

Cost Benefit Analysis and Adjustments of Corporate Social Responsibility in the Airline Industry

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Abstract—The decision-making processes in Corporate Social Responsibility (CSR) among firms in the airlines industry borders on the benefits that accrue to firms through those investments. The crux of the matter is how firms can quantify the benefits derived from such investments. This paper analyses the cost benefit adjustment strategies for firms in the airline industry in their CSR strategy adoption and implementation. The paper discusses the CBA model in order to understand the ways airlines can reduce costs and increase returns on CSR, or balance the cost and benefits. The analysis indicates that, economic concepts especially the CBA are useful, though they are not without challenges. This paper concludes that the CBA model gives a basic understanding of the motivations for investing in intangible assets like CSR. It sets the tone for formulating relevant hypothesis in empirical studies in investment in CSR and other intangible assets in business operations.

Keywords—Cost Benefit Analysis, Corporate Social Responsibility, airline industry.

I. INTRODUCTION

AIRLINE transport has increasingly become a global, technologically advanced and dynamic growth industry [10]. For most of the firms in the airline industry, it is essential that they remain committed to satisfying the customers' growing demands in a sustainable manner while at the same time maintaining an optimal balance between economic progress, social development, and environmental responsibility [4]. According to [16], "*The relative affordability and speed of travelling by air today have made international travel accessible to a lot of people and it has become an essential part of their lifestyle.*"

The concept of Corporate Social Responsibility (CSR) is a challenge for managers of airlines in today's risky, competitive and complex business environment. In view of this, there has been a need for firms in the airline industry to develop an environmental agenda and take measures to minimize the ever-increasing environmental impacts created by their activities [7]. The forms of CSR in the airline sector among other things includes working in partnership with local communities, socially sensitive investment, developing relationships with employees and customers as well as involvement in activities for conservation of the environment and its sustainability.

On an annual basis, it is estimated that about 3.1 billion tons of CO₂ are emitted by the European Union. Furthermore, it is estimated that the number of people forced to deal with

serious aircraft noise will increase from 24 million in 2000 to 30.3 million by 2025, notwithstanding the introduction of quieter next-generation airplanes [16]. Reports by regulators in the airline industry point to the fact that, airlines are spewing 20% more CO₂ into the environment than previously estimated and there is a tendency for the amount to increase to 1.5 billion tons a year by 2025 [1]. That is far more than even the worst-case predictions laid out by the International Panel on Climate Change. In spite of the detrimental effects of airline operations, the global demand for air transport is forecast to grow at around 5% per year and thus will double in less than 15 years [1]. Particularly, the impact of the increasing growth on the environment will be worth mentioning, as aircraft presently release approximately 3% of the global emissions of carbon dioxide and about 2% of nitrogen oxides from fossil fuels. This percentage is anticipated to rise rapidly if technology and policy initiatives are not changed [3]. According to CSR Europe, 62% of managers of funds and financial analysts have realized a growing interest in socially responsible investment [1].

Based on the above discussions CSR of firms in the airline industry is an increasingly important topic in the global business environment. CSR applies to the airline industry the same as it does to any other economic sector. CSR demands that firms take up their social responsibilities as seriously as the way they pursue their economic objectives. The concerns among stakeholders about the environmental impacts of airline transport means that CSR programs are becoming a point of focus of airline business strategies [8], [6].

Bird, Hall, Momentè, and Reggiani [5] assert that the structure of the markets in the airline industry has influenced not only independent CSR projects and initiatives but also its totality, and that the facets that they are valued at tend to vary over time. Therefore, for the dynamic airline industry, it is necessary to have managers with the requisite competency to cope with fast-changing markets, institutional structures and operational environments [13]. In the view of [17], the airline industry must be an innovative, environmentally responsible industry that drives economic and social progress. Just like as with any other industry, the airline industry has sustainability risks (social, environmental, operational, threat, strategic and financial risks) that they have to deal with. Managers of airlines are responsible for the optimal decision-making about corporate sustainability risks in their daily business [2].

There are several benefits that firms in the airline industry derive from engaging in CSR. The benefits can be categorized into three, namely:

- a. Regarding the economic view, airlines are essential for facilitating world business and tourism. The airline industry creates jobs and enables the expansion of trade

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across the globe by opening up new market opportunities. It also attracts businesses to locations all over the world, hence satisfying the mobility requirements of a growing portion of the world's population [11]. It also aids in the movement of products and services quickly over long distances facilitating economic and social participation by remote communities.

- b. From the social perspective, airlines form a unique global transport network that links people in different countries safely and efficiently. Air transport is increasingly accessible to a large number of people who can now afford to travel by air for pleasure and business purposes.
- c. Lastly, in terms of the environmental perspective, there is a need for airlines to minimize or contain the impact on their environment through the continuous improvement of its fuel consumption, noise reduction and the introduction of new, more sustainable technologies.

The decision-making processes in CSR among firms in general and airlines in particular have to do with the benefits that accrue through that investment. The crux of the matter is not whether or not to invest in CSR, but rather how firms can quantify the benefits derived from such investments [2]. It has to do with how to quantify the benefits so they can be compared to the cost of investment. Though it has been difficult over the years to value many intangibles such as CSR, it is essential to attempt to comprehensively deal with that dilemma. It is possible for decision-makers of CSR in the airline industry to choose the policy with the largest surplus, or overall net benefits.

When managers and policymakers in the airline industry have to make choices among several alternatives, it is important to adopt a tool that will allow them to clearly weigh and distinguish between the options available. The CBA adjustment strategy provides a comprehensive approach for firms to make CSR investment decisions [9]. Although the CBA concept looks simple, the steps that are taken to evaluate the benefits and cost can become complicated for policy makers. The CBA gives an understanding of the mechanisms and incentives behind the behavior of socially responsible firms in the airline sector [2]. Because firms want to maximize profits, they tend to consider both the costs and benefits of their investment in CSR. This implies that there should be a win-win situation (equilibrium or point of convergence) for these airline firms to be encouraged to invest in CSR projects.

II. AIMS AND OBJECTIVES

This paper analyses the cost benefit adjustment strategies for firms in the airline industry in their CSR strategy adoption and implementation. The adjustment strategies identified will enable firms in the airline industry to have a basis for determining the worth of such CSR investments. Businesses endeavor to maximize their gains. This 'gain' may be either economic or social, and may be beneficial to an individual, a group, or society at large. This paper discusses the cost and benefits model in order to understand the ways airline firms can reduce costs and increase their returns on CSR or balance the cost and benefits [10].

III. COST AND BENEFIT ADJUSTMENT

CBA is an approach for evaluating alternatives in a firm's expenditure patterns. This analysis is widely used in economics and resource management. The Marginal Benefit (MB) that the firm gains from increasing the size of its investment for any given adjustment is equivalent to the demand or the willingness to pay and this tends to decrease when there is an increase in effort or expenditure on the prevention of externalities on the environment. The Marginal Cost (MC) represents the supply curve. This means that there is optimization at the point where the MC meets the MB. The CBA model gives an analytical way for decision-making especially for intangibles such as CSR. Just like the decisions that we take on a personal basis, the CBA involves comparing the cost of any initiative with the benefits of that initiatives. CSR initiatives can be evaluated by computing and weighing the benefits of such initiative against the costs once all factors have a common unit of measurement.

In adopting the CBA in CSR implementation it is important to specify the base situation or what could occur if there are no changes made. In the decision-making process, there is a comparison between all the decisions and the base situation [2]. The first step in determining the base situation is the identification of the relevant time period within which the costs and benefits of CSR investments would be realized. When the base situation and the time period are determined, then the costs and benefits of CSR can be calculated in terms of their contribution to the welfare of agents within the environment. The benefits represent the items that the firm or society get from CSR initiatives while the costs are those items that decrease it.

The measurement of the benefits from CSR policy initiatives includes gains from additional income to an increased quality of life or a cleaner environment. On the other hand, the costs are made up of the opportunities forgone, internal and external costs and externalities. Nevertheless, in the measurement of cost, it is necessary not to mix externalities with secondary effects. Externalities lead to changes in real output changes while secondary effects do not. For instance, in increasing the flying route for an airline firm, the noise and air pollution are the externality while the secondary effect could be an increase in the cost of operations. In this case, the pollution creates the new cost (externality). The business cost is the increase in the cost of operating the additional route. For the firm to prevent double-counting in the CBA, it is important to include only realistic externalities.

IV. ECONOMIC OPTIMIZATION: THE EQUILIBRIUM POINT

In economic optimization, all the benefits and cost options need to be evaluated and given a common unit of measurement. In economic optimization, the ideal situation will result in Pareto improvement where some people are made better-off while no one is made less well-off [2]. The CBA concept is based on the occurrence of a 'potential' Pareto improvement and economic efficiency, where there is a possibility of compensation for those who are less well off, whether or not it actually happens.

An optimal of the CBA is where marginal benefits (MB) and marginal costs (MC) are equal. This equilibrium point is

indicated with the point Q in Fig. 1. There are bound to be surpluses when the MB exceeds the MC. This portion is illustrated by the shaded area in Fig. 1. At the equilibrium point, the firms' surplus is higher, therefore making it the best possible solution. From Fig. 1, if the firm increases quantity to point 1, the MC would exceed the MB, meaning it would not economically efficient. On the other hand, if the quantity were to decrease to point -1, some of the surplus gained would be lost, which would also indicate inefficiency. To maximize economic efficiency, producing at point Q where MB is equal to MC would be preferred.

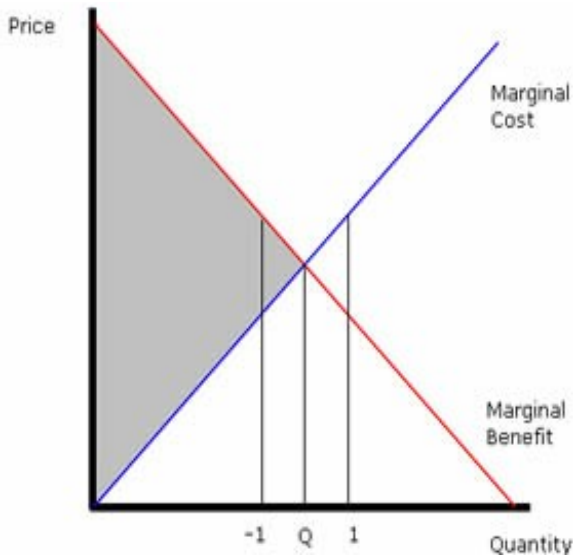


Fig. 1 The CBA equilibrium point

Fig. 2 depicts the optimum, excess and loss of the CBA. A case where MC is less than MB is desirable and the firm will be willing to engage in CSR. On the hand, a scenario with MB less than MC is less desirable as this will amount to losses to the firm. In all this, the optimum is the best possible alternative for the firm.

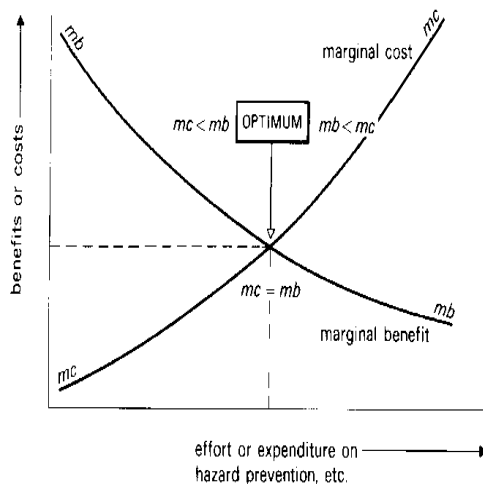


Fig. 2 Fundamentals of cost-benefit analysis

It must be indicated that the uncertainty that surrounds these forecasts can create a fundamental problem when formulators of policies rely entirely on CBA to make a decision. Some critics have argued that, the CBA does not take into account equity considerations. The other methods, thus ecological valuations and discounting are seen as controversial mainly because of the many different values that some CSR investments could assume. For instance, the discount rate selected could have significant implications for the resulting analysis. These arguments are perhaps good reasons as to why CBA is considered the best when combined with other decision-making adjustment analysis. It is important to indicate that, CSR decision-making is not always totally rational. Aside from the economic optimization model of CBA, economic geographers propose other decision-making adjustment methods which are mostly psychological. They include:

- Bounded rationality:** In economics, it has been found that, the assumption that organizations can act rationally to minimize risk and maximize gain is clearly unrealistic and untenable. Studies in human adjustment to environmental hazards like flooding indicated that sub-optimal solutions are often adopted. The threat of some externalities remains, but this is balanced against expected gain. H.A. Simon emphasized the tendency of CSR decision-makers to seek rational judgments about the location of economic activities within the bounds of acceptable risk. Consequently, he proposed the concept of "satisfiable behavior" [14].
- Cognitive behavioralism:** This school of thought asserts that the most realistic framework for socially responsible decision-making is based on the assumption that managers in the airline industry do not have a complete understanding of happenings in the real world. Therefore the variables we perceive in the environment will be filtered through a complex selective process. The process of selection is based on the manager's cognitive perception made up of how we select, organize and interpret signals received from our surroundings. The information managers receive is used to build a coherent picture in our minds of what the environment is like. The process of selection can be influenced by several factors, namely, the stakeholders' powers of seeing and thinking, their cultural setting, experience from the past, training as well as motivation at the time of sensing [12]. Decision-makers faced with information on externalities must endeavor to estimate the risks they consider acceptable from the alternatives available though they may still be less-than-perfect. Eventually, the choice of adjustment will be a conciliation of many competing and incompatible goals, claims and objectives [10].

V. CHOICE OF ADJUSTMENT

A basic feature of the survival and prosperity in humans is their ability to adjust to externalities from the activities of firms. Adjustment may not necessarily be accepting what firms do holistically. There are some measures that are put in place by the various stakeholders in the airline industry to reduce the impact of externalities on the environment. In some

cases, the firms voluntarily engage in CSR [15]. For most firms in the airline industry, the search for effective adjustments to threats involves two key steps. First, it involves an examination of the range of potential adjustment options and second, the selection of an appropriate option.

In deciding on the choice of adjustment, the extent to which a specific hazard from the activities of airline firms affect the environment could determine the choice of adjustment. Low-level environmental stress or hazards that are easy for individuals and society to cope with are usually glossed over by airline firms [15]. Consequently at this *threshold of awareness*, individuals and society tend to realize the impact of the hazard on them. However, they do not regard it as serious enough to demand an action by the airline firm.

There are some potential adjustment strategies for dealing with the externalities of airline firms. It is important to distinguish between *corrective* (or *remedial*) *measures* and *preventativemeasures*. The externalities that occur from the activities of airlines could be prevented by just the institutions of maintenance culture and rapid response strategies since it is often said that prevention is better than cure. Hence, it is important to put in place preventive measures in the execution of the airline's operations. Another distinction needs to be made between the adjustment to nature, thus *technological measures*, and the adjustment to people thus *behavioral or structural measures*. There are some options that firms can use in dealing with externalities [3]. They are;

- a. *Modification of the Cause of the Externality*: Though the ability of managers to modify the nature of the geophysical or biological processes that are responsible for externalities is limited, there are often possibilities to adjust the timing or intensity of the occurrence of externalities.
- b. *Modification of the Vulnerability to the Externality*: There are some engineering measures that managers of airlines can use to reduce the incidence of vulnerability of the environment to externalities by these airline firms. The losses from externalities can be used through the adoption of appropriate parts for airlines and regular maintenance of aircraft among others. The incidence of externality cannot be completely reduced; therefore, managers in the airline sector must aim at reducing risk from their operations to a low (or acceptable) level. Whatever the firm does, there are always some residual risks which will always remain and with which the firm must cope.
- c. *Redistribution of the Losses*: In the airline industry, the occurrence of externalities is inevitable. Hence, the losses and damage to the environment need to be minimized. One of the ways to minimize the burdens of externalities is to share it fairly among the voracious stakeholders [14]. The sharing process must take into account the fairness of the distribution and must be tolerable if shared broadly.

For firms in the airline industry, it is important to identify an appropriate adjustment strategy from the various adjustment options for tackling a given types of externality. For the airline firm, the choice of an appropriate adjustment option is dependent on factors such as what it thinks, what it knows, what it would like, what it can afford, that it thinks is necessary, what it thinks is possible, and how it rationalizes these often incompatible issues [8].

VI. INFLUENCES OF CHOICE OF ADJUSTMENT FOR CBA

In a study by [13], some factors which influence choice of adjustment to hazards that necessitates CSR were examined. There was a distinction between decisions made by managers of CSR and the various agents in the environment. Each of these stakeholder groups has different perceptions, responsibilities, economic motives, and bases for decision-making. The adjustment choices of managers of CSR in the airline sector tend to be influenced by factors such as their perception of the occurrence of the externality, their knowledge of the options available, how they interpret the economic viability of their CSR investment and the technical feasibility of the alternatives available, as well as the social and institutional frameworks within which they operate. On the other hand, the influencers of the choice of adjustment by the agents in the environment include their perception of the likelihood of an externality occurring, their faith in the various regulatory bodies, and their past experience of how previous externalities were handled. It must also be indicated that often the choice of adjustment is closely related to frequency of occurrence of the externality. Fig. 3 depicts the relationship between frequency of events and likelihood of people adopting some form of adjustment.

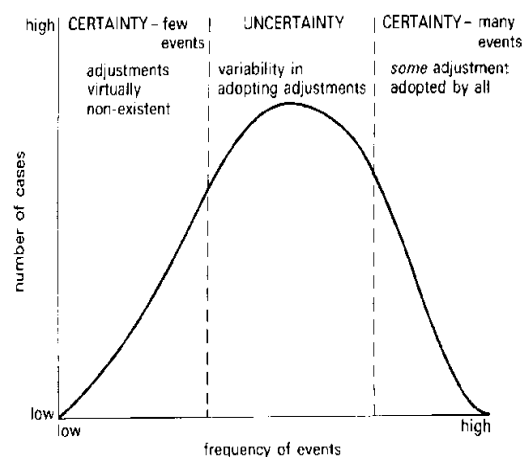


Fig. 3 Relationship between frequency of events and likelihood of people adopting some form of adjustments

From Fig. 3, it can be seen that, little adjustments will be accepted if there is relative certainty that the externality will not occur. However, the relevant stakeholders would adopt adjustments when there is a high certainty that externality will occur. There are three main adjustment strategies airline firms can use in their CSR response strategies. They are the *folk* (or *pre-industrial*), *modern technological* (or *industrial*), and *post-industrial*.

- a. *Folk* (or *Pre-Industrial*) Responses are dependent on the adjustment of the behavior of managers rather than engineering control of the environment. Hence, they require relatively smaller capital. They are usually flexible and could be altered easily or may be abandoned totally. Such adjustments strategy varies from company to company and over time as the choice of a particular adjustment strategy is left to the manager to decide [14].

The folk responses are extraordinarily effective as managers' benefit from experiences handed down sequentially.

- b. *Modern Technological* (or *Industrial*) Responses involve the controlling of the environment. Generally, they require the investment of large capital, long-term planning, coordinated social organization as well as the involvement of many stakeholder groups [14]. Due to this, modern technology responses tend to be less flexible. They also stress technology changes which usually promote uniformity in the adjustment strategies over a wide area. This response strategy tends to have some setbacks. They usually eliminate the occurrence of minor externalities but fail to tackle major externalities. Consequently, it could lead to unjustified complacency among the stakeholders at risk.
- c. *Post-Industrial Response* provides a more comprehensive adjustment strategy as it incorporates both the folk (pre-industrial) and the modern technological (industrial) [14]. It tends to be more effective mainly because it is characterized by a wide range of adjustment strategies, high levels of flexibility together with a range of capital and organizational requirements.

VII. CONCLUSION

This study provided some microeconomic underpinnings to help understand the mechanisms and incentives behind the socially responsible behaviors of firms in the airline industry. It can be concluded that the CSR orientation of firms provides a suitable and effective for the management of modern airline business practices. Also, corporate sustainability is key in their implementation in order to meet the firm's financial, strategic operational, ecological and social goals.

From the analysis it is seen that economic concepts especially the CBA, are useful, though they are not without challenges. The challenge occurs when issues arise and it becomes problematic to express the real impact of the externality in monetary terms. The use of rational maximization of the gains may seem to be a rather optimistic goal mainly because of environmental variability, perceptual uncertainty and imperfect knowledge about the potential externality. This paper concludes that the CBA model gives a basic understanding of the motivations for investing in intangible assets like CSR. It consequently sets the tone for formulating relevant hypothesis in empirical studies in the investment in CSR in particular and other intangible assets in business operations.

Another conclusion is that firms that aim at maximizing profits must consider the costs and benefits involved in CSR implementation. Generally, firms in the airline industry would engage in CSR activities if the various stakeholders, such as the government, the financial sector, consumers, non-governmental organizations and others rewarded or pressured firms to engage in such behavior. Consequently, the link between profitability and the various dimensions of CSR is therefore likely to differ across countries, sectors, and even firms.

ACKNOWLEDGMENT

This research was conducted with the support of the Internal Grant Agency of Tomas Bata University; project number IGA/FaME/2013/037, 'Corporate social Responsibility as an intangible asset in the Airline Industry'

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