RAIL FREIGHT CAR LEASING MARKET STUDY
EXECUTIVE SUMMARY

1.0 INTRODUCTION

This study was undertaken to provide an overview of the U.S. railcar leasing business with the objective of helping to guide [investor] decision on whether to participate in the rail freight car leasing business and at what level. The scope of work involves a thorough study of the rail freight car market including factors that underpin railcar demand, supply and valuation. The study also provides information on the major players in the rail freight car equipment leasing business, their motives and the type of leases common to the industry.

The following are brief summarizations of the major findings of the report.

2.0 RAIL FREIGHT INDUSTRY HISTORY AND TRENDS

This chapter provides an historical perspective on the U.S. railroad industry, including the major economic factors that underlie its performance over time, regulatory developments and the policy environment. Key points that emerge from this analysis are the overwhelming trend towards industry rationalization and consolidation and the regulatory reform that made it possible.

- The U.S. railroad industry is composed of four U.S.-owned Class I railroad companies and three foreign-owned companies. Together, they operate on close to 170,000 miles of track and 100,000 miles less than the system total in 1980. This decline is indicative of the general railroad industry trend towards reducing fixed operating costs. To accomplish this, railroads have downsized their ownership of capital equipment, including many types of railcars, and focused more intently on improving equipment utilization on mainline routes. Class I railroads owned 1.2 million freight cars in 1980 but by 2003, this number had dwindled to just 467,000 cars. The decline has been mirrored by growth in private ownership and leasing. Private owners and leasing companies account for the remainder of the 1.3 million cars counted in 2003.

- The Staggers Act of 1980 completed a process of deregulation in the U.S. railroad industry that was begun in the mid-1970s. Staggers dramatically altered the financial and operating performance of the industry, primarily by opening the way for railroad firms to increase efficiencies by rationalizing operations. As a result, the rail industry, which had been fighting a losing battle with trucking for the inter-city freight market, was able to begin a process of recovery that has produced at least average rates of return for investors since the mid- to late 1980s.

- The financial performance of the rail industry since the Staggers Act is much improved and is now more in step with broader trends in U.S. equity markets. In real terms, freight revenue per track mile rose from just under $180,000 in 1980 to close to $200,000. Returns on net capital investment are now closer to if not exceeding the general market averages whereas prior to 1980, returns of less than 3 percent were not uncommon.
Railroad output is highly cyclical and grows roughly in line with developments in real domestic product and industrial production. More recently, the rapid growth of international trade has had an important influence on railroad output. Rail companies are deeply involved in transporting primary commodities for export, and finished goods, mainly in containers, for import.

Evidence of the industry’s cyclicity is found in the freight car market. New orders of freight cars and locomotive orders were placed at record volumes during the 1994 to 1999 period. Many of these orders were placed on speculative assumptions about the growth of the economy. In 1995, the number of rail cars and locomotives in service increased for the first time in 15 years as new equipment deliveries outpaced the number of units retired. During the recessionary period between 2000 and 2002, freight car orders came to a virtual standstill and lease rates declined precipitously.

Railroads compete with trucks and to a lesser extent, inland and coastal barges, pipelines and air freight services. In the ten years from 1992 to 2001, railroads increased their share of inter-city freight traffic by 4.1 percentage points. This reflects a sharp improvement in operating efficiencies and the ability to pass the subsequent cost savings onto shippers. It represents a noteworthy turnaround from the poor performance of the pre-Staggers era when the rail share of inter-city freight traffic fell below 40 percent.

In part because of the relatively high social costs imposed by trucks in the form of pollution, noise, infrastructure wear and tear, and road congestion, government policy towards railroads has been more favorable during the past 30 years. In 1980, the Staggers Act significantly reduced the burdens imposed by the Interstate Commerce Commission (now known as the Surface Transportation Board) and helped to initiate the current trend in equipment downsizing and system rationalization.

The outlook for the railroad industry is favorable. Growth will proceed moderately but will be subject to infrastructure constraints going forward.

3.0 RAIL FREIGHT TRANSPORTATION DEMAND

Commodity trends specific to railroads were profiled using data from government and private sources. Forecasts were provided for each of 14 broadly defined commodity groupings. Details of the results of the forecasts are given in Table 3-3.

Rail freight cars tend to be commodity-specific and as such, predicting demand for them is contingent upon demand for commodities they typically carry. See Table 3-1 for a detailed summary.

Bulk commodities coal, chemicals, grain and aggregates, in that order, account for the largest share of railroad tonnage. In terms of car loadings, coal, chemicals, motor vehicles and grain are the top commodities. In terms of revenue per carload, lumber and wood products, pulp and allied paper products, chemicals and petroleum products are the highest earners.
• Growth expectations are fair to moderate. The decline in manufacturing in the U.S. has reduced demand in several commodity groups but at least some of these losses will be offset by increased international trade.

4.0 RAIL FREIGHT CAR MARKET – TRENDS PATTERNS AND ISSUES

The investigation into the railcar market covers 13 types of railcar each with characteristics that differentiate them from others. This Chapter and Appendix C differentiate by railcar types several relevant valuation indicators including ownership trends, carloading and utilization, traffic summary, historical residual values, estimated fair market values, fair market net rental rates and estimated future market values.

• Covered hoppers, gondolas and tank cars are the most common rail freight cars in the fleet.

• The most widely used method of valuation for used railcars is the monthly net lease rate. Net lease rates depend on key car loadings, average revenues per car, interest rates and new car prices. The relationship of each variable to lease rates was estimated econometrically using private industry data sources. The research revealed that, average new car prices were the strongest predictor of lease rates.

• Statistics describing the fair market value of 18-20 year old rail cars illustrate how technical change, i.e., technological obsolescence, such as that which raises the capacity and, thus, operating efficiency of new railcars, can significantly depress the value of older cars.

• In 2004 prices for new railcars ranged from $57,000 for a coal gondola car to $88,000 for a 60’ box car.

5.0 RAIL CARS AND NEW FREIGHT CAR DELIVERIES

This chapter provides a forecast of railcar deliveries over the medium term (through 2013) and the long-term (through 2020). There are two approaches to the forecasting methodology. First, a private railcar forecasting company (Rail Theory Forecasts) provides projected railcar deliveries to 2013, a ten-year time horizon. These forecasts were supplemented by a structural econometric model that integrates prices, interest rates and income to predict railcar deliveries through 2020. The Chapter and Appendix provide detailed results.

• The average capacity of a railcar is significantly higher today than prior to 1980 and this has a depressing effect on the number of railcar deliveries.

• Our models and analyses suggest that recent deliveries of new railcars have weakened because of speculative overbuilding in the mid- to late-1990s and increasing capacity of new deliveries that reduce the number of cars required to replace those being retired. This has depressed their projected growth over the medium (ten years) and long-term (15 years). Deliveries of gondola cars will experience the fastest growth of 7.9 percent per year through 2020, followed by plastic pellets covered hoppers (5.7%) and autoracks (5.6%).
The overall market projections call for a gradual, 1.2 percent average annual decline in deliveries over the medium- and long-terms. This implies that by 2013, between 42,000 and 44,000 railcars will be delivered and by 2020, approximately 38,000 railcars will be delivered. In 2004, the market took delivery of 46,000 cars. An acceleration of technical change in railcars could, however, force increased rates of retirements for older cars and support a more positive outlook over the long-term.

6.0 LEASING CONTRACT TYPES

Trends in leasing, descriptions of tax and non-tax oriented leasing, review of the motivations for leasing, overview of leasing structure types, and tax accounting treatments are the focus of Chapter 6.0. The chapter also outlines the roles and responsibilities of the various parties to a leveraged lease transaction. Several railcar lease agreements were also compiled and are included in Appendix F to this report. A summary table describing these transactions is presented at the end of the chapter.

The history of leasing reveals its evolution from a means for railroad companies to finance equipment without assuming disproportionate risks, to today’s modern, sophisticated financial instruments with a wide array of choices for lessees.

Leasing as a means of capital equipment finance has several advantages, primarily, that it preserves capital and secondarily, that it shifts all or at least some of the burden of risk to the lessor. The tax benefits of leasing figure prominently in the industry; however, under federal income tax laws, leases must meet several criteria in order for lessee and lessor to take advantage of these benefits. The current laws governing the accounting and tax treatment of leases are complex. In order to take advantage of the tax benefits of leasing, the lease contract must conform to strict federal accounting rules standards that produce what is known as a “true lease.”

Potential entrants in the leasing industry should be aware that federal tax laws may be amended depending upon political regimes and economic conditions. The history of leasing illustrates this clearly.

The primary motivation of leasing for participants is that, after tax considerations are extended to the lessee by the lessor, it is a cost-effective means of financing equipment. In other words, were it not for advantageous tax policy, the leasing industry would not have developed to the extent that it has. Another motivating force for lessees is that it preserves capital and credit that can subsequently be allocated for other endeavors. It also eliminates the risk of equipment obsolescence which could reduce the resale value to zero before the useful life of the equipment ends.

The two most common leases can be grouped into “finance leases”, which are long-term leases, usually for the entire useful life of the equipment and “operating leases”, which are more expensive but of shorter duration. There are several alternative variations in lease structures that provide the lessee with a wide array of choices to fit their needs.
7.0 LEASING MARKET PARTICIPANTS

This chapter begins with a brief overview of select patterns, trends and practices in the railcar leasing industry. The chapter then benchmarks several of its key players and reviews several of their key defining characteristics, fleet mix, lease products, services and strategies, perceived competition, anticipated risk factors and market outlook. Recent leasing transactions are highlighted, clarifying the rapidity of the industry’s recent changes.

- There are approximately 1.5 million railcars in North America which are split between the railroads and the private railcar owners. The number of railcars placed under lease has grown steadily in the last decade. Railcar leasing companies participate primarily in the tank car, and covered hopper car markets but other freight car segments form a substantial market as well.

- Full service lessors – lessors with responsibility for the maintenance and repair of the railcars, modifications to meet government or industry safety or other standards, insurance and ad-valorem and other taxes -- account for about 70-75 percent of the tank car market and 40 percent of the total fleet of other freight cars in the United States. Major private tank car lessors include GATX, Union Tank Car, Procor (a Canadian affiliate of Union Tank Car), GE Rail Services, and PLM (recently acquired by CIT Rail).

- Western Coal production has triggered railcar production and fleet changes. Aluminum-bodied coal cars have been produced in greater numbers since the late 1980s, following low sulfur coal production growth from the Powder River Basin. New designs of lighter weight steel are increasing railcar capacity and load volumes, triggering major infrastructure investments along the rail lines and conversions or faster obsolescence of the former steel cars. Class I railroads have reduced their direct investment in the ownership of general service and specialty railcars and, in particular, the coal car market. Coal-carrying railcars owned by the railroads have dropped from levels of 90 percent of the fleet in 1979 to less than 45 percent. Major private car owners and lessors in this market have included utilities such as Detroit Edison and lessors such as Helm Financial.

- General Service Covered Hopper Cars for Grain Service are still owned by the Class I railroads, although grain shippers, leasing companies and other private owner companies comprise an important portion of the market. Grain carrying equipment is highly seasonal and cyclical, sensitive to export trade and weather-related disruptions, leading to periods of shortage and overproduction and surplus capacity over the last twenty-five years. GE Rail has a major private car position in this market along with the Class I railways.

- Specialty Covered Hopper Cars for Plastics and Resin Services is largely the domain of major shippers, private fleet owners and operating leasing companies. The major railways have a duty to provide serviceable equipment to shippers, but the fleet is often underutilized and shippers may lose revenues with an inadequate or unreliable car supply. Over the last 20 years, railways have shifted the burden of equipment ownership to private lessors and shippers and the specialty car market has evolved with refinements to equipment design to address the needs of individual commodities. GATX, Union Tank Car and GE Railcar are among the leading railcar lessors for this railcar type.
• Pressure Differential Covered Hopper Cars are dominated by the major private railcar lessors as well as by smaller leasing companies and shippers. The cars are used to serve dry bulk food products, primarily grain mill products or dry bulk chemicals. The cars require special facilities with compatible equipment to discharge the bulk commodities and trained individuals to operate. The fleet does not move in higher volume unit trains and does not result in high mileage. Major lessors and private firms include GE Rail, CIT Rail, GATX, ACF Industries, and ADM Transportation.

• Demand for intermodal equipment has been closely related to revenue growth for Class I railroads, which has stimulated, in part, by needed infrastructure investments (e.g., bridge clearances) that have unleashed the efficiencies of double-stack rail. TTX, a consortium of railroads who pool flatcars that are dedicated to intermodal services, has been the dominant player in the market and in making new intermodal rail orders over the last 15 years. TTX accounted for approximately 80 percent of the total 47,400 intermodal railcar fleet in 2004. Several private fleet operators (e.g., Greenbrier Leasing Corporation, GATX Capital Corporation, GE Railcar Services, and First Union Rail Corporation) are relegated to a significantly smaller share of intermodal railcars. The double-stack railcar, introduced in the mid-1980s, has been re-designed and reengineered through several generations; the risk of technological obsolescence is of greater concern for this railcar type than other general service categories.

• Lessors include independent leasing companies, manufacturer captive leasing companies, financial institutions, private equity firms and brokers, and financial advisors. The structure of the leasing industry viewed in the aggregate shows that it is composed of a core group of dominant companies that are involved in leasing multi-type railcars. These firms are surrounded by a fringe of more specialized players. The largest leasing companies tend to be entities within larger manufacturing or financial institutions. The remainder of the suppliers is either general purpose leasing companies or small concerns that specialize in a particular railcar(s).

• To be a full-service lessor firm for end-users, the lessor firm must directly invest or maintain through outsourcing a network of facilities and technical services to address the various needs related to railcar accounting and administration, fleet management and operations considerations, maintenance and repair, among other services.

8.0 RISK AND RETURN

Risk and returns are elemental considerations for a potential entrant in any market. This report provides estimates on the general state of risk and return in the industry. The qualitative analysis proceeds by describing numerous risk factors that are known or hypothesized to affect lease rates in the railcar leasing business. This is supplemented by a quantitative analysis that relates lease rate volatility to volatility in overall industry outputs.

• Risk measured as lease rate volatility relative to rail industry output is mainly a function of cyclicality in commodities, and technological obsolescence. Other factors, especially the nature of competition across transport modes, economic shocks such as terrorism and war, and inflation also figure prominently in the overall risk equation. Our conclusions are drawn from quantifiable data, qualitative analysis, and industry expert opinion.
The risks associated with regulatory and industry standards loom large over the railcar leasing business. In particular, used cars in segments that have undergone technological change in terms of carrying capacity and weight have experienced sharp declines in residual value.

Because tank cars carry chemicals, fuels and other hazardous materials that are subject to changing specifications it was hypothesized that they would carry the greatest risk of technological obsolescence. Thus far, in our data analysis, this has not shown to be the case. Tank car lease rate volatility tended to be lower than other segments. In part, this is due to the reduced levels of cyclicality in the demand for commodities typically carried in tank cars. Second, this segment displays reduced levels of competition with other modes. However, given the number of safety and security regulations being imposed in this sector, the risk of owning tank cars in terms of lease rate volatility is likely to rise significantly going forward.

Obsolescence risk has significantly impacted cars that typically do not carry hazardous materials. This is due to advancements in technology that have raised the operating efficiency of newer cars, primarily by increasing their carrying capacity. For example, railcars having a capacity of 263,000 pounds are currently in the process of being replaced with cars with 286,000 pound capacities. Yet, even newer developments called High Axle Load (HAL) technology have made 315,000 capacity cars available to the industry. The risk is mitigated only by infrastructure constraints that have restrained the pace of car replacement. Now that significant resources are committed to upgrading the U.S. rail system, the risk of technological obsolescence is likely to increase.

This report also compares the variation in the annual percent change in the value of leases by car type, lease term and age of car to the variation in the performance of the railroad market as measured by car loadings. This “quasi-beta” approach yields interesting results and some generalizations of these results are as follows:

- Lease rates on older railcars vary more than lease rates of younger cars, relative to overall railroad output. Lease rates of older cars also vary more relative to the overall rail market than younger cars.

- The longer the lease term the more variation in lease rates across both older and younger cars. This speaks to uncertainty regarding future market conditions.

- Lease rates on General Service Hopper cars reveal the highest level of volatility for both older and younger cars but are especially volatile for lease terms of between 4 and 7 years. This is not unexpected because these cars typically carry commodities such as grain that show volatile output and transport demand patterns. Within this car category, short-term lease rates are relatively less volatile, likely because it is easier to forecast short-term agricultural output and thus have less uncertainty when negotiating the lease contract.

- Lease rates on tank cars are significantly more volatile for longer lease terms than for shorter lease terms. Given the risk of equipment obsolescence, this is to be expected.

- The safest railcars in terms of lease rate risk are pressure differential covered hoppers. This is true for both younger and older cars and is consistent across length of lease. These
cars carry a relatively diverse set of commodities including finished grain mill products and other dry bulk chemicals. Because of their versatility, their lease rates are less volatile than the average.

The above analysis points to a general conclusion that, the more versatile the railcar in terms of the commodities that it can carry, the less uncertainty regarding the lease contracting and subsequently the less risk associated with owning them. It is also important to note that as in the case of tank cars, less competition from other transport modes significantly dampens lease rate volatility. To carry this analysis further would require a study to quantify the impact of railcar versatility in terms of the number of different commodities the car is capable of handling, on lease rate volatility. Moreover, a more conventional financial model of risk applied to this industry would be a worthwhile enterprise.

9.0 SCENARIOS FOR MARKET ENTRY

Chapter 9 concludes the report with a discussion of the various factors that should be considered prior to entry and how each of these factors rates within the context of the type of entry. One common theme that emerges from the analysis is that it is crucial for the entrant to ensure that it has access to the expertise of experienced management.

- **Demand/Business Cycle.** Successful participation in the rail industry in any of its components requires a long-term perspective. Cyclicality in rail is an inherent feature of the industry but if participants maintain a long-term outlook, the odds of earning a fair return on capital are good.

- **Ease of Entry.** Depending on the participation scenario, the barriers to entry in the railcar leasing market are relatively high. In general, the railcar leasing business requires substantial operating capital in the form of railcars, maintenance of equipment facilities, an accounting system for tracking cars and skilled management. There are also regulatory barriers regarding safety and environmental concerns that raise entry costs by raising the cost of individual rail cars. Successful operations require a “critical mass” of operations, from which the operator may begin to realize economies and have sufficient numbers and types of railcars to minimize risk. Unless the entrant is prepared to make such a commitment, more limited entry such as an equity position in an SPC-type arrangement is recommended. A sales-leaseback arrangement of an existing fleet may also be preferred as long as the financial health of the captive lessee is assured along with net operating lease terms. In this mode, the size of the operation is less important because the transaction by its nature creates a monopoly.

- **Competition.** On the basis of the most broadly defined product and geographic markets, the total railcar leasing business appears to be concentrated. The top four firms control 45 percent of rail cars available for leasing. Concentration varies by car type. In the intermodal segment, TTX controls approximately 80 percent of the cars. Competition concerns are lessened once a sales-leaseback arrangement is secured. Otherwise, the entrant should be prepared for a competitive environment and the presence of price-leaders with deep pockets.

- **Management and Services.** Lessees enter into full service lease agreements in part because they seek to reduce or eliminate the costs of repair and maintenance, fleet accounting, environmental compliance activities and other services associated with
ownership. A full-service lessor typically must be prepared to provide these services to its customers. Maintenance must ensure that railcars meet all federal and local government standards and conform to industry standards as well. The entrant can either purchase or lease the appropriate facilities in order to meet these needs or it can seek out contractors to provide the service. From this standpoint, it is preferable to purchase an equity stake in an existing leasing firm or proceed with an SPC arrangement. Purchasing an existing fleet will not eliminate the maintenance and service cost requirements unless net operating lease alternative arrangements with the target firm are made, or alternatively, the equity investor has a strong management team to mobilize third-party equipment management services.

- **Risks and Returns.** The risk of equipment obsolescence is an important element in the railcar equipment business. While this is especially true for tank cars going forward, technological change that is increasing the capacity of new cars well beyond old and even new industry standards, may threaten obsolescence for other car types as well. As in any financial transaction, the entrant is cautioned to keep a diversified portfolio of assets (i.e. railcars). This is especially true in railcars because the cars tend to be commodity specific.

- **Taxes.** The owner of the equipment assumes the high capital costs of equipment purchase but can take full advantage of tax benefits such as depreciation and interest deductions. The lessee receives no tax benefits but avoids the costly outlays required to purchase and service equipment. In determining the feasibility and tradeoffs of various scenarios, the prospective investor must consider their existing and probable future tax liabilities and assess whether the proposed scenarios effectively address the scale or need for sheltering these liabilities.

- **Relationship Synergies.** Leasing is a means of introducing the lessor’s products and service capabilities and an opportunity to explore trading relationships. This is especially true in a sales-leaseback arrangement with an industrial owner.

- **Primary and Secondary Market.** Railcars are expensive pieces of equipment. To purchase new cars, the lessor should be sufficiently large to extract volume discounts from suppliers. Access and knowledge of secondary markets is critical to the success of the leasing enterprise.