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A Longitudinal Analysis on the Cyclical Pattern of the U.S. Airline Industry

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A Longitudinal Analysis on the Cyclical Pattern of the US Airline Industry

AQR AIRLINE QUALITY RATING

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Abstract

The Airline Quality Rating (AQR) is the nation's most comprehensive study of airline performance and quality for over two decades. AQR provides consumers and industry watchers a means to compare performance quality among different US airlines using objective performance-based data. This research looks to analyze the cyclical patterns present in AQR in order to identify trends and factors contributing to the changes in these results each year. This research utilizes the application of a longitudinal analysis methodology which will provide the correlation between factors identified and the indicators affected.

Background

- Industry standard is set by AQR providing consumers and industry watchers objective performance-based data to compare performance quality among different US airlines.
- Data used in this research are readily available from the Department of Transportation.
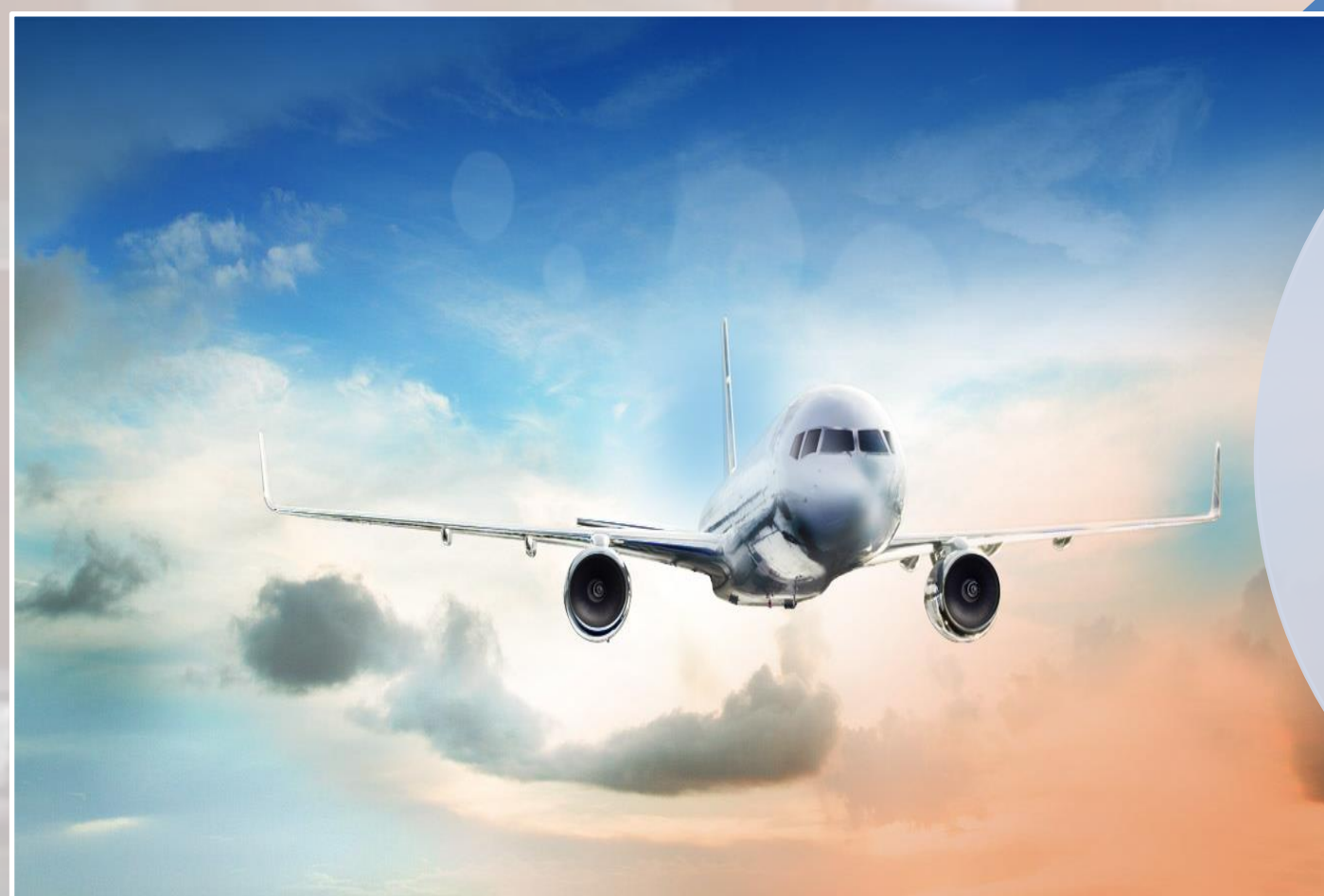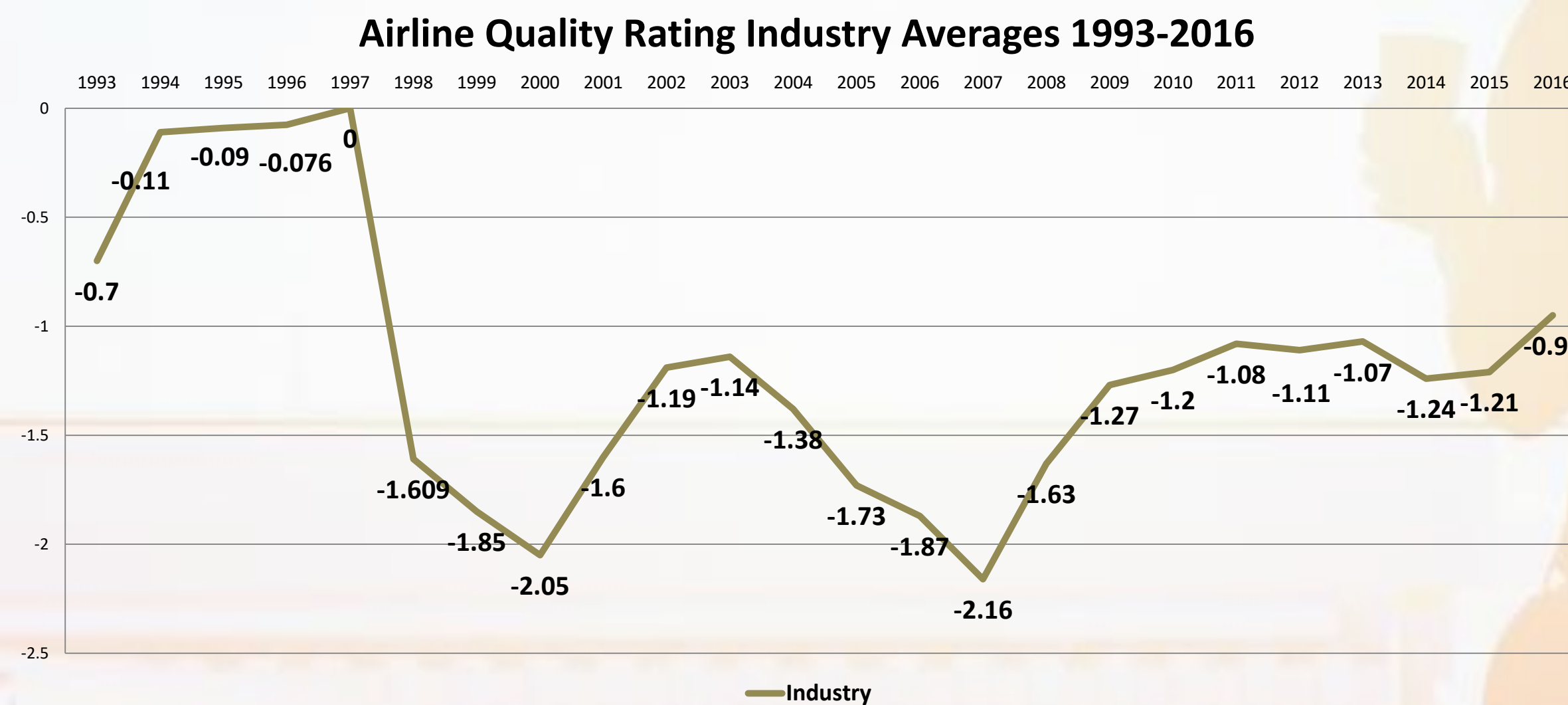
AQR Criteria & Weights

- **On-Time (OT), Weight- 8.63**
- **Denied Boarding (DB), Weight- 8.03**
- **Mishandled Baggage (MB) Weight- 7.92**
- **Customer Complaints (CC) Weight- 7.17**
- **Flight Problems, Over sales, Fares,**
- **Ticketing, Refunds, etc.**

AQR Formula

$$AQR = \frac{(+8.63 \times OT) + (-8.03 \times DB) + (-7.92 \times MB) + (-7.17 \times CC)}{(8.63 + 8.03 + 7.92 + 7.17)}$$
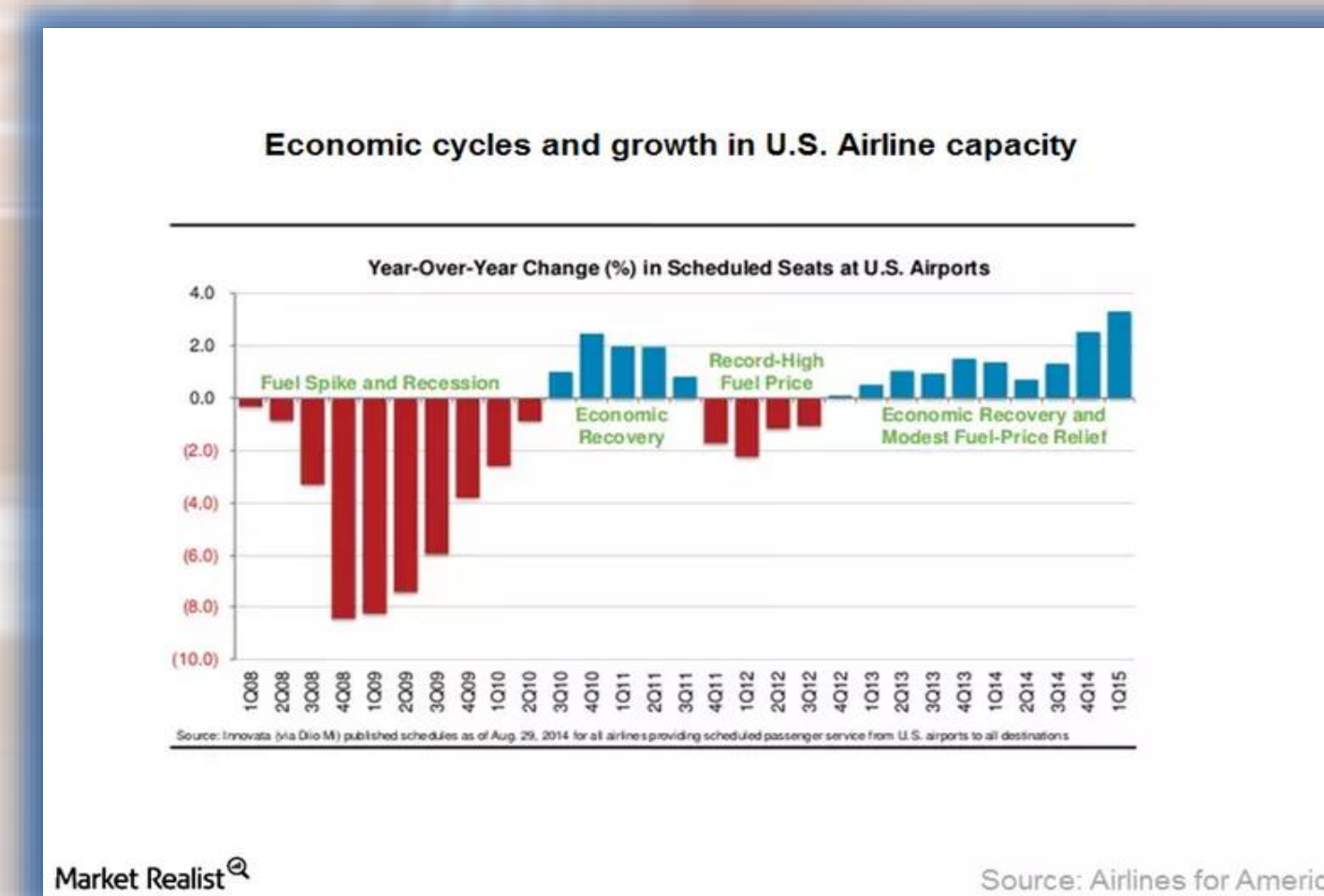
Methods

- Analyzing the data over the past 23 years (1993-2016) this research utilizes the application of a longitudinal analysis methodology.
- This offers a way to track the ebbs and flows of airlines' operational performance, and the ability to develop theories explaining the shifts in data.

Airline Quality Rating Industry Averages 1993-2016

Values shown: 1993: -0.7, 1994: -0.11, 1995: -0.09, 1996: -0.076, 1997: 0, 1998: -1.609, 1999: -1.85, 2000: -2.05, 2001: -1.6, 2002: -1.19, 2003: -1.14, 2004: -1.38, 2005: -1.73, 2006: -1.87, 2007: -2.16, 2008: -1.63, 2009: -1.27, 2010: -1.2, 2011: -1.08, 2012: -1.11, 2013: -1.07, 2014: -1.24, 2015: -1.21, 2016: -0.95

—Industry

Analysis

Looking at the 23 years of data, there are several distinct ebbs and flows in the data including the dip between 1999 -2001, 2006 -2008, and 2014-2015. Several factors may contribute to these changes including the condition of the economy, new policies, and technological advancements.

Both airports and airlines suffered from economic factors including spikes in jet fuel prices and the recession.

Economic cycles and growth in U.S. Airline capacity

Year-Over-Year Change (%) in Scheduled Seats at U.S. Airports

Fuel Spike and Recession · Economic Recovery · Record-High Fuel Price · Economic Recovery and Modest Fuel-Price Relief

Source: Airlines for America

Market Realist

Results

- Economic factors have an influence over operational performance according to the data provided in AQR.
- Through the collected data and analysis, airlines will be able to utilize this data to better understand the cyclical patterns of their perceived airline performance, which can be used to employ strategies, and forecast future market conditions influencing their ratings.

Next Steps

Next steps include further identifying and analyzing factors influencing operational performance of airlines. Specifically, how oil prices may have contributed to changes in ratings, and how legislation post 2001 changed operations in the airline industry.

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