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# **Financial Comparisons Across Different Business Models in the Canadian Airline Industry**

## **Authors:**

Triant Flouris, Ph.D.  
Associate Professor  
Director, International Aviation MBA Program  
John Molson School of Business  
Concordia University  
Montreal, Quebec, CANADA  
Email: [tflouris@jmsb.concordia.ca](mailto:tflouris@jmsb.concordia.ca)

and

Thomas Walker, Ph.D.  
Assistant Professor  
Department of Finance  
John Molson School of Business  
Concordia University  
Montreal, Quebec, CANADA  
Email: [twalker@jmsb.concordia.ca](mailto:twalker@jmsb.concordia.ca)

## **Abstract**

This paper examines the stock and accounting performance of two airlines in Canada, WestJet and Air Canada, over the past four years, taking into account the aftermath of the September 11, 2001, attacks. September 11 (9-11) resulted in dramatic changes in the airline industry and had significant implications on the economic gains of most airlines. Our study focuses on the viability of low-cost (LCC) versus conventional-cost (legacy) business models in Canada under the current business environment. We chose WestJet as a typical low-cost airline and compare its accounting and stock performance to Air Canada, a legacy carrier and rival in several business sectors. We found that WestJet's performance was highly superior to that of Air Canada. As a result of our findings, we argue that WestJet's business model provides the firm with significantly more financial and operational flexibility than the one exhibited by its legacy rival, Air Canada. WestJet's lower operating costs, high consumer trust, product offering, corporate structure, workforce and work practices, as well as operational procedures are all factors that appear to contribute to its relative success.

## **I. Introduction**

According to a Unisys Global Transportation report, “. . . the only prerequisite to economic success is to achieve a low cost base from which to build a desired service offering”<sup>1</sup>. This statement dismisses claims by traditional airlines that the post September-11 industry malaise is due to exogenous factors such as terrorist threats, the war in Iraq and SARS and it is very valid vis-à-vis the Canadian airline industry experience. Air Canada is currently operating under bankruptcy protection and is in the midst of re-organization and restructuring made necessary because of years of financial struggles that, were not directly related to 9-11. Since Air Canada acquired Canadian Airlines, the integration of the two companies did not produce the cost savings expected. Despite having over 70 percent market share in Canada, the airline lost \$82 million (CAD) in 2000, the year before 9-11 happened.

LCCs (Low Cost Carriers), like WestJet, have created a low-cost platform, upon which they built their service and network and took on the traditional airlines. But what exactly are the key characteristics of this low-cost model and why does it give LCCs such a large competitive advantage versus traditional carriers? Compared with traditional airline structures, the most profound differences are found not only in the product offering, but also in the corporate structure, the workforce and work practices, as well as operational procedures.

First, as we have seen from the business models of Southwest, JetBlue, easyjet and Ryanair, LCCs offer point-to-point travel<sup>2</sup> at low, one-way fares with little or no restrictions, one class of service with insubstantial in-flight service and no additional frills, such as airport lounges and conventional frequent flyer programs.

The corporate structures of LCCs also vary radically from those of most traditional airlines. Inherited from years of government ownership and control, many traditional airlines

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<sup>1</sup> Unisys R2A Scorecard, Volume 1, Issue 6, April 2003

<sup>2</sup> Although nowadays Southwest allows passengers to make connections, it nevertheless does not operate a traditional hub-and-spoke system with several ‘waves’ of arriving and departing flights or baggage and other transfer facilities.

even lack a clear corporate vision. Their corporate make-up is unwieldy and bureaucratic, with politically influenced managements that in many cases are incapable – and often unwilling – to make swift decisions. The traditional pyramid structure with multiple layers of control worsens the situation even further, because of limited – in fact in most cases inexistent – two-way communication. LCCs on the other hand have a clearly defined, business-oriented corporate vision. They enjoy simple organizational structures with few management layers, which promote and encourage good communication at all levels, leading to quick decision making and reaction to industry changes.

Furthermore, many years of management-labor struggle have left most legacy carriers with scarred and unmotivated workforces, with disenchanted employees unwilling to see the link between company and personal success, hence producing at minimum levels. Moreover, most employees are strongly unionized, which further retards operations by influencing many decisions and delaying innovation and change, contributing to the inflexibility of the organization. On the contrary, the low-cost carriers have highly motivated employees, who are usually non-unionized, business oriented and highly productive. Southwest Airlines is an “anomaly” vis-à-vis unionization. Southwest is highly unionized but the model it has followed during its inception is one of a close cooperative relationship between the unions and management, which departs significantly from the conventional, adversary model which we conventionally see in legacy carriers.

Finally, from an operational standpoint, the higher costs of traditional carriers can mainly be attributed to their mixed fleets, complicated operations and in-flight service. They generally operate fleets comprising many aircraft types, adding to the complexity of operations and leading to higher maintenance and crew training and scheduling costs, as well as operational inflexibility. They also maintain a complex network of operations at key airports, with complicated transfer systems and interline agreements, resulting in long aircraft turnaround times and sub-optimal utilization. In addition, their multiple travel classes, in-flight service and distribution systems

based on travel agents and global Computer Reservations Systems (CRSs) add further costs and complication in service. The low-cost model on the other hand is based on using only one aircraft type in a single class configuration. LCCs generally use secondary airports – with lower costs and less congested runways and taxiways – from which they operate point-to-point flights, achieving maximum aircraft utilization. They have embraced the use of e-commerce to distribute their product thus reducing – in some cases eliminating – costs related to travel agent commissions, ticket offices etc.

The WestJet model is in line with the abovementioned factors that differentiate it from legacy carriers such as Air Canada. WestJet's core business strategy has been to be a low cost, no-frills alternative airline. Clive Beddoe, Mark Hill, Tim Morgan, and Donald Bell founded WestJet in 1996 in Calgary. The goal of the airline was to provide low-fare travel across western Canada. According to the WestJet website, "through researching other successful airlines in North America – and in particular low-cost carriers from throughout the continent – the term followed the primary examples of Southwest Airlines and Morris Air and determined that a similar concept could be successful in western Canada."

WestJet has a history (albeit short as compared to an airline, for example as Southwest) of expanding into new markets where it is welcomed by consumer for causing airfares to drop. On February 29, 1996, the airline started flight operations using three B 737-200 aircraft and a workforce of 220 people to Vancouver, Kelowna, Calgary, Edmonton, and Winnipeg. The introductory price for a one way ticket from Calgary to Edmonton was \$29 (CAD), significantly less than Air Canada's or Canadian's price (typically \$290 CAD). Since 1996, WestJet has continued to expand, adding, in 1996, Victoria, Regina, and Saskatoon to its route network, Abbotsford/Fraser 1997, and in 1999 Thunder Bay, Prince George, and Grande Prairie. Between March and June 2000, the company added service to Hamilton, Moncton, and Ottawa, creating an eastern network with Hamilton as the hub. In 2001, they added services to Fort McMurray, Comox, and Limited Addition flights to Brandon. In 2002m WestJet added service to London

and Toronto. On January 23, 2003, WestJet announced the beginning of service to the new market of Windsor on April 1. On February 12, WestJet announced new service to the markets of Montreal on April 24, St. John's on June 16, and Gander on June 17. Also in February, WestJet began serving the new market of Halifax.

WestJet uses a standardized fleet of the Boeing 737 family of aircraft to save on costs. In some cases, they fly into lower traffic (secondary) airports that charge lower fees and provide them with chances for faster aircraft turnaround times (because of lower traffic density) but are near major urban centers. An example of this would be Hamilton, Ontario which served as WestJet's eastern Canada hub until 18 April 2004. In a bold move, WestJet announced its shifting of its eastern Canada hub to Toronto, signaling its confidence in becoming a nationwide major and competing effectively against Air Canada out of Toronto's Lester Pearson airport due to its lower operational costs.

WestJet completed its Initial Public Offering of 2.5 million common shares in July 1999 and transitioned to a public company. The capital raised from the offering was used for the purchase of additional aircraft, as well as the building of new Head Office and Hangar facilities in Calgary. In February of 2002, they offered three million common shares yielding net proceeds of \$78.9 million. WestJet "celebrated its 27<sup>th</sup> quarter of profitability with its third quarter 2003 results" (WestJet website).

This paper examines the short-term and long-term stock price performance as well as the accounting performance of WestJet and Air Canada following the 9-11, 2001 attacks. We choose WestJet as a representative of the low-cost airline model in Canada, which is publicly traded, and Air Canada as a competitor that follows a traditional-cost business model. We find that WestJet fared better than Air Canada. It continued to show strong accounting performance after 9-11 and its stock was only marginally affected by the events of 9-11. During 2001, WestJet remained profitable, which alone can explain as to why it is perceived as a good investment keeping its stock in relatively high demand. Based on this finding and as far as this study is concerned, we

argue that there is something unique to the low-cost model, which WestJet follows, that sets it apart from its conventional-cost competitors and renders it more successful in difficult market conditions.<sup>3</sup>

Our findings are consistent with Lin et al (2004) who find that low-cost carriers are able to sustain the economic impacts of airline disasters better than mainline carriers. In addition, they help explain the success of WestJet and also JetBlue in the U.S., which had one of the most successful IPOs in April 2002 despite an otherwise very difficult year for airlines, as documented in Flouris and Walker (2004). While our study is not the first to examine the impact of 9-11 on the airline industry, we are to our knowledge the first to focus on performance differences between low-cost and conventional cost airlines. In addition, we are the first to provide a comprehensive overview over both the accounting and risk-adjusted stock performance of airlines to the 9-11 events.

We do not advocate that the low-cost model is uniform in the way it manifests in the market. LCCs come in all “shapes and sizes.” They utilize different types of aircraft, some lease whereas others insist on owning their aircraft, but they all normally fly busy routes between mostly secondary airports or point-to-point between major airports, have a low-cost structure, and emphasize customer service. Some of them use, as their hub, very busy airports whereas others smaller airports. Some are low-frill whereas others are lifestyle seller with more finesse. Some offer both a Business and Economy class cabin whereas others just Economy. Some offer loyalty schemes (frequent flier programs of all shapes and sizes) and airport lounges, whereas others do not. Some offer automated check in whereas others do not and some rely more than others on online ticket sales. As a further point of differentiation, some operate a mixed fleet of aircraft whereas others stick to a single type.

Our argument is that the low-cost model, in its generic manifestation, can be differentiated from the conventional-cost model along three dimensions on the lines discussed in

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<sup>3</sup> We do not examine the performance of CanJet and JetsGo because they are not publicly traded.



the introductory paragraphs of this paper. These dimensions, coupled with some unique operational features that low-cost airlines have, help explain, theoretically, why low-cost carriers outperform their conventional-cost rivals. These dimensions are (1) adopting a viable strategic position, (2) leveraging organizational capabilities, and (3) reconceiving the value equation.<sup>4</sup> Low-cost airlines establish a viable strategic position in the market by finding an appropriate strategy that acts as a mediating force between them and the environment in which they operate. For example, WestJet serves price and convenience-sensitive passengers only; they do not offer a business class cabin but try to attract traditional non-travelers through lower fares. Low-cost airlines, once they establish their position, move toward securing their competitive advantage by capitalizing on capabilities that cannot be used by rivals. These capabilities are quality in customer service, operational efficiency, innovation, and responsiveness to customers. Furthermore, low-cost carriers pursue routes that often revolutionize the terms of competition within the industry. Basically they improve the industry's ratio to performance equation.

Zorn (2001) advances the argument that low-cost carriers are more resilient than conventional-cost carriers in times of economic downturn. Our analysis focusing on WestJet's performance validates this point, and Zorn's analysis helps us demonstrate it theoretically. Zorn cites several reasons for the resilience of low-cost carriers in times of recession: first, a lower overall and more variable cost structure; second, a lower breakeven load factor, and, third, business and leisure traveler migration from conventional-cost airlines to low-cost airlines. Our financial analysis substantiates this point to its fullest. We find that markets value low-cost airline stocks as growth stocks, whereas conventional-cost airline stocks are treated as cyclical. Even though affected, low-cost carriers emerged from the 9-11 crisis in a stronger market position than their full-fare rivals.

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<sup>4</sup> See Lawton (2002), pp.189-191.

What interests us from an academic point of view is the relative confidence of the public in WestJet's stock (as measured by price movements) before and after 9-11, relative to Air Canada. We build a model, test several hypotheses on why we had stock performance divergence, and explain these differences based on the data and controlling for extraneous variables. The first section of this paper briefly described the series of events surrounding our sample period and sets the stage for our analysis. We highlighted several key aspects of WestJet's strategy, and discuss the low cost carrier model. Section II provides a data description and section III explains the methodology used to test several hypotheses concerning the performance of WestJet's stock. We present the results in section VI and summarize our findings in the final section.

## **II. Data**

We use accounting data from January 2000 to December 2003. We collected this data from year-end income statements and balance sheets, which are available online through the Hoover's Online database ([www.hoovers.com](http://www.hoovers.com)).

For our analysis of relative stock performances pre-and post-9-11, we use daily price data (adjusted for dividends and stock splits) from January 1999 to April 2004, which we retrieved from the Center for Research in Security Prices at the University of Chicago Graduate School of Business (CRSP) database and the Toronto Stock Exchange (TSE). To measure market performance during our sample period, we use the TSE 300 market index. Finally, we use weekly data on annualized 3-month Treasury Bill yields as calculated by the Bank of Canada as a proxy for the risk-free interest rate during our sample period.

## **III. Methodology**

Financial markets bring together potential investors who vote every day on the future profitability of the firm and the relative merits of managers' strategic decisions. Simply put, if

investors think that corporate decisions will lead to increases in long-run profitability, news of events such as a takeover will cause a firm's stock price to rise. Conversely, news that investors believe will lower future profits will result in a fall in a firm's equity value.

The finance literature refers to the idea that news is quickly impounded in security market prices as the "efficient market hypothesis," first described by Fama, Fisher, and Jensen (1969). The assumption that markets are efficient implies that security prices reflect all relevant information known to investors and thus provide us with the best estimate of a firm's future profitability. There is significant empirical support of the efficient market hypothesis including the Carter and Simpkins' study (2002) of airline stocks following 9-11. We add to Carter and Simpkin's findings by focusing specifically on performance differences between low-cost and traditional-cost airlines. In addition, our study is the first to examine the accounting performance of Canadian airlines post-9-11.

If we assume that markets are efficient, and therefore set rational prices, we can measure whether the corporate strategy of a low-cost carrier as WestJet, post-9-11, was in the best interest of shareholders by comparing the firm's profitability and stock price performance in the months after 9-11 to the performance of an airline that follows a conventional-cost business model (Air Canada).

Our methodology follows the event study procedure described in Brown and Warner (1985), Peterson (1989), and Schweitzer (1989). Event study methodology measures the abnormal return of the stock, as the difference between the *actual return* and the *expected return*, around the time of the event. If an announcement such as news of increased profits is taken as good news, abnormal returns will be positive, signaling the market's belief that firm value has increased. A negative abnormal return is evidence of bad news, indicating that the market believes the event will decrease the firm's future profitability.

To estimate the abnormal return of a stock on day  $t$ , we subtract the expected return on the stock from its actual return on that day:

$$AR_t = R_t - E(R_t) \quad (1)$$

where  $AR_t$  is the abnormal stock return,  $R_t$  is the actual stock return, and  $E(R_t)$  is the expected stock return, all on day  $t$ . In turn, we assume that the return of a stock is conditional on the return of the market and model  $E(R_t)$  as:

$$E(R_t) = R_{f,t} + \beta_t [E(R_{m,t}) - R_{f,t}] \quad (2)$$

where  $E(R_{m,t})$  is the expected return of the market on day  $t$ ,  $R_{f,t}$  represents the risk-free rate as measured by the return on 90-day U.S. Treasury Bills on day  $t$ , and  $\beta_t$  is the estimated slope coefficient from a linear regression of the stock's past returns on the returns of the market.<sup>5</sup>

We calculate daily abnormal returns for WestJet and Air Canada following the events of September 11, 2001.<sup>6</sup> In addition, we measure cumulative abnormal returns,  $CAR_{t,t+n}$ , the sum of abnormal returns over a window of  $n$  days, as:

$$CAR_{t,t+n} = \sum_{i=t}^{t+n} AR_i \quad (3)$$

Cumulative abnormal returns enable us to measure the market's reaction to the performance of the airline in a time frame that encompasses the entire period from the event under study to the present.

Earlier industry research has largely focused on airline stock returns following a plane crash. Davidson, Chandy, and Cross (1987) find statistically significant negative returns for airlines on the day of the crash. This appears to be a short-term effect, however, and is reversed on the days following the event. Chance and Ferris (1987) examine 46 plane crashes, and

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<sup>5</sup> Equation 2 is also called the capital asset pricing model (CAPM) and is based on Sharpe (1964) and Lintner (1965). In this paper, we estimate the capital asset pricing model using both 60 and 360 daily returns that precede our event window. We employ a linear market model that illustrates the relationship between an airline's stock return and the market (as proxied by the CRSP value-weighted market index) during a "normal" period.

<sup>6</sup> Because Canadian stock markets were closed following the 9-11 events and did not reopen until September 13, 2001, we define September 13, 2001, as the first day of our post-9-11 event window.

discover that in 29 cases the carrier has a significant negative return. A crash does not appear to have an effect beyond the initial reaction, nor does it affect the stock price of the airline's competitors. Chance and Ferris also find a negative correlation between the airline's abnormal return and the number of fatalities in the crash.

More recently, Carter and Simpkins (2002) investigated the stock market's reaction to the tragedies of September 11. They note the potential psychological effects of the attack and test whether financial markets react rationally to news of the event. Carter and Simpkins find that despite the psychological horrors the market was able to discern among airlines based on firm characteristics, including the ability to cover short-term obligations. Their results support rational pricing and have important implications for our work.

To serve as a further control in estimating the market's reaction to 9-11, our analysis compares the abnormal returns of WestJet's stock to the abnormal returns of Air Canada. We choose WestJet because it uses a low-cost business model, and Air Canada because it uses a conventional-cost model and have done so quite successfully. These firms should provide a good benchmark for examining industry reaction to the set of relevant events. We do not consider CanJet and JetsGo because they are not publicly traded and Air Transat since it derives a significant portion of its revenues from chartered flights.

#### Adjusting for Risk: The Use of Beta as a Measure of Systematic Risk

In considering risk changes, we calculate beta, the part of a firm's risk that is related to changes in the market. It is a measure of systematic risk, the risk that investors must be compensated for, and, thus, is related to a firm's cost of capital. If September 11 led to the airline

industry being a more risky business, we would expect airlines' betas to increase after 9-11.<sup>7</sup> The calculation of each airline's beta,  $\beta_i$ , can be found from the following formula:

$$\beta_i = \text{cov}(r_i, r_m) / \sigma_m^2 \quad (4)$$

where  $\text{cov}(r_i, r_m)$  is the covariance between firm  $i$ 's returns and returns on the market, and  $\sigma_m^2$  is the variance of market returns.

Cornell, Hirshleifer, and James (1997) reviewed many of the practical issues in beta selection and the application of regression-based asset-pricing models to estimating equity cost of capital. They provide assistance for resolving many of the conventional problems with beta estimation, such as selection of the risk-free rate, the time period for estimation, and the inclusion or exclusion of dividends.

Corgel and Djoganopoulos (2000) perform direct statistical comparisons of beta estimates calculated by large financial data vendors such as Bloomberg, Compustat, Dow Jones, and Ibbotson. They find that the different procedures used by these commercial services produce the same results when simple tests of differences of means are used to evaluate them. They observe that most data vendors use OLS regressions of the returns of the firm against those of the market, where the security's return serves as the dependent variable, and the independent variable is a user-selected index. They point out, however, that users of financial software packages typically have some flexibility and can select the time period for estimation, the market index against which they want to measure returns, the data frequency (daily, weekly, monthly, etc.), and whether they want to include dividends or not.

Because the finance literature is divided on the issue whether short-term or long-term estimates should be used in CAPM estimation, we use a rolling window of both 60 and 360 calendar day returns to calculate covariances and variances. There is no consensus in what time

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<sup>7</sup> An excellent discussion of beta, what it is and why it is related to business and financial risk, can be found in Principles of Corporate Finance, 7<sup>th</sup> edition, by Richard Brealey and Stewart Myers.

period should be used to estimate beta. Most authors and financial data vendors use long-term betas calculated over periods of three and more years, but given the rapidly changing environment for the airline industry, we found short-term estimates to be more appropriate.

#### Expected Market Returns: Historical Versus Prospective Estimates

Before we can address the question of how we estimate expected market returns, we have to define what we mean with “market.” In his famous critique of CAPM testing, Richard Roll (1977) indicates that the market portfolio to be used in CAPM estimation should contain all financial and non-financial assets available to investors and states that an accurate test of the CAPM will never be possible because of this requirement.

Despite Roll’s criticism, most authors and financial data services use only country-specific common stocks to proxy for the market portfolio and rely heavily on the TSE 300 to represent the Canadian market. We follow this approach and use the TSE 300 market index for calculating both our beta estimates and market returns.

When developing an estimate of the expected market return  $E(R_m)$ , one has to decide whether to use historical data, assuming that past performance is the best predictor of future performance, or make an attempt to forecast a return for the market, which would require an accurate estimate of future dividend growth. As with most other studies in this field, we do not consider ourselves wise enough to forecast future market returns, but rather we rely on past returns as an estimate of future returns. Another question we had to address in our estimation was which time period to use to calculate past market returns. Given the fact that the events of 9-11 occurred relatively recently and that our return data are thus limited, we decided to use the geometric average of market returns during the past 360 calendar days as an estimate of future market returns. To test the robustness of our results, we also calculated 60-calendar-day returns, but arrived at the same conclusions as we did with our long-term estimates.

## **VI. Results**

### **Accounting Performance**

The first part of our analysis focuses on the relative performance of WestJet and Air Canada from an accounting standpoint, by comparing various accounting measures and financial ratios for the two firms over time. An analysis of the stock performance of the two airlines follows in the next section.

The accounting figures and financial ratios in the following table are based on year-end income statements and balance sheets from January 2000 to December 2003. As we can see, despite the 9-11 events, WestJet managed to remain profitable on slightly declining sales, while Air Canada registered significant losses on falling revenues.

\*\*\* Insert Table 1 About Here \*\*\*

WestJet's liquidity ratios (current ratio and quick ratio) are consistently above those of Air Canada, and improve significantly in 2003.

The profitability ratios (ROA and profit margin) of WestJet are comparatively healthy after 9-11, although they remain below the profitability levels that Southwest showed in 2000. In contrast, Air Canada shows very strong signs of weakening post-9-11.

A comparison of the activity ratios shows that WestJet's asset turnover ratio weakens after 9-11. This is not the case for Air Canada. At the same time, however, WestJet's accounts receivable turnover ratio is considerably higher than that of Air Canada.

Although WestJet's interest coverage ratio drops significantly during our sample period (from 18.9 in 2000 to 4.9 in 2002), the firm remains in a good position to cover its interest expenses. On the other hand, the impact of 9-11 on the interest coverage ratios of Air Canada is tremendous: the airline had interest coverage ratios below 1 throughout our sample period,



indicating that they experienced significant difficulties in making their interest payments. This ultimately resulted in Air Canada's bankruptcy filing on April 1, 2003.

## Stock Performance

In order to examine how the financial markets reacted to 9-11 and whether investors put more confidence into low-cost carriers such as WestJet than into airlines that follow a conventional-cost model such as Air Canada, we examine the stock price performance of the two airlines pre- and post-9-11. Table 2 presents quarterly and yearly returns for the airlines and the market as proxied by the TSE 300 index.

\*\*\* Insert Table 2 About Here \*\*\*

The data clearly show the impact of 9-11 on the airline industry and the market. We observe a highly negative return for the airlines and the market index during the third quarter of 2001, followed by several quarters of high volatility when compared to the pre-9-11 period. Air Canada's stock price declined by more than 58.3 percent in the third quarter of 2001, while WestJet underperformed the market to a much lesser extent (31.5 percent).

Since the returns in table 2 are not adjusted for risk, we are not yet in a position to draw any conclusions about the significance of these performance differences. To measure differences in risk levels between the airlines and examine how those risk levels changed after 9-11, we calculate beta coefficients for the airlines pre-9-11 and post-9-11. The resulting beta estimates are presented in table 3.

\*\*\* Insert Table 3 About Here \*\*\*

Not surprisingly, we find that the beta coefficients of all three airlines increased considerably after 9-11. We test whether the increase is significant using a standard t-test for differences in means and a Mann-Whitney test for the significance of differences in medians. Although the beta of WestJet increased less than that of Air Canada, we find that all increases are significant at the five percent significance level (at the one percent level for Air Canada). WestJet's beta is only 0.714, well below the beta of Air Canada (1.55).

To calculate how the returns compare between the airlines after adjusting for risk, we employ event study methodology and calculate the risk-adjusted cumulative abnormal returns for each airline pre- and post-9-11 in a CAPM framework. Table 4 provides an overview of the data that were used to calculate expected returns. We used 90-day T-bill rates as a proxy for the risk-free rate and historical market returns based on 60 and 360 calendar days to forecast expected market returns. The last row of table 4 provides the standard deviation of our estimates, indicating that the short-term estimates are significantly more volatile than long-term historical returns.

\*\*\* Insert Table 4 About Here \*\*\*

Table 5 presents non-risk-adjusted returns of the airlines for various time periods after 9-11.

\*\*\* Insert Table 5 About Here \*\*\*

We observe that both airlines were negatively impacted by the events of 9-11, with Air Canada performing the worst, losing over 23% on the first trading day following 9-11 and over 78% during the following 30 months. In comparison, WestJet lost “only” 12% on the first trading day after 9-11 and actually gained 58% within 30 months after the event. Both airlines show a

medium-term recovery three to six months after 9-11, followed by a repeated downturn after 18 months, from which Air Canada was never able to recover.

\*\*\* Insert Table 6 About Here \*\*\*

Table 6 presents risk-adjusted returns following 9-11 using 60-day trailing betas and market risk premiums estimated using 60-day historical returns. Although negative in the short run, we find that the risk-adjusted cumulative abnormal returns (CARs) for WestJet are positive in the medium and long run (1 to 30 months after 9-11). Although Air Canada shows some positive CARs in the medium term (3 months to 1 year after 9-11), they become negative in the long run.

Table 7 presents a long-term approach for estimating the inputs in our CAPM model. Here, we calculate risk-adjusted returns by using 360-day trailing betas and market risk premiums based on 360-day historical returns.

\*\*\* Insert Table 7 About Here \*\*\*

The results are similar to those presented in table 6: WestJet clearly outperforms Air Canada on a risk-adjusted basis after 9-11. It is noteworthy, however, that Air Canada's underperformance is somewhat tamed when we use long-term estimates in our calculations.

## **V. Conclusion**

Notwithstanding the fact that WestJet has been an innovative operation and, as the numbers and our analysis shows, has been quite successful even during difficult times, will it be able to maintain its success in the future? Will customers continue to remain loyal? Will the firm

prevail in case investor confidence in the aviation industry deteriorates even further? Will the firm prevail if serious safety concerns arise about its operation or the operation of low cost carriers in general?

Besides WestJet in Canada, other low-cost airlines such as Virgin Blue in Australia, AirAsia in Malaysia and Thailand, RyanAir and easyjet in Europe, and JetBlue and southwest in the United States have been similarly successful. In Canada, we may see the emergence of additional low-cost airlines or possibly an attempt by Air Canada to reinvent itself as a lower-cost airline if and when it emerges from its bankruptcy proceedings.

We explain WestJet's overall success from an operational standpoint. WestJet has a lower and more variable cost structure and a lower breakeven load factor, which allow it to react to a changing environment more quickly than conventional airlines. In addition, WestJet benefits from the migration leisure and even business travelers from conventional-cost airlines to low-cost airlines. Our financial analysis substantiates these qualitative observations. Financial markets appear to have more confidence in the flexibility and continued growth potential of WestJet than its traditional-cost counterpart Air Canada (which is treated as cyclical). Even though affected, WestJet and similar low-cost carriers in the U.S. emerged from the 9-11 crisis in a stronger market position than their conventional-cost rivals (see also Flouris and Walker, 2004b). From a management standpoint, we believe that adopting a viable strategic position, leveraging organizational capabilities, and reconceiving the value equation are critical in defining the comparative advantage of low-cost carriers.

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### **Websites**

[www.westjet.ca](http://www.westjet.ca)

**Table 1: Selected Accounting Data and Financial Ratios**

The following table presents selected accounting data for WestJet and Air Canada. We used year-end income statements and balance sheets which can be accessed through Hoover's Online database ([www.hoovers.com](http://www.hoovers.com)) to calculate all ratios. Note that we do not report inventory turnover and similar ratios as they are not relevant in the airline industry.

Time Period	2000	2001	2002	2003
Panel A: WestJet				
Total Revenue (CA\$ Million)	332.5	478.4	680.0	859.6
Net Income (CA\$ Million)	30.3	37.2	51.8	60.5
Current Ratio	1.0	0.9	0.8	1.2
Quick Ratio	1.0	0.9	0.8	1.1
Return on Assets (ROA)	9.0%	9.4%	6.6%	4.1%
Profit Margin	9.1%	7.8%	7.6%	7.0%
Asset Turnover Ratio	1.0	1.2	0.9	0.6
A/R Turnover Ratio	52.0	39.2	33.2	72.8
Interest Coverage Ratio	18.9	12.5	12.8	4.9
Panel B: Air Canada				
Total Revenue (CA\$ Million)	9295.5	9,607.0	9,826.0	8,368.0
Net Income (CA\$ Million)	(112.5)	(1,253.8)	(828.0)	(1,867.0)
Current Ratio	0.7	0.8	0.7	0.7
Quick Ratio	0.6	0.7	0.5	0.6
Return on Assets (ROA)	-1.2%	-14.1%	-11.2%	-27.0%
Profit Margin	-1.2%	-13.1%	-8.4%	-22.3%
Asset Turnover Ratio	1.0	1.1	1.3	1.2
A/R Turnover Ratio	6.9	12.6	12.9	16.7
Interest Coverage Ratio	0.0	-2.6	-1.0	-6.8 *

n.m. = not meaningful

\* As a result of its April 1, 2003, bankruptcy filing, Air Canada ceased to accrue interest on unsecured debt that is subject to compromise. While under creditor protection, Air Canada only reported interest expenses to the extent that they will be paid under the plan of arrangement or that it is probable that it will be an allowed claim. Approximately \$179 million of interest expense on unsecured debt would have been recorded in addition to the \$85 million on its income statement had the filings not occurred. Together, this would have resulted in an interest coverage ratio of -6.8.

**Table 2: Quarterly and Yearly Return Data**

We present quarterly and yearly return data for WestJet and its competitor Air Canada. In addition, we present quarterly and yearly return data on the TSE 300 index. Our calculations are performed using daily closing price data obtained from the Center for Research in Security Prices (CRSP) and index data from the Toronto Stock Exchange (TSE). All returns are adjusted for dividends and stock splits.

Quarter	WestJet	Air Canada	Market Index
1999-Q1	N/A	8.94%	1.73%
1999-Q2	N/A	-7.46%	6.25%
1999-Q3	21.61% *	61.29%	-0.75%
1999-Q4	22.70%	9.00%	20.93%
1999 Total	22.16%	15.38%	6.72%
2000-Q1	18.02%	42.20%	12.46%
2000-Q2	53.37%	25.81%	7.75%
2000-Q3	4.44%	-22.56%	1.79%
2000-Q4	-1.06%	-9.27%	-13.92%
2000 Total	16.95%	5.88%	1.51%
2001-Q1	-20.43%	-42.34%	-14.84%
2001-Q2	31.62%	10.51%	1.69%
2001-Q3	-31.50%	-58.30%	-11.60%
2001-Q4	42.51%	37.91%	12.43%
2001 Total	0.55%	-22.20%	-3.68%
2002-Q1	25.16%	37.65%	2.12%
2002-Q2	-30.25%	2.03%	-8.99%
2002-Q3	-12.29%	-31.91%	-13.51%
2002-Q4	-11.26%	-1.04%	7.02%
2002 Total	-9.21%	-1.37%	-3.69%
2003-Q1	-2.79%	-55.79%	-4.10%
2003-Q2	1.78%	-36.19%	10.09%
2003-Q3	52.07%	-15.67%	6.27%
2003-Q4	17.08%	17.70%	10.78%
2003 Total	15.21%	-27.26%	5.59%
2004-Q1	-7.73%	-0.75%	4.44%

\* Note that WestJet went public on July 13, 1999. Thus, our return calculations for the third quarter of 1999 are based on WestJet's price data after that date, excluding its IPO under pricing return of 25 percent.



**Table 3: Estimated Beta Coefficients**

We estimate beta coefficients for the two airlines in our sample as  $\beta_i = \text{cov}(r_i, r_m) / \sigma_m^2$ , where  $\text{cov}(r_i, r_m)$  is the covariance between the returns of firm  $i$  and the returns on the market, and  $\sigma_m^2$  is the variance of market returns. We use daily returns based on adjusted price data of the TSE 300 market index to proxy for market returns and price data for individual firms that has been adjusted for dividends and stock splits. Panel A presents our beta estimates for two sub-periods: (1) from July 13, 1999, to September 10, 2001 (pre 9-11); and (2) from the resumption of trading on September 13, 2001, to March 31, 2004 (post 9-11). In Panel B, we report test results for the equality of means and medians across groups: p-values are reported for the significance of difference in means and MW p-values are reported for Mann-Whitney tests for the significance of difference in medians. These tests are based on 60-day trailing betas calculated for each firm. Although not reported here, we also calculated betas using longer estimation periods. We observe similar, highly significant increases in systematic risk for our long-term estimates.

	WestJet	Air Canada
Panel A: Estimated Beta Coefficients		
Pre-9-11	0.249	0.788
Post-9-11	0.714	1.550
Panel B: Tests for Equality Across Groups		
p-value	0.032 **	0.005 *
MW p-value	0.046 **	0.009 *

\* significant at the one percent confidence level

\*\* significant at the five percent confidence level

**Table 4: Return Estimates Used in our CAPM Model (by Quarter)**

The following table presents quarterly summary statistics for the variables used in our estimation of the capital asset pricing model (CAPM). We base our calculations on weekly 3-month Treasury Bill rates as reported by the Bank of Canada. In our later estimations, we calculate historical market returns as the geometric average of daily market returns during the previous 60 (360) calendar days. These returns are used as a forecast of the expected market return in our CAPM estimation. All returns below are aggregated by quarter and are not those actually used in our estimation. We also report the standard deviation for each column. In the case of T-Bills, the standard deviation is based on weekly data; for all other series we report the standard deviation for daily returns.

Quarter	Average 90-Day T-Bill Rate	Market Return During Previous 60 Days	Market Return During Previous 12 Months
1999-Q1	4.63%	19.16%	-4.58%
1999-Q2	4.56%	33.81%	-10.35%
1999-Q3	4.61%	-1.19%	6.41%
1999-Q4	4.82%	25.53%	17.62%
1999 Average	4.66%	19.32%	2.27%
2000-Q1	5.28%	104.02%	31.05%
2000-Q2	5.52%	31.84%	34.82%
2000-Q3	5.56%	83.71%	50.38%
2000-Q4	5.48%	-41.44%	33.10%
2000 Average	5.46%	44.53%	37.34%
2001-Q1	4.61%	-14.19%	1.53%
2001-Q2	4.34%	-8.66%	-15.38%
2001-Q3	3.07%	-23.23%	-28.15%
2001-Q4	1.91%	-7.23%	-26.16%
2001 Average	3.48%	-13.33%	-17.04%
2002-Q1	2.27%	36.43%	-12.45%
2002-Q2	2.71%	1.68%	-2.27%
2002-Q3	2.75%	-43.42%	-10.79%
2002-Q4	2.66%	-5.76%	-10.13%
2002 Average	2.60%	-2.77%	-8.91%
2003-Q1	3.14%	11.77%	-14.08%
2003-Q2	3.07%	14.62%	-14.56%
2003-Q3	2.58%	45.98%	7.10%
2003-Q4	2.57%	25.87%	21.36%
2003 Average	2.84%	24.56%	-0.05%
2004-Q1	1.98%	50.57%	29.36%
St. Dev.	1.26%	7.44%	22.85%

**Table 5: Non-Risk-Adjusted Returns Following 9-11**

The following table presents returns during various time periods following the events of September 11, 2001. To get an exact estimate of the impact of 9-11 on each firm's performance, returns are calculated relative to the closing price of September 10, 2001. The returns are adjusted for stock splits and dividends, but not for risk.

Non-Risk-Adjusted Returns Following 9-11			
Time Elapsed Since 9-11	WestJet	Air Canada	Market
1 Day *	-12.3%	-23.1%	-3.3%
1 Week	-22.9%	-33.6%	-5.9%
2 Weeks	-14.9%	-45.3%	-11.3%
1 Month	-2.9%	-64.1%	-3.9%
2 Months	12.5%	-41.9%	-1.6%
3 Months	24.7%	-22.2%	2.5%
6 Months	62.9%	2.5%	7.7%
1 Year	4.7%	-13.3%	-9.9%
18 Months	-8.6%	-55.6%	-14.3%
2 Years	41.9%	-78.9%	3.5%
30 Months	58.3%	-78.3%	19.1%

\* Note that the Canadian markets were closed for two business days following the September 11 events. Thus, we calculate 1-day performance as the return from the close of trading on September 10 to the close of trading on September 13, 2001.

**Table 6: Risk-Adjusted Returns Following 9-11  
(Using Short-Term Estimates)**

The following table presents risk-adjusted cumulative abnormal returns during various time periods following the events of September 11, 2001. We calculate daily abnormal returns as the difference between actual returns observed on each trading day minus expected returns based on the capital asset pricing model (CAPM). The results in this table represent a *short-term* approach to estimating the variables for the CAPM: we use *60-calendar-day* trailing betas for each firm and estimate market risk premiums by using *60-calendar-day* historical returns on the CRSP value-weighted market index minus interpolated average yields on 90-day T-bills during each week. We do not report 1-day returns as they are largely similar to the non-risk-adjusted 1-day returns presented in table 5.

Risk-Adjusted Returns Following 9-11 (Using 60-Day Trailing Betas and Market Risk Premiums Estimated Using 60-Day Historical Returns)		
Time Elapsed Since 9-11	WestJet	Air Canada
1 Week	-24.48%	-34.86%
2 Weeks	-4.79%	-59.47%
1 Month	2.84%	-86.37%
2 Months	22.08%	-23.89%
3 Months	34.46%	13.77%
6 Months	73.60%	16.46%
1 Year	40.56%	20.84%
18 Months	35.27%	-17.43%
2 Years	73.99%	-58.80%
30 Months	64.40%	-65.00%

**Table 7: Risk-Adjusted Returns Following 9-11  
(Using Long-Term Estimates)**

The following table presents risk-adjusted cumulative abnormal returns during various time periods following the events of September 11, 2001. We calculate daily abnormal returns as the difference between actual returns observed on each trading day minus expected returns based on the capital asset pricing model (CAPM). The results in this table represent a *long-term* approach to estimating the variables for the CAPM: we use *360-calendar-day* trailing betas for each firm and estimate market risk premiums by using *360-calendar-day* historical returns on the CRSP value-weighted market index minus interpolated average yields on 90-day T-bills during each week.

Risk-Adjusted Returns Following 9-11 (Using 360-Day Trailing Betas and Market Risk Premiums Estimated Using 360-Day Historical Returns)		
Time Elapsed Since 9-11	WestJet	Air Canada
1 Week	-24.71%	-35.41%
2 Weeks	-5.58%	-61.91%
1 Month	1.04%	-89.91%
2 Months	17.42%	-29.56%
3 Months	28.97%	6.47%
6 Months	63.32%	35.27%
1 Year	27.24%	3.41%
18 Months	23.34%	-4.63%
2 Years	75.24%	-20.20%
30 Months	67.06%	-52.38%