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Airline Bankruptcy: The Determining Factors Leading to an Airline's Decline

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CLAREMONT McKENNA COLLEGE
AIRLINE BANKRUPTCY: THE DETERMINING FACTORS
LEADING TO AN AIRLINE'S DECLINE

SUBMITTED TO
PROFESSOR MARCOS MASSOUD

AND

DEAN GREGORY HESS

BY

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FOR

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Table of Contents

Abstract

1

Introduction

3

Chapter 1: The Economics of the Airline Industry

6

Chapter 2: Managing Cost Structure

20

Chapter 3: Performance Metrics

..... 33

Chapter 4: Case Study

..... 45

Chapter 5: Conclusion

..... 60

Chapter 6: Recommendations

.....

Abstract:

The purpose of this study was to determine what the critical factors are to an airline's financial turmoil, leading ultimately to a bankruptcy filing. Over the past decade, the airline industries' performance has been dismal, leading to 20 bankruptcy filings. As competition increases, it is crucial for airlines to know which core business areas are essential to success. This paper identifies 8 specific industry metrics that are used to compare airlines, revealing where certain airlines falter and others shine. Some of these metrics are later applied to a case study examining Trans World Airlines (TWA) and American Airlines (AA), highlighting the factors leading to TWA's bankruptcy filing during the same time period American Airlines remained profitable. The results show that the labor inefficiency, operating inefficiencies, unsuccessful fuel hedging programs, and high long-term debt are critical factors leading to an airlines bankruptcy. Four recommendations for airlines are provided, namely: 1.) The cross-utilization of employees, 2.)

Maintain Cost Discipline, 3.) Focus on Breakeven Load Factor, and 4.) Do not neglect the intangibles such as brand reputation.

"If a capitalist had been present at Kitty Hawk back in the early 1900s, he should have shot Orville Wright. He would have saved his progeny money. But seriously, the airline business has been extraordinary. It has eaten up capital over the past century like almost no other business because people seem to keep coming back to it and putting fresh money in. You've got huge fixed costs, you've got strong labour unions and you've got commodity pricing. That is not a great recipe for success. I have an 800 (free call) number now that I call if I get the urge to buy an airline stock. I call at two in the morning and I say: "My name is Warren and I'm an aeroholic." And then they talk me down."

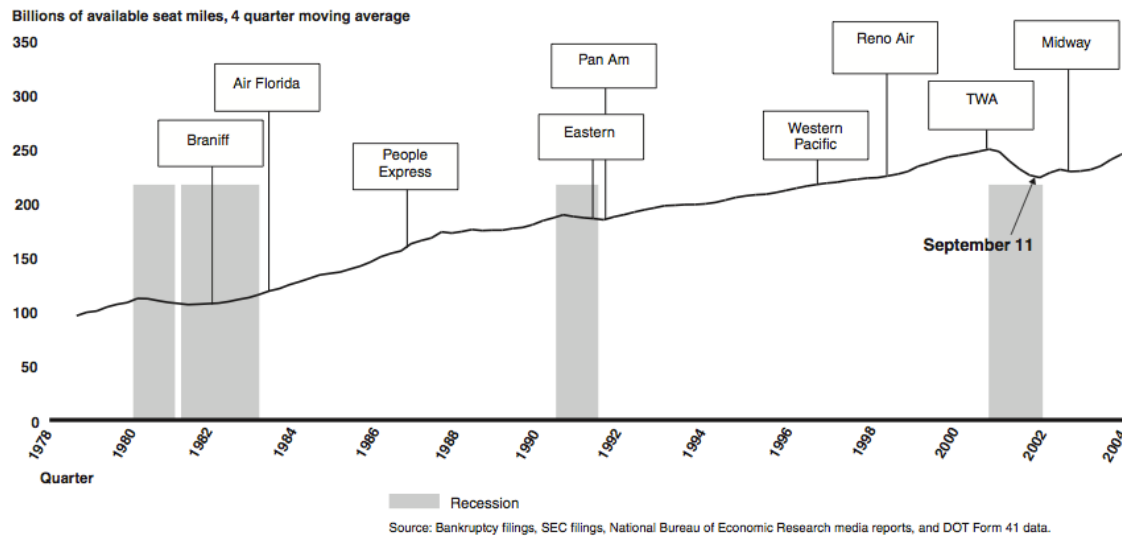
- Warren Buffet, 2002.

The year is 1903 and 2 young brothers from Ohio triumph as their aircraft, the Wright Flyer I, takes flight for the first time. Little did the Wright brothers know that their breakthrough innovation would revolutionize the world's largest industry, travel and tourism. Commercial aviation catalyzes economic growth, world trade, international investment and tourism, therein expediting the globalization of other industries (1). Now boasting 230 airlines representing 125 different countries and transporting

2.5B passengers per year, the high-growth industry is truly global (2, 6).

However, even with the industry's continued growth, there have been numerous major airline liquidations.

Figure 8: Growth of Airline Industry Capacity and Major Airline Liquidations



Prior to 1978, the competitive landscape lent itself to carriers dominating certain markets, which led to monopolizing behavior from the largest domestic airlines, the legacy carriers, with respect to fares, routes, and schedules (24). The deregulation in 1978 of the US airline industry led to a paradigm shift in the market as routes opened up, forcing the legacy carriers in the industry such as Pan Am and Eastern into a highly competitive, low-fare environment. Since the tragic terrorist attacks of September 11, 2001, global airline's performance has been particularly dismal, losing a total of 53.4 billion in net profit (3). When looking at the industry from a macro level, one cannot be surprised to hear these numbers. The airline industry is structurally challenged by its very nature, facing high fixed costs, cyclical demand, intense competition, and vulnerability to external shocks. As such,

the number of bankruptcies continues to pile up, as airlines seek protection from creditors in Chapter 11 filings, using such measures as a means to ease liquidity pressures and restructure costs. In the U.S., the major airlines that have filed for and come out of Chapter 11 bankruptcy are: US Airways, United Airlines, Delta Airlines, Northwest Airlines, and Continental Airlines, which recently merged with United Airlines on October 1, 2010 (72). That leaves American Airlines as the only major US airline to avoid filing for bankruptcy in the past decade. Unfortunately, Chapter 11 bankruptcy is not a cure-all for airlines as many fail to successfully exit (4). Notably, Pan American World Airways (Pan Am), Trans World Airlines (TWA), and Eastern Airlines did not emerge from Chapter 11 and filed for Chapter 7 bankruptcy, or liquidation. I will first provide a history of the airline industry, comparing and contrasting the landscape both pre and post deregulation. Following the industry overview, the paper looks at an airline's cost structure, highlighting the major revenue and expense factors. Lastly, I applied industry specific performance metrics to a case study of Trans World Airlines (TWA) and American Airlines (AA), seeking to determine underlying causation factors before filing for Chapter 11. These two airlines were chosen because of the availability of financial data and SEC filings during the time period leading up to TWA's bankruptcy filing.

Chapter 1 – The Economics of the Airline Industry

Following decades of growth after that first flight in 1903, the aeronautical industry became subject to industry-wide regulation passed by

the United States Government in 1938. “The Civil Aeronautics Act of 1938 applied to interstate operations of U.S. airlines and gave the Civil Aeronautics Board (CAB) authority to regulate which airlines operated on each route and what fares they could charge” (25). This set the stage for an industry comprised of a few major players who controlled specific regions. CAB strictly enforced routes, granting only 1 airline per route unless demand was sufficient to support more carriers (25). In addition, CAB set the fares for each route, ensuring the airlines a fixed rate of return, but giving them little incentive to lower costs (25). Unfortunately, the CAB’s oversight became a “textbook case of how the regulatory process can overwhelm substance and how regulation protected the airlines from competition at the expense of consumers and competitors” (26). For example, airlines seeking to add additional service between two given cities often faced extensive hearings, only to result in denied service or acceptance with restrictions (26). While this regulated structure gave birth to large airlines like Pan Am and Eastern who dominantly controlled regions, it stifled competition, resulting in higher fares and frustrated travelers. Starting in 1976 and through 1978, the CAB heard calls for change, and policymakers began to realize that airlines could better serve consumers with an opening of the skies (26).

In 1978 the American government deregulated its domestic airline market under the Airline Deregulation Act. This legislation drastically changed both the structure of the industry and individual airlines as market forces took over the duties of the Civil Aeronautics Board, which previously

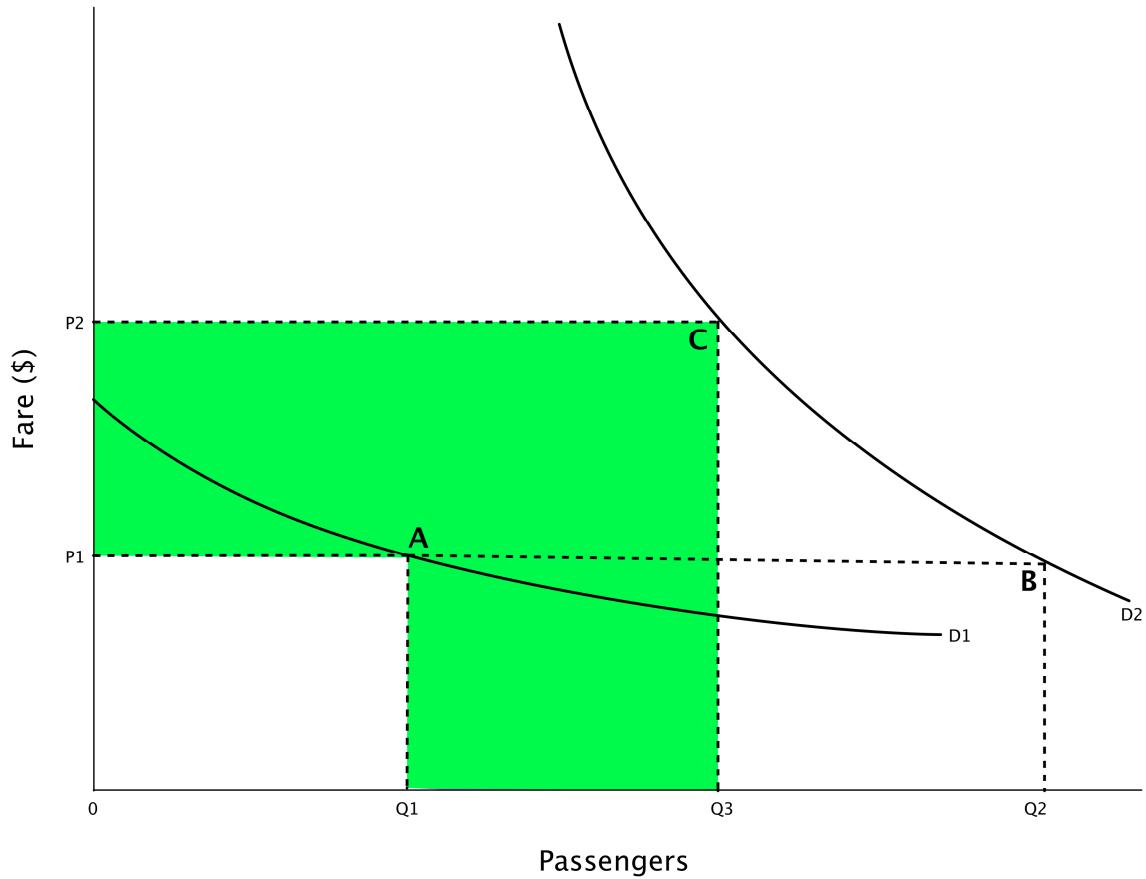
controlled fares and set routes. The effects of deregulation include increased competition, lower fares, new carriers, frequent-flyer loyalty programs, alliances, and networks (27). Whereas prior to 1978 the airlines competed more through advertising and onboard services than fares, the so called “legacy” carriers now faced stiff competition from new low-cost carriers (LCCs) who leveraged the advantages granted under the deregulated market (4). One freedom granted under the new rules was the opening of routes, enabling the low-cost carriers to pioneer the point-to-point service model. This model allows for greater efficiency, as the airlines can achieve shorter turnaround times, better fuel efficiency, and high aircraft utilization (5). From a consumer standpoint, travelers benefited as well, with passengers having a choice of two or more carriers on routes (27). Another advantage the low-cost carriers exploited was their ability to negotiate favorable terms with their unions, enabling such benefits as cross-utilization of employees, further enabling them to offer lower fares while maintaining margins. This starkly contrasts with the legacy carriers who carried over their cost structures from the pre-regulation era, in which they faced a highly unionized labor force (4). As a result, LCC’s possess a substantial cost advantage over legacy carriers simply because they are able to generate more output per employee (10). “In 2004, Southwest produced 3.2 million available seat-miles per employee, as compared to 2.2 million at American. By this measure, the productivity of Southwest employees was 45% higher than at American [...]” (10). Southwest recognized that focusing on employee happiness first would not only translate

to a more efficient workforce and lower costs, but also would increase passenger satisfaction. As a result, the cost-cutting measures implemented during the recession by LCC's did not negatively impact their reputations, and the LCC's were able to take advantage of the legacy carrier's weaknesses.

Frequent-Flyer Programs

Facing increased competition, the legacy carriers, fighting to retain customers, introduced frequent-flyer loyalty programs (FFP) which reward customer loyalty with tickets, cabin upgrades, priority check-in, priority boarding, lounge access, and other benefits (27). These innovative programs allow customers to enroll in an airline's program, after which passengers accumulate mileage points according to distance traveled and travel class, with first and business class passengers receiving multiples of the base rate (36). Passengers can then redeem those miles for rewards such as free or discounted tickets and cabin upgrades. This is critical to brand loyalty as customers may choose airlines based on their award status with the airline rather than a slight price difference. For example, if a passenger has a certain flight status on United Airlines, but American Airlines is offering a cheaper flight, it may be worth it to fly United to gain miles if the price difference is not substantial. One recent development has increased the speed at which consumers accumulate frequent-flyer miles. Nonairline companies, particularly credit card companies, are now partnering with the airlines to offer awards and miles for nonairline goods and services. For example,

American Express recently teamed with Delta Air Lines to earn one mile for virtually every dollar spent, as well as offering a bonus of 20,000 miles just for getting the card (28). These companies are interested in partnership agreements because of the extensive membership rolls the airlines possess and the marketing opportunities as a result of these lists (27). American Express is able to advertise its new credit cards directly to Delta SkyMiles members because of their partnership. In essence, “FFP’s raise passengers ‘switching’ costs, making it relatively expensive, in terms of lost rewards, to transfer their patronage from one airline to another” (36). American Airlines pioneered loyalty programs in 1981, and was soon thereafter followed by major carriers such as United Airlines, Delta Airlines, and others in introducing FFPs (27). After the introduction of FFPs, airlines found that loyalty programs were often more profitable than other forms of marketing, such as comparing services, routes, and price (36). In addition to lower marketing expenses, FFP’s provided airlines with great revenue, as evidenced by the figure below.



Source: Global airlines (36)

The original demand curve, before incurring marketing expenses, is represented by the line D1. As a base, if the fare charged is P1, the number of passengers carried will be Q1 at point A. Following a marketing campaign, such as advertising a loyalty scheme, the demand curve shifts right and the slope becomes steeper along D2, representing a more inelastic demand to price. As a result of this rightward shift, the airline's benefits are twofold: 1.) It increases its number of passengers at the original price at point B, while 2.) It can raise the fare and still having a substantial increase in passengers, represented at point C (36). From this example, we can glean that both

consumers and the airlines benefit by the advent of loyalty programs. Airlines enjoy a faithful consumer base while charging more for airfare; passengers seek to earn free tickets and other rewards. The frequent-flyer loyalty programs will only increase in size as airline alliances grow.

Alliances

With the airline industry catering to a global audience, it is critical for airlines to be able to reach all areas of the world. Unfortunately, hardly any single airline, no matter its size or scope, is able to efficiently provide service to destinations around the world. To counteract this fault, airlines form alliances with one another, thereby increasing their market presence and expanding their network. "An airline alliance is a code-sharing agreement between two (or more) airlines to offer a broader array of services to their customers than they could individually" (27). These agreements are the opposite of pre-regulation times, as airlines now partner with one another to access more routes, enabling them to issue tickets for flights operated as if they are its own (27). While larger airlines have agreements with regional carriers, the concept of alliances has now spread international, with U.S. airline's partnering with foreign airlines to offer an expansive network that reaches all axis of the globe. The three largest alliances are the Star Alliance, SkyTeam, and OneWorld (29). Price Waterhouse Coopers ran a study on "Airline Alliances and Competition in Transatlantic Airline Markets" and found that "A single airline serving 20 airports from its main hub can

potentially provide 420 connecting and direct flights, or 210 distinct services (with outbound and return flights counted as one service). If the airline forms an alliance with a partner also operating at 21 airports (with one common airport), the number of possible connections increases to 1,640" (30). The benefits to consumers are clear: more destinations, lower prices, more departure times, access to more lounges, faster mileage rewards, and around the world tickets (29). This is a result of the airlines sharing facilities, cooperating on sales, and making investments in different regions around the world.

Open Skies Agreements

Following deregulation in 1978, the U.S. "open market" was hailed as a liberalization of the airline industry. However, there were a few critical features of the open market bilateral agreements that impeded a full liberalization. In the 1980's, many of the U.S. legacy carriers, seeking to obtain larger market shares in the international arena, pushed for further liberalization for 2 primary reasons. First, as major domestic carriers who were relatively new to the international space, they recognized long-term opportunities for expansion in the international markets as opposed to a more mature domestic market (46). Secondly, they argued that they could have more success in a fully liberalized open skies environment than their international counterparts because they could leverage their large U.S. domestic networks (46). Some of the features impeding this liberalization included a full opening of route access, meaning not all destinations are open,

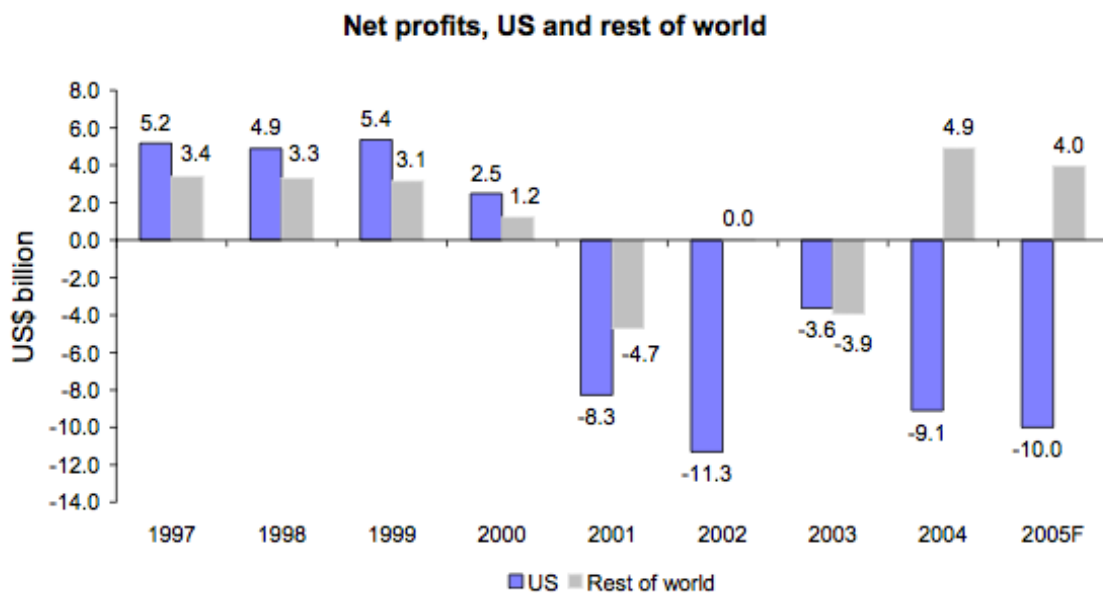
tariffs were based on the country of origin, and there was no code sharing between airlines (46). The opening of the skies translated into improved services for travelers, who now faced a copious amount of choice when flying certain routes, as well as lower prices because of competition.

Networks

Post 1978, legacy airlines architected and thrived on what famously became known as the hub and spoke model. The idea is relatively simple, and revolutionized the industry at the time; an airline selects an airport with a central geographic location, relative to major traffic flows, and operates flights in-and-out of this central hub enabling more cities, or spokes, to be reached. The benefits to the airline are numerous and can ultimately percolate down to consumers. One such example that affects both parties is the possibility for “larger aircraft to be used, giving access to lower seat-kilometer costs. This may in turn result in lower fares” (7). Airlines also can leverage the hub and spoke model to decrease labor and equipment costs. Rather than having support staff across many cities, airlines can centralize their operations, lowering costs (8). “Hub-and-spoke systems decreased unit costs but created high fixed costs that required larger terminals, investments in information technology systems, and intricate revenue management systems” (9). So while there are benefits to the hub and spoke model, there are also clear negatives. On a consumer facing front, the hub and spoke model was widely unpopular with passengers because of increased delays and

congestion. These issues brought light to the true flaw in the hub and spoke model: its inability to adapt quickly to external shocks, leaving airlines with deserted flights and costly equipment and staff idling at hubs.

The hub and spoke model is extremely vulnerable to external shocks. These shocks include momentous events such as the terrorist attacks of 9/11, medical pandemics such as the severe acute respiratory syndrome (SARS) outbreak of 2002, the recent Iceland volcano eruption, increases in fuel prices, and even smaller-scale events such as bad weather or a security breach. Following the dot-com bust in 2000, 9/11 triggered financial catastrophe for the susceptible airline industry. “In the United States alone, the industry posted cumulative net losses of over \$40 billion from 2001 to 2005 [...] and there were immediate layoffs and cutbacks of almost 20% in total system capacity” (10).



Source: IATA (31)

As business travel demand plummeted, the hub airports filled with idle aircraft and excess capacity. Legacy carriers, having invested billions in their hub airports, found themselves unable to quickly shift demand to other routes. Low-cost carriers, who did not face the same sunk costs, capitalized on this opportunity and dominated the point-to-point routes. Two factors, however, affected the entire industry related to 9/11 that transcended both the hub and spoke model and the point-to-point model. Following the terrorist attacks, demand for air travel dropped steeply, as travelers feared flying. Secondly, flying was recognized as an inconvenient mode of travel, since long delays persisted as a result of the tight security which discouraged many people from traveling. International airlines faced similar challenges, as Cathay Pacific Airways, whose hub is located in Hong Kong, faced an extreme drop in traffic during the severe acute respiratory syndrome (“SARS”) outbreak in 2002 and could not easily alter routes. The health outbreak forced Cathay, who primarily operates international flights, to cut its normal weekly schedule by 45% as passenger books plunged 80% (11, 12). In comparison, low-cost airline Dragonair, based out of Hong Kong, dropped 36% of its flights and adapted to demand, transferring aircraft to operate more flights to Mainland China. While both 9/11 and SARS drastically effected legacy carriers and had less of an impact on LCC’s, there are external shocks that effect the entire industry and severely impact airline’s bottom lines.

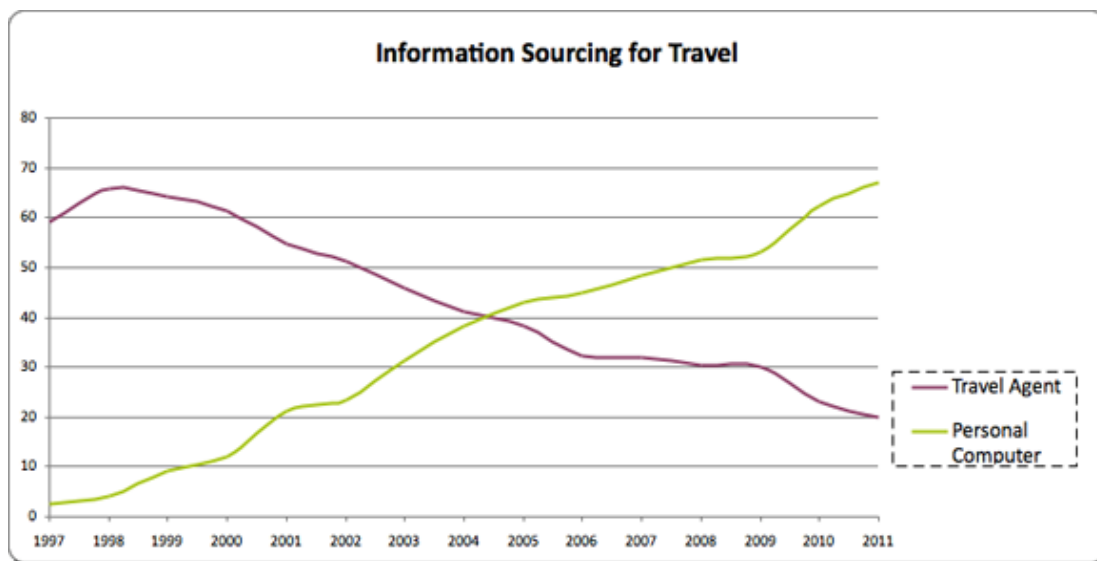
On April 15, 2010, the Icelandic volcano Eyjafjallajökul violently erupted, spewing ash several kilometers into the atmosphere, leading to the

closing of European air space for 6 days. Undoubtedly, passengers were furious as they spent nights in airports unable to depart, but perhaps a greater impact was absorbed by the airlines. The International Air Transport Association (IATA) estimates that during those 6 days, airlines lost a total of \$1.7 billion in revenue while stranding 1.2 million passengers a day (13). This type of disaster, one completely out of control of the airlines, is virtually impossible to budget for. In addition to the lost revenue, airlines also faced regulations requiring compensation for stranded passengers, in which airlines must provide accommodation and meal vouchers. Unfortunately, the industry was already forecasting losses of \$2.8 billion for the 2010 fiscal year and being forced to cover passenger expenses was devastating (13). The severity of the crisis became apparent when the Financial Times reported that “some carriers warned European Commission officials in Brussels that there could be airline bankruptcies this week” (14). In retrospect, no airline filed for bankruptcy as a direct result of the volcano crisis, but the eruption stands as a clear example of just how vulnerable airlines are to external shocks.

Internet

The rise of the Internet led to a paradigm shift in the travel industry as the growth of travel websites and direct access to airline websites essentially cut out the middlemen, the travel agents. “The transparency of pricing facilitated by the Internet and online travel distribution channels have all contributed to a precipitous decline in average fares and a significant impact

on airline revenues" (10). The likes of Kayak.com, Orbitz.com, Expedia.com, and numerous other websites have placed significant downward pressure on airfares by allowing the general public to easily compare prices across airlines, in essence increasing price transparency (20). This in essence fosters competition, as consumers are able to instantly compare prices, travel times, and dates.



Source: Gadling

(21)

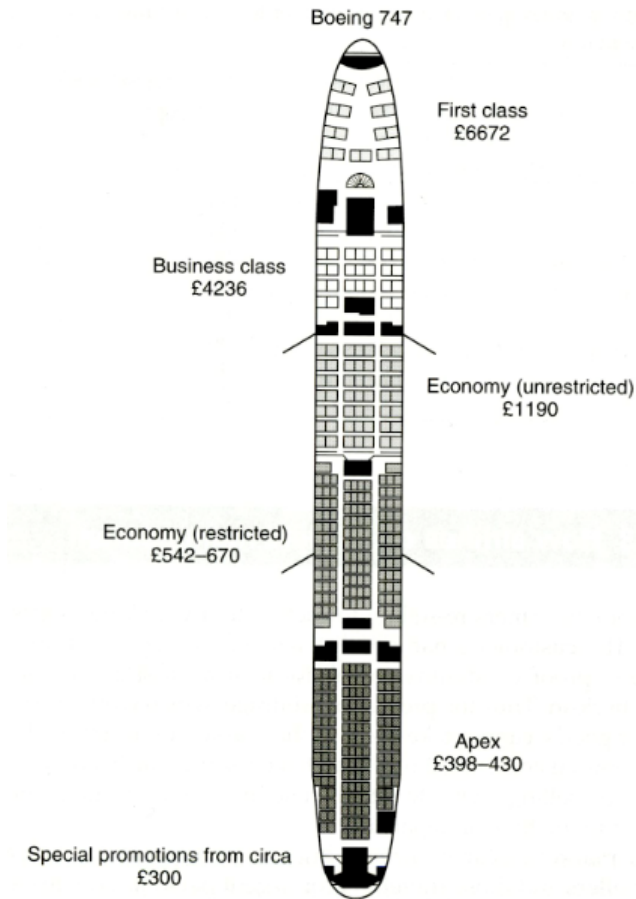
While the airline companies might not enjoy the greater transparency in their pricing, they too receive some benefits in the significant cost savings recognized through direct bookings as well as the ability to further gauge consumer preferences and demand patterns (15). Airlines also recognized that they could leverage the Internet's ability to provide instant capacity feedback, enabling both day-dependent and time-dependent price discrimination. For example, the average fare on a Monday or Tuesday flight can be as high as 3

times more than the exact same flight over the weekend (15). This capitalizes on the fact that leisure travelers are more price-sensitive and likely to alter their travel schedules around price, whereas business travelers are time pressured and therefore have inelastic demand to price.

Profitability in the Airline Industry

The ultimate challenge for airlines is selling the most tickets at the highest price and targeting the right consumers, leading to price discrimination where passengers pay different prices for the exact same route and service. Airlines face additional pressure to fill seats because empty seats are considered perishable goods, with the aircraft flying even when seats are still available. Robert Crandall, the former American Airlines CEO of 13 years, once said, "I believe that revenue management is the single most important technical development in transportation management since we entered the era of airline deregulation in 1979" (37). Mr. Crandall followed up on this belief through action, as American Airlines now credits yield management techniques as generating a revenue increase of \$500 million per year (39). Striking an ideal balance between price and demand is undoubtedly difficult, and airlines resort to copious amounts of market research to segment their customers. In the most binary form, there are 2 distinct segments; there are the business travelers and those travelling for urgent personal reasons that are price-inelastic, and then there are the leisure travelers who are price sensitive, and can alter demand to fares (36). While

there are clear differences between first class and economy, the variability of prices within economy class is sometimes substantial.



Source : Airline

book

At the extreme ends of the economy class spectrum, the least expensive seat is 4 times less than the highest economy class fare. One should note that the service and seat are identical, and the destination is the same; the only difference is in the restrictions placed on the ticket, which essentially is the ability to choose exact travel dates and change your plans without penalty. But the contribution to airline revenue is truly found in their premium cabins, where an airlines margin is highest. "For major international airlines

it is fairly typical for high-fare passengers to contribute around 30 percent of total passengers but generate as much as 70 percent of total revenue” (36). Understandably, airlines focus on filling their first and business class cabins, which more than covers the cost of their lowest fare economy class seats. One critical component of yield management is the use of overbooking, which airlines employ to try and compensate for no-show passengers. Rather than fly an empty seat if a customer does not show up, airlines overbook flights based on a historical rate of no-shows (38). However, there is a chance that most passengers show up for their flight, in which case the airlines are forced to “bump” patrons to different flights. Airlines take a financial penalty for bumping passengers in the form of compensation to the bumped customer, as well as any lost goodwill (38). It is clear that yield management is a complex process that is not a perfect science, as airlines strive to reap maximum revenue from each flight.

Chapter 2 – Managing Cost Structure

Capital-Intensive

In stark contrast with other service businesses, airlines today need more than storefronts and a few employees to start up. Rather, airline operation includes in extensive range of expensive equipment, from the airplanes to flight simulators to maintenance hangars, aircraft tugs, airport counter space and gates, and call centers (32). Companies traditionally have financed their costs through loans or public stock offerings, but recently, airlines are leasing equipment such as aircraft, baggage vehicles, and hangars,

recognizing that such leases provide greater flexibility in updating equipment while keeping upfront costs down. Leasing is defined as a contract between a lessor and a lessee where the lessor provides the lessee with the right to use assets owned by the lessor (86). There are two types of leases that airlines must decide between: operating leases and capital leases. The primary difference is the title transfer of the aircraft, which effects the accounting treatment of the lease. The Financial Accounting Standards Board (FASB) issues the regulations that specify how leases should be accounting for (86). According to FAS 13, if a lease meets one or more of the following 4 criteria, the lease should be classified as a capital lease (86).

- 1.) The lease transfers ownership of the property to the lessee by the end of the lease term.
- 2.) The lease contains a bargain purchase option.
- 3.) The lease term is equal to 75 percent or more of the estimated economic life of the leased property. However, if the beginning of the lease term falls within the last 25 percent of the total estimated economic life of the leased property, including earlier years of use, this criterion shall not be used for purposes of classifying the lease.
- 4.) The present value at the beginning of the lease term of the minimum lease payments, excluding that portion of the payments representing executory costs such as insurance, maintenance, and taxes to be paid by the lessor, including any profit thereon, equals or exceeds 90 percent of the excess of the fair value of the leased property to the lessor at the inception of the lease over any related investment tax credit retained by the lessor and expected to be realized by him.

Source:

(86)

These conditions are flexible though, and any good legal team can twist the terms to take advantage of the benefits operating leases provide. If a lease is recognized as a capital lease, an airline records the asset and a lease liability generally equal to the sum of the present value of the lease payment during

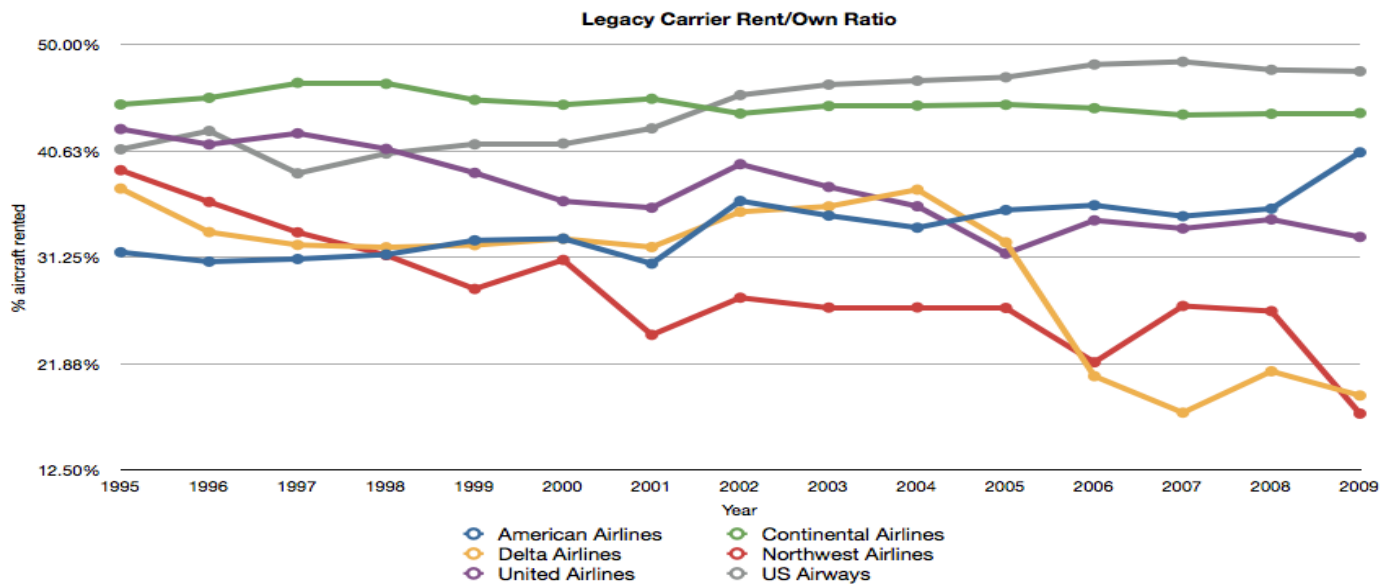
the lease term (86). Below, one can see the journal entry related to the lease, including how an airline recognizes a sale by removing the asset from its balance sheet, replacing it with a receivable (86).

Lessee		Lessor	
Leased Asset	xxx	Leased Receivable	xxx
Lease obligation	xxx	Asset	xxx

Another benefit to a capital lease is the depreciation expense relating to the asset over the economic life of the asset (86). However, because airlines try to limit their long-term liabilities, which negatively impact their capital structure, operating leases are preferred by airlines. With respect to an operating lease, the accounting treatment is entirely different, as neither the asset nor the lease liability are included on the balance sheet (86). Rather, the lease payments are treated as an expense on the income statement over the term of the lease (86).

Lessee		Lessor	
Lease Expense	xxx	Cash	xxx
Cash	xxx	Lease Income	xxx

Aircraft are very expensive – for example, the 2010 list price for a 777-300ER is upwards of \$287 million – versus a cost of \$10-15 million annually to lease a 777 (33). A common misconception is that leasing is often an expensive solution to purchasing. However, airline leases are often cheaper because “major leasing companies enjoy the benefit of bulk pricing, low margin financing and higher debt/equity ratios than an airline can or should maintain” (44). Another cited advantage of leases, in addition to the financial aspect, is the flexibility provided to airlines through leasing. As discussed earlier, the market changes rapidly, and airlines compete for popular routes and the latest aircraft innovations. For example, if a certain route, due to market changes, experiences a great increase in demand, an airline can quickly change aircraft to a larger plane to accommodate that demand. On a similar note, leasing provides airlines with an ability to mitigate obsolescence risk, as the typical 10-year lease enables an airline to update aircraft efficiently to satisfy the ever-changing desire of customers to fly on the most technologically advanced planes. Below, one can see that some legacy carriers have increased their aircraft rentals over the last 14 years while others have decreased their ratio of rentals to ownership.



It is interesting to note that both Northwest and Delta airlines, which drastically cut their rental aircraft numbers in 2004-2009, were either in the middle of bankruptcy or just emerging from bankruptcy. United Airlines was also in trouble during those years, and they too slowly decreased their rental aircraft. One reason for this decrease in aircraft rentals is because during Chapter 11 bankruptcy, creditors frequently take their planes back as airlines avoid obligations to their creditors. However, in the cases of both Delta and United, General Electric's leasing division willingly helped out both airlines by offering loans and deferrals on lease or loan payments, enabling them to keep their rental aircraft in operation (75). American Airlines is the only major carrier to avoid filing for bankruptcy, and it has increased its rental aircraft over the years. As the economy begins to pick up, and airlines see increased demand, one would expect to see another uptick in rentals as airlines seek the benefits leases provide.

Labor

In the face of exceptional challenges over the past decade, airlines have responded by announcing goals to cut costs by tens of billions of dollars.

Following September 11, 2001, airlines reported a goal of \$19.5 billion in cost-cutting measures (20). As discussed earlier, the airline industry is capital and labor intensive, so it is unsurprising that labor, encompassing pilots, flight attendants, baggage handlers, dispatchers, customer service, and others, comprises the largest portion of an airline's operating expenses. Across US airlines, labor costs accounted for 25.4% of costs in the first quarter of 2010 (23). This is due to a highly tenured workforce, higher pension costs, and work rules as a result of employing unionized labor. In addition to the pilots and flight attendants, there are four primary labor divisions in each airline: operations, sales and marketing, reservations and ticketing, and management and administrative staff (35). The operations personnel are responsible for overseeing an airline's fleet of aircraft both safely and efficiently. This involves scheduling both the routes and necessary flight crews, as well as ensuring that all Federal Aviation Administration (FAA) requirements are met. Of paramount importance are the dispatchers, who release flights only after a review of critical factors, including weather, fuel requirements, and weight distribution (35). The maintenance department also is under operations, focusing on aircraft condition to preserve the airline's most valuable capital asset, the airplanes. Maintenance is essential to an airline because it can have a direct impact on an airline's bottom line. Aircraft cost the airline's

money at all times, regardless of whether sitting idly or operating on a passenger flight. As a result, maintenance is pressured to maintain the aircraft in prime operating condition to minimize downtime. Sales and marketing are responsible for pricing, scheduling, advertising, ticket and cargo sales, reservations, and customer service (35). Undoubtedly, all of the above activities are important, but pricing and scheduling take precedence given they represent the backbone of the airline. Following deregulation, pricing has become more complex, as more airlines compete for passengers on identical routes. As a result, airfares change frequently in response to competitor's fares as well as supply and demand, so sales teams follow closely to make sure their airline is not over or under priced. The growth of the Internet has led to increased transparency in prices, as well as provided a simple means for passengers to make reservations and purchase e-tickets. The reservations and ticketing departments are focusing on adapting to the electronic changes, as airlines now begin to automate check-in and provide online seating charts (35). Lastly, the management and administrative staff oversee the airline's operations and employees, as well as evaluate strategic alliances, produce financial reports, fleet plan, and pensions and payroll (35). Of particular note are the defined benefit pension plans that the legacy carriers have offered, as these pension plans represent future liabilities that the airlines struggle to cover. If the pension plans are terminated due to insufficient funds, the Pension Benefit Guarantee Corporation ("PBGC") serves as an insurer and assumes responsibility for the remaining pension liabilities.

During dire times in 2005, when Delta and Northwest airlines were embattled in bankruptcy, the PBGC was exposed to \$23.7 billion in unfunded pension obligations (4). According to a report in 2010, the PBGC has a deficit of \$21 billion that could swell to \$34 billion by 2019 (85). There are three main options for the PBGC to deal with this deficit: 1.) Charge higher premiums, 2.) reduce benefits to current beneficiaries, or 3.) receive a capital infusion from the U.S. government (taxpayers). While mostly funded by insurance premiums paid by corporations, the PBGC is a government entity, and therefore Congress will never allow the PBGC to fail. This ultimately means that U.S. taxpayers are the ultimate backstop, providing a bailout if the PBGC deficit continues to grow. Compounding the current issue is the record low interest rates, which increase the value of pension liabilities. “When interest rates are lower, projected returns on assets are lower, requiring more money to be invested today to finance promised future benefits” (4). As a result of increasing rates, major airlines, such as United Airlines, asserted they could be forced to declare Chapter 11 bankruptcy, resulting in terminated pension plans. For an airline’s employees, this threat of terminated pension plans is undoubtedly substantial, but from a corporate viewpoint, pension costs are only a small portion of an airline’s overall unit costs; therefore, pension plans are not viewed as the primary cause of failure before an airline files for Chapter 11 (4).

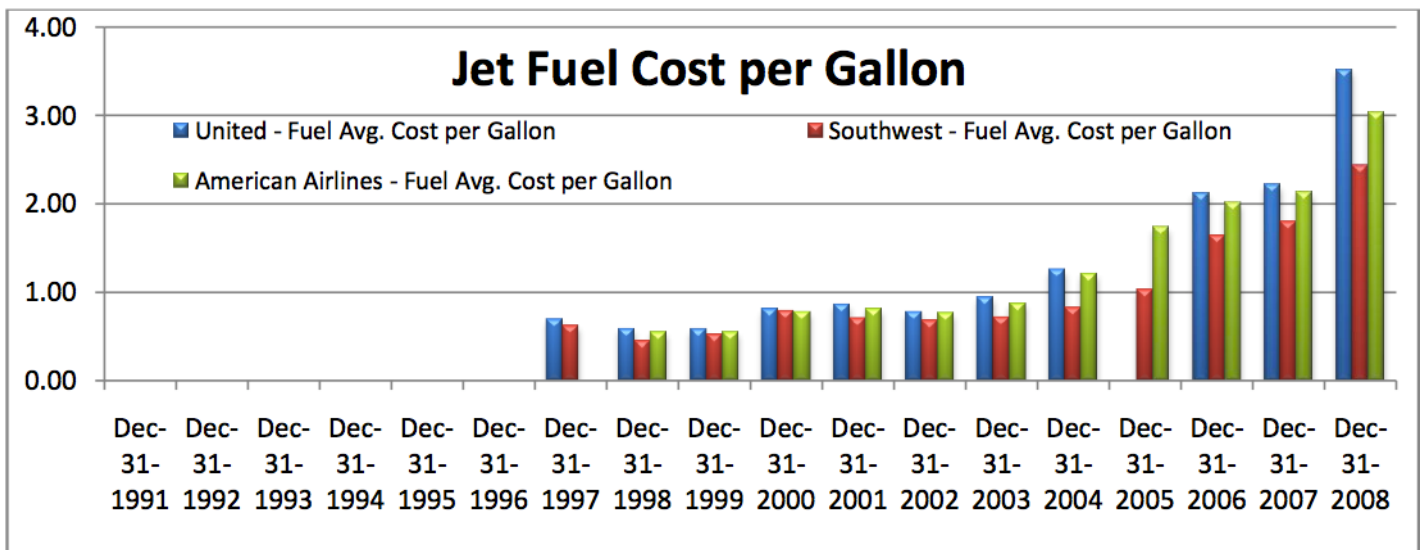
Fuel Cost and Hedging Policies

On average, fuel cost constitutes 20-30% of an airline's operating costs, representing the second largest expense (16). There are several factors that contribute to the price of jet fuel, namely "interrupted refinery operations; environmental regulations; surges in regional demand; seasonal swings in demand; supply disruptions caused by natural disasters, military conflict or geopolitical events; and market speculation" (16). While management cannot plan for natural disasters like Hurricane Katrina, they can strategically plan for the differences in regional jet fuel prices. According to GlobalAir, which tracks current jet-fuel pricing, fuel on the West coast of the United States is 20-40 cents higher on average than in the Midwest or on the East coast (17). This differential is primarily due to logistics and distribution capabilities, as a majority of oil refiners exist in the Middle East, Midwest, or the East coast; therefore, fuel must be transported West. As such, management and operations continuously seeks to lower fuel costs and will sometimes load an aircraft with more fuel than is needed for a particular flight because fuel maybe more expensive at the destination (16). Other critical operational and planning techniques aimed a fuel conservation include:

- employing single-engine taxi procedures during normal operations and selective engine shutdown during ground delays
- reducing and measuring more accurately onboard weight while redistributing belly cargo
- cruising longer at higher altitudes and employing shorter, steeper approaches
- optimizing flight planning for minimum fuel-burn routes and altitudes
- modernizing their fleets with more fuel-efficient airplanes
- redesigning hubs and schedules to alleviate congestion
- altering the location in which fuel is purchased (i.e., to avoid higher-priced West Coast)

However, another option exists to potentially decrease fuel costs: fuel hedging. A fuel hedging strategy is often implemented as a risky tactic that can either mitigate costs or increase costs depending on the hedge contract and market price of fuel. The basic premise is to purchase a contract that locks in a fuel price in the future, at which point the airline will pay that strike price should the price of fuel increase above the spot (current) price. When evaluating hedges, there are three primary ways an airline can manage its fuel price risk: 1.) Forward contracts, 2.) Futures contracts, and 3.) Options, collars, and swaps (73). The primary difference between forward/futures contracts and options is that options grant the airline the right to buy or sell at a specified time without obligation, whereas forwards and futures contracts will result in direct losses if fuel prices fall below the contract price as there is an obligation to pay the contract price. Most airlines currently combine the range of instruments available, seeking to minimize premiums paid for options (73). Hedging can be characterized as an insurance policy against unforeseen spikes in jet fuel prices due to external factors such as natural disasters and increases in demand. Airlines in essence aim to protect their profits from sudden movements in oil prices, and sometimes, the difference on an airline's bottom line can be striking. For example, AMR, American Airline's parent company, saw its fuel bill fall by \$1.8 billion for the first half of 2009, while on the flipside, Delta Air Lines booked a loss on their hedges of \$390 million in the second quarter of 2009

(18). Delta booked large losses because it was locked into paying materially higher fuel prices when fuel fell below its contract price. This polarizing result is an outcome of both airlines' risk management strategies. Delta, in its annual report, noted that it wrongly expected an increase in fuel prices during the summer of 2009, and when fuel prices fell, it reported the loss we see above. While the specific hedging strategies are not detailed in their annual reports, there are a number of different derivative contracts that management can use, and each one will provide different results. Southwest Airlines is widely regarded as the most successful airline with respect to fuel hedging, which one can see below.



Source: (80)

This figure shows Southwest's competitive advantage in jet fuel price compared with United and American (80). While the types of contracts used do not vary significantly across airlines, companies such as United tend to use far more complex combinations, as opposed to Southwest, which relies mostly

on plain vanilla contracts (80). Furthermore, Southwest hedges far more of its fuel costs, with 80% hedged in 2008, as opposed to only 50-55% on average for competitors (80). This shows Southwest's management has great faith in its financial department to bet correctly on the future price of oil. Lastly, fuel hedging provides airlines with the added benefit of being able to forecast future fuel expense, as the airline will know how much it will be spending, how much service it needs to offer, and what it needs to charge to cover its fuel expense (81). Upon being able to predict the amount of service needed, an airline can estimate its landing fees associated with each flight.

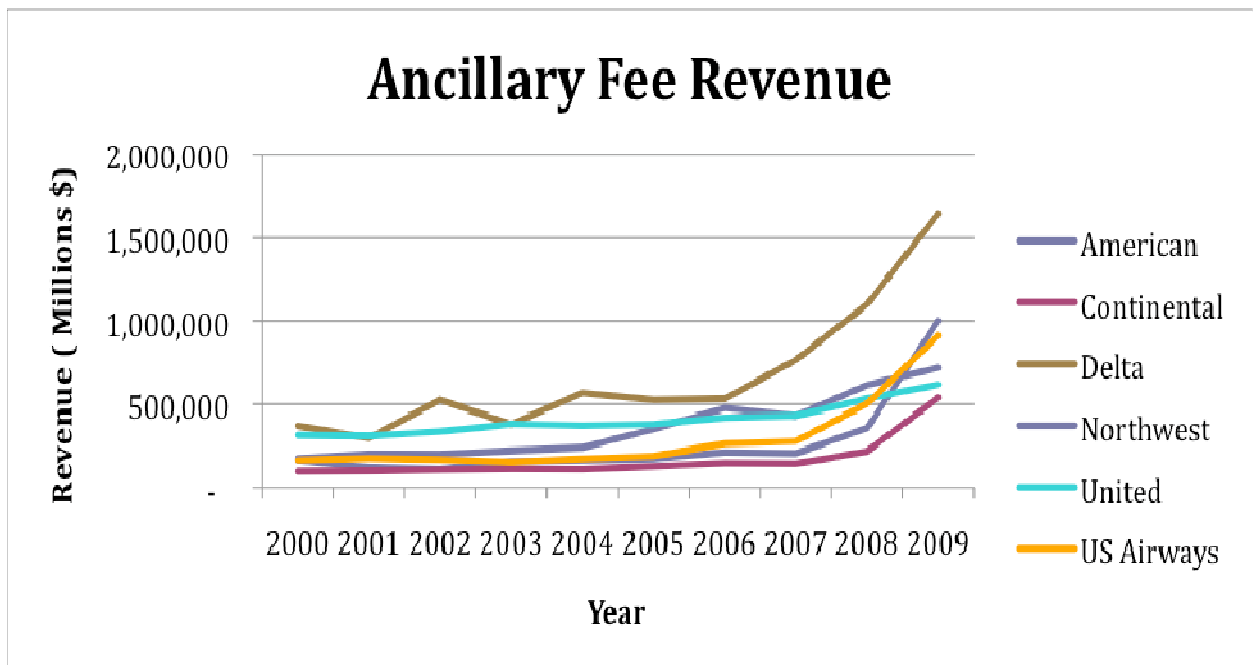
Landing Fees

Airport and en-route charges are a significant element of flight operation costs. Both private and public airports charge airlines for use of their runway and terminal facilities. Airport charges include landing fees, which are based on the weight of the aircraft, as well as a passenger charge levied on the number of passengers boarding at the airport (46). These fees are quite considerable taking into account the number of aircraft landing and departing each day. Currently, Toronto Pearson charges the highest landing fees in the world, at \$2,250 for an Airbus A320 (48). This is not only 15% higher than the next most expensive airport, Wellington New Zealand, but also 1,400% greater than the least expensive airport, Charlotte Douglas (48). In total, these fees makeup 11% of airline revenues and are the second largest external cost to airlines after fuel (47). From this data, it is clear that because such airport charges are considerable, airlines will fly fewer planes into the

priciest airports and try to maximize their load factors during times of high fuel prices.

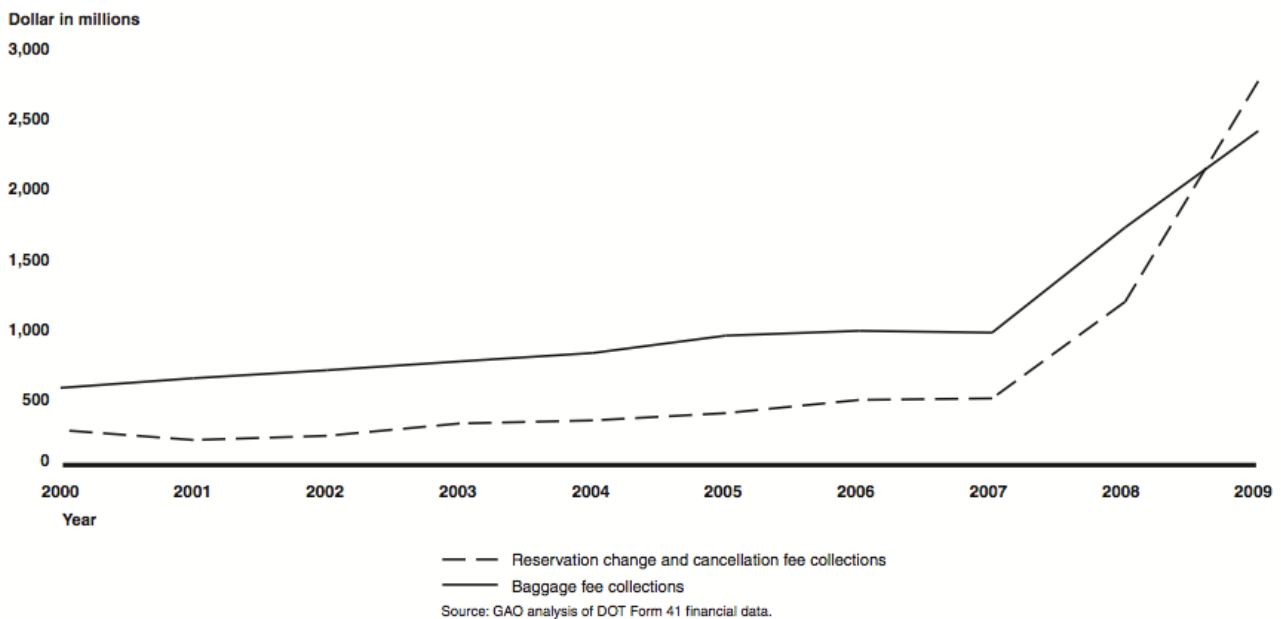
Ancillary Fees

In response to the most recent economic downturn, airlines began charging separate fees for services that were previously complimentary. These services include: checked baggage, food and beverage, seat selection, priority boarding, ticket changes, reservation methods (booking by telephone versus internet costs extra), and lastly, carry-on baggage fees (39). These fees make a large impact on the airline's bottom lines, with the Bureau of Transportation Statistics ("BTS") reporting ancillary fees on average made up 6.6% of total operating revenue (40). Below is the revenue breakdown over the past decade for a collection of U.S. legacy airlines.



The popularity of ancillary fees has grown exponentially, with further increases likely as there was an 18.3% year over year increase in fees from 2008 to 2009, highlighting the airlines increased use (40). The latest data from 2nd quarter 2010 also shows an increase in ancillary fee revenue of 15.8% from 2009 (41). The ancillary fee adoption by U.S. airlines all began in 2008 when United Airlines introduced checked baggage fees, and the airlines revenues have grown exponentially since. Below is the total revenue of all U.S. airlines for the three largest ancillary fees: baggage fees, reservation changes, and cancellation fees.

Figure 4: Total Collections of Baggage Fees and Reservation Change and Cancellation Fees by U.S. Airlines, 2000-2009 (2010 dollars)



Both the checked baggage fees and reservation change and cancellation fees make up the largest portion of ancillary fees, 42.5% and 28% respectively in the 2nd quarter of 2010. Airlines now find themselves competing on such fees

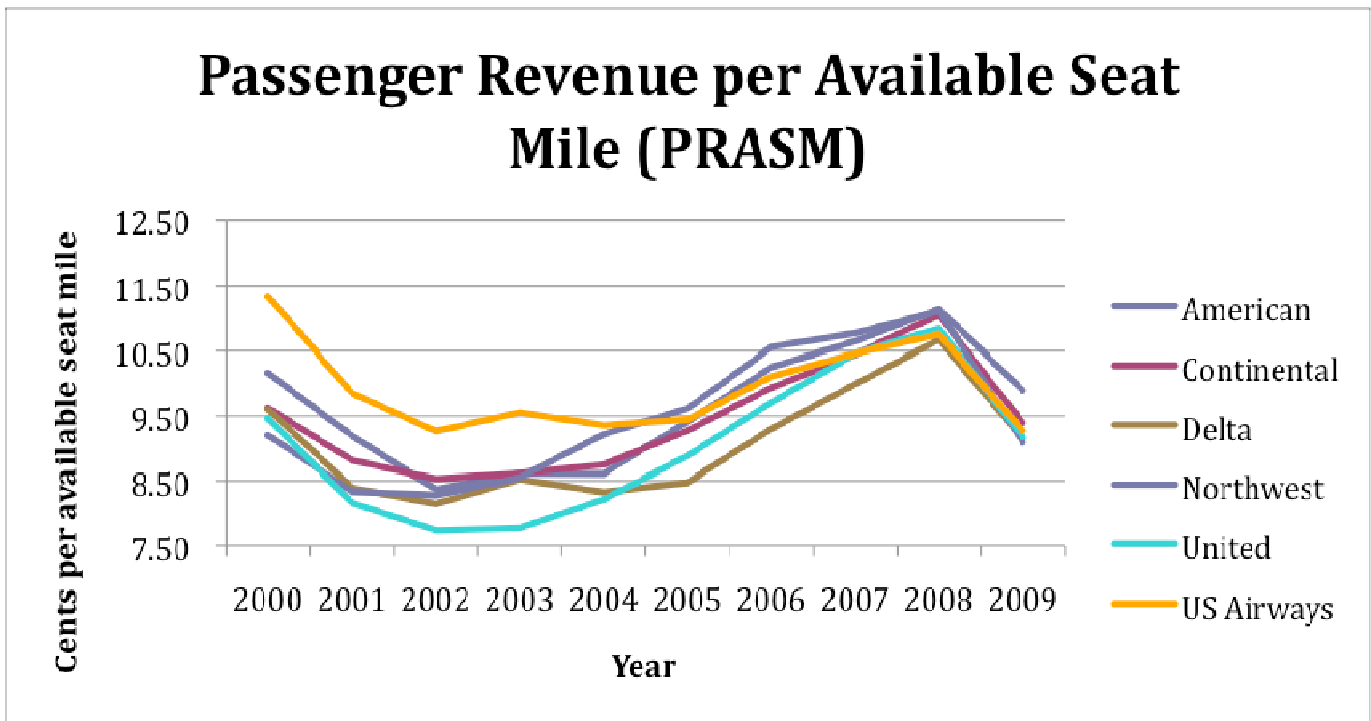
as well, both on price and existence. For example, most U.S. airlines now charge \$23 or \$25 for a first checked bag, yet Southwest and JetBlue do not charge and advertise this competitive advantage (39). In 2009, United Airlines put a new twist on baggage fees by offering travelers a \$249 deal wherein one has the right to check two bags for “free” every time he/she flies within 1 year (76). This is a very interesting strategy because United receives money upfront from the customer, breeding loyalty and enticing passengers to remain United patrons for future travel in order to fully benefit from their upfront expense. With respect to change fees, Alaska Airlines charges \$75 if done online, yet other major airlines such as American, Delta, Continental, and United all charge \$150 (39). However complex the different pricing is, it is safe to say that a la carte pricing is now an engrained part of the industry and here to stay.

Chapter 3 – Performance Metrics

The airline industry is undoubtedly a very complex industry, and when comparing airlines, it is critical to understand the key industry metrics. Upon reviewing industry specific metrics, one can uncover why some airlines are profitable and others slump into bankruptcy. The data will reveal why certain airlines are more efficient than others in both cutting costs and generating maximum revenue from each passenger. Revenue metrics will be discussed first as they provide context when expenses, finances and operating elements are analyzed.

Revenue Metrics

The dramatic changes to the airline industry over the past decade have led managements to focus less on traditional revenue metrics and focus more on metrics specific to airlines. As such, rather than looking at system total operating revenue when comparing airlines, one can glean more information from system passenger revenue per available seat mile (“ASM”), also known as an airline’s PRASM. Typically reported in cents per mile, PRASM is the amount of passenger revenue earned per ASM (49). Below, one can see the PRASM for major U.S. carriers.

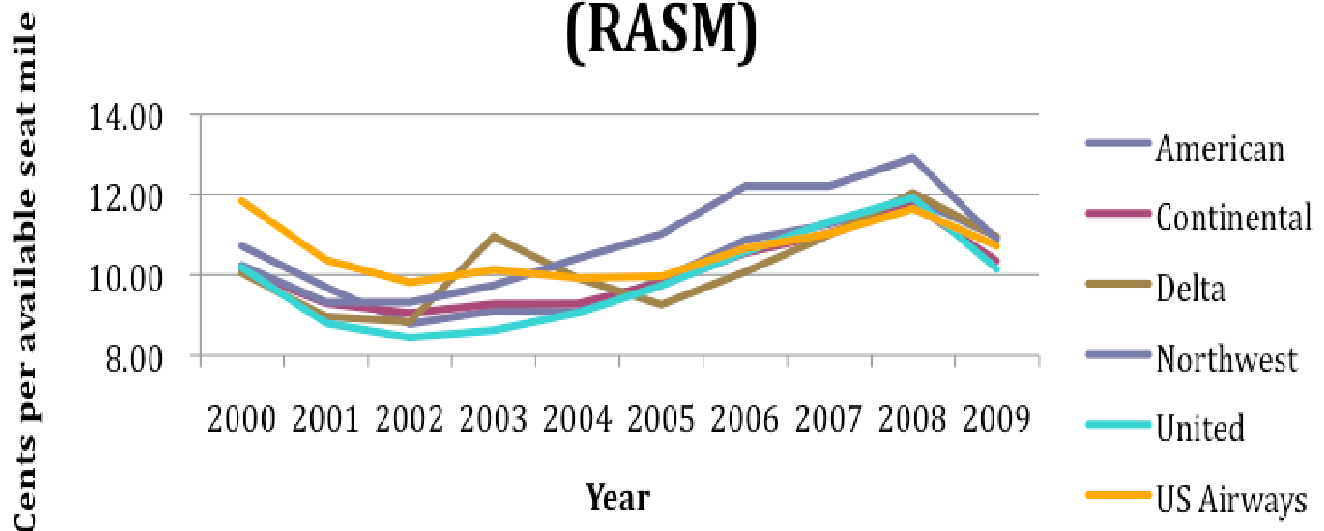


It is worth highlighting both United and Delta Airlines in the chart above. Both consistently have the lowest PRASM, meaning that they earn less revenue for every available seat mile than other major carriers. United bottomed out at just above \$7.5 cents in 2002, which not coincidentally is when United entered bankruptcy. The same is true for Delta Airlines, which in

2005 reached its low-point, and subsequently found itself in Chapter 11 bankruptcy for the next two years. However, beginning in 2005, there is a clear uptick in PRASM that is primarily due to higher ticket prices for business travelers and a growth in international routes (50). The oil shock in 2008 drastically cut into airline's margins, as their fuel expenses skyrocketed, leading to the kink in PRASM above. Lastly, one should note American Airlines, whose PRASM consistently is in the top tier. Unsurprisingly, AA is the only major U.S. carrier to avoid filing for any form of bankruptcy.

Revenue per available seat mile ("RASM"), which includes both passenger revenue as well as revenue earned from freight, is also commonly used to compare airlines. RASM, expressed in cents, represents how much revenue an airline generates per seat and per mile flown (49). In theory, a higher RASM translates into higher profit, and as we see below, many of the same trends expressed above in the analysis of PRASM, hold steadfast.

Total Revenue per Available Seat Mile (RASM)

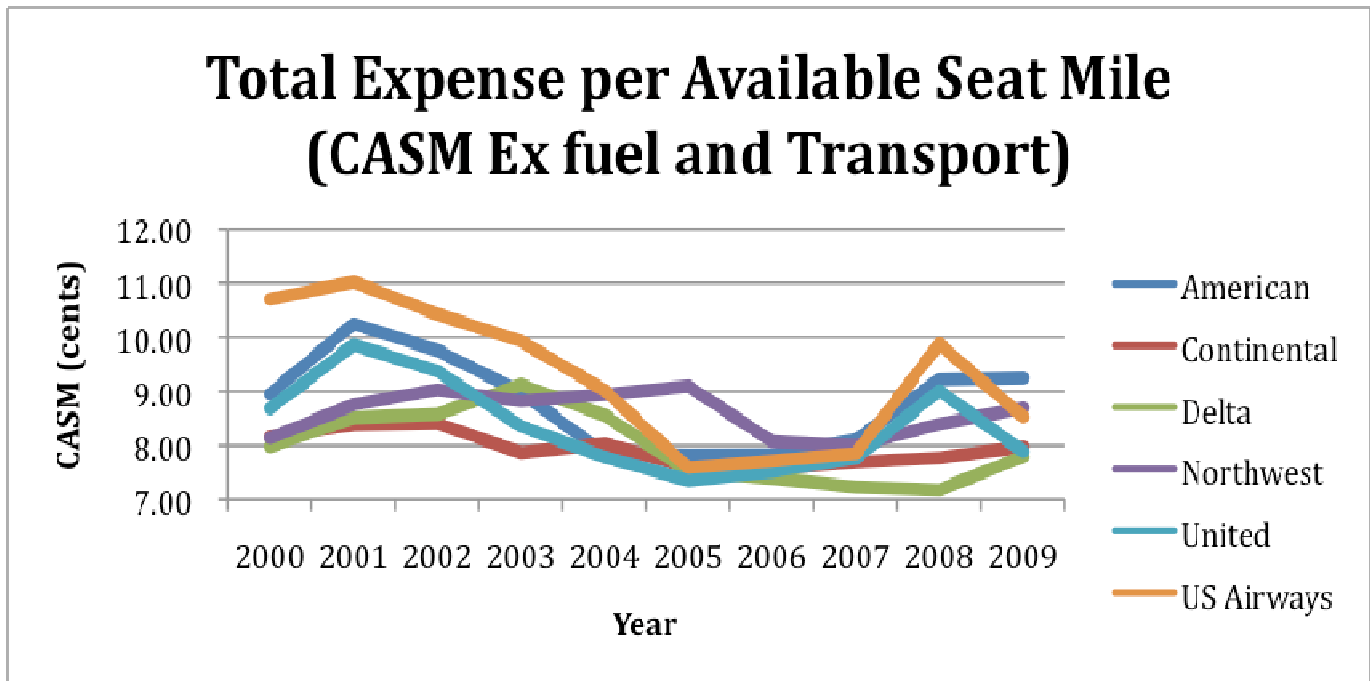


From the above chart, one can see American Airlines again generating the highest revenue per available seat for most years, likely due to an optimization of its yield management system. This would translate to higher revenues as AA finds a way to induce its customers to pay higher fares while keeping its airplanes full. In essence, it has found a way to sell as many high priced seats as efficiently as possible (51). While not shown, it should be noted that revenue forecasts for 2010 are improving, and another uptick in RASM is expected across the board for the major U.S. carriers.

Expense Metrics

Analyzing airline expenses exposes a significant difference between the airlines that dedicate themselves to serious cost-minimizing and those that place less value on it. U.S. carriers have become obsessed, and rightfully so,

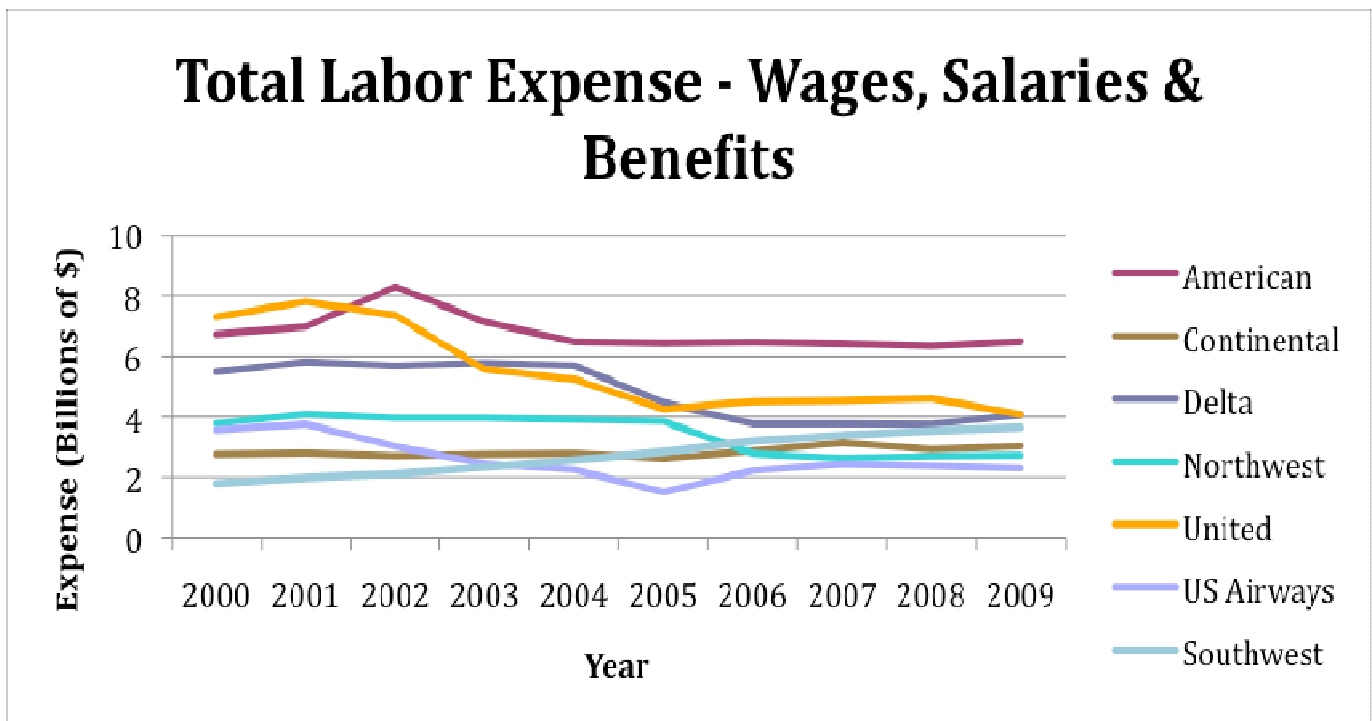
with trimming their costs per available seat mile, or CASM. The lower an airline's CASM, the more efficient the airline is operating and thus the more likely the airline will be profitable and avoid bankruptcy.



Given the volatility and uncontrollability of fuel prices over the past decade, I have excluded fuel expense from this CASM calculation to extract a truer expression of management's success in managing other operating costs. US Airways, for the greater part of the past decade, has had the highest CASM, and it is no surprise that US Air is the only airline to fall into Chapter 11 bankruptcy twice in 5 years. For example, in 2008, US Air's costs were 30% higher than Delta's, eating into US Air's profit margins. What is even more striking about this difference is that after Delta's merger with Northwest in 2008, they had over 40,000 more employees than US Air, which would lead one to assume that Delta's costs were higher than those of US Airways.

However, this was not the case as one can see from the difference in costs between Delta and US Air for 2008.

Labor relations have haunted the airline industry for decades as unions constantly seek to renegotiate contracts and strike when their demands are not met. It is a perpetual tug-of-war battle between the airlines who strive to cut costs to avoid bankruptcy and the labor unions seeking higher wages or better benefits. Below, one can see a comparison of the labor expenses for the top U.S. airlines, as well as for one low cost carrier, Southwest, who is also heavily unionized yet has superior labor relations because of its relaxed labor agreements which allow for the cross-utilization of employees (55).

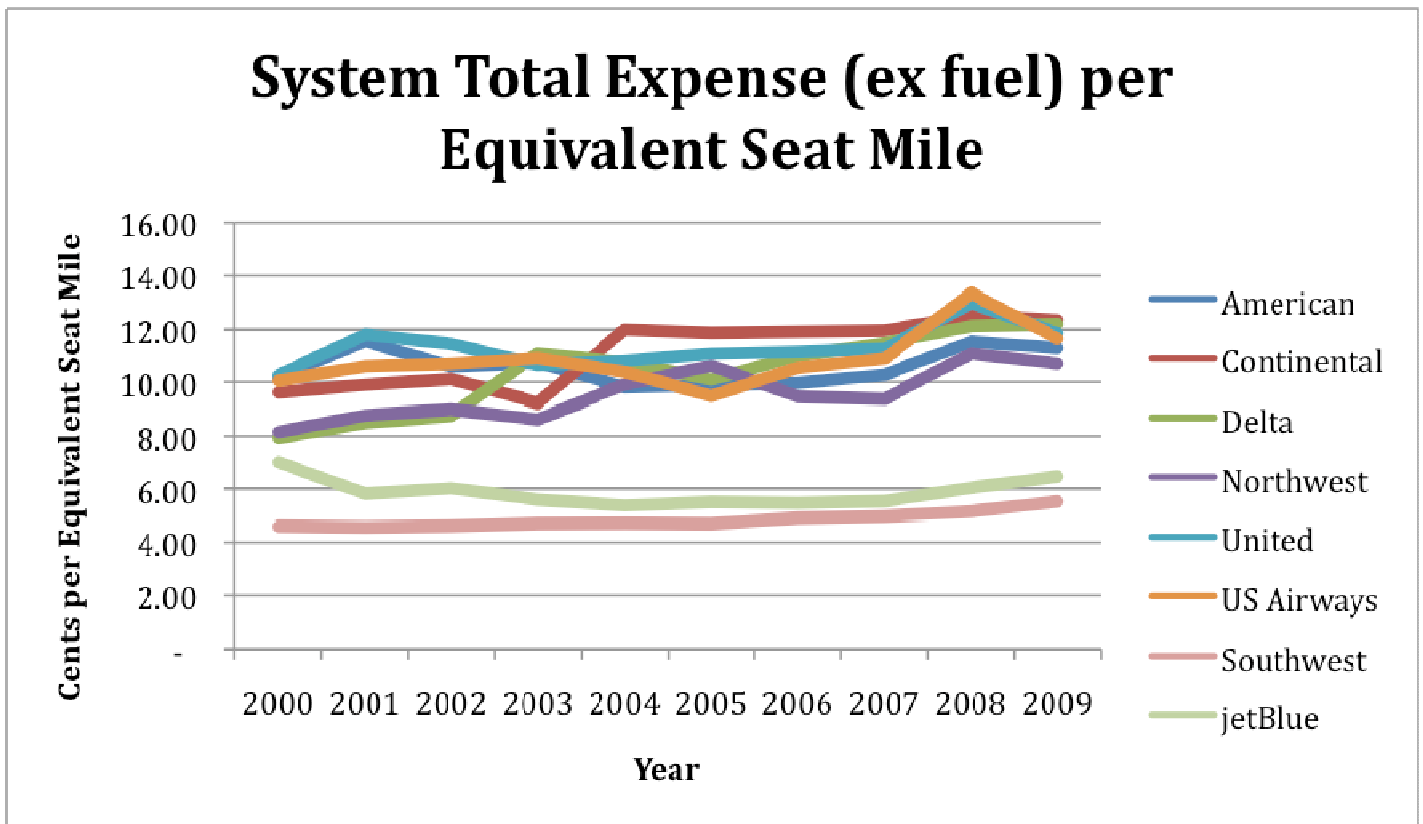


American Airlines and US Airways are great examples to look at when discussing labor relations. American Airlines faced rising labor expenses beginning in 2001-2002, and was on the verge of Chapter 11 bankruptcy in

early 2003. As such, AA successfully fought for employee concessions in the forms of wage, benefit, and work rules to avoid bankruptcy (53). This is evidenced in the chart above by the peak and subsequent fall in labor expense American experienced in 2002-2003. Similarly, US Airways, following its entrance into Chapter 11 bankruptcy in 2003, successfully negotiated over \$1 billion in cuts to avoid liquidation (53). Management pointed the “liquidation gun” at workers’ heads to get their proposed cuts passed, which included pay cuts of 13%, cuts in pay for vacations, and mechanics having to pay double for their health insurance (77). Southwest Airlines, for despite being a low-cost carrier, faces a labor force that is 83% unionized (54). Southwest has avoided labor unrest because of its favorable terms with its unions, such as cross-utilization of jobs where each employee can cover for more than his or her specific role (55). This leads to increased efficiency and lower overhead costs, as well as asking employees -- even pilots -- to clean the plane upon arrival since they are not restricted in their union defined duties (55). Additionally, the respect Southwest’s management demonstrates for employees leads to a great relationship for the betterment of the company. As Southwest’s former CEO Herb Kelleher said about his employees, “We’ve never treated them as adversaries. We’ve always treated them as partners, because if that canoe goes down, we’re all going down with it” (78). The legacy carriers must treat their employees as allies in the quest to succeed and turn a profit. If they can garner a positive relationship with their unions, they can negotiate similar labor terms to Southwest, which will not only lower their labor costs but

could also increase their bottom line by lowering overhead costs as well.

While analyzing expenses, stage length is an important element to consider, as this refers to the average flight-times of a particular airline. As stage length increases, costs tend to go down, which bodes well for long-haul airlines that have fewer takeoffs and landings (52). However, the data below is stage length adjusted, meaning that it has been normalized across carriers for comparison purposes.



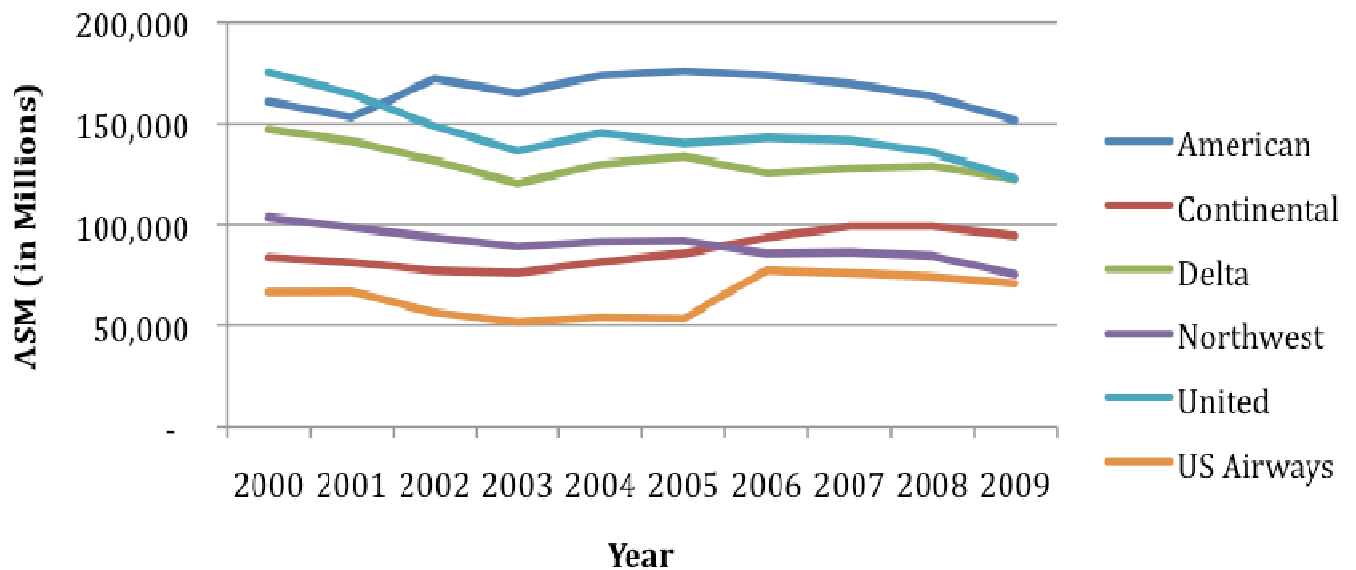
I have included 2 low-cost carriers, jetBlue and Southwest, for comparison purposes. As expected, they have the lowest costs per seat mile by a wide margin, which is testament to their efficiency. While it remains valid that long-haul routes are typically most efficient for major airlines, Southwest Airlines is unique in that it has proven success in short-haul flights. SWA has

achieved this feat by optimizing the time each aircraft spends on the ground, which is non-revenue producing time for the aircraft (79). As such, Southwest is known for its quick turnarounds of aircraft, which is due to a number of factors, including employee productivity and the benefits of flying only one aircraft, the Boeing 737 (79). On the contrary, an airline like US Airways is not nearly as efficient, and its cost line closely tracks its bankruptcy pattern. For example, its costs were high going into 2002, before falling as it entered bankruptcy in August of 2002. After emerging in 2003, US Airways re-entered bankruptcy in 2004 and emerged in 2005 after merging with America West, at which point its costs rose and it absorbed the impact of the merger. However, if the legacy carriers want to succeed in the long run, it is imperative that they strive to achieve the low costs facing the LCC's, who average 5 cents per seat mile.

Traffic and Capacity Metrics

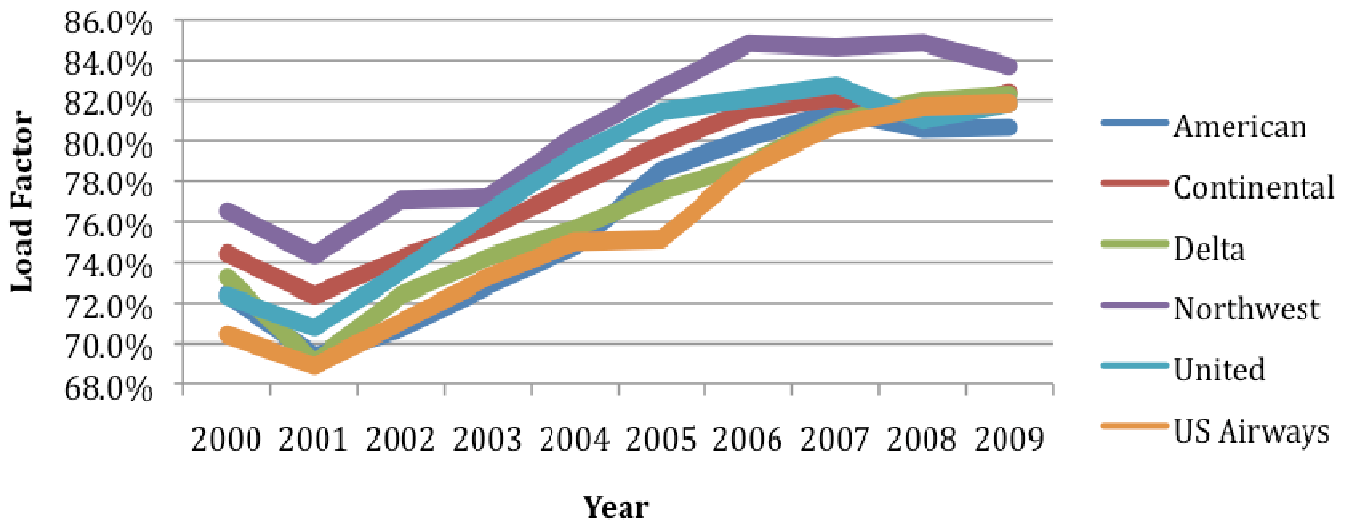
The most fundamental metrics related to the airline industry are traffic and capacity, which are used as the basis for unit revenue and unit costs. They also provide the essential metric of load factor, which measures the percentage of seats sold out of the available seating capacity. Total available seat miles ("ASM") determines which airline has the largest carrying capacities, as ASM is calculated by multiplying the number of seats by the number of miles flown.

Total Available Seat Miles (ASM)



A higher ASM signals airline growth as capacity is added through increasing fleet size and/or adding new routes (56). On the contrary, when travel slumps and demand drops, airlines often cut their ASMs to reduce their operating expenses, which is a trend we can see above as airlines have reduced their ASMs following the likes of September 11, 2001 and the oil spikes of 2008. Having quantified the largest airlines by capacity, the next logical step is to look at the load factors for each airline.

System Total Load Factor for Legacy Carriers

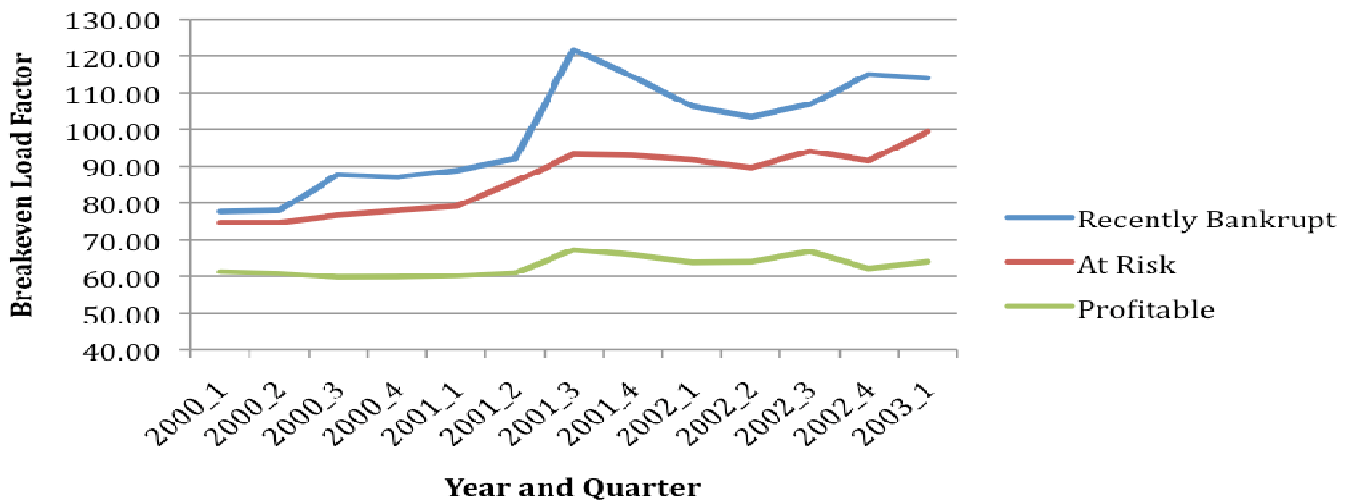


Airlines strive for the highest load factor, as they face high fixed costs for each plane flying. Because the plane will typically fly regardless of its load factor, the airline will lose revenue for each seat unsold as it absorbs operating costs, such as fuel, labor, and landing fees. It is therefore critical for airlines to attempt to sell each seat, as the airline with the highest load factor is likely generating the most revenue from each flight. Since reaching their low points in 2001, airlines have steadily increased their load factors by an average of 11.3% (data from excel). This is primarily due to more efficient and sophisticated yield management systems, which enable the airlines to more accurately estimate demand at different price levels, translating into more sold seats. In addition, some airlines have also reduced the number of flights, which increases load factor due to offering less capacity yet facing

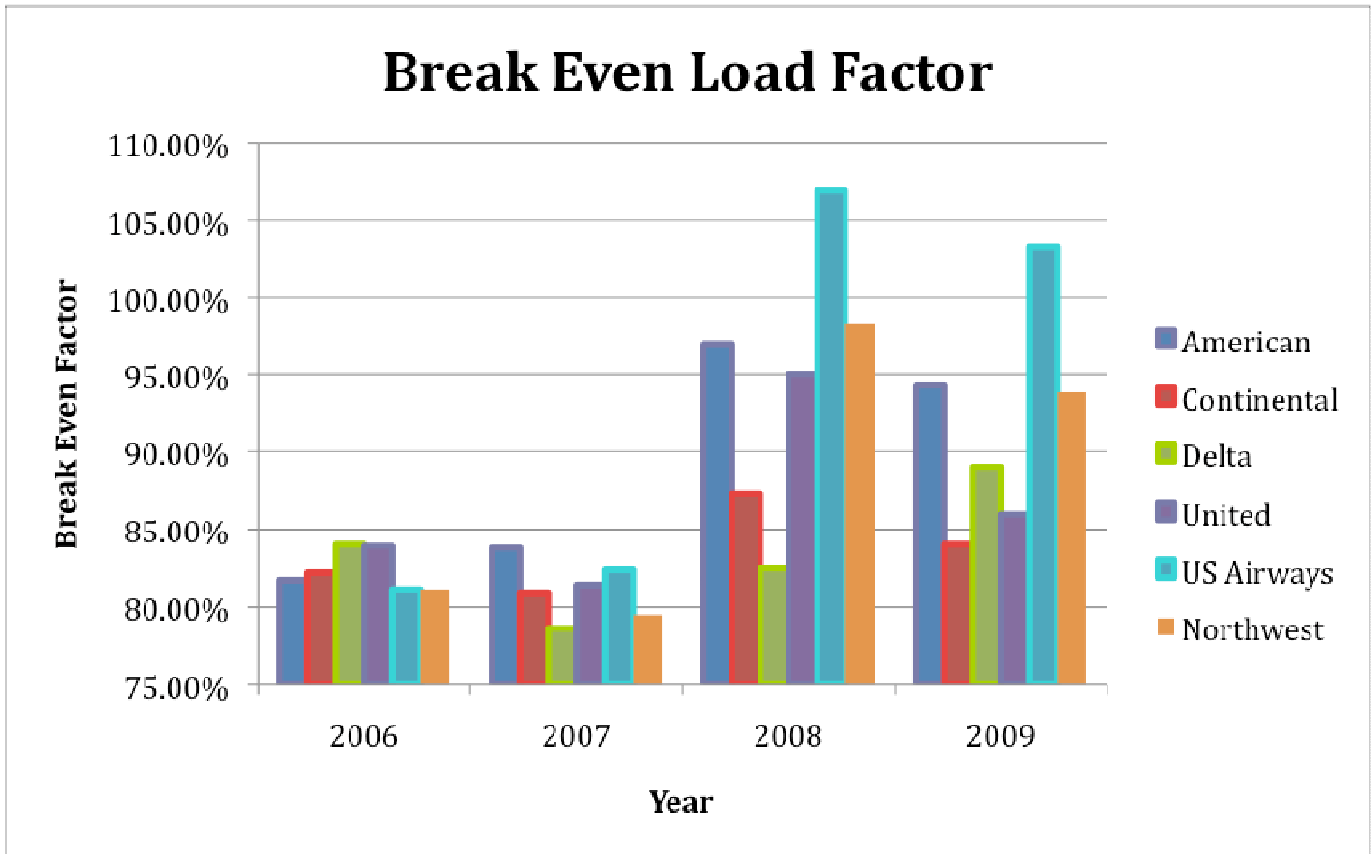
rising demand. However, while load factor provides insight into how much revenue an airline generates from each flight, it disregards the expenses. It is critical that one look at the breakeven load factor, which incorporates both revenue and expenses, to identify which airlines are most efficient and squeezing out profit from each seat sold.

Breakeven load factor ("BLF") is the average percent of seats that must be filled on an average flight at current average fares for the airline's passenger revenue to breakeven with the airline's operating expenses (57). Since 2000, most major airlines suffered sharp increases in their BLF to the point where some carriers could not cover operating expenses even with 100% of their seats sold (57). The Bureau of Transportation Statistics ran a study in 2003 that sought to identify the BLS differences between recently bankrupt airlines (ex: United and US Air), "at risk" airlines (ex: Delta and Northwest), and the profitable airlines, which is only Southwest. The data below shows a clear difference in BLF's between the different groups, which shows how critical the BLF is when comparing airlines' efficiencies.

Quarterly Breakeven Load Factor 2000-2003



The most pronounced increase from 2001-2003 for the recently bankrupt airlines shows that at a BLF of 114%, the likes of United and US Air could not earn money even when flying 100% full because of their exorbitant unit costs. By contrast, the profitable group has steadily stayed below a 70% load factor, which explains why a low-cost carrier like Southwest can undercut the legacy carriers' airfares. Southwest is simply more efficient in controlling costs, enabling them to profit from flights which are not 100% full. When looking at the legacy carrier's breakeven load factors for the past 4 years, one sees similar trends between airlines that recently filed for chapter 11 bankruptcy and airlines who have escaped filing.



US Airways in recent years, most notably in 2008, has such high costs that their BLF is again above 100%, implying that US Air is incapable of recovering its fixed costs. Interestingly, American Airlines, the only airline of the group above not to file for bankruptcy, has a high BLF relative to its competitors. However, it has stayed afloat by refinancing its debt and renegotiating its labor contracts. Another interesting time period to look at is 2007, in which both Delta and Northwest emerged from bankruptcy, and their cost cutting measures enacted during bankruptcy are reflected in their low BLFs during 06' and 07'. Moving into the next decade, it is imperative for the major U.S. airlines to reduce their break even load factors to levels experienced during the mid-2000s by focusing on reducing their unit costs, thereby increasing

their margins.

Chapter 4 - Case Study

The following case study employs the array of industry metrics discussed above to determine major factors that contributed to Trans World Airlines' (TWA) filing for Chapter 11 bankruptcy while American Airlines ("AA") succeeded in the same time period from 1997-2001. This time period was chosen because SEC filings were available, providing valuable insight into the stark differences between the two airlines. TWA was a major U.S. carrier that was founded in 1930 and operated for 71 years until it fell into bankruptcy in 2001 and was subsequently acquired by American Airlines. This ended a tumultuous decade for TWA, which filed for Chapter 11 bankruptcy twice in the 1990s.

Trans World Airlines was formed following the merger between two domestic airlines, and sought to completely cover the coast-to-coast route (58). The airline quickly grew over the next decades, ranking as the seventh largest U.S. airline in the 1990s (58). However, trouble began in 1979, when Trans World Corporation, the parent company of TWA, decided to sell its airline (58). Infamous corporate activist Carl Icahn acquired the company in 1986, which he quickly took private in an attempt to drastically turn around the airline. By the end of 1988, TWA was facing nearly \$4 billion in debt and an angered labor union, which blamed Icahn for poor management (58). In 1992, TWA filed for Chapter 11 bankruptcy for the first time, forcing its 28,000 employees to make 15% wage and work concessions in order to keep

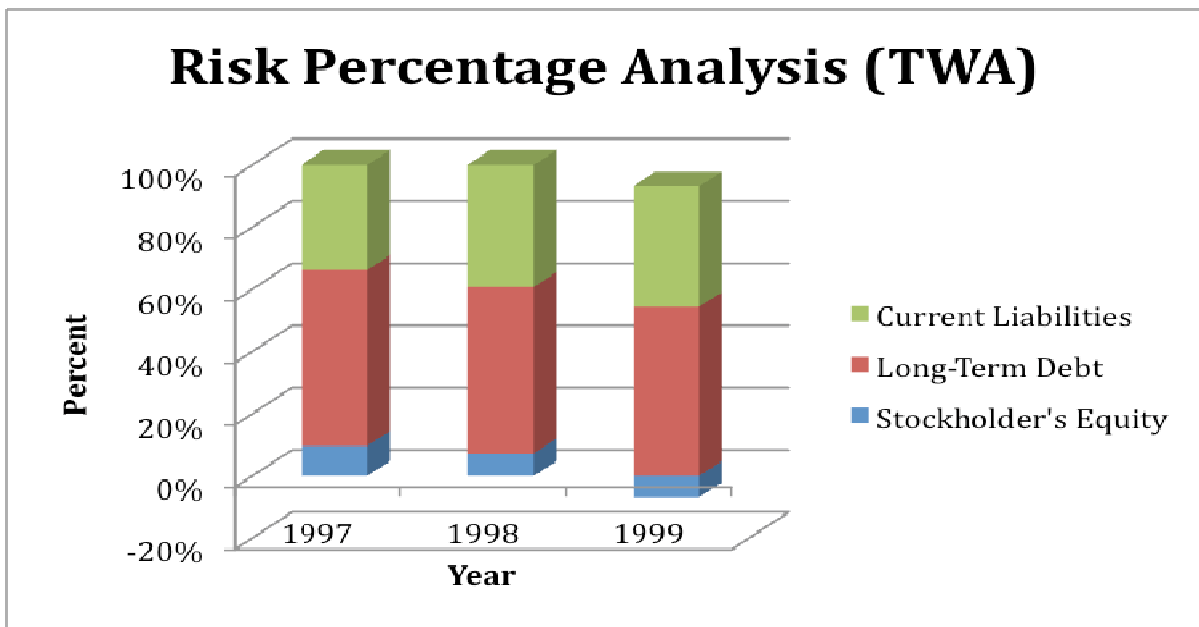
the company afloat. TWA continued to post losses in the mid-1990s as its reputation tumbled, leading to another filing for bankruptcy in 1995 to shed \$500 million of its \$1.7 billion in debt (58). Its losses continued piling up through 1997, in which TWA was the only major airline to lose money, while other major airlines continued to post banner years (58). Four years later in 2001, TWA filed for Chapter 11 bankruptcy for the 3rd time under a mountain of debt, and was acquired by American Airlines. The question begs: Why was TWA unprofitable as its competitors posted large gains?

American Airlines (“AA”) was also founded in 1930 and is now the world’s second-largest airline in passenger miles transported (59). AA is perhaps most famous for pioneering the hub-and-spoke system following deregulation in 1978, both of which spurred its dramatic growth. The decade leading up to September 11, 2001 was particularly strong for AA, as it founded its global alliance Oneworld, which opened up routes around the world for AA and increased its capacity (60). Because of its industry leading financials from 1997-2001, American Airlines was a prime example of an airline who successfully grew during the same years TWA slumped and eventually crashed.

Before looking at industry specific ratios, it is useful to examine some standard accounting ratios to provide a solid base of analysis. When undertaking a risk analysis, it is important to keep in mind the association risk and debt have with one another. As debt is frequently used to leverage spending, it becomes crucial in looking at the likelihood of bankruptcy, as a

company with a heavy debt load is likely headed towards filing for Chapter 11. In TWA's case, both long-term debt and current debt accounted for a progressively growing portion of total liability and stockholder's equity.

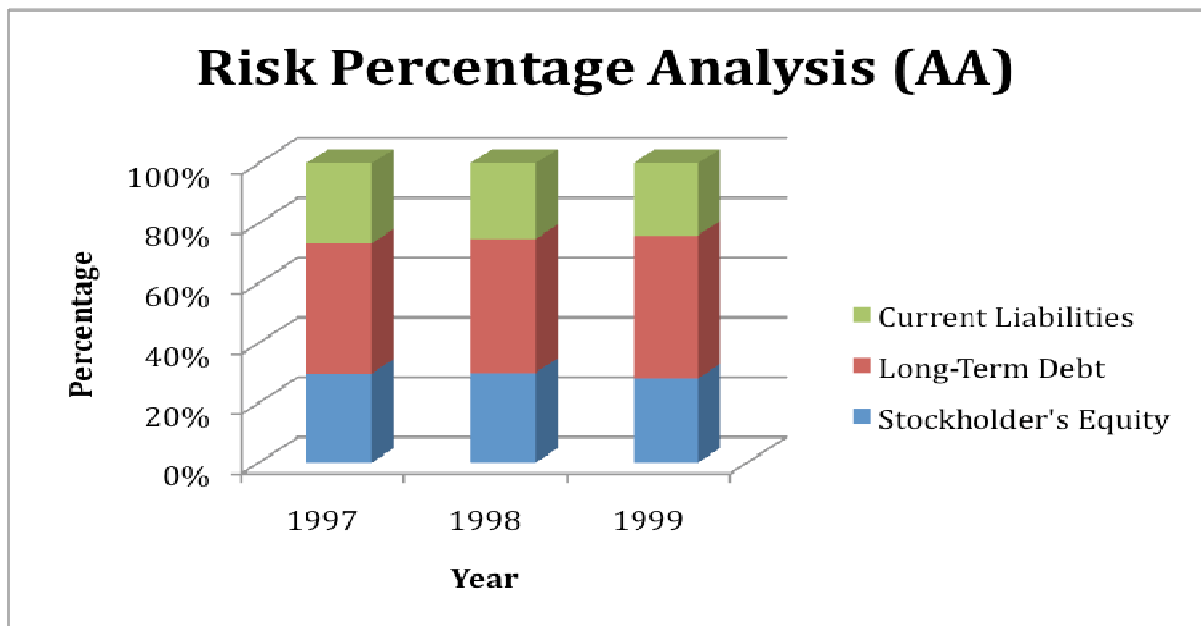
	1997	1998	1999
Current Liabilities	33%	39%	45%
Long-Term Debt	57%	53%	63%
Stockholder's Equity	10%	7%	(8)%



TWA's rising long-term debt levels were yet another sign that the company was headed towards filing for bankruptcy. Between 1998 and 1999, its long-term debt rose 10% to 63%, while its stockholder's equity decreased 15% as a result of total liabilities being greater than total assets. Debt as a growing part of TWA's financing was a clear sign of a looming bankruptcy filing. On

the contrary, American Airlines during the same period was in a much healthier financial state, as its stockholder's equity was far higher and its debt levels 20% lower on average.

	1997	1998	1999
Current Liabilities	27%	25%	24%
Long-Term Debt	43%	45%	48%
Stockholder's Equity	30%	30%	28%

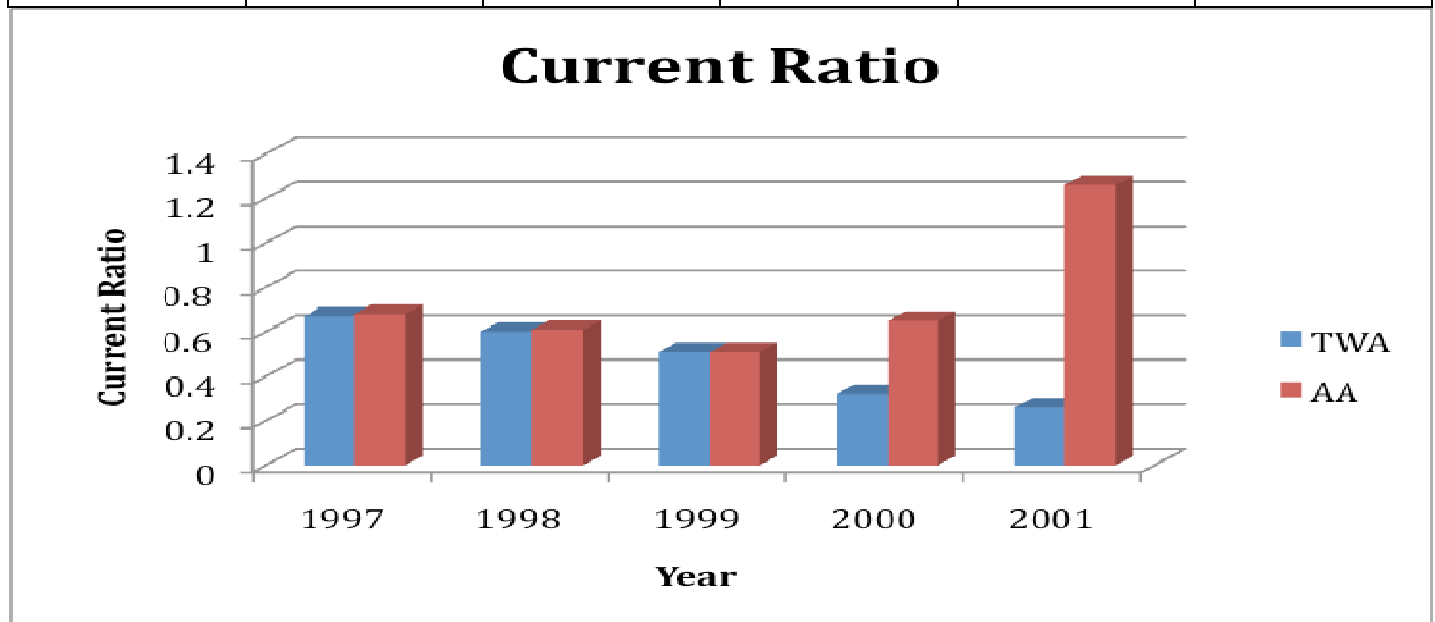


American was financially stable with a positive book value and its debt remaining at relatively constant levels, avoiding major swings that can leave a company struggling to make payments. However, while these risk percentage numbers look healthy for American on a cursory level, looking at the current ratio provides further detail into whether an airline can cover

debts with its current assets.

The current ratio is the measure of a company's ability to meet its short-term obligations with its short-term assets (cash, inventory, and receivables). The higher the current ratio, the more liquid the company, as it is able to cover its debts with its readily available assets. If the ratio is below one, the current assets of the firm do not fully cover the obligations, and the company may have trouble meeting its obligations to creditors in the short-term. The current ratio is found by dividing the company's short-term assets by its short-term obligations, or liabilities.

Current Ratio	2001	2000	1999	1998	1997
AA	1.26	.65	.51	.61	.68
TWA	.26	.32	.51	.6	.67



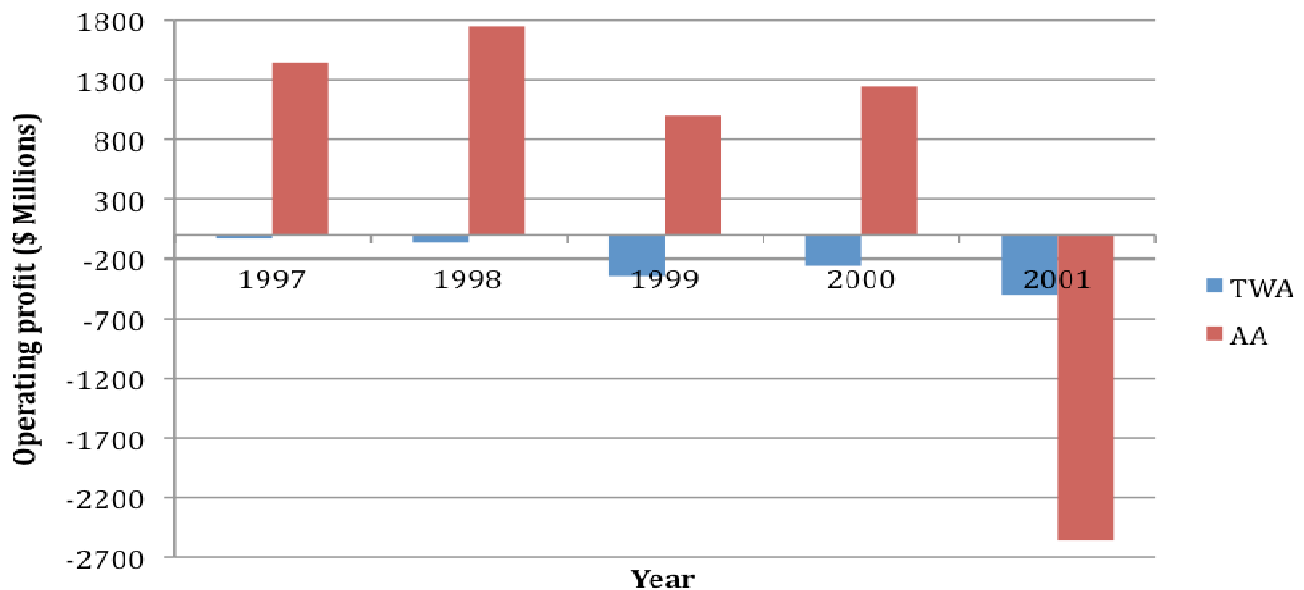
The continuous decline of TWA's current ratio shows the company falling further into debt and clearly unable to meet its current obligations with its

current assets. The steady decline also accurately forecasts TWA's subsequent Chapter 11 filing, as TWA failed to hold off payments to its creditors to avoid cash shortages. At its low point, TWA had a current ratio of only .26, meaning that for every dollar the airline owed, it had only \$.26 in available current assets. On the contrary, American Airlines, after remaining steady below 1 swung up to a healthy ratio of 1.26. This implies that AA could cover its obligations in 2001 without taking on further debt. Two methods to increase the current ratio are to put profits back into the business or pay off some debts (61). However, TWA did not turn a profit for 13 years prior to its acquisition, so it simply could not consider any of those options. For investors, TWA's downward current ratio trend was warning of an imminent Chapter 11 filing.

After looking at the debt ratios of both airlines, I looked at the operating profits to examine the correlation between the two. As one can see below, TWA fell further into debt as it lost more money each year leading up to its Chapter 11 filing in 2001 because it could not pay off its debts. The table and graph below show the comparison in operating profits (in \$millions).

	1997	1998	1999	2000	2001
TWA	-29.3	-65.2	-342.7	-254.8	-503.4
AA	1447	1748.4	1002.9	1243	-2557.8

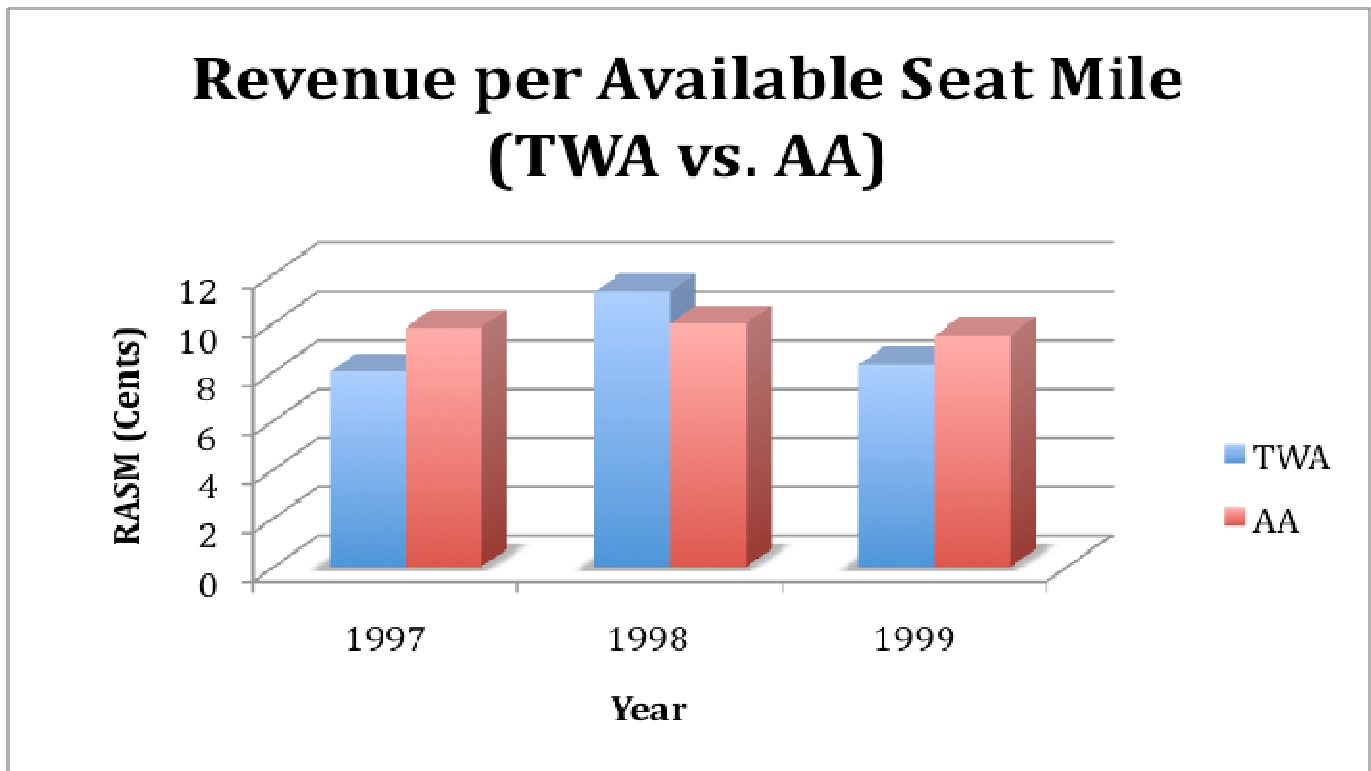
Operating Profit (TWA vs. AA)



TWA posted a loss year after year leading up to its bankruptcy and acquisition in 2001. Following the crash of TWA flight 800 that killed all 230 people onboard, the media scrutinized TWA for having among the oldest fleet in service(62). TWA responded by announcing a major fleet renewal program in 1998, ordering 125 new aircraft (62). This program's financial impact is reflected in the graph above, as TWA lost close to \$350 million because of payments financing its new fleet, among other operational costs. American Airlines on the contrary, posted large profits each year leading up to the disaster in 9/11. In the wake of the TWA merger and the tragic events of September 11, in which two of its planes were involved, AA posted a record loss for the airline in 2001 (60). However, it should be noted that while this started a decade of record losses for all major U.S. airlines, American is the only legacy carrier to not file for any form of bankruptcy. Having evaluated

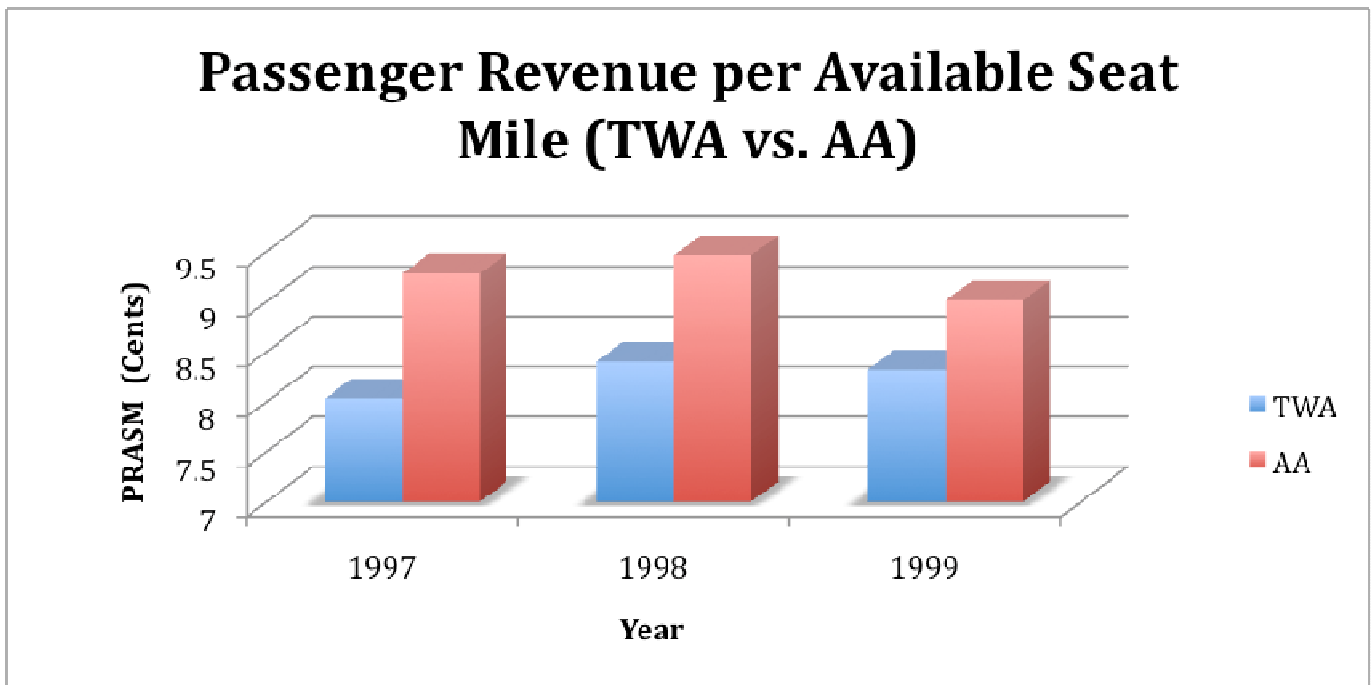
standard financial liquidity ratios, my attention focused on specific industry metrics, seeking to track down the underlying reasons why TWA failed.

Airlines seek to maximize revenues by implementing the most efficient yield management systems. The revenue per available seat mile (“RASM”) is frequently used to compare airlines because it is a function of both load factor and yield, which allows for a comparison of margins between airlines. As mentioned earlier, an airline with a higher RASM should theoretically earn greater profits. Below is a RASM comparison between TWA and AA.



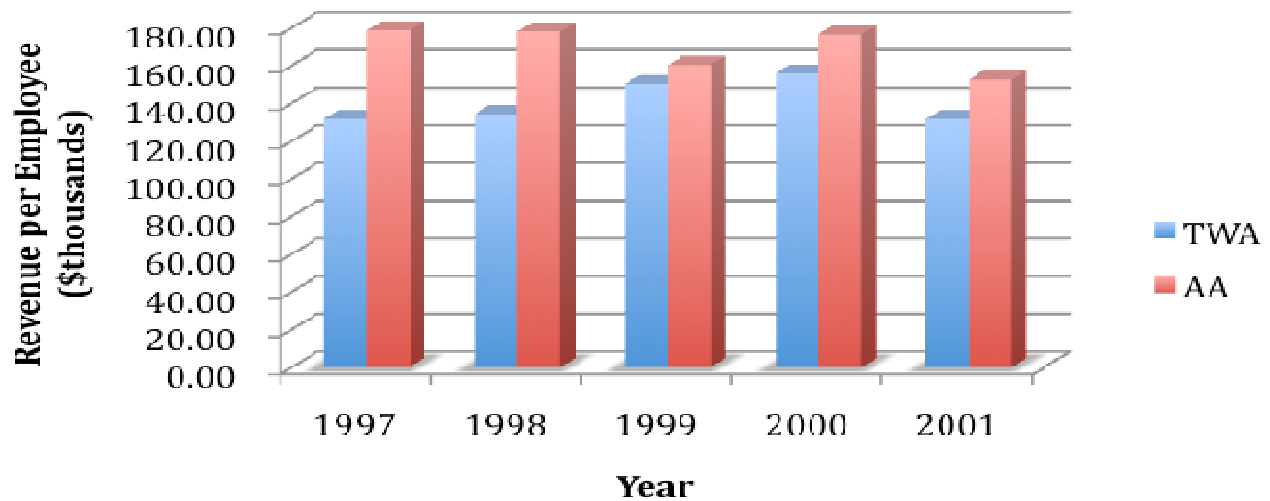
While it may not seem like there are startling differences in the RASM’s from the graph above, it is important to note that a \$1.80 difference in 1997 translates to billions of dollars in additional revenue per available seat mile for American Airlines. The reason for the increase in TWA’s RASM in 1998 is

because its available seat miles decreased 6.3% year over year (65). However, because the RASM is calculated using total revenue, it can sometimes be skewed by a reliance on cargo revenue, which is not the airline's primary revenue source. For example, in 1997, TWA's revenue from all other sources, including freight and mail, comprised 13% of total revenue (64). Isolating passenger revenue using the PRASM calculation dives deeper into this revenue ratio.



In comparing the PRASMs for the two airlines, it is clear that American outshined TWA in its ability to earn more revenue for each mile flown. A higher PRASM typically is associated with an ability to lower costs, either labor or maintenance, which increases the margin on each seat sold. To look at the efficiency per employee, I looked at the revenue generated per employee.

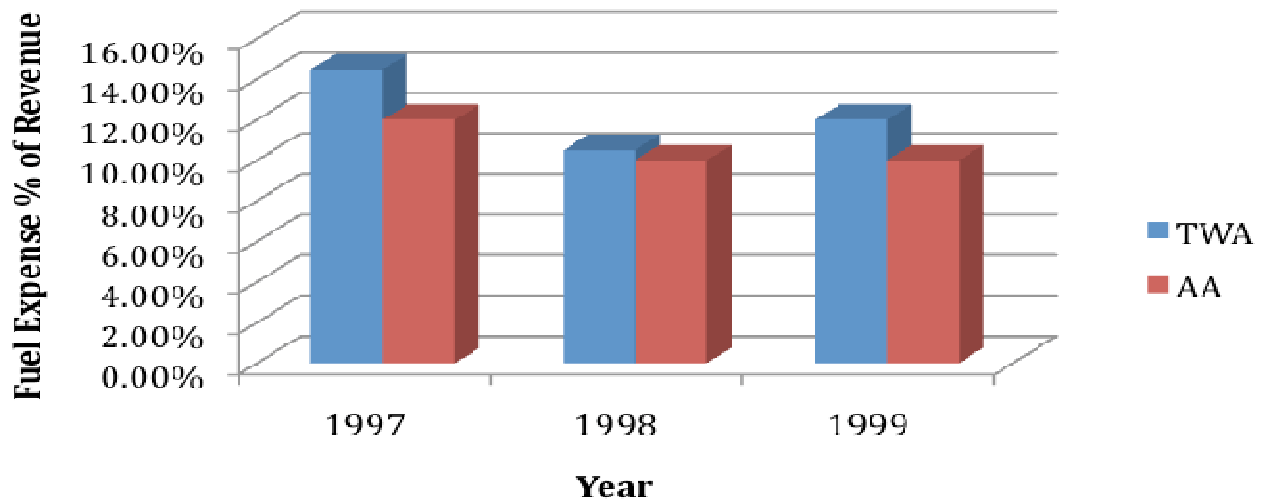
Passenger Revenue per Employee



American Airlines earns far more revenue per employee than TWA, confirming AA's efficiency. Given that labor is such a large component of costs for the airlines, it is critical to achieve high productivity per employee. In aligning revenue with employee productivity, one is able to make an efficiency comparison between TWA and AA. TWA's revenue per passenger is also 18% below the industry average, proving its labor inefficiency is undoubtedly a contributing factor in its bankruptcy.

Fuel, being the second largest expense facing airlines, is also important to compare against revenue to see how successfully an airline controls its fuel expenses. Below is the graph for fuel expense as a percentage of revenue.

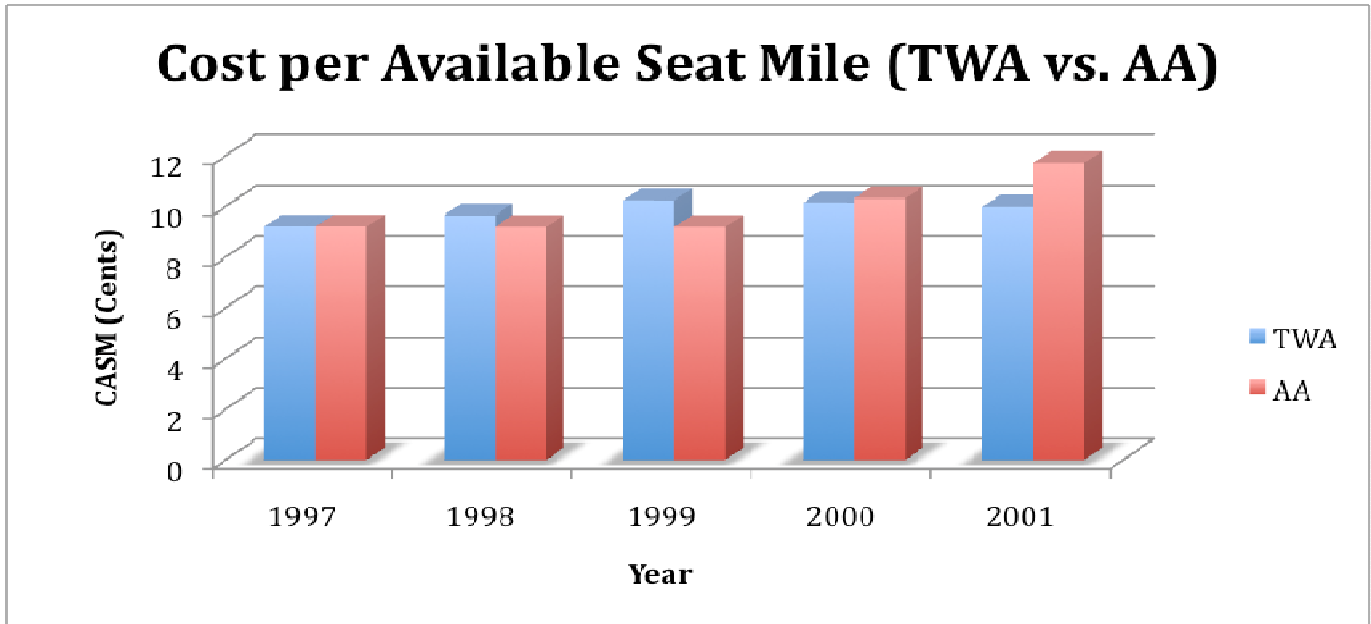
Fuel Expense as a % of Revenue



Again, one notices that TWA fails to match American with respect to fuel expenses as a percentage of revenue. Interestingly, TWA participated in fuel hedging programs in 1998 when its expense was lowest, but its contracts expired after the first 6 months of 1999, at which point its fuel expense increased again (68). American Airlines, on the contrary, decreased its fuel expense 16.6% from 1997-1998, driven by a 18.2% decrease in its average price per gallon (69). A successful hedging program saw their average fuel price fall 2% in 1999, but because of a 4.6% increase in consumption, their fuel expense as a percentage of revenue increased (69). From this graph, we can infer that American's management team implemented a more successful hedging strategy than TWA's, which translated to greater profit.

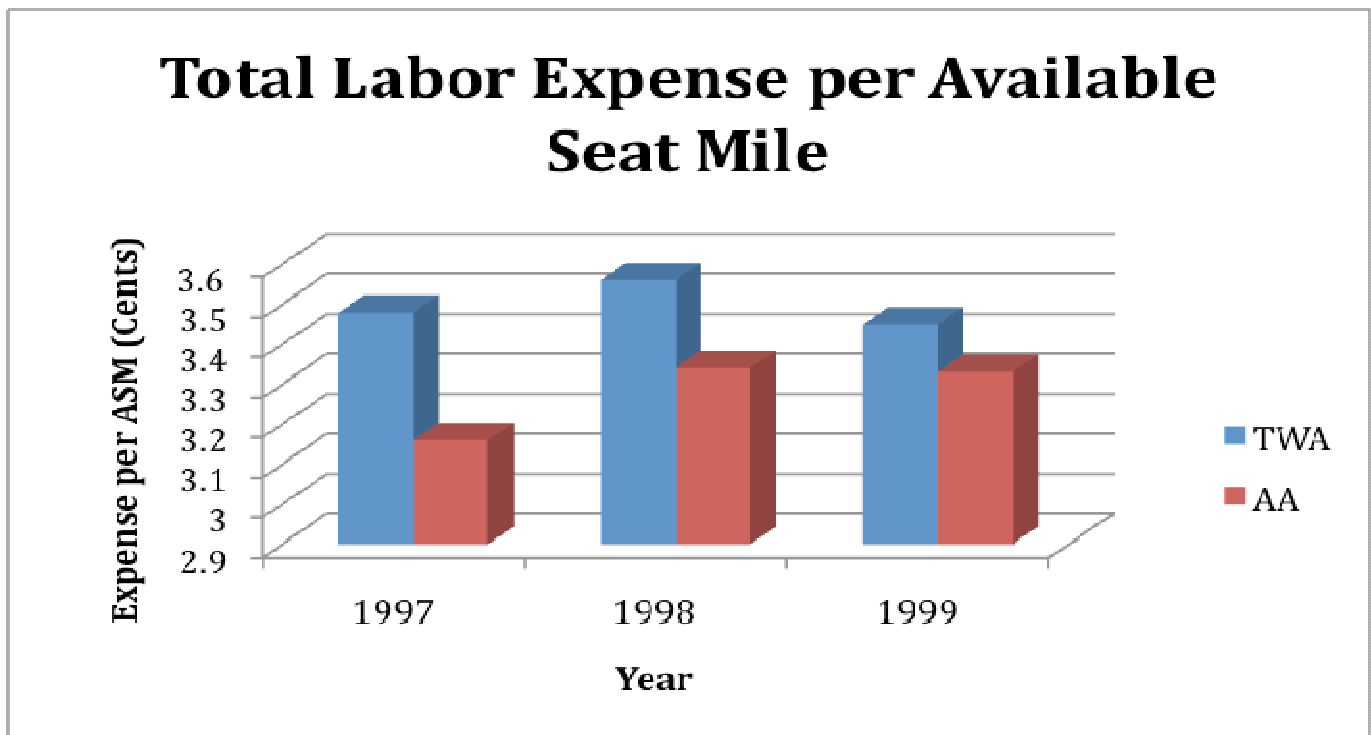
After studying the revenue metrics, my research focused on costs, hypothesizing that given some of the results found in the revenue graphs, TWA's costs leading up to its filing for bankruptcy and acquisition would be

far greater than American's. When looking at overall cost per available seat mile, American Airlines' costs were unsurprisingly lower than TWA's for the years leading up to the acquisition.



There are two major spikes in costs for both airlines to note. In 1999, due to costs related to its replacement of planes in 1998, TWA's operating expense rose 9.8% year over year (65). TWA also was hurt by costs associated with a flight-attendant "sickout" the weekend after Christmas, forcing the cancellation of about 200 flights (66). Furthermore, the average cost per gallon of fuel rose 12%, translating to a 13% increase in fuel expense (68). When comparing TWA's CASM to its RASM, it is clear that the costs per available seat mile were higher than its revenues, which translated to operating losses for the decade before filing for bankruptcy. Costs began rising for American in 2000, as fuel prices rose an estimated 48% in 2000, which drastically affected AA due to its capacity. Coupling this fuel increase

with both the terrorist attacks on September 11 and the TWA acquisition, AA predictably faced its steepest costs ever, as reflected in the high CASM in 2001. However, because AA had turned a profit leading up to the perfect storm that it encountered in 2001, it had a significant cash reserve to ride out the losses. Breaking down the CASM, I isolated labor costs to see if there were any stark differences between the airlines.

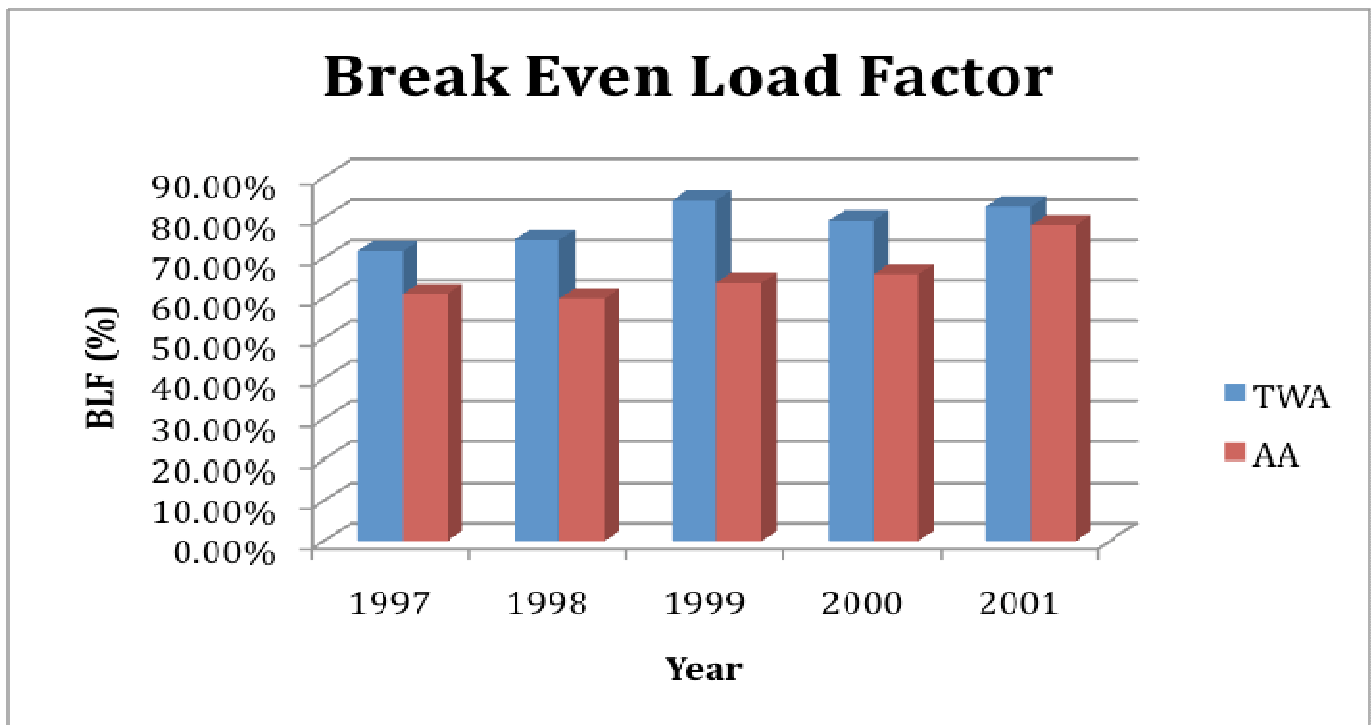


Again, one can see American's labor productivity advantages when looking at direct labor costs per ASM. TWA's labor costs increased in 1998 because of a new collective bargaining agreement between TWA and its pilots, which correlates with the increase we see above in 1998 (68). TWA agreed to the wage increase because of significant work rule improvements for pilots, which grants TWA flexibility necessary to enhance its competitive position (68). While negotiating for flexible labor contracts is helpful in the long-run,

the increased costs during TWA's financial struggles further stung the airline when it was vulnerable. American, on the other hand, steadily increased its labor costs due to normal seniority and scale increases in union contracts (69). However, American too was susceptible to labor strikes, and was negatively effected by a labor disagreement that disrupted operations in the first quarter of 1999 to the tune of \$225 million (69). Labor disputes are a constant threat to airlines and are a formidable risk to an airline's profitability.

Lastly, I examined the break even load factor for each airline, which truly shows the more productive and efficient airline. The lower the break even load factor ("BLF"), the more likely it is the airline will turn a profit.

Below is the comparison break even load factors leading up to TWA's acquisition.



One can see similar trends in the BLF graph when comparing the previous

cost graphs. 1999 stands out as a particularly high-cost year for TWA due to renegotiated labor contracts and a higher fuel expense. Therefore, TWA's BLF surged up 11% to 85%, leaving few available seats to turn a profit on. Over these 5 years, TWA's break even load factor was 13% higher than American's BLF, which translated to great profit advantages for American. In order to lower their BLF, TWA needed to focus on curbing costs that were spiraling out of control, namely labor and operational costs. Should TWA have succeeded in lowering their BLF, they would have had a fighting chance at avoiding bankruptcy as they earned more profit even with planes less full. Clearly, the BLF is a critical metric that needs to be addressed in order to stay afloat and avoid Chapter 11.

American Airlines acquired Trans World Airlines in April 2001, with the agreement that TWA would file for bankruptcy the day after the deal was signed. TWA did file for bankruptcy, and American purchased substantially all assets for approximately \$500 million in cash, as well as assumed the outstanding aircraft operating leases and debt valued at \$3 billion (70). This greatly increased American's capacity and reach, as they garnered 190 aircraft, 175 gates, and 173 landing slots (70). Unfortunately for American, the acquisition came at a poor time, as just 5 months later, the airline landscape changed dramatically with the events of 9/11. However, American Airlines was able to weather the storm because of its strong financial position leading up to the horrific events that led to a steep decline in travel.

Concluding this case study, it became clear that there are 4 key ratios for

airlines to take note of when looking at their financial stability. The first is the current ratio, as airlines must be able to cover their current debts with their current assets. At the first sign of a decline in the current ratio, an airline must avoid taking on further debt, which undoubtedly will leave the airline struggling to pay off creditors. Secondly, given that passenger revenue makes up the majority of revenue for an airline, management must focus on optimizing revenue margin from passengers as opposed to freight. American Airlines had a distinct advantage over TWA in the PRASM ratio, earning more than 1 cent better per passenger. This should have been alarming for TWA management, as it suggests they are not operating at an efficiency level that could keep them competitive with other airlines. Thirdly, airlines must focus on labor efficiency. After evaluating both the labor expense and passenger revenue per employee for both airlines, it was clear that American was more efficient in utilizing its employees. Costs per employee were higher for TWA during all 5 years, which translated into less revenue per employee for all 5 years. This clearly is a defining success factor, as maximizing revenue per seat is crucial to financial success. Lastly, the breakeven load factor is perhaps the most significant ratio exposing operational efficiency. TWA consistently had a higher BLF than AA, making it impossible for the airline to compete as it continuously lost money while others were profiting. The stark difference between TWA and AA in these ratios, and the subsequent Chapter 11 filing of TWA, prove that management must pay careful attention to these critical indicators of looming financial trouble.

Chapter 5 - Conclusion

The data above is conclusive; the airline industry is very competitive, susceptible to external shocks, and as a result, fearfully turbulent. The industry has advanced dramatically since its first flight in 1903, primarily improving after deregulation in 1978, which drastically altered the landscape and competitive nature for airlines. Delta Airlines pioneered the hub-and-spoke model, which was subsequently replicated by the other major US carriers. While the legacy carriers initially benefited from some operational benefits, the hub-and-spoke model also exposed them to many drawbacks, namely their inability to adapt quickly to an ever-changing environment. Low cost carriers took advantage of the inflexibility inherent in the model and adopted a point-to-point system which allows for greater versatility in a volatile market. The past decade has been particularly rough for the industry, which faced steep declines in travel, spikes in fuel prices, and labor disputes, all culminating in a record 20 airlines filing for either Chapter 7 or Chapter 11 bankruptcy (71). Many of the factors discussed illustrated the faults that led to the demise of each airline which filed for protection or liquidation. The industry metrics analyzed (RASM, PRASM, CASM, BLF and other operating ratios) correlated with certain airlines filing for Chapter 11 bankruptcy. For example, both United and Delta recorded the lowest passenger revenue per available seat mile in the PRASM graph, which directly correlated with their bankruptcy filing dates in 2002-2003 (United) and 2005-2007 (Delta). Looking at the system total expense per equivalent seat mile also exposed the

operational inefficiencies inherent in the legacy carriers. Their expenses are far higher because they operate many different types of aircraft, and their labor union agreements are detrimental to employee productivity, failing to incorporate a cross-utilization approach. This also impacts the service quality of the legacy carriers, who consistently rate as the worst in service quality. It also became clear through the cost per available seat mile graph which airlines struggled to control costs. As expected, the CASM data closely tracked an airlines bankruptcy filing, peaking just prior to filing and subsequently falling after cuts were made during the Chapter 11 process. Excluding fuel and transport costs exposed United, Delta, and US Air's operational weaknesses, namely in their ability to limit in-flight expenses, such as meal service, as well as control labor costs. Lastly, the break even load factor accurately depicts an airline in trouble. While correlated with costs, as the BLF increases as costs increase, the BLF graph enabled an easy comparison between airlines efficiency and productivity. In looking at the most recent data, it would not be surprising if US Airways heads towards another Chapter 11 filing shortly, as its BLF above 100% shows its costs are too high and it is failing to earn a profit on any flight. Based off the weaknesses of the legacy carriers, I have provided a few relevant recommendations based of my research.

Chapter 6 - Recommendations

Moving into the next decade, the airline industry is still at a crossroads, and while demand for air travel has picked up, many of the legacy carriers

continue to struggle in their quest to turn a profit . Based on my research, I have four recommendations for airlines seeking to become profitable and avoid filing for bankruptcy.

- 1.) Cross-Utilization of Employees - The major US carriers must negotiate with their labor unions seeking changes to their agreements with respect to specific work roles. Management should approach the labor unions by highlighting the benefits of cross-utilization of employees, which translates into a superior work environment as employees are not limited to one function only. From a corporate perspective, this also leads to productivity increases, thereby decreasing costs, lowering the airlines CASM. Using Southwest's cross-utilization labor model as a guide, the implementation of such a change should be relatively quick for the airlines.
- 2.) Maintain Cost-Discipline – With low cost carriers like Southwest and Virgin America driving down fares on many routes, it is imperative that the legacy carriers strive to cut costs wherever possible, which will enable the carriers to remain competitive on a fare basis. LCC's charge bargain fares and still make a profit because of their operational efficiencies. The legacy carriers need to continue to adopt some of these efficiencies, including eliminating in-flight services such as meals and snacks, flying more point-to-point routes, and decreasing turn around time which increases aircraft utilization. This combination of cost cutting measures and productivity increases will enable the

airlines to remain competitive.

- 3.) Breakeven Load Factor – Identified as the most critical operational factor, the legacy carriers need to get their BLFs down by decreasing costs. Interestingly, TWA's highest breakeven load factor was 85% before its filing for Chapter 11 bankruptcy, far less than United's BLF of 96% prior to its filing and even further less than US Airways 2009 BLF of 104%. This is evidence that US Airways was in serious trouble going into 2010. However, in the second quarter of 2010, both United and US Airways BLFs decreased significantly due to decreased costs, with the factors at 78.8% and 84.2% respectively. This is a great sign for both airlines' management teams.
- 4.) Intangibles – The legacy carriers are infamous for poor service, aging aircraft, and frugal amenities. Meanwhile, the LCCs consistently are at the top of the customer satisfaction ratings, with great service and futuristic planes, all while offering the lowest fares. A recent example is Southwest's "Bags fly free" campaign, which promotes the fact that it does not charge for baggage. While taking a hit on its ancillary fee revenue, Southwest hopes that this promotion will increase its load factor, which will in turn make up for the lost fee revenue. Furthermore, it receives the intangible benefit of positive marketing, which consumers take note of when booking flights. Another intangible is the fun atmosphere that airlines such as Southwest and Virgin are known for, translating into a more pleasant

flight for all passengers. Legacy carriers should try to adopt similar employee training techniques that increase the fun-factor on their flights. High customer satisfaction creates repeat customers for the airlines, as passengers enjoy the experience offered by airlines such as Southwest and Virgin.

Moving into 2011 and beyond, I see the newly merged United Airlines as the airline with the most obstacles to overcome. On October 1, 2010, United Airlines and Continental Airlines merged to form the world's largest airline by passenger revenue miles. As such, United will have to manage the acquisition of Continental at a time when competitors are making strides in operational efficiencies. Many of the operational costs discussed above are only complicated by an increased fleet size, which make maintenance issues more complex. Furthermore, the new United has to manage a drastically increased work force, nearly doubling United's employees to 86,000 people (82). In addition to an increased labor force, the airline's current labor contracts are now open for renegotiation, and workers are hoping to regain ground from concessions made after the Sept. 11 attacks (83). However, both airlines have emphasized that while they have taken losses in the recent recession, they expect the merger to generate savings of more than \$1 billion a year (82). These savings may stem from getting the most out of aircraft, as better route choices are offered to passengers, as well as the benefits of shared IT services. With the economy rebounding, and demand for air travel returning, it is legacy carriers like United who, while facing a great number of challenges,

must strive to leverage their size and scale advantages to overcome their deficiencies.

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