from 1.6 percent y/y in the fourth quarter of 2008 to a low of minus 3.2 percent y/y in the third quarter of 2009. With GDP still contracting through the first half of 2009, the resumption of inflationary pressures, largely brought on by the Fed's unprecedented liquidity programs, will return too late in 2009 to prevent the first yearly decline in headline CPI in 54 years. Excluding energy and food prices, the core CPI stays positive through the upcoming year, but falls below 0.9 percent y/y in the third quarter of 2009. The benefit of falling price levels will be bittersweet for consumers, though, as income growth is limited by the deterioration of the labor markets.

The severe economic contractions have focused central bankers' attention on bolstering growth, and firmly placed inflation concerns on the backburner. Core PCE inflation—the Fed's preferred inflation gauge— should fall from 2.0 percent y/y during the final quarter of 2008 to a low of 0.8 percent y/y in the second half of 2009. Long-term inflation expectations remain anchored, keeping core PCE inflation below 2.0 percent into 2013.

E. External Sector

The export outlook has deteriorated dramatically. Banish the phrase "de-coupling" from your lexicon. IHS Global Insight is on the record as having rejected the notion that other parts of the world—especially the emerging markets—have de-coupled from the U.S. economy. Nevertheless, the extent of global interdependence and the high degree of synchronization of business cycles across the globe, which we are currently witnessing, is unprecedented. The recession is now global, and U.S. producers will no longer be able to rely on rapid export growth to counterbalance falling domestic demand. We expect exports to decline for five quarters in a row, beginning in the fourth quarter of 2008, and to fall 7.0 percent on a calendar-year basis in 2009. The damage from collapsing activity in the rest of the world is compounded by last year's rise in the dollar as investors fled risk, eroding the competitive advantage of U.S. producers. The current-account deficit should more than halve in 2009. More than three-quarters of the reduction reflects a lower oil import bill, helped by plunging prices. The rest reflects U.S. consumers cutting back imports faster than the rest of the world cuts U.S. exports.

A flight from risk sent the dollar sharply higher against most currencies during the second half of 2008, although some of those gains were retraced during December. We assume no major dollar shift during 2009, with end-2009 values of $1.30/euro, 98 yen/dollar, and C$1.19/dollar. Beyond 2009, we assume that (gentle) dollar depreciation resumes. The Chinese renminbi should continue to rise, but more slowly than before, and we assume just a 1.3 percent appreciation against the dollar over the next 12 months.

F. Economic Policy

The standard Keynesian playbook says that when monetary policy is facing a liquidity trap (i.e., the financial sector mops up liquidity without increasing lending) and private-sector spending is contracting, then it is up to fiscal policy to step in. The Obama administration is preparing a large fiscal-stimulus package. We know that it will be a mix of infrastructure spending, support for state and local governments, increased transfer payments (e.g., extended unemployment insurance), and a "middle-class" tax cut. The message from the Obama camp is that the package will be valued somewhere between $675 billion and $775 billion over two years. But how quickly can the funds actually be spent? Infrastructure spending is a key part of the package, and it cannot be turned on and off like a faucet. We assume that the funds will take much longer than two years to spend out, and that the actual total stimulus injected will be $500 billion over the first two years and $666 billion over the first three. The stimulus package, financial bailout costs, and the recession will take the federal budget deficit above $1.3 trillion in 2009 and close to $1 trillion in 2010. For now, the need to support the economy trumps deficit fears, but once the recession is over, President Obama will face tough choices about his spending priorities. And eventually other taxes will have to rise to cover the cost of the middle-class tax cut.

In the state and local government sector, revenue growth is slowing, while financing has become more expensive and, in some cases, impossible. We project operating deficits (national accounts basis) at $93.7 billion for the fiscal year that began on July 1, 2008. We expect real state and local government purchases to decline in the fourth quarter of 2008 and the first quarter of 2009. They then stabilize, but only because we assume that the federal government provides support for current and capital spending totaling $341 billion over three years, beginning in the first quarter of 2009.

V. Outlook for Major Marine and Commodities Markets

A. General Freight Outlook

With the United States now officially in a recession, the nation's freight pool, measured in tonnage, will post a drop of 3.1 percent in 2008, following a decline of 1.5 percent in 2007. On the bulk commodity front, coal and metallic iron ores will post an increase, while nonmetallic minerals output drops sharply. Sky-high prices throughout much of the year and the weak economy will translate into a big drop in petroleum demand. Waste and scrap materials traffic will suffer as industrial sector activity weakens. Movements of farm products are forecasted to gain ground, reflecting the surge in production of major crops during 2007 and rising ethanol demand and capacity additions and their impact on domestic corn usage. Production of major crops appears headed for a 1.5 percent decline in 2008. Turning our attention to general commodities, traditional manufacturing is set to decline by 3.2 percent as consumer and business spending falter, residential construction continues to weaken, and light vehicle production tumbles. On the foreign trade front, after a scant 2.0 percent increase in 2007, non-oil merchandise imports are slated to decline by 3.4 percent.

The prospects for 2009 freight flows have dimmed, and total tonnage is slated to fall by almost 5.0 percent. The United States and, for that matter, the global economy are in the midst of a severe recession, and conditions are going to get worse before they get batter. U.S. real GDP is slated to contract 2.5 percent in 2009, versus an increase of 2.0 percent in 2007, while industrial output declines 7.6 percent, following a 1.7 percent slip in 2007. The combination does not bode well for the nation's freight pool. Drilling down deeper, coal production is slated to increase a slight 0.9 percent, while metallic ore output drops 7.5 percent. Deteriorating conditions in construction point to a 17.0 percent drop in production of nonmetallic minerals. Petroleum will benefit from the recent sharp drop in prices, but the demand for petroleum production will remain weak throughout the year. Traditional manufacturing is set to decline by an additional 9.0 percent in 2009, with materials, household goods, and machinery and

equipment exhibiting considerable weakness as consumers rein in their spending, Corporate America slashes capital expenditures, and export-related production drops about 7.7 percent. Declining manufacturing and building activity will translate into weaker movements of scrap steel, waste paper, and industrial and construction waste. Finally, non-oil merchandise imports are slated to decline 9.4 percent.

Looking beyond 2009, freight flows will turn positive in 2010 as GDP growth improves to 2.2 percent and then accelerates to 2.8 percent from 2010-12. Industrial production turns positive in 2010, posting a 1.0 percent increase, but then accelerates to 2.8-3.5 percent annually. Coal and major crop production advance 1.5-2.0 percent per year. During the 2011-13 period, housing, light vehicles, nonresidential construction, and exports all turn the corner in a meaningful way. Traditional manufacturing, a key indicator of rail and truck freight flow, expands by 4.2 percent annually. Non-oil merchandise imports turn positive as consumer spending, business activity, and capital spending rebound, rising 8.3 percent in 2010, 9.0 percent in 2011, 6.3 percent in 2012, and 5.3 percent in 2013. With this as a backdrop, the nation's freight pool is slated to expand by 1.1 percent in 2010, 3.7 percent in 2011, 3.9 percent in 2012, and 3.5 percent in 2013.

We estimate that domestic waterborne tonnage will decline 5.6 percent in 2008, with petroleum, industrial and construction commodities, and manufactured goods leading the way on the downside. Looking ahead, bulk commodities rule the roost when it comes to waterborne commerce, accounting for over 80 percent of total tonnage. Coal production and exports, construction materials, petroleum, chemicals, industrial commodities, and waste and scrap all face rough water in 2009, and domestic waterborne tonnage is slated to decline by another 3.2 percent. Looking further out, renewed strength in the economy and key commodities should allow waterborne commerce to expand by 0.7 percent in 2010 and 2.5 percent per year from 2011-13.

B. Key Marine Commodities Markets

i. Coal

Based on economic concerns, the short-term outlook for coal demand is decidedly softer than we had been anticipating. Declining GDP growth is likely to remain for some time to come and, in fact, will become worse until mid-2009. Even then, growth will improve only slowly through the remainder of this short-term outlook (to the end of 2010). Adding insult to injury, the economic slowdown is now expanding geographically, and the effect on coal production is one of anticipated slower exports. The bottom line is that after an increase of 1.7 percent in 2008, coal production declines 1.3 percent in 2010. Looking further out, better economic conditions translate into coal-production gains of 0.7 percent in 2010, 1.7 percent in 2011, 2.0 percent in 2012, and 1.9 percent in 2013. Beyond the anticipated performance of the economy and the demand for coal in key overseas markets, coal production in the years ahead reflects anticipated net additions to coal-fired capacity, totaling almost 12,700 megawatts of capacity from 2009-13.

In the East, production grows 3.9 percent in 2008, largely on the back of much higher exports. A near 2 percent decline should be seen in 2009, however, as output is dragged down by a weak economy and some losses in Central Appalachian markets despite still-rising demand.

Interior production is cautiously expanding, waiting for the full effect of scrubber installations around the country to be felt. Production from this region in 2008 has declined more than 2 percent compared with 2007, but much of that is due to very high output early that year. We are forecasting better than 3 percent growth for 2009, based largely on the growing opportunities to supply units newly equipped with flue gas desulfurization (FGD).

In the West, production is growing about 1.3 percent this year, but some curtailment was anticipated during the final part of 2008 from the strong output of the third quarter. Major Powder River basin producers have announced a number of production cutbacks aimed at adjusting output to the declining market conditions. That same slow economy will create a nearly 2 percent decline in output in the West next year, accompanied in part by the effect of coal switching to higher-sulfur products in the aftermath of FGD retrofits.

Exports for 2008 rose an estimated 40 percent above

2007 levels, but entering 2009, the outlook is much less optimistic for U.S. exporters. Demand is declining amidst a global economic turndown and competition from other international coal suppliers is intensifying. On the metallurgical (met) side, plummeting steel production worldwide is potentially creating a strong surplus of coking coal, particularly as many steel producers requested that some 2008 shipments be deferred into 2009. On the steam side, lower ocean freight rates and declining Asian demand have suddenly brought Australian coal into the Atlantic market. We are forecasting a decline in total U.S. exports of more than 10 million tons in 2009. As for 2010, we anticipate a rebound in met shipments, but that will likely be offset by an even stronger presence from Australia on the steam coal side.

Imports into the United States are similarly expected to decline in 2009. This stems not only from the overall demand decline that is due to the economy, but from two other factors as well. First, the surge of FGD installations is likely to take its toll on many imports as many of those retrofits are occurring along the East Coast, where we expect several plants to switch to higher-sulfur U.S. coals once their scrubbers are in place. Second, the inventory correction we foresee for 2009 will likewise provide downward pressure on demand as coal buyers look to shed higher-than-desired stockpiles.

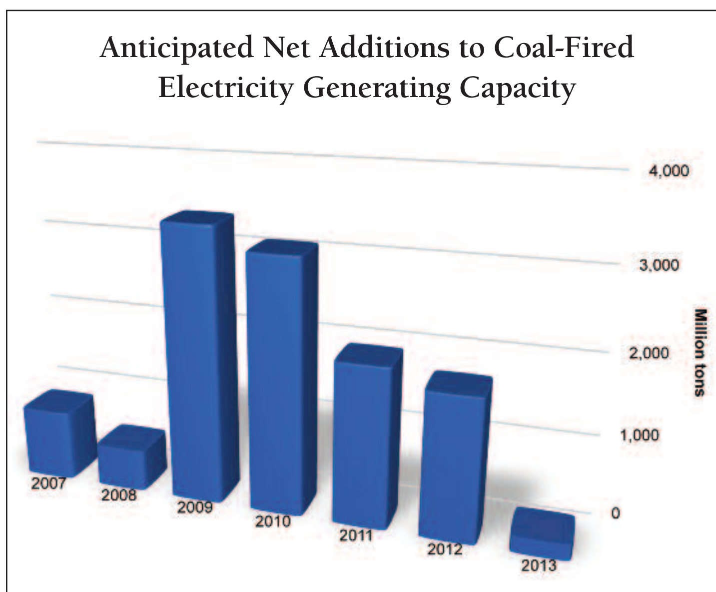

Figure 6

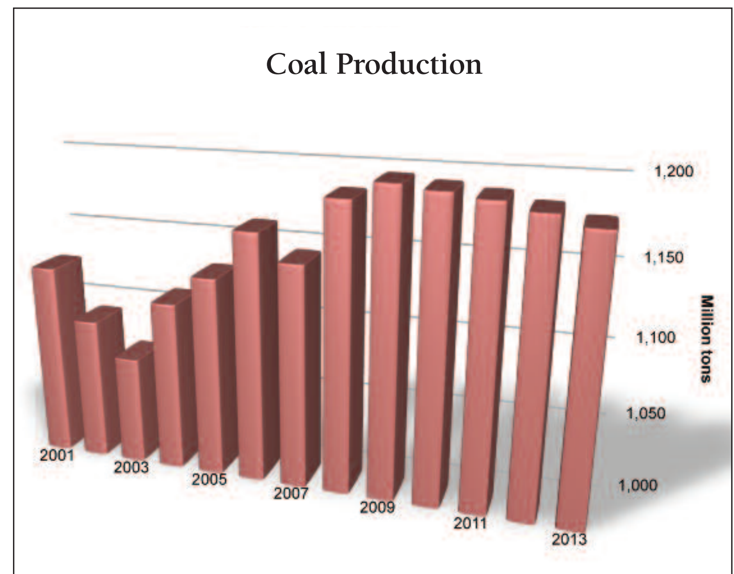

Figure 7

ii. Agricultural Commodities

Calendar year production of major crops, including corn, wheat, sorghum, oats, barley, soybeans, and others, rose 15.1 percent in 2007 but is slated to decline 1.5 percent in 2008. Looking further out, crop production rises 5.4 percent in 2009, 2.8 percent in 2010, 2.0 percent in 2011, 0.7 percent in 2012, and 1.6 percent in 2013.

On a crop-year basis, domestic demand for corn appears headed for an increase of 1.9 percent in 2008 and then advances 3.6 percent in 2009, 6.3 percent in 2010, 1.7 percent in 2011, 0.7 percent in 2012, and 2.1 percent in 2013. Exports of corn are slated to decline 19.8 percent in 2008 to 1,954-million bushels and then slip 1.9 percent in 2009 to 1,917-million bushels. Exports are then pegged at 1,878-million bushels in 2010, 1,936 million in 2011, 1,963 million in 2012, and 1,984 million in 2013.

Initial reports suggest that domestic demand for wheat increased 22.1 percent in 2008 to 1,302-million bushels and are forecasted to total 1,287 million bushels in 2009, 1,313 million in 2010, 1,326 million in 2011, 1,334 million in 2012, and 1,341 million in 2013. Wheat exports are slated to fall 20.5 percent in 2008 to 1,005-million bushels and then come in at 1,110-million bushels in 2009, 1,081 million in 2010, 1,033 million in 2011, 1,037 million in 2012, and 1,046 million in 2013.

Soybean demand is estimated at 1,923-million

bushels in crop year 2008, an increase of 1.6 percent. Demand then advances 14.0 percent over the next five years, reaching 1,999 million bushels in 2009, 2,051 million in 2010, 2,103 million in 2011, 2,147 million in 2012, and 2,193 million in 2013. Soybean exports are set to drop 10.7 percent in 2008 to 1,037-million bushels and then rise to 1,082-million bushels in 2009, 1,166 million in 2010, 1,213 million in 2011, 1,304 million in 2012, and 1,322 million in 2013.

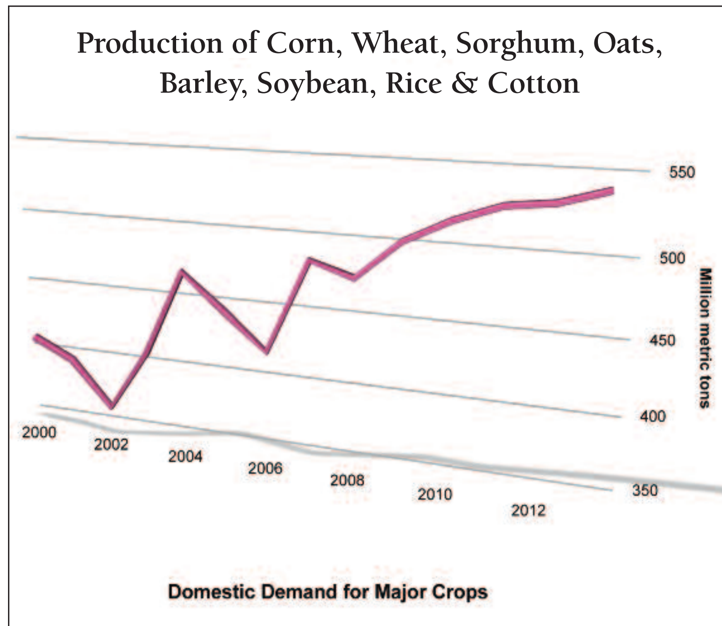

Figure 8

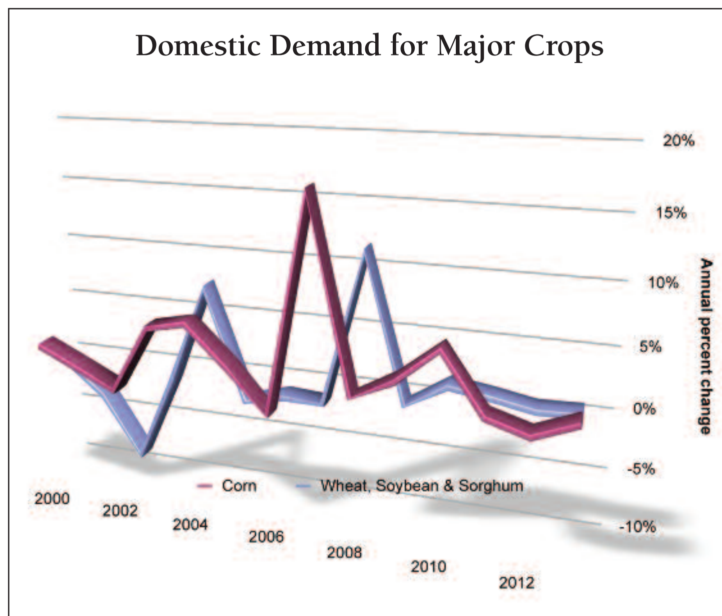

Figure 9

iii. Nonmetallic Minerals

Movements of crushed stone, sand, and gravel will remain weak until 2011. Construction activity is the driving force when it comes to nonmetallic minerals. Construction spending will be weak across the board in 2009. Shakeups in the residential market have spilled over into the nonresidential segment. The availability of financing for commercial real estate has tightened sharply, and the need for extra retail and office space is evaporating as consumer spending and employment decline. With no new projects in the pipeline, steep declines are anticipated in private nonresidential building, starting in the first quarter of 2009 and extending through the second quarter of 2010. Not until 2010 is the stimulus money for infrastructure projects expected to give a push to the public construction. The focus now is on the timing and magnitude of the recovery.

Residential construction declined 18.1 percent in 2007 and could fall by as much as 21.3 percent in 2008 and 21.2 percent in 2009. Looking further out, residential construction is slated to turn the corner, advancing 15.5 percent in 2010, 22.3 percent in 2011, 11.4 percent in 2012, and 7.6 percent in 2012. The nonresidential construction sector expanded 12.7 percent in 2007 and another 13.9 percent through the first half of 2009. Nevertheless, the bloom is now off the rose. Nonresidential construction growth decelerated to 9.4 percent and is slated to drop 16.1 percent in 2009 and 15.3 percent in 2010. Thereafter, nonresidential building expands 7.4 percent in 2011, 10.2 percent in 2012, and 7.8 percent in 2013. Public construction expanded 3.8 percent in 2007, but a slowdown in revenues will result in a much more modest 1.4 percent in 2008 and 2.6 percent in 2009. Public construction activity then expands 16.3 percent in 2010, bolstered by the infrastructure stimulus package, and 2.2 percent in 2011 before slipping -6.6 percent in 2012 and -6.3 percent in 2013.

iv. Manufactured Goods

Near-term weakness is anticipated for movements of manufactured goods, and traffic will remain sluggish well into next year. Traditional manufacturing will limp out of 2008 and suffer a decline of 3.6 percent for the year overall. Unfortunately, the prospects for 2009

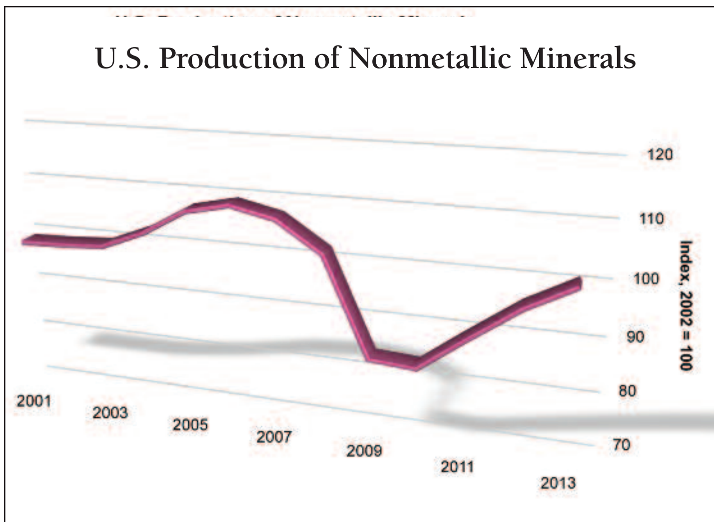

Figure 10

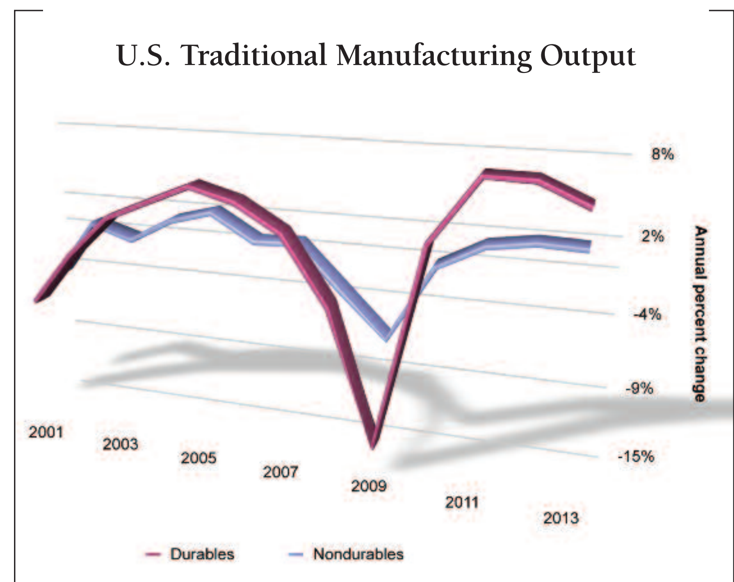

Figure 11

have dimmed, and a drop of 9.2 percent now seems likely. Consumers may have gotten some relief from sky-high gasoline prices, but the employment situation has taken a decided turn for the worse, and the credit crunch is only adding insult to injury. The 2008 holiday season was one of the worst on record. In 2009, consumers will continue to sit on the sidelines, which does not bode well for appliances, furniture, home goods, consumer electronics, and residential building materials.

Corporate America is expected to slash capital-spending programs in the face of faltering final demand, declining profits, and tighter credit standards. As manufacturers, financial institutions, and other corporations pull in their horns, we can expect considerable weakness in domestic demand for a whole host of manufactured goods. Lastly, the industrial sector will experience a reversal of fortune on the export front. Exports had been about the only bright spot for manufacturers, but the spreading economic malaise and a strengthening dollar are expected to result in considerably weaker overseas sales of capital goods, industrial materials and components, chemicals and other products. Looking further out, manufacturing activity expands 1.2 percent in 2010, 4.4 percent in 2011, 4.6 percent in 2012, and 3.7 percent in 2013.

v. Lumber and Wood Products

Demand for U.S. lumber products has been on the decline as the economy is in a recession and the residential construction market is extremely weak. Producers have been relatively responsive, scaling back production and shutting down mills. Some of the curtailments and closures will continue indefinitely, while other mills have closed permanently and U.S. mills have laid off workers. The slowdown in U.S. demand for lumber has also created a negative backlash for Canadian producers because the United States is a major consumer of Canadian lumber products. Exports from Canada into the United States declined 28.6 percent year-on-year in August. This trend will continue as long as the residential construction market in the United States remains in recession. European lumber producers are facing the same problems as North American producers. As a result, they are also making cutbacks in production. Random Lengths reports that softwood lumber supplies in Germany have started to outpace demand.

The slump in new home construction has taken a toll on lumber shipments, and there will be little in the way of improvement until 2010. The U.S. housing market is not expected to bounce back until 2010. Housing starts in the United States peaked at 2.073-million units in 2005 and then retreated to 1.812-million units in 2006 and 1.341-million units in 2007. Indications are that housing starts fell to a mere 905,000 in 2008 and will continue to fall to 604,000 units in 2009 and 976,000 units in 2010. Beyond 2010, housing starts bounce back to the million-unit level with 1.339-million units

in 2011, 1.558-million units in 2012, and 1.674-million units in 2013.

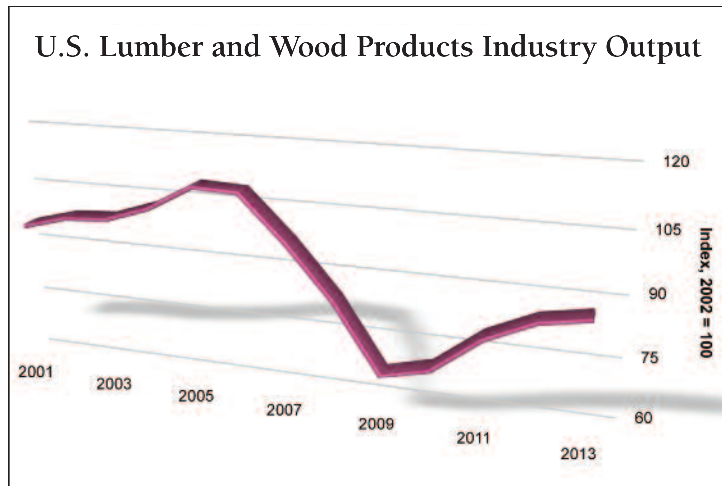

Figure 12

vi. Paper and Paper Products

U.S. production of paper and paper products declined 1.7 percent in 2007 and dropped an additional 3.1 percent in 2008. Weakness in consumer and business spending as well as manufacturing activity, in particular, will take a serious toll on packaging materials and printing and writing paper, and production will fall 8.6 percent in 2009. Some signs of life will emerge as we move through the second half 2009 and into 2010, but the paper industry will not show meaningful improvement until 2011. Paper-industry output is slated to edge up 0.7 percent in 2010 and then accelerate to 2.9 percent in 2011, 3.6 percent in 2012, and 3.0 percent in 2013.

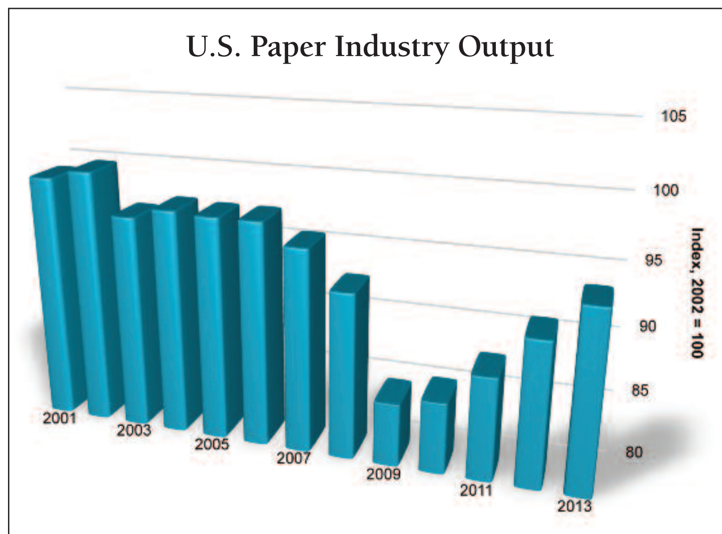

Figure 13

vii. Chemicals

Demand in North America should falter over the near term, as the current economic turmoil in the United States hampers growth in orders from manufacturing, light vehicles, housing and construction, and other key client industries. Adding insult to injury, the prospects for exports have dimmed in the face of weaker foreign economies and a slightly stronger dollar. U.S. production of chemicals and products increased 1.5 percent in 2007, but it is now slated to decline 3.5 percent in 2008 and 7.6 percent in 2009. Looking further out, domestic demand will turn the corner and be joined a bit later by solid export growth, allowing chemical-industry output to advance 1.6 percent in 2010, 4.8 percent in 2011, 6.1 percent in 2012, and 5.7 percent in 2013.

U.S. activity took a turn for the worse in 2008, and exports headed south as the U.S. recession spreads to the rest of the world. Depressed economic conditions hurt all the key petrochemical markets in the United States, including construction products, home goods, autos, packaging, general consumer products, and industrial equipment. The situation is equally dire throughout the industrial world, with the emerging economies not far behind. We see U.S. petrochemical volume declining a total of 16 percent in 2008–09. We expect growth of just about 1 percent in 2010, followed by more robust performance close to 5 percent in 2011. U.S. petrochemical exports remain under pressure during the forecast period as rising global supply, stemming in large part from the Middle East cost-advantaged capacity buildup, makes it harder for the United States to ship products to Asia and Europe.

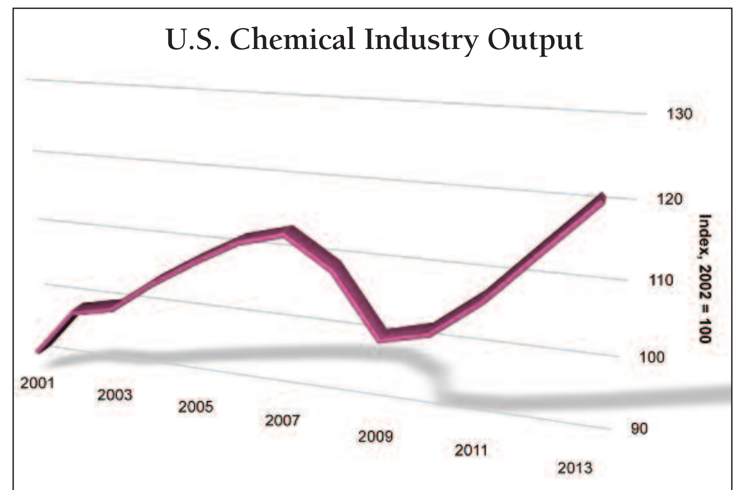

Figure 14

viii. Plastic Pellets

Weakness in the economy and housing, light vehicle, and particularly consumer spending will continue to take a toll on the plastics and plastic-products industry as well as the transportation of plastic products. U.S. production of resins appears headed for a 9.8 percent decline in 2008 and a 16.2 percent drop in 2009. Looking further out, resin production does turn the corner, rising 3.4 percent in 2010, 7.5 percent in 2011, 7.7 percent in 2012, and 5.3 percent in 2013. Production of plastic products, which are made from plastic pellets, are slated to decline 3.6 percent in 2008 and 9.8 percent in 2009 before advancing 1.8 percent in 2010, 5.0 percent in 2011, 4.5 percent in 2012, and 3.8 percent in 2013.

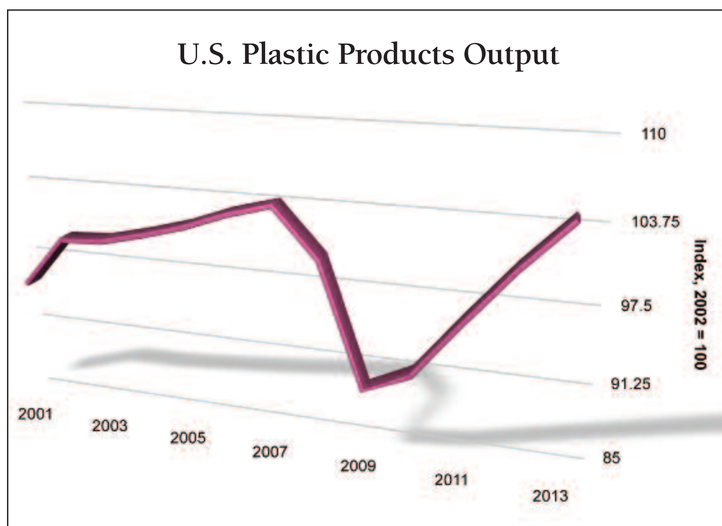

Figure 15

ix. Cement

Cement prices are poised to be weaker in 2009 than in 2008 as the global economy slows. Demand for cement is on the decline as construction spending is weakening. This signifies that price escalation in the construction industry is slowing down. The timing of the recovery will vary by country depending on how quickly construction activity picks up again. Weak demand for cement has been met by both cuts in production and falling import levels, especially in the United States. We anticipate an imbalance in the cement industry as supply outweighs demand, creating a surplus. U.S. plant expansions have been delayed or scaled back to meet this declining demand. Overall, we do not anticipate significant strength until 2011.

U.S. cement production declined 0.8 percent in 2007 and is slated to fall 7.4 percent 2008. Production growth will resume thereafter with growth rates of 15.1 percent in 2009, 7.1 percent in 2010, 6.1 percent in 2011, 7.1 percent in 2012, and 4.9 percent in 2013.

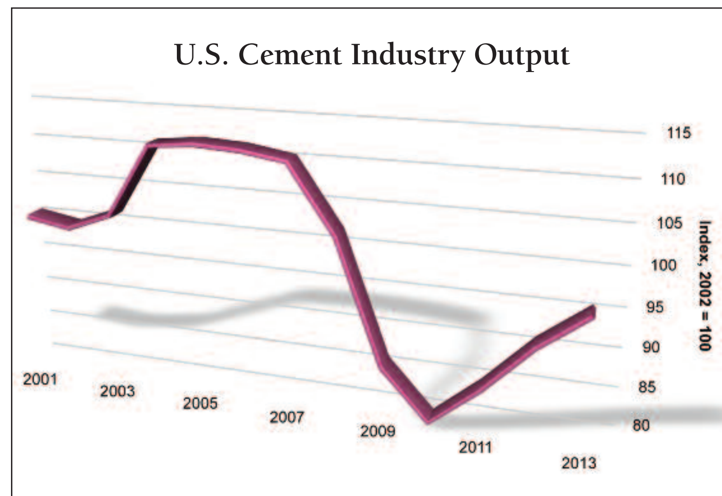

Figure 16

x. Steel Mills

The United States is in the midst of what will prove to be a severe recession, and most steel-consuming sectors, including light vehicles, consumer durables, capital goods, and construction, face some rough roads ahead. We expect that U.S. iron and steel production fell 6.3 percent in 2008 and will decline another 24.1 percent in 2009 before inching ahead 4.8 percent in 2010. Looking further out, once the economy gets back on track, iron and steel production increases 8.6 percent in 2011, 8.2 percent in 2012, and 6.3 percent in 2013.

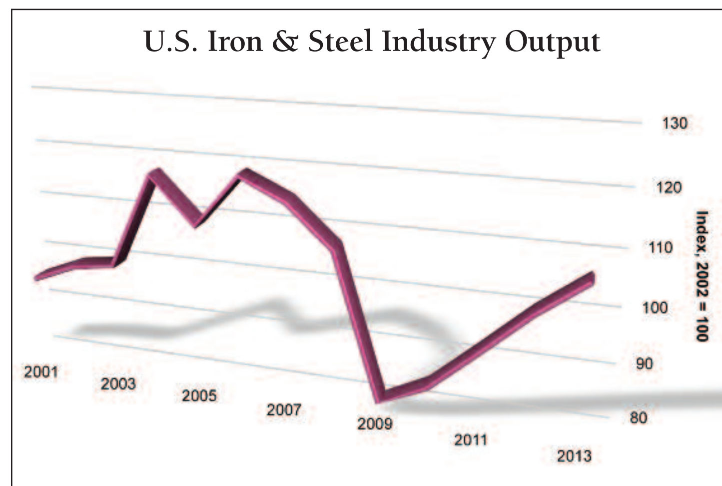

Figure 17

xi. Steel Scrap

Demand for steel scrap dipped in Asia, so businesses there shifted to sourcing it closer to the consuming market rather than importing it from the United States. Given that scrap is a low-valued commodity versus finished mill products, demand from overseas is very sensitive to the transportation costs. Export demand fell sharply from the United States. With weak U.S. demand, inventory rose very quickly. This translates to collapsing scrap prices, as it is a quintessential marginal market. With domestic steel-industry activity heading lower over the near term and the rest of the world experiencing difficulty, the prospects for steel-scrap demand and shipments through 2009 and well into 2010 will be depressed.

xii. Motor Vehicles

Ailing consumer confidence levels, tight credit availability, and rapidly rising unemployment, among other problems in the consumer sector, resulted in unit sales of 10.01 million during the fourth quarter of 2008, a 37.1 percent drop compared to the same quarter in 2007. Lower employment and reduced household wealth have created much insecurity among potential purchasers. Tighter credit conditions and uncertainty about the future of the domestic auto industry have only made matters worse. On an annual basis, unit sales of light vehicles fell an estimated 18.8 percent in 2008 and will fall an additional 21.3 percent in 2009 before turning the corner in 2010 with growth of 21.5 percent. U.S. light vehicle sales ended 2008 at 13.06 million units and will fall to 10.29 million units in 2009, nearly 40 percent below their 2001-07 average of 16.70 million units.

North American light vehicle production topped fifteen million units in 2007. However, the near-term outlook for the automotive industry is becoming increasingly grim as economic conditions continue to deteriorate. In response to faltering demand, manufacturers cut production by some 230,000 in 2008 to 12.73 million units. Production for 2009 is now projected to be at a very low 11.41 million units. As the economy enters recovery in 2010, manufacturers will see improved conditions, and the domestic auto industry will likely see a major overhaul. At the end of 2008, Detroit manufacturers were given a reprieve in the form of a financial aid package from the federal government. The auto industry that emerges from crisis is likely to look very different—operating with fewer plants, producing fewer models, and perhaps have fewer players.

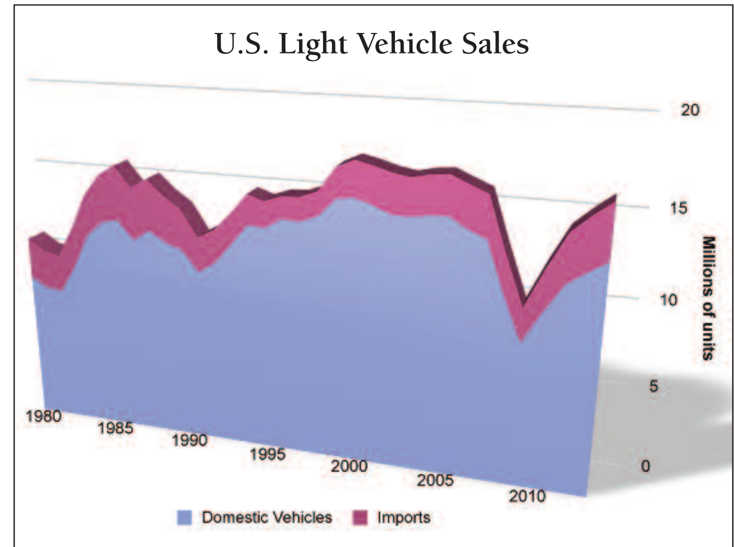

Figure 18

xiii. Motor Vehicle Parts

The slump in light vehicle sales and production has dampened movements of auto parts. North American light vehicle sales peaked back in 2005 at 19.7 million units and will bottom out at 14.9 million units in 2009, a drop of more than 24 percent. Sales are slated to recover to 16.6 million units in 2010, 17.8 million in 2011, 19.0 million in 2012 and 19.4 million in 2013. Parts production will rebound along with unit sales and production. U.S. production of auto parts is slated to drop 8.5 percent in 2008 and 24.5 percent in 2009 before increasing 6.5 percent in 2010, 10.0 percent in 2011, 6.4 percent in 2012, and 2.8 percent in 2013.

xiv. Petroleum

Oil prices are clearly past their peak. The financial crisis has shaken any optimism in markets that a sharp slowdown for the global economy can be avoided. For commodities generally, demand growth forecasts are being revised down. Demand has been the key driver behind the oil price inflation over the last six years, and this rapid shift in expectations has had a correspondingly large impact on oil prices. At the time of writing, WTI was hovering near $40/barrel, more than

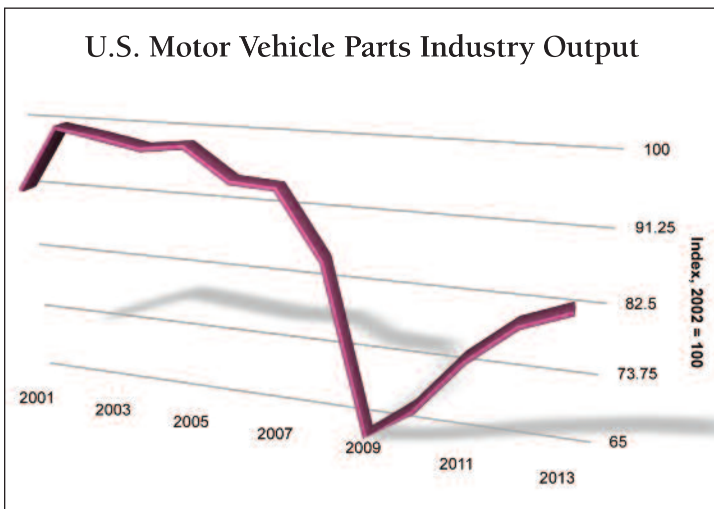

Figure 19

70% lower than the 11 July peak of $147/barrel.

Lower demand growth forecasts have not been the only price driver, however. Another impact of the financial crisis has been a reduction of liquidity on crude futures exchanges. With banks and hedge funds either denied credit facilities or hoarding capital, less has been speculated on commodity futures markets. Traders have also been stung by the pace of the price decline, falling appetite for risk, and sheer volatility of the market. This environment has weakened the second pillar of the supports for high prices—capital flows into oil and commodity markets. The prevailing market mood has shifted; even if capital does slowly return to commodities, it is unlikely to be long on crude.

The final support for high prices—short supply—is also now weakening. A number of significant new projects have been scheduled for 2008 and 2009, many of which have already begun production. Having agreed to cut output in September and November of 2008, this will place a great burden on OPEC members, who will already have to downgrade revenue expectations because of lower prices. The possibility of overproduction is greatest in this type of environment.

U.S. production of refined petroleum products will remain lackluster through 2009, as the weak economy takes a toll on demand. Looking further out, better economic conditions allows petroleum product output to advance 1.3 percent in 2010, 2.6 percent in 2011, 3.2 percent in 2012, and 3.2 percent in 2013.

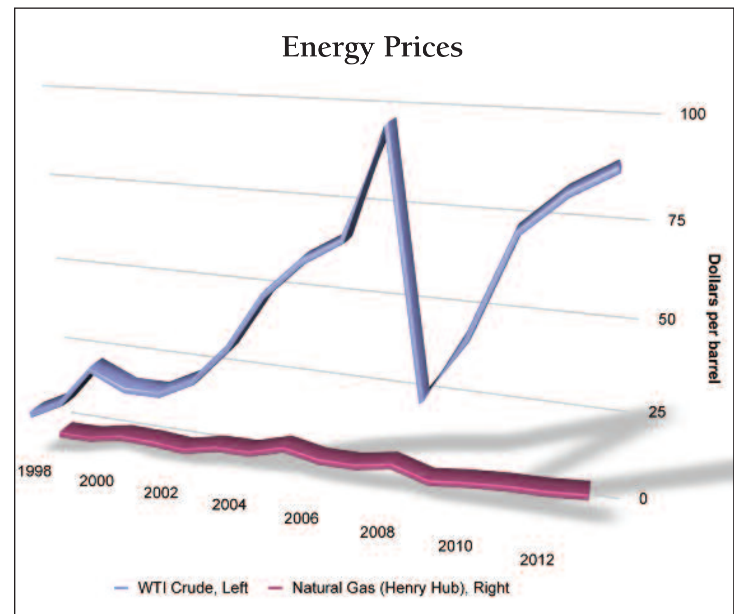

Figure 20

xv. Natural Gas

U.S. natural gas end-use demand growth is slowing in line with the recession and consequent slowdown in electricity demand and industrial output, growing only 1.7 percent in 2008 and declining 2.9 percent in 2009. Industrial demand slumps in the first half of 2009 as the worldwide recession hits home. Industrial natural-gas demand has shifted gears from significant growth in the first half of 2008 to accounting for the entire demand decline in 2009. Energy-intensive industries have been hard hit by the recession. Industrial demand, which accounts for 30 percent of total demand, will decrease 4.3 percent in 2009 as a consequence of the deepening recession. This development will reduce winter peak demand the most and cause storage withdrawals to decrease relative to 2008. Residential and commercial demand sustains the gas market in 2009, responding to normal cold weather and low-income heating-assistance programs.

With U.S. gas supply increasing 6.8 percent in 2008 and pressuring prices downward, a dramatic drop-off in drilling activity is required to restore balance to the gas market. Independent producers, overextended in shale gas development, have been the first to retract. Independent producers became overextended in purchasing extensive inventories of leaseholds that now have to be carried during a period of lower natural gas prices. Overextension carries with it several conse-

quences. Exploration and development expenditures must be reduced, with only the best prospects going forward into development. Capital expenditures will decline 35 percent in 2009 from $107 billion in 2008 to $79 billion in 2009. Drilling responds to a 20 percent decrease in wellhead prices in 2009. The natural-gas-directed rig count will decrease by 268 rigs from an average of 1,460 in 2008 to 1,192 in 2009. Production decreases will occur during the winter of 2009. Since production lags drilling, the biggest hit to production will occur 6–12 months after the decrease in rig count.

C. Key Marine Market Outlooks

i. International Shipping Outlook

The economic crisis has hit international trade hard as a result of the collapse of consumption and industrial capital investment. U.S.-based import trades are all negative, and with the strengthening of the dollar coinciding with the drop in bulk rates, containerized exports will also lose their recent surge. Intra-Asia trade has managed to hold up in 2008, as has Far East-to-Europe trade, but only barely. The outlook for 2009 is another matter. The three big headhaul trades on the east-west axis went negative in 2008, after experiencing double-digit growth in the last four out of six years. During the 2001-02 recession, trade managed to remain in positive territory. There is still new vessel tonnage entering the market, just as trade volumes are disappearing. This is creating serious over-capacity, which the carriers are struggling to deal with by means of slow steaming, dropped sailings, changing network routings, and finally withdrawal of tonnage into long-term lay up.

Until recently, the shipping industry has enjoyed the fruits of globalization, with high demand for bulk and liner vessels alike. Charter rates and liner freight rates recovered to provide owners and operators with rates of return that outshone anything the industry had seen for many years. Then, the financial crisis began in mid-2007 as subprime mortgages began to default. The crisis has since worsened and has led to the near collapse of the banking system, and with it, the collapse of international trade. Growth projections for major developed countries, including the United States, France, Germany, and the United Kingdom, are all negative in 2009. China's GDP growth is expected to decline from 9.5 percent in 2008 to 8.0 percent in 2009; however, this is probably too optimistic, and an estimate of 6 percent may be closer to the mark.

The immediate reaction to capital losses by consumers was a collapse of confidence, and with it an end to spending as savings increase to alleviate erosion of asset values. This hit the liner industry directly, with trade dropping sharply already in 2007 on the Transpacific and in 2008 on the Far East -Europe routes. This was followed by the virtual disappearance of credit to both the consumer and industry. Gross fixed capital formation, as reported by the OECD, is already negative in 2008 and will decrease substantially in 2009. This is further impacting the volume of goods moving by sea. The OECD is projecting that the volume of global imports will drop from 4.1 percent growth in 2007 to 1.2 percent in 2008 and -0.2 percent in 2009, which is very much in line with estimates of private consumption figures in the OECD.

The impact of these diverse but simultaneous pressures on the liner industry has been frightening to say the least. Freight rates are crashing at their fastest pace ever recorded. This is true for all sectors of the industry—bulk and containers. The Baltic Freight Index, which covers the key dry bulk markets, has plunged in excess of 94 percent since mid-2008. The Far East to Europe spot container freight rates have plunged nearly as far, with market indications of $200 and less per TEU available. With slot costs well above this, the consequences are not difficult to predict.

a. Global Container Trade

According to the November 2008 Drewry report, the world container ship fleet increased 3.9 percent to reach 11.9 million TEUs, or twenty-foot equivalent units. This is the highest quarterly growth rate of 2008. On a year-on-year basis, fleet capacity has grown 13.6 percent. The largest growth was in the post-Panamax class of ships, which grew just over 8 percent. This increase could not have come at a worse time. As we look forward to 2009, we can see a further increase of around 15 percent, taking the nominal capacity to nearly 14 million TEUs. Unemployed containerships are increasingly becoming the norm. AXS Liner esti-

mated in late November 2008 that around 115 ships, with a combined capacity of 270,000 TEUS, were inactive. This is over 2 percent of the fleet, and more are joining this inactive pool almost on a daily basis. It would not be surprising to see over 5 percent of the fleet being laid up.

Emblematic of how pervasive the U.S. collapse has been in relation to global growth, reduced consumer demand in the United States and Europe has dealt a major blow to global container trade. In 2008, world container trade is expected to grow only 4 percent, down from growth of more than 9 percent in 2007, and well below growth levels seen after 2001. In the long run, however, container trade will bounce back and continue to be the fastest-growing shipping service type. If they can make it through the current downturn, firms will benefit from compound annual growth rates of 5.0 percent between 2008 and 2013.

ii. Coastal Shipping Outlook

U.S. waterborne trade tonnage in 2007 is estimated to be 2.3 billion metric tons, of which nearly 40 percent was domestic freight.[17] Coastwise freight carriage amounted to just over 185 million metric tons, or 7.9 percent of total waterborne tonnage. Coastwise trade has declined since 2002 in large party owing to the expansion of petroleum imports and a 25 percent crude oil production cut at the Trans-Alaska pipeline.[18] As of 2007 year-end, there were more than 38,000 U.S. privately-owned vessels operating along U.S. coastal and internal waterways, up a little more than 2 percent since 2002. The greatest change in fleet size has been in the double-hulled tank vessel market. The double-hulling of coastal tank vessels, as required by the Oil Pollution Act of 1990, will likely be complete by 2010. The number of dry barges stayed roughly the same in 2007, with only 54 net additions to the fleet since 2002.

a. The Gulf Region

In 2007, the Gulf Coast received 31.7 percent of vessel calls at U.S. ports. Of these, 11,398 of the Gulf's 20,203 vessel calls, or 56.4 percent, were made by petroleum or chemical tankers.[19] This is an increase of nearly 30 percent since 2002. Vessels carrying a U.S. flag accounted for slightly less than 12 percent of domestic vessel calls, and 15.8 percent of these were received along the Gulf Coast. Between 2002 and 2007, ports along the Gulf experienced significant decreases in total calls by combination carriers and roll on-roll off vessels operating under foreign flags. The number of vessel calls by U.S. flag containerships along the Gulf fell nearly 30 percent; however, the overall average size per call of a containership sailing under a U.S. flag increased 10.2 percent in terms of TEU, and the average size of a Jones Act containership jumped an even greater 18.2 percent.

Petroleum shipments dominate domestic waterborne traffic at ports along the Gulf Coast. Of the more than 124 million short tons of commodity traffic through the Gulf waterways in 2007, petroleum accounts for an estimated 66 million short tons—more than half of total traffic. Petroleum trade in the Gulf hit a trough in 2002, and by the end of 2007, tonnage had risen nearly 25 percent.[20] While record-high oil prices drove up transport costs and led to a fairly sharp drop in petroleum demand, they were also instrumental in supporting terrific profits. Lease rates for oil tankers remained high while crude oil prices sat above $100 per barrel. Vessel values in the oil patch have held well thus far, and capital expenditures on offshore deepwater projects will likely continue as normal, though the more prospective of these could stand to see some delay. Much, however, will depend on how oil prices move next year. If prices remain low, capital expenditure could stagnate again in 2009. Even if price levels improve, though, we are unlikely to see a large uptick in spending until companies are assured that a market turnaround will be sustained.

b. North Pacific

International waterborne traffic passing through ports in the North Pacific region consists mostly of dry bulk exports, primarily out of Puget Sound. Dry bulk shipments make up almost half of total global commodities trade in the region. Oil shipments from Alaska to northwest ports, such as Tacoma, account

[17]*Leading the Future*. U.S. Department of Transportation Maritime Administration 2008-2013 Strategic Plan
[18]*U.S. Water Transportation Statistical Snapshot*. U.S. Department of Transportation Maritime Administration. May 2008
[19]*U.S. Water Transportation Statistical Snapshot*. U.S. Department of Transportation Maritime Administration. May 2008
[20]*Waterborne Commerce National Totals and Selected Inland Waterways for Multiple Years*. Preliminary 2007 data, U.S. Army Corps of Engineers, Institute for Water Resources Navigation Data Center.

for more than 60 percent of domestic vessel traffic in the area. The average carrying capacity of a Jones Act double-hulled tanker increased 26.5 percent from 2002 to 2007,[21] which implies that deadweight tonnage increased over the five-year period despite an 11 percent decline in the number of domestic vessel calls. Containerships represent roughly a quarter of total vessel calls received in the North Pacific. The number of foreign vessel calls received in 2007 was one more than the number received in 2002, while vessel calls by containerships sailing under a U.S. flag grew by 4.1 percent during that time.

State economies in the North Pacific region—namely Alaska, Washington, and Oregon—are expected to fare better than economies in the South Pacific. As much of the Jones Act trade in the region pertains to the shipment of energy-related products from Alaska, the health of the state's natural resources and mining sector will be crucial to domestic trade in the region. Industrial production slowed entering the latter half of 2008 and will continue to eke along during the first half of 2009; nonetheless, the second half of 2009 should see vast improvement to Alaska's mining sector. Plans for a natural gas pipeline are in the works as Alaska continues to increase development of its natural resources. However, there remains confusion in regards to who will be building the pipeline, and the competition could delay actual construction. In addition, environmental concerns keep surfacing when there is any new exploration or development planned. From drilling on the North Slope to potential mining projects in Bristol Bay, the lawsuits and issues could create further delays.

c. South Pacific

Ports in the South Pacific region serve as the number one gateway for U.S. trade with Asia. Weakness in the U.S. has curtailed domestic spending and demand, and the worldwide slowdown has eroded away the U.S. exports boom. Taken together, it should be no surprise that total international seaborne tonnage passing through the South Pacific is projected to decline 2.8 percent in 2009. However, as the global economy heads toward a recovery in 2010, commodity trade traffic in the region will follow suit, and seaborne tonnage growth will return to an average of 3.9 percent from 2010 to 2013. Jones Act vessels in the region mainly serve to connect Hawaii with the U.S. mainland, and growth along that particularly trade route tends to be slow. From 2002 to 2007, the largest increase in U.S. vessel calls has been in the roll on-roll off vessel market.

Containerized trade in the area will suffer the greatest punch. TEU volume has fallen off significantly from the double-digit growth rates seen during 2004-06. Growth in 2007 was a mere 2.9 percent, and anticipated growth for 2008 and 2009 are even lower. Falling personal income has depressed U.S. consumer demand, which is a double-whammy for ocean-going trade in the South Pacific. Among other things, reduced U.S. demand results in a drop-off in imports of manufactured goods from Asia, and it also leads to a decline in U.S. exports of pulp and other paper products to Asia used in the production of boxes and wrappers in which to enclose the manufactured goods. Container traffic, although not expected to reach the same levels as during 2004-06, will bounce back to health as the U.S. economy awakens in 2010. In terms of TEU, overall container traffic will expand at a compound annual growth rate of 4.4 percent during 2008 to 2013.

d. North Atlantic

Waterborne shipments of dry bulk in the North Atlantic, the smallest coastal region, experienced tremendous growth in 2008, mostly as a result of increased exports of coal during the first part of the year. Another such hike in coal exports is not anticipated. Since 2002, the number of vessel calls at North Atlantic ports by all ships operating under U.S. flags has increased 30.7 percent, with the greatest growth coming from the dry bulk segment. However, as U.S. and world economic conditions continue to deteriorate, growth in the segment will slow noticeably.

Container trade traffic is a small but fast-growing segment in the North Atlantic region. International containers principally move through the twin ports of New York and New Jersey. Traffic volume for January 2009 is projected to be down 8.1% compared to December

[21] *U.S. Water Transportation Statistical Snapshot*. U.S. Department of Transportation Maritime Administration. May 2008
[22] *U.S. Water Transportation Statistical Snapshot*. U.S. Department of Transportation Maritime Administration. May 2008

2008 and down 4.2% compared to January 2008. Weakness in the U.S. dollar is anticipated to have pushed import levels from Europe down 2.4 percent in 2008, and the recession will suppress imports down even further in 2009. Trade traffic from Europe is expected to drop 4.8 percent in 2009. In addition, waning demand in Europe will push exports down 3.3 percent in 2009. With traffic declining, ports in the region are operating without congestion. Trade will resume after 2009, with the fastest growth in container and general cargo volumes. Both service types are expected to achieve annual growth rates above 4 percent.

e. South Atlantic

The number of vessel calls at ports along the southern Atlantic coast by all U.S.-flag vessels was essentially flat from 2002 to 2007. Only a 56 percent increase in calls by roll on-roll off vessels pulled totals out of negative territory. Containership vessel calls, which account for nearly half of all calls, fell 9.2 percent from 685 in 2002 to 622 in 2007.[0] Another significant decrease in vessel calls was in the petroleum and chemical tanker market. Vessel calls by tankers sailing under U.S. flags dropped 10.7 percent. Congestion-free ports are not a recent phenomenon. Both Savannah and Charleston are expected to have low congestion through at least the first half of 2009. Traffic in Charleston may suffer further reduction if South Carolina loses its battle against Maersk's announcement that it will end vessel calls at the port by December 2009.

The South Atlantic economy has ground to a standstill after several years of rapid growth. Boosted for several years by outsized growth in its construction sector, the South Atlantic has reversed course due to the real estate downturn and the mortgage crisis and is now being hurt by the financial crisis as well. Over the past few years, growth in the construction industry had helped compensate for losses in manufacturing but not anymore. The region's large but shrinking manufacturing sector gave up more than 60,000 jobs in 2007 and had already lost another 70,000 by the end of September 2008. Since 2000, the region's manufacturing industries have shed more than 600,000 jobs. The region's weakness will persist through 2009, and declining industries such as textiles will offset resumed growth in high-tech manufacturing.

Although containerships make up more than half of total vessel calls at ports in the region, trade traffic in and out of South Atlantic ports is relatively well-balanced among dry bulk, liquid bulk, and container cargo in terms of tonnage. Total commodity traffic is expected to grow at 2.0 percent before dipping down to -3.4 percent in 2009. Some traffic will return after 2009, and growth in the region will reach an average of 2.9 percent per year from 2010 to 2013.

iii. Great Lakes Shipping Outlook

Freight carried on the Great Lakes is almost equally divided between domestic and foreign traffic, of which more than 90 percent is U.S. trade with Canada. Total waterborne tonnage hit its latest peak in 2004, with 103.5 million short tons domestically and 178.4 million short tons overall. According to the latest estimates by the U.S. Army Corps of Engineers, domestic tonnage in 2007 fell to 95.6 million short tons, which is down 1.3 percent compared to 2006 and down 7.6 percent compared to 2004.[24]

Waterborne commerce in the Great Lakes system is dominated by dry bulk cargo. Iron ore and steel account for 44 percent of total domestic tonnage and 62 percent of domestic dry bulk tonnage. Flows of iron ore and steel are expected to drop 11 percent in 2008 and then nearly 30 percent in 2009, as Detroit manufacturers continue to be embroiled in the automotive crisis. Automakers worldwide are shuttering production owing to plummeting demand, ailing profits, and lack of money. Production cuts mean less motor vehicles and motor vehicle parts, which in turn cuts down demand for iron and steel. General cargo traffic, which comprises roughly 10 percent of total traffic in the Great Lakes system, will also be negatively impacted by faltering auto demand. Sales of light vehicles for 2008 are expected to be down 18.8 percent compared to 2007, and the prospects for 2009 are not any rosier. Light vehicle sales in 2009 are forecasted to fall another 21.3 percent to 10.3 million units. Auto sales are expected to pick up again beginning in late 2009. Traffic flows of iron ore and steel will bounce back to 2.4 percent in 2010.

[23] *U.S. Water Transportation Statistical Snapshot*. U.S. Department of Transportation Maritime Administration. May 2008

[24] *Waterborne Commerce of the United States: Part 3—Waterways and Harbors Great Lakes*, U.S. Army Corps of Engineers, Institute for Water Resources Navigation Data Center, 2007

There are also ongoing concerns regarding invasive, non-native species being brought in by ocean-going vessels and their detrimental effect on native wildlife. New environmental standards and restrictions are possible while there remains discussion and protest. Shippers in the Great Lakes must carefully monitor any developments and prepare for probable impacts. As is, total flows in the Great Lakes are expected to grow 2.5 percent in 2010 and will continue to expand at a moderate compound annual rate of 2.0 percent from 2010 to 2013.

iv. Inland Shipping Outlook

Total tonnage transported by inland waterways is expected to see a slight decline of 0.8 percent in 2008. As of November 2008, monthly shipments of coal and coke were 4.2 percent higher during the first eleven months of 2008 compared to the same timeframe in 2007; petroleum and chemical shipments were down 14.6 percent; and food and farm products had fallen 30 percent. Total waterborne commerce January through November 2008 is down 7.6 percent relative to January through November 2007[25].

A dramatic turnaround in bulk commodity traffic is unlikely over the near-term. Inland barge traffic is primarily driven by bulk commodities, which makes up almost 80 percent of total annual tonnage. Production of coal, which can account for as much as 20 percent of domestic internal waterborne traffic, declined 1.5 percent in 2007 but picked up in 2008 as coal exports during most of 2008 jumped more than 50 percent. A weak dollar and strong domestic demand for coal-fired plants contributed to increased coal traffic. However, exports of coal are likely to decline as the dollar regains strength. Demand growth for grain exports will probably be unsustainable given the stronger dollar and the debilitated world economy. Operating constraints on internal lock systems and delays on drayage projects will further deter development and operation of larger vessels and put a limit on potential growth. Inland barge traffic is projected to grow at an average annual rate of 2.1 percent per year from 2008 to 2013.

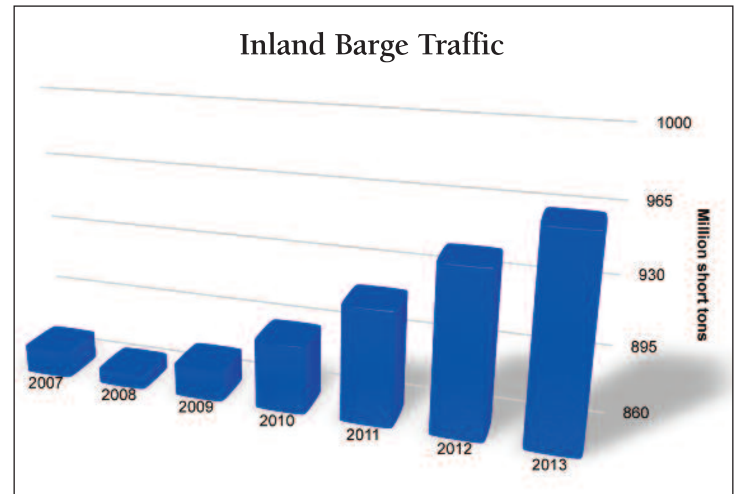

Figure 21

VI. Conclusion

The crisis will deteriorate further in the first half of 2009, but improvements should arrive by the latter part of the year. Those companies able to weather the storm will be better able to take advantage of the upturn. Those with sufficient funds will be able to consider mergers and acquisitions at levels well below the cost of recent acquisitions. Strategic positioning will lead to a more consolidated industry with higher efficiencies that is better able to deal with the new economic rules that will result from the 2008 recession. The drop in charter rates will make it possible to continue to operate and to provide services where yesterday it was not possible to contemplate lower slot costs. The downward spiral of freight rates based on everyone trying to achieve target market shares cannot be sustainable. That would be the end of the industry. The link between value and service needs to be re-created so the large investments by operators can achieve a sufficient rate of return while providing the service shippers require.

VII. Appendix

Table 1: U.S. Economic Forecast Summary

	2007	2008	2009	2010	2011	2012	2013
Real GDP - % Chg.	2.0	1.2	-2.5	2.2	3.2	2.8	2.5
Industrial Output - % Chg.	1.7	-1.6	-7.6	1.0	3.5	3.3	2.8
Light Vehicle Sales – Mil.	16.1	13.1	10.3	12.5	14.5	15.4	16.2
Housing Starts – Mil.	1.3	0.9	0.6	1.0	1.3	1.6	1.7
Consumer Spending - % Chg.	2.8	0.3	-0.9	2.3	2.3	2.3	2.1
Business Invest. - % Chg.	4.9	1.9	-15.1	-0.3	12.7	9.5	6.4
Crude Oil WTI - $/BBL	72.2	99.6	34.3	51.2	77.4	86.8	92.7
CPI, All Urban - % Chg.	2.9	3.8	-2.2	2.4	3.4	2.5	2.5
PPI, Finish. Goods - % Chg.	3.9	6.3	-7.4	2.2	4.0	2.4	2.6
Fed. Funds Rate - %	5.0	1.9	0.1	0.9	3.3	4.8	4.7
3-Month T-Bill Rate - %	4.4	1.4	0.2	1.5	3.7	4.6	4.6
10-Yr. T-Note Yield - %	4.6	3.7	2.3	3.4	4.9	5.4	5.4
Exchange Rate - Major Trading Partners	0.767	0.733	0.807	0.778	0.742	0.733	0.728

Note: Forecasts begin in 2008.
Source: Global Insight

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The Equipment Leasing & Finance Foundation wishes to thank
the following people for giving their time and expertise to this research project:

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