



Does asset-light strategy contribute to the dynamic efficiency of global airlines?



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ABSTRACT

This study analyses the effect of asset-light strategy on the dynamic efficiency of global airlines from 2008 to 2013. First, a dynamic data envelopment analysis is employed to estimate the dynamic efficiency of global airlines. Second, the degree of asset-lightness is computed by combining the concepts of the DuPont equation and financial ratios. Third, a multivariate analysis is performed to analyze the association between asset-light strategy and dynamic efficiency. The findings show that asset-light strategy significantly enables global airlines to have better corporate performance. Overall, this study suggests that global airlines should efficiently manage and allocate their light resources to sustain challenges in the dynamic global airline industry.

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1. Introduction

The global airline industry incurred a \$13 billion net loss in 2001 based on statistical data provided by the International Air Transport Association (IATA). Furthermore, global issues such as fluctuating international oil prices, the global economic recession, and contagious diseases have affected airline operations, including dismissals of staff or filings for bankruptcy protection. Although passenger and cargo demands have recovered in recent years, significant losses are still found in all regions, except for Asia-Pacific and Latin American emerging countries that have higher international passenger demands compared to North America and Europe. Different players have resulted in the evolution of competition in the global airline industry and recent developments in the industry include changing business models. Southwest Airlines has differentiated

itself as a low-cost, short-haul, express airline, and that has proven to be a winning strategy for competing in the highly competitive airline industry.

Besides the above-mentioned scenario, this study analyzes how well airlines perform in the global market in terms of continuously managing and allocating resources to ensure their survival and growth. In other words, global airlines should have lower operating costs and risks in the continuing evolution of the highly competitive global airline industry (Belobaba and Odoni, 2009). A sustainable competitive advantage can lead to an above-average performance or profits (Barney, 1991; Wiggins and Ruefli, 2002). Limited resources available include both tangible and intangible assets, both of which can be identified from airlines' financial statements such as patents, franchises, trademarks and copyrights, and strategic intangible resources that are not captured on airlines' financial statements, such as corporate branding, customer relationships, and operating strategies (Liou, 2011).

A type of corporate strategy that could create a competitive advantage is the asset-light strategy, which corporations have been utilizing over the past few decades (Gannon et al., 2010) as a response to serious challenges in the dynamic airline market. In

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other words, taking full advantage of limited resources should be the main goal of global airlines, because efficient management of limited resources means better performance. In literature, a few studies have considered how the asset-light strategy affects corporate performance in various industries. The asset-light strategy has been shown to create values in international hotel corporations (Gannon et al., 2010), generate a competitive advantage in the telecommunications industry (Liou, 2011), and improve corporate performance in the semiconductor industry (Wen et al., 2012). The aforementioned studies show that limited resources can be in intangible, which can create a competitive advantage and ultimately better corporate performance.

In the airline industry, Broderick (2015) reported that airlines are reshaping their business model by engaging in asset-light strategy. As discussed earlier, global airlines should find ways to lower their operating costs and risks, and also increase their efficiency by utilizing their limited resources (including aircraft and staff), all of which will ultimately reduce their profit volatility and improve their profitability. To comprehensively understand the effect of the asset-light strategy on corporate performance in the airline industry, we argue that a longitudinal and multidimensional measure of corporate performance measure should be applied. Extant studies on performance measure have primarily examined the return on assets and/or Tobin's Q, which are uni-dimensional (McWilliams and Siegel, 2000; Surroca et al., 2010). A robust methodology for this study is data envelopment analysis (DEA) (Bowlin, 1995) for the following reasons: first, DEA is able to not only simultaneously evaluate numerous variables, but also account for possible interactions among the variables. Second, DEA can determine optimal efficiency and relative efficiency as captured by variables (Narimani and Narimani, 2012). Third, DEA provides value-added facts and figures at a better picture than financial ratios do (Feroz et al., 2003).

With respect to performance measure, Tone and Tsutsui (2010) indicate that long-term investments are normally found in the actual business world. Long-term investments are particularly observable in the airline industry, which have large quantities of capital investments. Specifically, carry-over activities take place between two periods of time. This viewpoint is also supported by the longitudinal view of accounting, which accounts for assets and liabilities are amassed and brought forward for an indefinite time period. In the past, researchers normally use window analysis (Webb, 2003; Yang and Chang, 2009) and the Malmquist index (Asmild et al., 2004; Uri, 2000) to gauge efficiency changes for two periods. However, the aforementioned DEA models ignore carry-over activities. Following Lu et al. (2014), we thus employ a dynamic DEA approach to estimate the dynamic efficiency of global airlines over a long-term period. In short, we provide a holistic view of the efficiency of global airlines from a long-term perspective.¹

We next regress the asset-light strategy on the dynamic performance in an ordinary least square model for the period from 2009 to 2013. Consistent with the study by Liou (2011), the asset-light strategy is measured as the degree of asset-lightness (DAL), which represents light resources or intangible assets. In summary, we contribute to the available literature by focusing primarily on extending prior research on the use of the asset-light strategy in the airline industry.

The remainder of this paper proceeds as follows: prior studies are documented in Section 2, the next section describes the research method and data collection of this study. The empirical results are presented in Section 4, while this study is wrapped up in

Section 5.

2. Literature review

2.1. The asset-light strategy

Two major classifications of assets are heavy assets and light assets (Liou, 2011), whereby heavy assets (a.k.a. tangible assets) are usually reported in a corporate annual report. A non-exhaustive examples of light assets, which might be commonly known as intangible assets, include goodwill, patents, franchises, trademarks and copyrights and exclude certain key substances such as corporate strategies, ranging from marketing ability to efficiency in resource management (Amit and Schoemaker, 1993), all of which reflect exceptionally unique abilities that can possibly be imitated in an imperfect way because there are no substitutes, and have unique abilities (Wernerfelt, 1984).

Specifically, the asset-light strategy deals with minimal physical resources in maximizing corporate performance. Based on the resource-based view, strategic resources controlled by companies are important factors that create competitive advantages (Barney, 1991). There are two assumptions at play. The first assumption is that the resources owned by companies are heterogeneous, which means that a company gains competitive advantage by owning specific resources that others lack. The second assumption is that resources cannot flow among companies, leading to maintaining heterogeneity.

To quantify the asset-light strategy, a researcher can use one of the two indicators (Liou, 2011): the dollar value of light assets and the degree of asset-lightness in ratio.² The latter is a measure of a company's ability in using physical resources to create intangible values. Overall, companies should emphasize their light assets as key resources to generate and sustain competitive advantages, and ultimately to enhance firm value.

The impact of the asset-light strategy on various industries has been discussed widely in the literature. For an example, Sohn et al. (2013) examine the theoretical and empirical effectiveness of the strategy in the U.S. hotels and motels industry. The results indicate that expanding fee business and decreasing fixed asset intensity have a positive impact upon firm value. Liou (2011) reveals the influence of asset-light operations on competitive advantages on the telephone communications industry in Taiwan. Moreover, Ghazvini et al. (2015) propose that firms with light tangible assets, such as distributed generation units and energy storage systems, can survive longer in a competitive retail electricity market. The study further explains that with asset-light strategy, the retail electricity providers are able to reduce the risk of financial losses in the firms.

2.2. The impact of the asset-light strategy on corporate performance

Performance evaluation is one of the important topics for company stakeholders, because it articulates the corporate value that reflects not only the current state of operation, but also future potential growth. In other words, performance evaluation is beneficial to the continuous growth of companies (Achterbergh et al., 2003). To measure corporate performance, prior studies have utilized accounting-based measures such as return on equity

¹ Some might argue that airlines are more efficient airlines if they are able to deliver lower costs per seat in competing to sell seats on flights.

² Readers are encourage to scrutinize Liou, F.-M., 2011. The effects of asset-light strategy on competitive advantage in the telephone communications industry. *Technology Analysis & Strategic Management* 23, 951–967. For the theoretical framework behind the asset-light strategy.

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