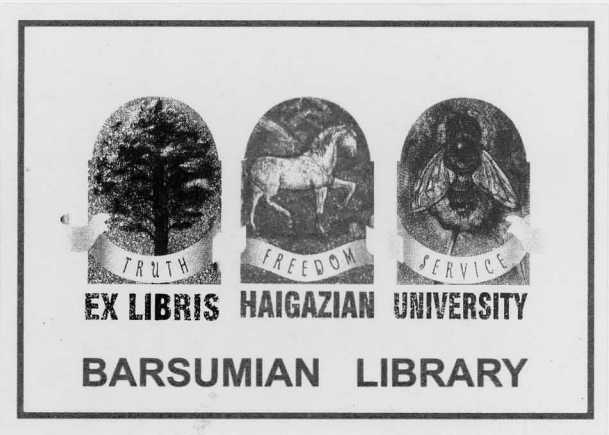

HAIGAZIAN UNIVERSITY

THE IMPACT OF THE MACRO-ENVIRONMENT ON THE PERFORMANCE OF AIRLINES OPERATING IN LEBANON

Empirical study conducted in eighteen airlines operating in Lebanon

BY

MARIA BEDROS FESLIAN

A thesis

Submitted in partial fulfillment of the requirements for the degree of
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THE IMPACT OF THE MACRO-ENVIRONMENT ON THE PERFORMANCE OF AIRLINES OPERATING IN LEBANON

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AN ABSTRACT OF THE PROJECT OF

Maria Feslian for Master of Business Administration and Economics
Major: Marketing

Title: The impact of the macro-environment on the performance of airlines operating in
Lebanon (Empirical study conducted in eighteen airlines operating in Lebanon)

Airlines, these last few years, have been attracting the attention of the world because of the major tragedies they are producing. Often, the macro-environment is the major driver of the dramatic events hitting the airline industry. Airlines operating in Lebanon are as strongly affected by the macro-environment as any other airline. The literature review suggests the following: airlines that systematically scan and review their macro-environment using the appropriate scanning and forecasting techniques to then formulate or reformulate strategies based on the findings of the environmental scanning register high performance scores. I will be studying whether the airlines operating in Lebanon that use the proper approach to scanning and the suitable scanning tools or techniques display first-rate or exceptional results compared to airlines using adhoc approaches.

The methodology used to study my research question was through the analysis of the data obtained by administering a questionnaire. The sample of my study was eighteen airline managers or supervisors. At the time of my study, there were only thirty-four airlines operating flights to and from Lebanon. Thus, my sample represents 52.94% of the entire population. The results were analyzed using various statistical techniques such as descriptive analysis, hypothesis testing, correlation, regression, and factor analysis.

Our results indicate that airlines operating in Lebanon that follow the appropriate channels when it comes to scanning their macro-environment and that strategize according to the findings of the environmental scanning exhibit a certain difference in performance compared to airlines that do not follow the appropriate channels; however, this difference is not significant.

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1 PURPOSE AND INTRODUCTION

The proverb "Those who wish to sing, always find a song" – always motivated me to undertake the major challenges of my life. Choosing the topic of my thesis turned out to be a challenge that I had to assume with confidence and vigor. After an internal debate about the advantages of choosing a topic over the other, the topic "The impact of the macro-environment on the performance of airlines operating in Lebanon" took precedence in my mind after seeing a direct email advertising about a seminar tackling the issues facing the airline marketing and management teams. Additionally, the world of travel has always fascinated me with its ability to open new horizons in a person's life.

On the other hand, throughout my undergraduate and graduate studies the impact of the macro-environment on the performance of firms was discussed comprehensively. These discussions unveiled the following fact about macro-environmental changes: they may in turn have a positive, negative, or ambiguous impact on a firm's performance. In accordance with the abovementioned, airlines register on-time arrivals, suitable baggage handling, excellent customer treatment, high profitability, appropriate returns on equity and capital, outstanding growth, superior productivity, and proper capacity management in some instances while in some others they witness periods of disintegration where low productivity, inappropriate baggage handling, lack of punctuality, inadequate customer satisfaction and meager profitability are all featured with abundance. Also, airlines score ambiguous performance levels when they simultaneously show positive and negative features; for instance, yields can be low when demand for air travel is very high.

I became interested in determining what exactly is meant by the impact of the macro-environment on airline performance. The macro-environment includes all factors that influence an organization but are out of its direct control *(Milne, 2005)*. A firm's environment

changes continuously; thus, it must be able to adapt. According to Anthony Giddens, "Today's changes reveal something about our world. It isn't just a matter of people adding modern paraphernalia – video, TV, personal computers and so forth – to their traditional ways of life. We live in a world of transformations, affecting almost every aspect of what we do. For better or worse, we are being propelled into a global order that no one fully understands, but which is making its effect felt upon all of us" *(Giddens, 2003)*. This trend towards globalization means that airlines have more challenges to take on; for, the wider the environment is for your product or service, the more you need to compensate for changes in it.

I will do a literature review about the different aspects of the macro-environment of airlines and respond to the following questions: Do airlines scan the environmental factors that have the potential to impact them? Do they scan these factors systematically? What are the scanning & forecasting tools they use to scan the macro-environment? Do they adopt strategies based on the findings derived from the environmental scanning? Also, are those who scan systematically more successful than those who do not scan their environment systematically?

My study will include two major parts. In the first part, I will carry out a literature review and describe all the major elements of the macro-environment of the airline industry. In the second part, I will analyze the data that I have collected on a sample of airlines that have major activities in Lebanon. The data will show how these companies scan their macro-environmental factors and use this knowledge in their strategy formulation.

My aim is to see if there is a difference between successful airlines and airlines that do not perform well in their environmental scanning and strategy developments.

2 LITERATURE REVIEW

2.1 MACRO-ENVIRONMENTAL FACTORS AFFECTING AIRLINE PERFORMANCE

My literature review reveals that airlines are the products of their environment; hence, they are extremely influenced and molded by the forces playing in it. The political, economic, socio-cultural, technological, and environmental factors have a lot to do in shaping the performance of airlines. They are described below:

2.1.1 Political & Regulatory environment

The political culture of each nation reflects the relative importance of the government and legal system, and provides a context within which individuals and corporations understand their relationship to the political system *(Keegan & Green, 2003)*. Airlines have a longstanding relationship with the political as well as the legal system that we will be tackling thoroughly in the following section.

Terrorism

All through its history, the airline industry has endured the negative impact of the fear of terrorism and political instability.

USA - September 11, 2001

As Stephen Shaw explains *(2007)*, the events of September 11, 2001 caused an atypical crisis to the airline industry.

Four Aircrafts were seized by armed hijackers and used to attack the Pentagon in Washington and the World Trade Center in New York. Thousands of people lost their lives.

Consequently, the airspace over eastern USA was closed for four days causing direct losses for airlines. Additionally, the industry witnessed a steep decline in demand.

The aviation industry is and will always be particularly vulnerable to periodic attacks mostly because:

- Many airlines are closely associated with a particular nation.

- Airlines are engaged in high profile activities that attract terrorists in quest of extensive exposure/publicity.

There are other dimensions of political instability along with terrorism that affect the airline industry. One of the notable ones is the state of war.

War

The state of war can be best described as a state of hostility, conflict, or antagonism whether for defense, for revenging insults and redressing wrongs, for the extension of commerce, for the acquisition of territory, for obtaining and establishing the superiority and dominion of one party over the other, or for any other purpose.

The events that took place in the summer of 2006 in Beirut represent an example of the state of war.

Lebanon - July, 2006

In July 2006, the military group Hezbollah unleashed rockets and mortar shells that killed two and sent thousands of Israelis into bomb shelters.

As a result, Israel imposed a full naval blockade on Lebanon and put Beirut international airport out of commission. Israel sent punishing air strikes deeper into the

country, hitting all three runways at the Beirut airport as well as the main highway between Beirut and Damascus, Syria *(Fattah and Erlanger, 2006).*

Thus, opponent countries especially obstruct airline activities in their pursuit of isolating the enemy from the outside world; for, otherwise airlines provide transportation services assisting in the entry and exit of passengers and freight into a country.

We just covered political risk and instability issues coming from the outside of a country, we will now examine the impact of internal political upheavals on the airline industry. The political arena in Lebanon is always open to such scenarios; therefore, the following example will also be derived from the Lebanese political history.

Lebanon – May 7, 2008

On May 7, 2008, the work strike taking place in Beirut to demand higher wages and decry high prices turned into clashes between the government and the opposition supporters.

Pro-Hezbollah protesters blocked the road toward Beirut international airport.

Hence, airlines were obliged to suspend their operations to and from Beirut. They incurred economic losses all through the days of partial closure.

The international airport reopened on May 15, 2008 after a consensus has been reached and the roadblocks dismantled.

Demand declined considerably in the months following the turmoil *(Conflict in Lebanon, 2008).*

As previously mentioned, the events instigating political instability and affecting airline performance are numerous. I will be giving one final example, the example of periods of protest and their impact on airlines.

Protest

Protests take place when a concerned person, group, or organization wants to issue a formal declaration of disapproval or objection.

London - April 2, 2009

The G-20 leaders' summit on financial markets and the world economy was held in London on 2 April 2009. Heads of governments or heads of states, plus some regional and international organizations attended.

The summit became the focus of protests over various long standing and relevant issues. These ranged from disquiet over economic policy, anger at the banking system and bankers remuneration and bonuses, the continued war on terror and concerns over climate change *(G-20 London Summit, 2009)*.

The impact of these protests and disruptions on airlines is ambiguous. It is true that some travelers cancelled their flights to London in order to avoid discomfort and lack of safety, decreasing in this way the demand for air travel to London.

On the other hand, members of environmental climate groups, stop the war demonstrators, and many others flew to London to participate in their protests thereby increasing the demand for air travel.

The aforementioned examples illustrate how political forces can drastically change the business environment of airlines with little advance notice. Therefore, businesspeople need to stay apprised of the formation and evolution of different political standpoints.

Additionally, as Rigas Doganis puts it *(2002)* direct government intervention in air transport is unavoidable; for, every state has sovereign rights in the airspace above their

territory. Thus, the regulatory environment of the aviation industry also leaves its strong impact on airlines and their performance. In fact, there are many restrictive measures that governments take. These measures obstruct the freedom of airlines when they are carrying on their business activities. Fortunately, the regulatory regimes that imposed restrictions on airlines went and are going through different phases where governments are starting to adopt more liberal approaches. I will be discussing shortly the different phases that the regulatory system went through to gradually become more liberal; however, I will first start by enumerating and explaining the meaning of the different "freedoms of air" or traffic rights; for, these traffic rights will be mentioned regularly in my upcoming discussion.

"Freedoms of Air"

The book *Airline Marketing (Publication of: International Air Transport Association, 2003)* duly describes the following: Air service agreements are signed between governments in order to regulate the various aspects of air travel, notably, traffic rights. There are six basic and one supplementary freedoms of air.

1st Freedom: It permits over-flying of one country's airspace by airlines from another country.

2nd Freedom: It allows airlines from the first country to land in the second for non-traffic purposes (for example, in order to refuel).

3rd Freedom: It allows traffic to be carried by the home airline to a foreign country.

4th Freedom: It permits airlines to pick up commercial traffic in the foreign country and to bring it back to its home base.

5th Freedom: It allows airlines to carry traffic between two foreign points. Thus, an airline enjoying the 5th freedom can carry passenger and freight between country B and country C.

These rights are usually more closely guarded by countries than the first four freedoms due to their lucrative nature.

6th Freedom: It allows airlines to pick up passenger and freight in a second country and then carry them beyond their home base to a third market.

Thus, an airline would pick up passengers and freight in a country C and carry them to its home market, country A, and then on to country D.

The difference between the 5th and 6th freedom is that the fifth freedom provides a direct service between two foreign points while the sixth freedom provides a service between two foreign points with a stop in the home market.

7th Freedom: The seventh freedom is when a foreign airline is allowed to fly domestic flights. British Airways flies domestic flights in Germany and Virgin Blue, a non-Australian airline, not only flies domestic flights in Australia but it also is one of the major players in the Australian domestic markets.

After carefully enumerating the different "freedoms of air", I will now be returning to the discussion about the regulatory environment of airlines. The regulatory environment of airlines is continuously evolving from phase to phase or from regime to regime laying the grounds for the better development of the diverse dimensions of air travel. For, regulations are being loosened steadily liberating airlines from some of the restrictions previously imposed on them; however, some other restrictions are prevailing. Moreover, regulatory regimes are not and can not be mutually exclusive. In many instances airlines adopt distinct regulatory approaches simultaneously.

Regulatory Regimes

Rigas Doganis *(2002)* describes the phases that the regulatory environment of the aviation industry went through:

Phase 1: Traditional Bilateralism

The power of negotiating a series of bilateral agreements with other states was and is preserved with care by every country. Bilateral agreements are government to government agreements once signed they remain valid until they are renegotiated. Bilateral agreements had many restrictive clauses that imposed operational constraints on airlines. They allowed governments to:

- Control market access like points to be served and traffic rights
- Control market entry like determining which airline can use the traffic rights granted.
- Control flight frequencies and the capacity that can be offered by each airline on the routes between the countries.
- Accept IATA Tariffs (historically, the international air transport association's primary function was to set airline fares).

Thus, forces started rising against traditional bilateralism while other forces started calling for the liberalization of air transport.

Phase 2: Liberalization

The liberalization process started in the US when political and consumer pressures built up.

In Europe, the liberalization process was steadier. It moved slowly from limited liberalization to a more fully deregulated intra-EU market.

The main features of the new "Open Market" are:

- Open market access: airlines can fly between any two points

- Extensive 5th Freedom rights

- Multiple Designation: the right of each participant to a bilateral to designate as many airlines as it wishes to operate in its own agreed routes.

- Ownership: Airlines must be substantially owned and effectively controlled by nationals of the designating state.

- No Frequency or Capacity controls

- Double disapproval: tariff can be blocked only when both governments reject it.

- Code sharing allowed (airlines add their partner's code to their flight number).

Phase 3: Further Liberalization

Unfortunately, even the new "Open Market" system was & is inherently restrictive; for, the market opportunities brought in tended to be those considered suitable by the less liberal of the two countries.

Therefore, the demand for further liberalization started in the US that eventually entered into "Open Skies" aviation agreements.

The basic features of the "Open Skies" are:

- Market Access: Unlimited

- Unlimited 5th freedom granted

- Cabotage not allowed (airline cabotage is the carriage of air traffic that originates within the boundaries of a given country by an air carrier of another country).

- No Frequency or capacity control

- Free pricing

-Ownership: controlled by the nationals of the designated states

- Code sharing permitted (Co-operative agreements allowed)

Europe was also moving toward "Open Skies" but the approach was different; for, while the US strategy was essentially bilateral the European strategy was multilateral. In Europe, multilateral agreements were signed between member states in order to facilitate the development of a Single Open Aviation Market.

"Open Skies" agreements have not resulted in total economic deregulation of international air services; for, they still enclose certain restrictive features. The two main restrictive features in the "Open Skies" agreements are:

- Cabotage not allowed

- 7th Freedom not granted

Phase 4: Towards Clear Skies

Rigas Doganis also says *(2001)* the following: In order for the international airline industry to operate as freely in a global market as any other truly international industry three major changes are needed. These changes are:

- Granting cabotage rights

- Granting 7th Freedom

- Removing the existing constraints on airline ownership by foreign nationals.

Mounting pressure is pushing the airline industry towards "Clear Skies" but we are not fully there yet. From the required three changes, the most likely to be liberalized is the ownership issue. Once ownership conditions are relaxed safeguarding domestic and 7th freedom rights will be unnecessary because airlines will no longer be owned by nationals of the country in question.

Unfortunately, many countries did not yet reach the phase of ownership by the nationals of the country. So, a discussion about ownership by non-nationals is premature for these countries that should first start by solving the issue of privatization.

State Ownership versus Airline Privatization

As Stephen Shaw explains *(2007),* state ownership of airlines was considered important; for, governments considered airlines as a back-up for national defense capacity. Moreover, airlines allowed governments to create job opportunities and to benefit from tourism income.

Not only governments benefited from airline ownership but also airlines drew yields from government intervention, notably, they had the reassurance that they would survive despite the competition faced from better established rivals; for, state subsidies will be used to cover operating losses. Besides, state-owned airlines tended to have privileged access to landing slots at their countries major airports – a scarce resource that acts to block competition from other airlines. However, public ownership made the work environment bureaucratic.

Today, there is a growing view that governments should not run commercial services; for, private ownership conveys major advantages. The advantages of privatization are:

- Increased Efficiency

- Concentration on achieving satisfactory profits to shareholders (unlike the situation under public ownership where airlines had to sometimes serve unprofitable but socially-necessary routes)

Regrettably, private ownership also has its disadvantages. The main disadvantage of privatization is the loss of financial security; for, governments will no longer cover operational losses.

Another predicament to the airline industry other than the issue of privatization is the issue of the limitations imposed by some governments on mergers and takeovers.

Limitations on Mergers and Takeovers

Stephen Shaw also adds *(2007)* the following: In any normal industry, the need for expansion and capacity would have meant entering new markets and significant amounts of merger and takeover activity. These trends also arose in the air transport industry; nevertheless, they were very muted as a result of the ownership and control rules.

For example, an attempt was made in 2000 to grow by a policy of cross-border takeover, when British airways proposed a takeover of the Dutch Airlines KLM. The proposal had to be abandoned in the face of threats (from the United States in particular) that KLM would have to forfeit its international traffic rights if it became British controlled.

Government intervention takes many forms. Airline taxation is another type of government intervention.

Airline Taxation

Kenneth J. Button *(2003)* says that Along with traditional income and payroll taxes, airlines and their customers pay many special taxes and fees to a variety of authorities, both at home and abroad.

Taxation not only forms part of an airline's cost structure but also part of the fares it charges. Consequently, high levels of taxation act as a secondary form of non-tariff barrier, pushing up the costs of trade; hence, having a negative impact on airline finances.

Taxes also have a negative impact on airline demand; since, the fare elasticity of demand for air travel indicates the sensitivity of revenue to the level of fare being charged. So, when taxes increase demand for air travel will decrease, especially:

- the demand made by leisure travelers
- the demand made to travel short routes (because travelers will consider using other modes of transportation).

Travelers have to make sure that they can fulfill all the requirements of air travel. Otherwise, they will be facing many barriers. Paying taxes is only one of the requirements. They also will have to get a visa prior to entry into another country.

Visa Policies

A visa, by definition, is an indication that a person is authorized to enter the country which "issued" the visa, subject to permission of an immigration official at the time of actual entry.

A visa may be denied for a number of reasons, including (but not limited to) if the applicant:

- has committed fraud or misrepresentation in his or her application

- has a criminal record or has criminal charges pending

- is considered to be a security risk

- cannot prove to have strong ties to their current country of residence

- intends to permanently reside or work in the country he/she will visit if not applying for an immigrant or work visa respectively

- doesn't have a legitimate reason for the journey

- has no visible means for sustenance

- doesn't have travel arrangements (i.e. transportation and lodging) in the destination country

- doesn't have a health/travel insurance valid for the destination and the duration of stay

- doesn't have a good moral character

- is applying on short notice

- had their previous visa application(s) rejected and cannot prove that the reasons for the previous denials no longer exist or are not applicable anymore

- is a citizen of a country with whom the host country has poor or non-existent relations

- has a communicable disease such as tuberculosis

- has previous visa/immigration violations

- has a passport that expires too soon

- didn't use a previously issued visa at all without a valid reason (e.g. a trip cancellation due to a family emergency).

Regardless of the reason of the refusal the outcome is the same for the airline industry, the decrease in demand for air travel.

On the other hand, visa exemption schemes and common visas (Example: Schengen Visa) positively impact the industry by increasing the demand for air travel.

I will be tackling one final form of government intervention. In fact, some governments introduce measures to discourage travel and spending abroad, including limitations on the amount of currency which could be taken abroad, tax audits on credit card expenditures and imported good purchases.

2.1.2 Economic Environment

Warren J. Keegan and Marc C. Green say *(2003)* that the development of the global economy can be traced back many hundreds of years when traders from the east and west came together to exchange goods. Today, the modern global economy greatly influences the firms that evolve within its sphere including the airline industry. Hence, the airline industry is greatly influenced not only by the prevailing political but also by the relevant economic environment.

Businesses often pay more attention to the current state of the "economy" and the direction of government's economic policies, than to any other external events. The fairly obvious reason for this is the strong influence changes in these factors can have on their financial resources. Airlines are no strangers to these practices. In this paper, I will be examining both the positive and the negative impacts that the economy has on airlines.

The book *Airline Marketing (Publication of: International Air Transport Association, 2003)* breaks the economic environment of airlines into two areas. These areas are the following:

Area 1: Takes the overall market indicators and trends into account.

Area 2: Takes consumer indicators and trends into account.

The most important *market trends* consist of: currency exchange fluctuations, economic expansions and recessions, and fuel price fluctuations while the primary *consumer trends* include: consumer credit & changes in consumer disposable income.

Thus, scanning the economic environment covers economic issues with the international dimension, economic conditions in the domestic market, and specific information about consumer activity and incomes.

Let us start the discussion by the evaluation of the impact of the currency exchange rates on airlines.

Currency Exchange Rates

An exchange rate is the price of one currency (for example, USD) in relation to another (Euro). Exchange rates change every day. This is because currencies are traded on an open market, and the demand for them varies based on what is happening in that country. The dramatic fluctuations of exchange rates over a period of time considerably affect demand for air travel.

For example, if the Japanese yen strengthens 15% compared to Swiss franc, then the Japanese travelers buying power in Switzerland will increase by 15%, while the destination of Japan will become 15% more expensive to the Swiss visitor. Airlines offering a service between Japan and Switzerland will witness a substantial increase in the demand for air travel from Japan to the destination of Switzerland; on the other hand, the same airlines will witness a substantial decrease in the demand for air travel from Switzerland to the destination of Japan. Thus, the overall net effect of fluctuations in currency is somehow ambiguous.

We now start examining the impact of market expansion and recession on airlines performance.

Market Expansion and Recession

In fact, during periods of expansion demand typically surges beyond available supply. The airline industry draws benefits from this. Actually, the demand for air travel increases especially for first and business class travel. Airline activities are also intensely affected. For instance, airlines start to place more orders for new aircrafts and let labor cost rise considerably. A dramatic illustration of the impact of market expansion on airline activities is the case of Air Canada (*New York Times, 1998).* Lamar Durrett, Air Canada's president and chief executive, said during an interview held with him that the company was planning to add 950 flight attendants, of which 400 would be permanent hires and 550 would be temporary hires for summer and autumn. Air Canada was also planning to add additional 1,000 or so employees as the airline was in the process of strengthening its reservations and Aero plan frequent flyer award services as a result of the prevailing expansionary period of the time.

In contrast, as the book *Airline Marketing (Publication of: International Air Transport Association, 2003)* suggests recession is a period of declining economic activity in a market. During recessionary periods airlines finances are affected negatively because new aircrafts ordered in a previously booming economy are delivered. Furthermore, airlines are burdened with high labor cost that was allowed to rise in an economically healthy period. Moreover, airlines witness a decrease in the demand for air travel or a shift from first and business class demand to an economy or coach class demand.

Today, airlines are using marketing and sales tools in order to sidestep the downgrading travel policies adopted by most firms during recessionary periods in order to save money. The most important tool airlines use to encourage business travel especially during recession is called C (corporate) contract. Using a type of volume-based rebate scheme, airlines are capitalizing on these contracts by setting sales targets for individual

corporate accounts and then paying rebate to the corporate accounts based on their ability to meet and exceed different sales targets. Through these corporate contracts airlines are able to cushion the impact of economic downturn by continuously motivating corporations to encourage business travel and by constantly developing and sustaining the loyalty of these corporate accounts.

Airlines today are not only developing contingency plans to encourage travel during recessionary periods but are also being very cautious during expansionary periods not to add overwhelming costs because they are aware of the consequences that they will incur if they permit these costs to skyrocket.

The fuel prices also play a major role when it comes to the impact they have on an airline's finances.

Fuel prices

Fuel cost is one of the major costs incurred by airlines. Consequently, fluctuations in fuel prices affect airlines either positively or negatively. Airlines benefit from periods of low fuel price to strengthen their financial position; conversely, they draw from their cash reserves when fuel prices are high.

The article "Freedom's Call" published in the Economist *(2008)* illustrates how a period of high fuel prices affects the airline industry negatively. The summer of 2008 witnessed an overwhelming increase in fuel prices. The before mentioned increase in fuel prices took place at the industry's busiest time, so airlines were unable to build up their cash reserves before demand weakened in the winter. Following the period of high oil price that eventually eased, the dollar has strengthened which was bad for airlines outside America

since fuel is priced in dollar. Accordingly, the fuel price increase turned into a mess the world's airline industry.

Another way to assess the economic environment of airlines is to consider how income is distributed within the population of a country. There are several ways in which income is measured as described in the book *Airline Marketing (Publication of: International Air Transport Association, 2003)*

Income Distribution and Travel

Per Capita Income is the average amount of money a consumer earns during a year. While a useful indicator of overall and economic wealth, per capita income figures do not tell how much money a person has to spend on travel, nor how income is distributed among the population.

Gross income is the amount of money a person makes during a calendar year. Gross income can also be used to mean the combined amount of money made by all members of a household during a year. This figure still doesn't help the marketer understand the amount of money left over for travel.

Disposable income is the amount of money a person has left after paying taxes, while discretionary income is the amount of money that remains after a person has paid taxes and has covered the expenses associated with such necessities as food, clothing, and shelter.

Of the different measures of wealth, discretionary income is the most useful to the airline industry because it is from this amount that leisure travelers draw funds when they pay for a vacation. Thus, the increase of discretionary income results in the increase of the demand for air travel while the decrease of discretionary income leads to the decrease of the demand for air travel.

2.1.3 Socio-Cultural Environment

Warren J. Keegan and Marc C. Green describe *(2003)* a culture in the following manner: "A culture acts out its ways of living in the context of social institutions, including educational, religious, governmental, and business institutions". It, along with the economic environment, affects every aspect of our lives including our purchasing decisions.

Hofestede's cultural dimensions

Therefore, trends in the socio-cultural environment have widespread consequences on airlines. According to anthropologist Geert Hofestede cultural differences are important and need to be considered. Four basic dimensions of the differences between cultures are identified.

1st Dimension: Power-distance

The first dimension described is the power-distance dimension. Clearly, there are high power-distance as well as low power-distance cultures. In short, high power-distance cultures are characterized by: lack of employee involvement in decision making processes, existence of a management team that exhibits great power, lack of trust in employee judgments, and absence of employee disagreement with management. On the other hand, low power-distance cultures exhibit the following features: existence of harmony between management and staff, involvement of the staff in the decision making process, expression of trust between employees and superiors, and accessibility of management *(ed. by Lucas, 2000)*.

In high power-distance cultures, airlines adopt a "top down" approach where a centrally-driven plan is agreed at high level and disseminated to the route groups and areas. However, in low power-distance cultures, airlines adopt a "bottom up" approach because it

enables the areas – the bottom level of operating units – to take the lead by sending their initial marketing strategies and plans up to the higher levels.

2nd Dimension: Uncertainty-avoidance

The second dimension portrayed is the uncertainty-avoidance dimension. It is the degree to which the culture encourages risk-taking. In strong uncertainty-avoidance cultures people feel threatened by uncertain situations and try to counterbalance them by hard work, career stability, and intolerance of deviancy. In weak uncertainty-avoidance cultures people accept uncertainty more easily *(ed. by Lucas, 2000)*.

In the context of the airline industry, passengers in strong uncertainty-avoidance cultures are bewildered by the complexity of the industry; therefore, they seek the objective and comprehensive advice of a travel agent, rather than trying to find information themselves. Consequently, they are obliging airlines to continue using indirect distribution channels like travel intermediaries. In weak uncertainty-avoidance cultures travelers are not afraid to seek information themselves and they are not bemused by the complexity of the airlines industry. Here, the possibility of partially eliminating indirect distribution channels can be considered.

3rd Dimension: Masculinity-femininity

This dimension is based on stereotypes: "masculinity" in contrast with "femininity". In masculine cultures performance is what counts, money and material standards are important, ambition is the driving force, big and fast are beautiful, "machismo" is admired, men are expected to be assertive and dominating, women are expected to be caring and nurturing, and the opportunity to achieve high earnings is important.

In contrast, feminine cultures put forward completely opposite beliefs. In feminine cultures quality of life matters, people and the environment are important, service provides

motivation, small is beautiful, and unisex is attractive. Moreover, people gravitating in these cultures believe in the equality of sexes and value living in pleasant areas *(ed. by Lucas, 2000)*.

As Stephen Shaw puts it *(2007)*, the business travel market in the airline industry exhibits the characteristics of a masculine culture. As a result, airlines try to massage the travelers ego and pride by providing separate reservation phone lines, a separate check-in desk (ideally with a piece of red carpet in front of it), and separate cabins on board the aircraft.

The business travelers are not the only players in the airline industry who exhibit the attributes of a masculine culture; in fact, there are airline owners who display this trait as well. Over the last twenty years, the list of airlines which have entered the industry and then left it again through bankruptcy is a depressingly long one. From this, one might assume that new entry into the aviation industry would largely be a thing of the past. Nothing could be further from the truth. One explanation for this apparent contradiction is that aviation is seen as a glamorous and exciting industry by man, and that the dream to set up and own one's own airline is a continuing one for those with oversized egos and deep pockets.

In contrast, in some countries traveler behavior show the characteristics of a feminine culture since the opinion of children and women is taken into consideration when making a travel decision.

Indeed, children can have an important influence on travel buying decisions made by their parents. For very young children, parents may deliberately choose an airline where they believe the facilities available for the care of babies are good. For older children, such factors as the availability of video games in an airlines' in-flight entertainment system might be significant. For older children too, the choice of vacation destination may be made by their

parents, but parents will take into account their children's preferences. Thus, airlines have adopted creative strategies by offering a number of vacation destinations, such as Disney.

Additionally, some societies are traditionally matriarchal, where women are dominant in family life. In the UK, it is recognized that women are extremely influential in holiday planning, and the creative strategies adopted by airlines and tour operators have increasingly reflected this.

4th Dimension: Individualism-Collectivism

It is the degree to which the culture encourages individual as opposed to collective or group concerns *(ed. Lucas, 2000)*.

Airlines operating in individualistic cultures where emphasis is put on individual initiative or achievement should be careful when it comes to unions and union pressure. The quest for personal benefit and gain by members of unions led some airlines such as the United Airlines and US Airways to go bankrupt. The strong influence of individualistic cultures on the workers way of thinking negatively affects airline finances.

In contrast, collectivist cultures advocate the belief in the value of group decisions, the emphasis is on belonging, the aim is to be a good member, and there is more involvement with the work organization. Airlines operating in collectivist cultural contexts have much less pressure from unions.

Self-Reference Criterion

Apart from Hofestede's cultural dimensions there are other cultural variables that influence the airline industry. The self-reference criteria and perception is another variable that influences the airline industry.

The self-reference criterion summarizes an individual's conscious and unconscious reference to his/her own national culture & to home country norms and values *(Keegan & Green, 2003)*.

Stephen Shaw demonstrates *(2007)* that airline marketers have fallen into this vicious circle when they failed to see the market differences in customer requirements. For example, based on their previous knowledge and experience in the European and North American markets they assumed that a "business traveler" is someone who is middle-aged, soberly dressed, and carrying only a small amount of baggage.

Actually, in many third world countries, a "business traveler" takes on a quite different meaning. It largely consists of traders who fly to a destination where consumer goods are available cheaply. These goods are then purchased and flown to the developing country where they are in short supply. In strong contrast to the product standards that might be expected by a European business traveler, in many developing countries such standards are irrelevant. Instead, overwhelmingly the most important customer requirement is that the airline should offer a high free baggage allowance. Thus, airlines offering low free baggage allowance for business travelers in developing countries have witnessed a decrease in the demand for business travel.

It is evident in the previous as well as in the following examples that even within the confines of market segments, significant market-by-market differences in customer requirements occur.

A methodical examination of different races shows that they often vary significantly in terms of height and weight, with people from many far eastern cultures usually smaller on average than their European or North American counterparts. They may therefore regard seating comfort as being a rather lower priority.

Dietary Preferences, Religion, & Language

Warren J. Keegan and Marc C. Green assert *(2003)* that cultural differences are also quite apparent in food consumption patterns and habits. Airlines take into consideration the before mentioned when making their catering decisions. For example, airlines operating in Islamic countries abide by Muslim dietary laws. A variety of substances are considered as harmful (haraam) for humans to consume and, therefore, forbidden as per various Quranic verses. Therefore, airlines do not offer such food in these countries as they do not offer beef in India unless this kind of food or beverage is specifically requested by the passenger.

The diversity of cultures around the world is also reflected in language *(Keegan & Green, 2003)*. Throughout their history, airlines have established more routes between countries that have a common language because travelers (especially leisure travelers) choose to visit destinations where it will be easier for them to communicate. In tourism, there are a lot of examples illustrating this. There is, for instance, an abundance of tourists from the Arabian Gulf visiting Lebanon. There is also the example of the huge number of Americans visiting England each year.

Beside all the other social factors affecting the airline industry, there also are the demographic influences. Demographic factors include factors such as: gender, race/ethnicity, occupation, education, location, population age, population density, and population size.

Demographic Influences

Population Age

Stephan Shaw asserts *(2007)* that the ageing population exerts a great influence on the airline industry especially in Europe and North America where the population with this characteristic is at its peak. Clearly, airlines are making more provisions for disabled

passengers and those needing help at airports and they are bringing more improvement to the medical care services. There are also specialist brands that are being launched, reflecting the needs and aspirations of older people.

Racial/Ethnic Influences

The book *Airline Marketing (Publication of: International Air Transport Association, 2003)* elucidates the racial/ethnic influences on airlines that are not apparent in the first place, but, that play a major role in the industry's strategic planning process as well as on demand for air travel. For example, there is a big number of British expatriates living in the U.A.E. this is taken into consideration by airlines when planning the introduction of new routes, as a result, some airlines have launched a route between the United Kingdom and U.A. E. This factor increased the demand for VFR (visit friends and relatives) travel.

Gender

Stephen Shaw explains *(2007)* that gender is also playing a major role in changing airlines strategies especially in the business travel market. Until recently, the business travel market has been overwhelmingly dominated by men. Today, the role of women in the workplace is changing dramatically in many cultures. It is now usual for women to expect to build careers alongside their male colleagues. Because of this, it is certain that the proportion of business travelers who are female will steadily increase. This is a change which is forcing airlines to re-think a number of components of their marketing. The most obvious areas are in aspects of product detail. For example, most airlines give toilet bags to their first and business class travelers. Only recently has it become common for separate bags made up for female as well as male travelers to be offered. More fundamental are issues associated with airline advertising. In the past, much airline advertising has had sexist undertones, with pictures of

beautiful young girls ministering to the needs of men. In many cultures, such approaches are and will be less and less acceptable.

Location

The location where a country's population is congregated and its impact on the airlines industry can be explained in terms of urban versus rural lifestyle. When a country's population is concentrated in the rural community, the demand for air travel will be low because of the conservative nature of these communities who prefer the familiar over the unfamiliar and who are risk averse. In contrast, when a country's population is concentrated in the urban society, the demand for air travel will increase because of the avidity of the urban population to undertake new experiences.

Education

Besides, the higher levels of education are increasingly allowing people to occupy high positions permitting them to dispose of a higher discretionary income; thus, the demand for air travel is increasing. Additionally, people with a higher education want to add to their existential experiences by discovering new cultures and ways of living.

School vacations and holiday periods also have an impact on the airline industry and that impact is positive since the demand for leisure air travel increases because both parents and children are home simultaneously.

Family Structure

According to Stephen Shaw *(2007)*, another socio-cultural aspect that should be taken into consideration is the changing of the family structure. The truth is that there are very important sub-segments to the leisure market, such as those consisting of singles, gays or

one-parent families, whose particular requirements from a holiday should be reflected in promotional and product planning policies.

Tastes/Fashion

Tastes and fashions in holidays are also changing. When holidays by air first began to become popular in the 1960s, most people wanted little more than a relaxing opportunity to sunbathe by a hotel swimming pool. This is not so today. Better education, growing experience of air travel and fears about the health risks of excessive exposure to the sun are all meaning that to a greater and greater degree, holidays must reflect a lifestyle based on individual choice. Overall, the trend in the holiday market is often and appropriately described as "depackaging the package". People increasingly require to be treated as individuals not as part of a herd of cattle. Therefore, airlines are now engaging in always finding new destinations that will satisfy people's need for new experiences (Shaw, 2007).

The Deregulated Labor Market

The uncertain – deregulated labor market is also a social trend that needs to be taken into consideration. Today, redundancy and job seeking occurs – perhaps several times – in many people's careers. At the same time, pressures at work are far greater as people battle to keep their jobs. These pressures are changing the business traveler's perception of the role of air travel. Many now see a flight as a haven of peace in an otherwise over-demanding schedule. Issues such as in-flight entertainment are thus assuming greater importance.

For those who lose their jobs or who perhaps voluntarily decide to take a greater control of their lives, self-employment or working for a small independent firm are often options to be considered. Self-employment has led to the emergence of the so-called "independent" sub-segment of business travel demand, where customer requirements are

different from those of the corporate traveler. They require more free mileage than the corporate traveler because they feel that the fare price is coming out of their own pocket (Shaw, 2007).

Social influences work hand-in-hand with many other types of factors to change the environment that businesses evolve in. I will now be covering the impact of the technological environment on the airline industry.

In fact, the world of business is the world in which we live and work, every aspect of which may well be on the verge of change as a result of the internet and converging communication technologies. We have to understand it. We have to understand how organizations work and their core processes.

2.1.4 Technological Environment

Today, airlines actively use information technology and all other forms of technology that assists them in fulfilling their goal of better performance.

Computer reservation systems and Global Distribution systems

The book *Airline Marketing (Publication of: International Air Transport Association, 2003)* shows that until about 30 years ago, most transactions between the travel trade and airlines were made by telephone, even though the airlines had computerized reservation systems. Earlier attempts were made by airlines to automate their main travel agents by installing their own computer terminals directly into the agency. However, these attempts failed because of the following limitations:

- Agents didn't have access to all airlines & flights relevant to their customers

- Priority was given to displaying the flights of the airlines that owned the system

According to Stephen Shaw *(2007)*, another system was developed and adopted in response to the need for a better performing application. This system was called Global Distribution System (GDS). Since their inception in the late 1980s, the GDSs have provided the switching technology which allows travel agents to make reservations with hundreds of different airlines, hotels, car rental companies and tour operators through a single computer keyboard. There are only four significant players in the global GDS industry:

1- SABRE

2 – Worldspan

3- Galileo

4 – Amadeus

The GDS as a switching technology has an ambiguous impact on the airline industry. It, of course, provides some benefits by reducing costs associated with long telephone conversations, by eliminating the misunderstandings that result from verbal conversation, and by saving the time spent by staff in trying to explain different schedules, etc…

On the other hand, GDS companies bring disadvantages to airlines by charging high commission and booking fees.

Fortunately, the advent of the e-commerce and the internet has reduced the power GDS companies have on airlines and has propelled airlines into a new era.

E-ticketing

The Book *Airline Marketing (Publication of: International Air Transport Association, 2003)* tackles the topic of e-tickets. Electronic ticketing or e-ticketing is a relatively new process that is helping change how airlines distribute their products. Airlines sell an entitlement or ticket that is used to board and travel on the airline concerned. Until recently,

virtually all airline tickets have been printed on paper and then distributed through airline ticket offices and travel agents.

However, with the advancement in computer technologies and IT systems, airlines and travel agents are now able to issue electronic tickets in place of their paper counterparts. E-ticketing provides both the passenger and the airline a number of benefits: lower cost, more efficient processing (faster and more accurate), decrease in airport handling cost, reduction of fraud (E-tickets cannot be counterfeited or stolen), etc…

Airlines introduced e-ticketing but were slower in adopting internet sales or e-commerce.

E-commerce - Internet

Triant G. Flouris and Sharon L. Oswald *(2006)* describe e-commerce as business activities that involve online transactions to implement or enhance business processes. In fact, according to Rigas Doganis *(2001)* e-commerce is drawing its strength from the cultural and fundamental changes that are taking place in the perception of the shopping process. Additionally, the abundant availability of the internet and of cheaper personal computers is helping accelerate the process. Young customers find it increasingly natural and easy to buy goods and services electronically as through conventional outlets.

There are several reasons why airlines are moving from the traditional distribution channels to the extensive use of the internet and e-commerce (online sales). These reasons are:

Reason 1: Airlines are able to decrease or cut down distribution cost by reducing the levels of commission paid to agents and by plummeting ticketing, sales, and promotion costs. Online sales also help airlines reduce the number and cost of reservation staff.

Reason 2: Airlines are able to increase their marketing power by effectively using the internet to serve their interests. Hence, the internet assists airlines to:

a) Market their services:

- Worldwide

- More Cheaply

- More effectively

b) Develop more robust relationships with their customers by capturing key details about them for their database. Thus, airlines are capable of:

-Providing customers with services more closely attuned to their needs (For instance: magazine or meal of preference).

- Marketing proactively direct to customers (Airlines send emails to customers with details of special fares).

Reason 3: Airlines are able to price their services in a more dynamic, interactive, and market focused manner; for, the appropriate use of the internet allows them to easily respond to *changes in the market* such as:

- Fare cuts by a competitor

- A shortfall in late bookings which leaves a departing flight with many unsold seats

Reason 4: Airlines are able to cross-sell other products and services on their website. I will be mentioning some of the products and services that could be sold on an airline's website. These products and services are the following:

- Hotel rooms

- Car Hire

- Travel Insurance

- Books

-Wines

- Theater Tickets, etc…

Reason 5: Airlines receive their payments faster because online shopping is usually made by credit card. Airlines collect their payments within 2 or 3 days while they used to wait a month or two to get the revenue generated from sales made via agents. Receiving cash up front helps airlines to:

- Reduce working capital

- Get additional bank interest

Reason 6: Airlines are able to publish information on their websites that was previously available only to agents. The following depicts some of the information published on an airline's website:

- In-flight comfort

- Safety

- Loyalty Schemes

- Special pricing

- Schedules of flights, etc…

Reason 7: The internet provides airlines with instant, 24-hour coverage of a market.

The following two reasons why airlines are intensively using the internet and e-commerce are described by the book *Airline Marketing (Publication of: International Air Transport Association, 2003).*

Reason 8: The internet helps airlines to place: direct ads on their own websites, indirect ads on the website of a third-party (For example, Qantas places an add on Hyatt hotel websites that "links" the customer to the Qantas website), and ads on search engines (when an airline pays a search engine like Google to display its name and link in response to different search engines. Once again, these displays "link" the customer to the Qantas website).

Reason 9: Airlines make use of the internet to disseminate information to the media and to employees. Airlines disseminate information to the media by posting press releases on their websites for journalists and investors to access on their own. This is particularly crucial when an airline has experienced or is rumored to have experienced some sort of an incident because it will allow viewers to be kept informed of facts and developments. Airlines also disseminate information to employees by establishing an intranet. This medium reduces the need for paperwork as well as keeps employees around the globe informed of company developments on a very inexpensive and timely basis.

Consequently, internet shopping & internet usage are increasingly accepted by customers but in case of air travel there still are some limitations & disadvantages. Rigas Doganis *(2001)* discussed these disadvantages thoroughly which are:

Disadvantage 1: The credit card commission costs of airlines are increasing; for, online sales are all based on payment by credit.

Disadvantage 2: Not all potential airline passengers have access to or can use the internet. Internet cost is high in some countries. As for computer ownership/head, it is lower in Europe than North America; moreover, it is lower elsewhere than Europe.

Disadvantage 3: There is a prevailing fear of credit card fraud that prevents some customers from buying online. Hence, the ratio of looker to booker is very high.

Disadvantage 4: Some lookers find it difficult to navigate in an airline's site. An airline's site may be:

- Hard to read

- Slow to navigate

- Providing information of their own services and prices and not those of competing airlines.

- Demanding a great deal of information from online customers before giving them real access.

Disadvantage 5: The balance of market power has shifted in favor of the customer. Today's electronic marketplace offers customers fast, borderless, and efficient access to information on airline services, timing, prices, etc…Greater knowledge means greater market power; thus, greater competition and decreasing yields.

Disadvantage 6: Dissatisfied airline passengers have the capacity to denigrate the airline through the internet. The aviation industry presents many examples of similar practices. The example of the United Airlines dissatisfied passengers actions is the most apparent. These passengers have created a website where they post their complaints against the airline. Additionally, governments have set up online complaint forms to encourage passenger to post their complaints. AirlineComplaints.org is an example of websites facilitating complaints against airlines. The negative impact of this is apparent; for, airlines loose a substantial number of potential customers who encounter these complaints while surfing the internet. As a result, airlines also witness a significant decrease in their profit margins.

The abovementioned discussion highlights the fact that airlines are making extensive use of the internet & e-commerce both in their promotional activities and in their distribution regardless of the difficulties they face. However, the internet and e-commerce are not the only features in the technological environment of airlines that greatly affect their

performance. In fact, there are the WAP phones, the electronic boarding passes, and the new aircraft manufacturing that affect the performance of airlines as well.

WAP Phones

WAP Phones represent another technology that airlines use as a promotional medium. Nowadays, airlines can easily communicate flight configurations, gate information, and flight delays to customers by using these wireless phones *Airline Marketing (Publication of: International Air Transport Association, 2003).*

Electronic Boarding Pass

After a period of tests and trials, Air France and KLM have introduced the electronic boarding pass service. The electronic boarding pass (saved in a person's smart phone) holds all the information shown on a usual pass, including the unique bar code, that will get scanned at the gate and shown at the baggage drop, duty free shops, and security. This development in the technological environment of airlines will have a positive impact on them. Till date, the most apparent advantage of electronic boarding passes is the reduction of bureaucracy and paper usage *(KLM Royal Dutch Airlines press releases page, 2009).*

New Aircraft Manufacturing

The independent study *Airline Marketing (Publication of: International Air Transport Association, 2003)* points out the following: aircraft manufacturers continue to produce more variations in aircraft types, meaning that there are more opportunities for airlines to "tailor" their fleets to the demand characteristics of the route being flown. The advantages that newly designed fleets bring to airlines are the following:

- Less technical problems.
- Higher punctuality in their future dealings (enhanced speed).

- Greater passenger capacity.

- Greater capacity to operate over long distances

The above discussion shows that some technological breakthroughs simultaneously have positive and negative impacts on airlines (double edged sword) while some others have a positive impact.

Now, I will be covering technological breakthrough that mostly have a negative impact on airlines and that are described by Stephen Shaw *(2007)*.

Disruptive technologies or Substitute products - Video-conferencing

Airline finances and demand are negatively affected by video-conferencing. Today, many companies have installed, or plan to install, video-conferencing facilities as a means to cut down on some types of business travel. Airlines are accepting telecommunication companies as one of their most formidable competitors; therefore, they are very careful when developing their marketing strategies. Greater and greater emphasis is being put on convenience to enable business travelers to fly with a minimum impact on their working time, allowing the benefit of a face-to-face meeting to outweigh the time required to travel to such a meeting. Airlines are ensuring convenience by offering high frequency, right timing, and day return trips. Moreover, they are progressively changing their advertising methods to focus on the benefits of face-to-face meetings instead of promoting the merits of their services against those of rival airlines.

Disruptive technologies or Substitute products - Surface Transport

Surface transport, especially, by rail also raises important issues to airlines. Today, investment is taking place in both new railways to provide fast city-center to city-center links, and in the tunnels to enable the railway operators to extend their network.

The problems that airlines face come from the fact that, beyond question, railway investment can have a significant negative impact on the demand for air transport. In countries such as France new railway developments compete alongside formerly busy air routes. Worse still, the traffic that is lost tends to be the so-called point-to-point demand. Since airline pricing practices adopted always mean that point-to-point traffic gives a much higher yield in terms of revenue per kilometer than connecting traffic does, the decrease in point-to-point travel means that airlines will face a much higher decrease in yields.

2.1.5 Environmental factors

It is a long standing truism that environmental factors affect both the nature and the characteristics of airline demand. They will therefore have an impact on airline performance.

Adverse Weather conditions

Aviation probably more than any other mode of transportation is greatly affected by weather. From thunderstorms and snow storms, to wind and fog as well as temperature and pressure extremes, every phase of a flight has the potential to be negatively impacted by weather. Adverse weather conditions put airlines in front of major challenges such as flight delays and cancellations which in turn lead to the decrease in punctuality records. Punctuality can be further deterred because: aircrafts have to be deiced prior to departure, sometimes having to be coated with a fluid the night before to prevent snow or ice built-up, runways have to be plowed or treated, ground handlers and fuelers have to slow down or suspend their work because of lightning in the area, workers have to abide by rules and stay outside only short periods of time when temperatures/wind chills are too low, departing and arriving aircrafts have to be monitored by air traffic control (ATC) when cloud ceilings or visibilities are reduced, with aircraft acceptance rates lowered to 75-50% of normal (Qualley, 1997).

Bad weather conditions not only affect an airline's punctuality but also represent major risk; for, the lives of an airplane's crew and passengers are threatened.

Poland's airplane crash disaster

A recent example of the impact of bad weather conditions, notably, fog on the airline industry is the plane crash that killed polish president Lech Kaczynski. Along with the president and his wife, the 97 dead included the army chief of staff, the head of the national security office, the national bank president, the deputy foreign minister, the deputy parliament speaker, the civil rights commissioner and member of the parliament.

As the presidential plane headed toward the western Russian city of Smolensk, thick fog shrouded the city. Air traffic controllers at the Smolensk airport had several times ordered the crew of the plane not to land, warned that it was descending below the glide path and recommended that the plane reroute to airports either in Minsk or Moscow rather than risk navigating the fog. But time was pressing. The crew decided to risk the landing and the disaster took place.

The previously mentioned example shows how bad weather conditions can be fatal. Bad weather conditions also affect an airline's cost structure because costly re-routes have to be undertaken when volcanic ash (for example), especially hazardous to aircraft engines encounter aircraft *(Stack, 2010)*.

Icelandic Volcano

The eruption of Iceland's Eyjafjoell volcano on April 14th shut down the European airspace for days. This created a major issue for airlines who lost substantial amounts of revenue while incurring extra costs such as covering the hotel and food bills of passengers

who were waiting for the airspace to open and who were anxious to resume their flights (Reed, 2010).

Bird Strikes

The article "When feathers meet metal" published in the Economist *(2009)* indicates clearly that environmental factors affecting airline performance come from many different directions. The discussion here turns toward bird strikes. Aircrafts are at their most vulnerable to bird strikes during takeoff and landing: over 60% of all bird strikes occur below 100 feet, less than 8% above 3,000 feet. In 2007, some 7, 600 bird strikes on civil aircraft were reported in America, costing American airlines $ 460 m. The before mentioned under-reports the total number of strikes; however, eighty percent of them are thought to involve small birds like doves and larks, and hence go largely unnoticed. Such birds cause no problem: cockpit windows neither crack nor glaze if hit by a standard four-pound bird, and the aircraft's tail, one of the most critical parts of the aircraft for maintaining control is designed to withstand twice the normal impact.

However, when big birds strike the aircraft the impact will be damaging. There are some examples depicting bird strikes in the aviation history. The US Airways flight 1549 flew into a geese after taking off from New York's LaGuardia airport on January 15, 2009. The successful ditching of the stricken aircraft in the Hudson River, without a single loss of life among the 155 people on board was an extraordinary feat of airmanship. When a similar accident occurred at Logan airport in 1960, all but 10 of the 72 people on board died when the plan plunged wing-first into Boston Harbor. Bird strikes have the following negative impacts on airlines: the loss of passengers and crew, the loss of aircrafts (fully or partially) obliging airlines to engage in the costly activity of repairing or replacing them, and the loss of potential customer who develop a fear of travel.

Epidemics and Diseases

Another variable showing environmental impact on airline performance is the surfacing of new diseases. Several years ago, airlines incurred the threat of pandemic bird flu and the hit to air travel due to public fears about the disease. The centers for disease control set up quarantine stations at international airports. The stations were set up where passengers on incoming flights could be taken for evaluation, not for long-term treatment. Seeing images of airport quarantine rooms gave people the idea that flying is not a good option; therefore, decreased demand for air travel.

Today, swine flu is having a significant impact on air traffic by shaking the confidence of passengers. Airlines around the world have so far reported only a small number of cancellations, and the world health organization released a statement saying that it had not issued any warnings to limit travel. But frightened investors are dumping airline shares, fearing a further hit to airline finances. Analysts said the flood of information about the sickness and images of passengers wearing surgical masks or being scanned for fever would hurt travel at least for a brief period. Thus, airlines loose demand for air travel and flows of capital (coming from investment) when epidemic alerts are announced.

Global Warming

On the other hand, there is evidence that global average temperature will continue to rise in the future, with warmer climatic zones being progressively displaced toward the poles. Stephen Shaw *(2007)* explains that if this happens, the effect on both the extent and patterns of air transport could be a substantial one. For example, in the UK the summer of 2003 was exceptionally hot and settled. The months of May through September were characterized by almost unbroken hot, sunny weather. Though welcome no doubt to many British people, this turned out to be unhelpful to the air transport industry. In 2003, demand for air-based

packaged holidays to Mediterranean resorts fell nearly by 10%. It was widely assumed that this was because many people who had left the booking of their holiday to the last minute decided to take a holiday at home instead of enduring the sometimes doubtful pleasure of a long flight by air.

Global warming may affect other well-established markets. It now seems clear that one of the effects of rising sea surface temperature is the increase in frequency of tropical storms and hurricanes, especially in the Caribbean and the southern United States. This is already making people reluctant to visit these areas during August to November period, when the hurricane risk is at its peak. Thus, in the longer term, climate change will begin to adversely affect the airline industry's growth and profitability.

Over-exploitation of tourism areas

Another environmental factor affecting the airline industry is the over-exploitation of a tourism area. Overexploitation can mean that the reasons for people going there are often destroyed. These reasons may include prestige and status through the exclusivity of a resort, natural resources such as wild life, or un-crowded access to sites of historic importance. The so-called "tourism saturation" effect of over-exploitation may not affect the total amount of air travel undertaken for leisure purposes. They will, though, have a substantial effect on its geographical distribution.

Length of Journey

Finally, the length of journey or length of haul is related to the geographical composition of the world; therefore, an environmental factor affecting the activities of airlines. The relative distance of countries from a specific country A is independent of airlines but has an impact on its activities. The independent study *Airline Marketing*

(Publication of: International Air Transport Association, 2003) describes airline offerings in Short as well as Long Hauls.

In short-haul markets airlines offer the following in a descending order: safety, punctuality, convenience, price, comfort, loyalty schemes, and in-flight entertainment while in long-haul market the following in a descending order: safety, comfort, punctuality, convenience, in-flight service, loyalty schemes, and facilities. It is obvious that in the long haul market airline offers differ from that of the short-haul market. In the long-haul market comfort and in-flight service take a greater importance because of the deep vein thrombosis caused by small pitches in the long flight as well as the need to relax and enjoy the flight since it will be taking some time to arrive to the desired destination.

In the previous review, we saw that the environment of airlines is dynamic in nature. Therefore, it is necessary for an airline, operating in an uncertain environment, to cope with these uncertainties especially since the industry is extremely vulnerable to these forces of change.

The most appropriate way in which airline managers can respond to these changes is by scanning the environment meticulously. Successful firms concede that environmental analysis is a continuous process rather than an intermittent scanning system and that periodic analysis may not give a true and reliable indication of the situation; therefore, they engage in activities allowing them to continuously scan the environment. These firms keep in mind that scanning the environment is a process through which they are rendered capable of exploring the unknown terrain. Thus, managers carry out environmental analysis in their quest for the acquisition and use of information about events, trends, and expectations. Of course, the information gathered may not be crystal clear. Most probably, it will be ambiguous and incomplete. However, it will give an indication of what is happening on the horizon. For

instance, a possible increase in minimum wage should be taken into consideration, because this can affect the entire wage system for companies that employ a number of individuals receiving this wage level. Where would the increase in dollars for wages come from? Either out of profits or in fare increases – and these are issues that should be planned in advance.

I will be discussing the different environmental scanning approaches adopted by firms. Moreover, I will carry out a quick overview of the scanning and forecasting techniques used to scan the environment. I will also be pointing out how the data collected as a result of the scanning activities will be analyzed comprehensively & used to formulate strategies.

2.2 APPROACHES TO ENVIRONMENTAL SCANNING USED BY AIRLINES

There are three approaches that could be adopted by firms in their pursuit of information and insight into the future *(Goyal, 2006)*.

The first approach I will be discussing encompasses holistic environmental scanning exercises where total rather than piecemeal viewing of the environment is adopted. Here, the corporate radar scans all aspects of change in order to minimize the chance of unexpected events and maximize the utility of scanning as an early warning system. This holistic approach is called systematic approach and is defined in the following section.

2.2.1 Systematic Approach

Firms using this approach collect information methodically. Actually, information that have a direct impact on the firm's performance are collected constantly in order to keep an eye on the changes occurring in the environment and act accordingly. Thus, changes in market circumstances, legislations and regulations, government policy, and customer behaviors must be watched carefully and regularly. Organizations using a highly systematic

and formal procedure are proactive in anticipating changes in the environment and efficient in data collection and processing.

Unfortunately, not all firms are aware of or willing to adopt systematic scanning approaches. These firms use other less comprehensive and irregular approaches for scanning their environments. These approaches are the Adhoc approach and the Processed-Form Approach. I will be tackling them consecutively.

2.2.2 Adhoc Approach

Firms using this approach do not undertake regular analysis. Only special surveys and studies are conducted to cope with periodic events. The influence of unanticipated developments and changes may also be examined whenever required.

Processed-Form Approach

Under this approach firms use processed information available either from primary or secondary sources. Primary sources of information to organizations using the processed-form approach are the guidelines received directly from the government while secondary sources of information are the following: Newspapers, periodicals, the internet, etc….

An airline using any of the abovementioned approaches is using some form of environmental scanning. Regardless of the chosen approach, firms must start by finding the data required to enable them to be successful in their future dealings with their environment.

<u>Sources of Information</u>

According to Aloc Goyal *(2006)*, finding raw data is relatively easy. There are various sources available for environmental scanning. These sources can be classified in different

ways. They could be external or internal sources, written or verbal sources, formal or informal sources. The widely used types of information sources are given below:

Verbal Information: Higher level managers generally rely more on the verbal information. They interact with various groups of people outside the organization and gather the general feeling about their environment. Audio-visual media, conversations with customers, suppliers, employers, supervisors, subordinates, bank executives, stock brokers, government employees, consultants, etc. are all sources of verbal information.

Written Information, Documentary or Secondary Information: Written or documentary information is one which is written in the form and available through published or unpublished sources. Written information include: newspapers, journals, periodicals, annual reports, books, industry newsletters, the internet, international sources, institutional and government publications, etc.

Internal Sources: When an organization derives information about the environment through its own records then it is using internal sources of information. The internal sources include the company's own files and documents, company employees, and management information system (MIS), etc.

External Sources: Managers can use various publications and can require the help of various outside agencies to collect relevant information for environmental analysis. There are other external sources of information such as trade associations, marketing intermediaries, etc.

The aforementioned types of information sources can be used by researchers conducting environmental scanning.

2.3 SCANNING AND FORECASTING TECHNIQUES USED BY AIRLINES

In fact, there are different scanning and forecasting techniques that make use of one or several of these information sources along with other sources to collect data about the environmental changes. These scanning and forecasting techniques are the following:

2.3.1 Judgment model

Judgment models are used when historical data is not available or when it is difficult to use the available data. The opinion of those people, who have an intimate knowledge of relevant factors, is used in these models. Examples of judgmental or qualitative approaches are sales force estimates and juries of executive opinion. Sales force estimates consolidate sales people's opinions of customer intentions and opinions regarding specific products. But these can be relevant only if customers respond honestly and are consistent in opinions. The Delphi technique is a refined judgment model.

2.3.2 The Delphi Method

The Delphi method is a systematic, interactive forecasting method which relies on a panel of independent experts. The carefully selected experts answer questionnaires in two or more rounds. After each round, a facilitator provides an anonymous summary of the experts' forecasts from the previous round as well as the reasons they provided for their judgments. Thus, experts are encouraged to revise their earlier answers in light of the replies of other members of their panel. It is believed that during this process the range of the answers will decrease and the group will converge towards the "correct" answer. Finally, the process is stopped after a pre-defined stop criterion (e.g. number of rounds, achievement of consensus, stability of results) and the mean or median scores of the final rounds determine the results. This technique is very useful in social and political forecasting.

2.3.3 Scenario Planning/Development

Scenario planning is another technique used by firms to scan their environment and forecast the future. It is a strategic planning method that some organizations use to make flexible long-term plans. It can be defined as a rich and detailed portrait of a plausible future world, one sufficiently vivid that a planner can clearly see and comprehend the problems, challenges and opportunities that such an environment would present. A scenario is not a specific forecast of the future, but a plausible description of what might happen. Scenarios are like stories built around carefully constructed plots based on trends and events. They assist in the selection of strategies and the identification of possible futures, making people aware of uncertainties and opening up their imagination and initiating learning processes.

2.3.4 Historical Analogy Method

Under this technique, forecast of a particular phenomenon is based on some analogues conditions of the past. Rostow suggested that this method is based on the stages of the economic development. He argued that an economy has to pass through the following stages consecutively: preliminary/infancy stage, take off stage, & high mass consumption stage. Since it is true for all economies, a country can make comparison of its present stage with the same stage of advanced countries.

2.3.5 Survey Model

Survey method may involve questionnaires, personal interviews or telephone interviews. Both qualitative and quantitative information may be collected through this method. The surveys can be conducted to gather information on the intention of the people, example, information may be collected about the income of the respondents and their likely expenditure on various items. On the basis of such surveys, demand for various goods &

services can be projected. This method is suitable for forecasting the demand for new as well as for existing products or services. The questionnaires are difficult to construct and are time consuming.

2.3.6 Brainstorming

Brainstorming, as the name suggests, is a technique used to generate new ideas and forecasts. Under this technique creative thinking is not restricted. Group members are encouraged to offer original ideas and build on the innovative thoughts of other participants. These ideas are thoroughly evaluated at a later time to arrive at the final decision.

2.3.7 Input-Output analysis

In this technique, a forecast of output is done on the basis of a given input. But it can be done only when the relationship between input and output is known.

2.3.8 Causal layered analysis (CLA)

Causal layered analysis (CLA) is one of several futures techniques used as a means to inquire into the causes of social phenomena and to generate a set of forecasts as to the future course of the phenomena.

The usage of one or some of the abovementioned techniques will help airlines to collect data that they later analyze to finally move on to formulating new strategies or reformulating existing ones.

2.4 NEW STRATEGY FORMULATION OR REFORMULATION OF OLD STRATEGIES

Instituting corporate values, vision, mission, objectives and strategies at the time of a firm's establishment doesn't mean that the task is done. The strategic management process is

never final; it is an on-going process. If the environment remained stagnant and nothing ever changed, then the same objectives and strategies would suffice forever. But that is not so. In fact, we live in a world that witnesses constant modification. The aviation world, in particular, evolves in an ever-changing environment. Managers after reviewing the diverse situations at hand evaluate the performance of strategies that have been put into place; and make adjustments as needed. Their duty is to initiate the appropriate corrective actions, whether it is a *simple change* or a *totally different strategic approach*.

Thus, airline managers can adopt new or reformulate the existing generic corporate strategies based on the findings of the macro environmental scanning. I will now be describing meticulously the three generic corporate strategies explained by Michael porter. These generic strategies are: the low-cost leadership strategy, the niche strategy, and the differentiation strategy.

Low-Cost Leadership

According to Stephen Shaw *(2007)*, a cost-leader must achieve and then sustain significantly lower operating costs than its rivals. It must correctly identify what its customers are prepared to give up, and what they are not prepared to give up, in order to gain access to cheap prices.

The main features of a low-cost airline are:

1- Low fleet costs: they adopt a "fleet commonality" policy. For, by sticking to one type of aircraft, they are saving substantial amount of time, money, and effort in such areas such as pilot training & maintenance.

2- Low landing fees: they seek out unused or little-used airports, even if these are old, sometimes dilapidated and unfashionable saving the costs incurred by using busy airports.

3- ShortTurnarounds/High Aircraft Utilization: They schedule short turnarounds which allow them to operate additional rotations each day. They do not use airbridges, even though this leaves passengers unprotected from the cold or wet weather; for, this will speed up passenger enplaning and deplaning.

4- Limited On-board Service: they do not offer meals & drinks to passengers saving galley space & cleaning time or they do offer meals & drinks but charge relatively high prices.

5- Point-to-Point only: they do not offer transfer or connection products because they will have to incur additional costs at a hub.

6-Simple Fares: They offer one fare for the flight the passenger is interested in. The fare on offer will certainly vary through time, being generally low well in advance of flight departure and rising as the departure day nears.

7- Low-Distribution costs: They do not use Global Distribution Systems but the internet for direct sales. Therefore, they save substantial booking fees.

8- Non-refundable: All the cost leader airlines have a policy of allowing no refunds.

Differentiation Strategy

The second generic strategy is the differentiation Strategy. With a differentiation strategy, the company competes in the marketplace by providing a product or service that is unique in the industry. According to Triant G. Flouris and Sharon L. Oswald *(2006)*, a differentiation strategy doesn't have to add value at all; it just has to provide something that the customer perceives to be better or worth paying for.

It is important to note that differentiation strategies are most attractive:

- If there are many ways to differentiate a product and the buyer perceives these differences to have value.

- Buyer's needs are diverse

- Use of product is diverse

- Few competitors are following a differentiation strategy.

JetBlue airways' differentiation strategy is an eloquent example of this type of strategy. JetBlue airways is a low-cost airline operating in the United States and it, in fact, offers DIRECTV in its flights allowing passengers to watch live TV in their airline seats, as they all have a small TV screen in front of them, and the ability to control programming for their individual screens.

Niche Strategy

The third generic strategy is the niche strategy. Triant G. Flouris and Sharon L. Oswald *(2006)* show that a niche strategy is in fact a low-cost or a differentiation strategy but applied on a very limited segment of the market or to a very limited customer group. There are three types of market niche generally used. They are the following:

- Geographical Niche: Company focus on a very specialized geographical area and they build a significant customer base. For instance, the Aloha airline and the Hawaiian airline concentrate on intra-island operations in the state of Hawaii.

- Customer-Type niche: A company may focus only on a limited or specified customer segment. For instance, an airline may focus on catering services for the businesses travelers or the wealthy travelers who may want to be pampered along with getting to a specific destination. The Concorde service previously offered by British Airways and Air France is

the perfect example of customer-type niche; for, the focus was on the mega-wealthy or the extremely urgent travelers who wanted personalized ultra-luxury service.

- Product-line niche: This type of niche focuses on a specific and unique product line. For instance, the service offered by Chalk's Ocean Airways is a unique service. The airline operates amphibious aircraft in the trans-Gulf Stream market. What is an amphibious operation? This kind of operation takes place when a specially designed aircraft takes off from a hard-surfaced runway in a conventional sense, lands in the destination island's ship channel adjacent to the resort, maneuvers to shore like a seaplane and exits the water to arrive at a paved area for passenger debarkation.

There also are other niche strategies such as: Cost Niche Strategies & Differentiation Niche Strategies

- Cost Niche Strategy: The company competing on cost must make sure that the cost of producing the product or providing the service is significantly lower than the industry cost leader in a specific or narrow segment of the market.

- Differentiated Niche Strategy: This strategy allows a firm to use the exact same differentiation strategies that a multi-segment firm would use, but it does so by serving only a small segment of the market.

Some combination of the previously mentioned three generic strategies can also be used. The best-cost producer strategy is a combination of two generic strategies. I will be discussing it further in the section below.

Best-Cost Producer Strategy

Many companies emphasize on both low-cost and differentiation by making an upscale product or provide a superior service at costs lower than the competition. A best-cost producer can out-compete both a low-cost provider and a differentiated provider.

The abovementioned generic strategies are not the only strategy types that airline managers may decide to amend completely or at least some of their feathers. In fact, there are other types of strategies that might need reformulation or complete change.

Actually, based on the findings of the environmental scanning airline managers may decide to adopt aggressive, defensive, or customer-focused strategies or change some of aspects of the aforementioned strategies already adopted. The independent study *Airline Marketing (Publication of: International Air Transport Association, 2003)* describes these strategies in the following manner:

Aggressive Strategy

An airline adopting an aggressive strategy must outmatch important customer needs and wants offered by competitors. It must upstage important customer needs and wants that the competition does not offer. It must match unimportant customer needs and wants that the competition offers. It must monitors unimportant customer needs and wants that the competition does not provide for.

Defensive Strategy

An airline adopting a defensive strategy must match important customer needs and wants offered by competitors and build brand strength. It must provide for important customer needs and wants that the competition does not offer in a limited fashion. It must not

match unimportant customer needs and wants that the competition offers. It must monitors unimportant customer needs and wants that the competition does not provide for.

Customer-focus Strategy

There is a possible danger with the two previous strategic directions. An airline may start to pay more attention to its competitors than it does to its customers.

Customer-driven companies create a very advanced system of two-way communication with customers, particularly those that are most valuable. While they may continue to monitor the competition, the direction and nature of change is determined through direct dialogue with customers.

Here, airlines take the following initiatives:

- Collect direct feedback from individual customers (different types of surveys are run to get information about recent usage of the airline and its competitors, satisfaction and commitment, intention to re-purchase, etc…).

- Involve front line staff (staff are regularly surveyed and asked of their view regarding customer needs and wants).

- Treat suppliers and partners with more transparency by ensuring that these organizations are fully committed to delivering service to the customers that they share.

Other types of strategies that might be adopted or reformulated by an airline are: the airline alliances and joint ventures.

Joint Ventures and Strategic Alliances

According to Triant G. Flouris and Sharon L. Oswald *(2006),* a joint venture means that two or more companies pool their resources to undertake a mutually beneficial project.

For instance, the joint venture among five airlines created the Orbitz online travel consortium. Using this online consortium travelers were able to get lower air fares in a more convenient medium and airlines were able to counter the threat of online travel agents such as Expedia, Travelocity, etc…

A strategic alliance is different than a joint venture in that companies typically operate under an agreement to share resources rather than commit to an entirely new project. Stephan Shaw *(2007)* says that airlines enter cooperative alliances because they want to draw benefits from greater size. The benefits of airline alliances can be divided into two:

-Economies of scale: cost reduction achieved through greater size

- Economies of scope: they are the revenue benefits of cooperation, brought by increased marketing muscle-power.

Now, I will be discussing corporate strategies that may be adopted or reformulated as a result of the findings of the macro-environmental scanning that may indicate the existence of a certain economic situation such as expansion or recession. Triant G. Flouris & Sharon L. Oswald *(2006)* assert that growth strategies are adopted by airlines when the situation in which they progress is encouraging while they take on no growth strategies when the circumstances in which they evolve are regressing.

Growth Strategies

The purpose of a growth strategy is to increase the operations of the organization by some means, which could mean entering into new markets or simply attracting new customers. It could be increasing sales or increasing the product or service offerings. Whatever the method used, it should increase some aspect of the business.

The following are forms of growth strategies:

- Intensive Growth Strategies work best when the industry the business operates in is a growing industry. Market penetration (the business remains in the same market but wants to attract more customers), Market development (management wants to take their product or service into a new market), and product development (management wants to launch a new product in their existing market) are all types of intensive strategy.

- Integrative Growth Strategies work best when the industry the business operates in is beginning to reach saturation. Horizontal integration (purchasing competitor firms) and vertical integration (company gains control of inputs or suppliers, outputs or distributors, or both) are types of integrative growth strategies.

- Concentration Growth Strategies are used by companies that want to: concentrate on the primary line of their business and that look for means of increasing their level of operations in the business. Thus, a concentration strategy allows a company to become very good at what it does. It allows the company to know the market and competition inside and out and fine tune all of its operations. Therefore, the main goal is to exploit the company's core competencies.

- Diversification Growth Strategies are used by companies when they choose to enter into different products and services. In other words, the company grows by moving its business operations into other industries. The two basic types of diversification are: Related diversification (when a company diversifies into an area that creates some type of strategic fit, achieving synergy) and unrelated diversification (when a company expands operations into an industry that has no relation to the core industry).

Unfortunately, circumstances are not always favorable and there may be factors in an airline's environment that are indicating a forthcoming recession. Therefore, airlines are

obliged to adopt no growth strategies to protect themselves from over expenditure or liquidation.

No Growth Strategies

Retrenchment and Turnaround: a retrenchment strategy is often used when a worthwhile business goes into crisis. The management team of the company needs to unveil the causes generating this problem then and only then address the issues facing them by preparing plans of action to ensure a successful business turnaround. Some of these actions can be: selling of assets (selling equipment, land, patents, etc..), pruning (selling off or closing less profitable or older facilities, curtailing production of marginal products, cutting our company perks, and cutting back on things such as advertising, public relations, and even customer service). Moreover, they may decided to: reduce the workforce by implementing layoffs or boost revenues by cutting prices, increasing advertising, bolstering the sales force and embarking on quick and easy product improvements.

3 **RESEARCH QUESTION**, METHODOLOGY, & HYPOTHESES

3.1 RESEARCH QUESTION

The literature review covered earlier in this study highlights the following: Airlines that systematically scan and review their environments, especially their macro environments, that use the appropriate scanning and forecasting techniques during this process, & that formulate or reformulate strategies based on their findings; register better performance than those who do not. However, the question is: to what extent are these assumptions applicable in the airlines operating in Lebanon?

In the following section, I will be writing about the survey that I have conducted with twenty managers or supervisors of airlines operating in Lebanon regarding the use of their scanning approaches & scanning and forecasting techniques.

3.2 RESEARCH METHODOLOGY

The methodology used to obtain the information and data needed was through questionnaires. I previously tested this questionnaire with an industry expert to check whether its direction &/or design was clear and straightforward. Afterwards, I had to partially amend it to fit in the comments and the improvement suggestions put forward by this expert.

The original contact list that I have obtained contained the names of 35 airlines operating in Lebanon. Further research revealed that there were 110 other companies that have operated at least one time to Lebanon during 2009. However, after reviewing the list I decided that none of them will add value to my thesis as they are either operating as charter flights (rented by another company or tour operator for ADHOC operations), private jets, or internal aircrafts owned by certain corporations for internal travel purposes (carry staff on duty).

Thus, since the 2nd list was irrelevant to my study I took the 1st list and started contacting the managers or supervisors of the 35 airlines operating in Lebanon. Unfortunately, another obstacle came up. One of the airlines that had previously operated flights to & from Lebanon had ceased its operations. Therefore, my list grew even smaller with a total number of 34 airlines operating flights to & from Lebanon. I have succeeded in collecting 20 positive replies. I have collected the answers either by personally conducting one on one interviews with airline managers or by prompting them to send their answers by email to my advisor's university email address. 20 positive answers out of the total number of 34 airlines operating in Lebanon represent 58.82 % of the entire finite population.

Nevertheless, only 18 of these answers were used (52.94 % of the population) because one airline manager had fallen into the trap of leniency by answering to all the questions by strongly agreeing and not showing any diversity in the answers while the other airline was depicting performance figures that were so high that they risked to compromise the outcome of the statistical tests that I was going to run.

My sample of 52.94 % of the entire finite population is, of course, a representative one. The level of response was high because it was made clear to these managers that these questionnaires were anonymous, so they were required to answer as honestly and frankly as possible.

The answers to choose from were "1" strongly agreeing with the statement, "2" agreeing, "3" being neutral, "4" disagreeing and "5" strongly disagreeing with the statement.

The independent variables that is identified from the literature review are the following:

- The approach used by airlines operating in Lebanon to scan their environment (systematic versus irregular scanning)
- The extent to which airlines operating in Lebanon scan and review their political factors, regulatory factors, technological factors, socio-cultural factors, environmental factors, & economic factors
- The extent to which airlines operating in Lebanon use the following scanning & forecasting techniques: the judgment model, the Delphi method, the scenario planning/development, the historical analogy method, the survey model, brain storming, the input-output analysis, and the causal layered analysis (CLA)

- The extent to which airlines operating in Lebanon formulate or reformulate strategies based on the findings generated by the environmental scanning

We defined measures of performance i.e. the dependent variables as follows: the total frequency of flights (to & from) Lebanon, the capacity allocated to flights departing & arriving to Lebanon (number of seats deployed on the route per year), the number of staff in Lebanon.

3.3 RESEARCH HYPOTHESESES

We formulated our research hypotheses as follows:

H1: Airlines that systematically scan their macro environment are more successful.

H2: Airlines with higher scores on scanning & reviewing their macro environmental factors are more successful.

H3: Airlines with higher scores on using scanning & forecasting techniques are more successful.

H4: Airlines with higher scores on formulating or reformulating strategies based on their environmental scanning are more successful.

H5: Airlines with higher scores overall are more successful.

The following statistical techniques were used to analyze the answers obtained from the questionnaires.

First, we ran a reliability test to assess the dependability of the answers collected from airline managers & supervisors.

We also performed some descriptive analyses where we constructed different charts and graphs to describe our sample.

Next, we conducted cross-tabulations in order to test relationships between the independent variables and the measures of performance described above.

Then, hypothesis testing as well as analysis of variance techniques are conducted to compare means.

We also ran correlation and regression analysis to determine the interdependencies among the variables and determine the significant factors.

We conducted factor analysis to discover and summarize the pattern of intercorrelations among variables so that we group into factors, variables that are highly correlated with one another. Finally, we ran stepwise regression to verify whether the outcome of the factor analysis will help us get significant result.

Computations of statistical techniques were done using the Megastat For Excel software as well as the SPSS software.

4 STATISTICAL ANALYSES

4.1 RELIABILITY TESTS

We tested the reliability of the overall data by using the Cronbach's alpha test. The SPSS output given below shows an alpha value of 0.841 which is considered to be an acceptable alpha value. Therefore, we can conclude that the data is reliable and further analyses can be conducted.

Case Processing Summary

		N	%
Cases	Valid	18	100.0
	Excluded[a]	0	.0
	Total	18	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.841	17

Then, we tested the reliability of the answers regarding the extent to which airlines scan and review the factors in their macro environment. The SPSS output given below shows an alpha value of 0.666 which is considered to be a fairly acceptable value.

Case Processing Summary

		N	%
Cases	Valid	18	100.0
	Excluded[a]	0	.0
	Total	18	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.666	6

We finally tested the reliability of the answers regarding the tools or techniques used to scan and forecast the macro environment. The SPSS output given below shows an alpha value of 0.732 which is considered to be an acceptable alpha value.

Case Processing Summary

		N	%
Cases	Valid	18	100.0
	Excluded[a]	0	.0
	Total	18	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.732	8

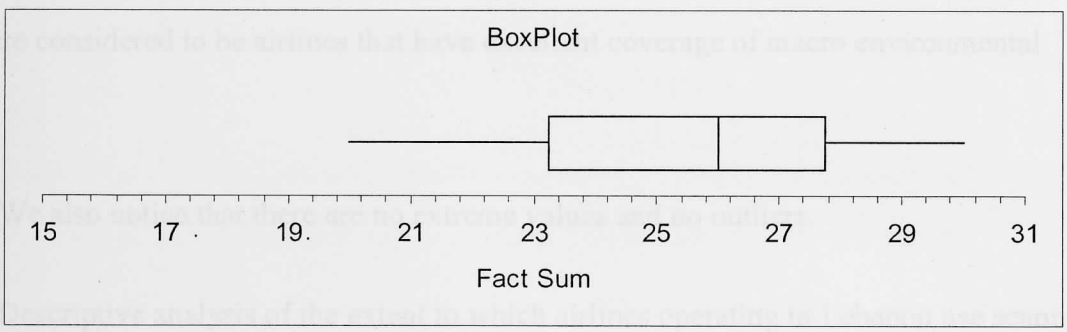
4.2 DESCRIPTIVE ANALYSES

Macro-environmental factors have an on impact the performance of airlines. Thus, we ran a descriptive analysis of the macro-environmental factors that are scanned and reviewed by airlines operating in Lebanon

Descriptive statistics

Macro Environmental Factors

	Factor Sum
Count	18
Mean	25.39
Sample Variance	9.66
Sample Standard Deviation	3.11
Minimum	20
Maximum	30
Range	10
1st quartile	23.25
Median	26.00
3rd quartile	27.75
Interquartile range	4.50
Mode	26.00
Low Extremes	0
Low Outliers	0
High Outliers	0
High Extremes	0



The sum is an index reflecting the extent to which factors are scanned. This variable will be referred to as the score of the factors scanned and reviewed. It is obtained by adding up the six questions related to the macro environmental factors impacting the airline industry's performance. The lowest possible value for the score of these variables is 6 while the highest possible value is 30. The count indicates that 18 observations were used to conduct the descriptive statistics. The score of factors scanned and reviewed by airlines ranged from a minimum of 20 to a maximum of 30; thus, the range was equal to 10. The average score of factors scanned and review by airlines is 25.39. The sample standard deviation from the mean was equal to 3.11.

The extent to which airlines scan and review their macro environmental factors were categorized into four groups: very low coverage of factors, low coverage of factors, good coverage of factors, and excellent coverage of factors. 25% of the airlines observed had a factor coverage score below 23.25; thus, they were considered to be airlines that have very low coverage of macro-environmental factors. 50% of the airlines observed had a factor coverage score below 26; thus, airlines that had registered scores ≥ 23.25 & < 26 were considered to be airlines that have low coverage of macro-environmental factors. 75% of the airlines observed had a factor coverage score below 27.75; thus, airlines that had registered scores ≥ 26 & < 27.75 were considered to be airlines that have good coverage of macro environmental factors. 25% of the airlines observed had a factor coverage score ≥ 27.75; thus, they were considered to be airlines that have excellent coverage of macro environmental factors.

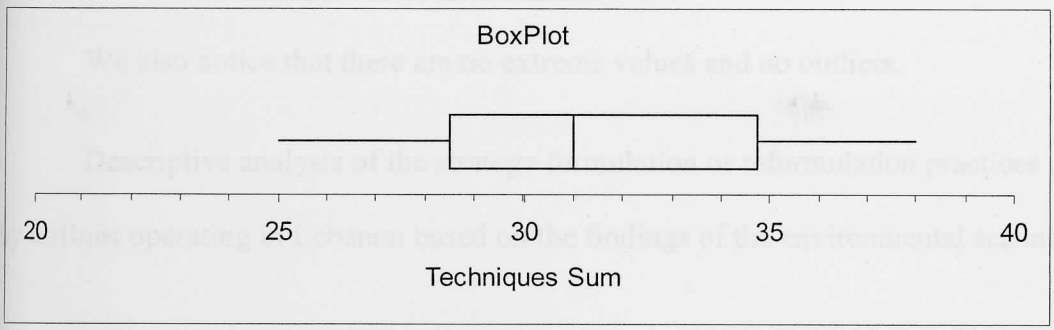
We also notice that there are no extreme values and no outliers.

Descriptive analysis of the extent to which airlines operating in Lebanon use scanning & forecasting techniques that impact their performance

Descriptive statistics

Scanning & Forecasting Techniques

	Techniques Sum
Count	18
Mean	31.61
Sample Variance	18.13
Sample Standard Deviation	4.26
Minimum	25
Maximum	38
Range	13
1st quartile	28.50
Median	31.00
3rd quartile	34.75
Interquartile range	6.25
Mode	31.00
Low Extremes	0
Low Outliers	0
High Outliers	0
High Extremes	0



The sum is an index reflecting the extent to which scanning and forecasting techniques are used by airlines operating in Lebanon. This variable will be referred to as the score of the scanning and forecasting techniques used. It is obtained by adding up the eight

questions related to the scanning & forecasting tools. The lowest possible value for the score of these variables is 8 while the highest possible value is 40. The count indicates that 18 observations were used to conduct the descriptive statistics. The score of techniques used by airlines ranged from a minimum of 25 to a maximum of 38; thus, the range was equal to 13. The average score of techniques used by airlines is 31.61. The sample standard deviation from the mean was equal to 4.26.

The extent to which airlines use scanning & forecasting techniques were categorized into four groups: very low usage of techniques, low usage of techniques, high usage of techniques, and very high usage of techniques. 25% of the airlines observed had a technique usage score below 28.50; thus, they were considered to be airlines that have very low usage of techniques. 50% of the airlines observed had a technique usage score below 31; thus, airlines that had registered scores ≥ 28.50 & < 31 were considered to be airlines that have low usage of techniques. 75% of the airlines observed had a technique usage score below 34.75; thus, airlines that had registered scores ≥ 31 & < 34.75 were considered to be airlines that have high usage of techniques. 25% of the airlines observed had a technique usage score above 34.75; thus, they were considered to be airlines that have very high usage of techniques.

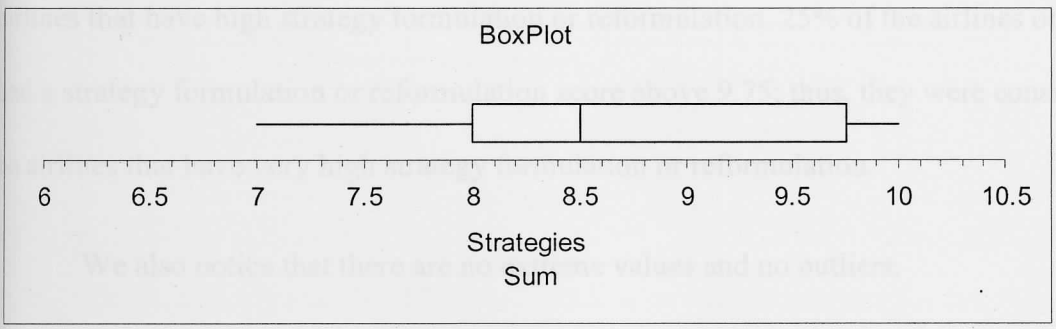
We also notice that there are no extreme values and no outliers.

Descriptive analysis of the strategy formulation or reformulation practices undertaken by airlines operating in Lebanon based on the findings of the environmental scanning.

Descriptive statistics

Strategy Formulation or Reformulation

	Strategy Sum
Count	18
Mean	8.61
Sample Variance	1.19
Sample Standard Deviation	1.09
Minimum	7
Maximum	10
Range	3
1st quartile	8.00
Median	8.50
3rd quartile	9.75
Interquartile range	1.75
Mode	8.00
Low Extremes	0
Low Outliers	0
High Outliers	0
High Extremes	0



The sum is an index reflecting the extent to which strategies are formulated or reformulated by airlines based on the findings of the environmental scanning. This variable

will be referred to as the score of the strategies formulated or reformulated by airlines. It is obtained by adding up the two questions related to the strategy formulation or reformulation. The lowest possible value for the score of these variables is 2 while the highest possible value is 10. The count indicates that 18 observations were used to conduct the descriptive statistics. The score of strategy formulation or reformulation by airlines ranged from a minimum of 7 to a maximum of 10; thus, the range was equal to 3. The average score of strategy formulation or reformulation by airlines is 8.61. The sample standard deviation from the mean was equal to 1.09.

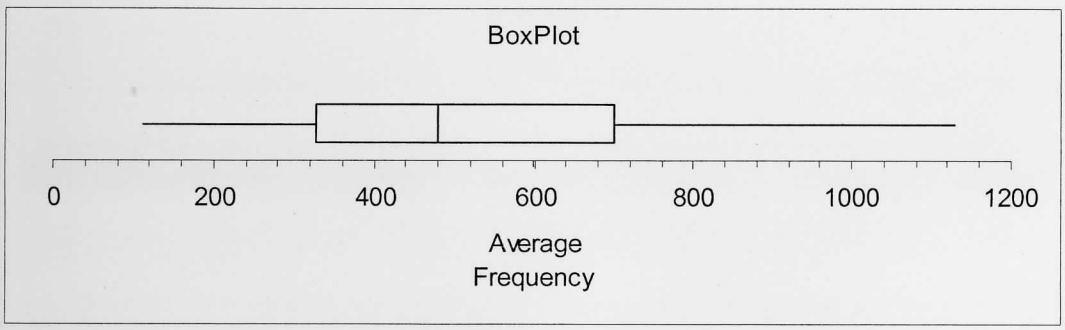
The extent to which airlines formulate or reformulate strategies were categorized into four groups: very low formulation or reformulation of strategies, low formulation or reformulation of strategies, high formulation or reformulation of strategies, and very high formulation or reformulation of strategies. 25% of the airlines observed had a strategy formulation or reformulation score below 8; thus, they were considered to be airlines that have very low strategy formulation or reformulation. 50% of the airlines observed had a strategy formulation or reformulation score below 8.50; thus, airlines that had registered scores ≥ 8 & < 8.50 were considered to be airlines that have low strategy formulation or reformulation. 75% of the airlines observed had a strategy formulation or reformulation score below 9.75; thus, airlines that had registered scores ≥ 8.50 & < 9.75 were considered to be airlines that have high strategy formulation or reformulation. 25% of the airlines observed had a strategy formulation or reformulation score above 9.75; thus, they were considered to be airlines that have very high strategy formulation or reformulation.

We also notice that there are no extreme values and no outliers.

Descriptive analysis of the average frequency which represents a performance measure used later to evaluate airlines & differentiate one from the other.

Descriptive statistics

	Average Frequency
Count	18
Mean	525.87
Sample Variance	80,792.59
Sample Standard Deviation	284.24
Minimum	110.67
Maximum	1129.33
Range	1018.67
1st quartile	326.58
Median	480.00
3rd quartile	699.16
Interquartile range	372.58
Mode	#N/A
Low Extremes	0
Low Outliers	0
High Outliers	0
High Extremes	0



The count indicates that 18 observations were used to conduct the descriptive statistics. The average frequency of flights to & from Lebanon ranged from a minimum of 111 to a maximum of 1130; thus, the range was equal to 1019. The mean of the average

frequency of flights to and from Lebanon offered by airlines is 526. The sample standard deviation from the mean was equal to 284.

The average frequency of flights to and from Lebanon offered by airlines was categorized into four groups: very low frequency, low frequency, high frequency, & very high frequency. 25% of the airlines observed had an average frequency of below 327; thus, they were considered to be airlines that have very low frequency. 50% of the airlines observed had an average frequency of below 480; thus, airlines that had registered scores $\geq$ 327 & $<$ 480 were considered to be airlines that have low frequency. 75% of the airlines observed had an average frequency of below 699; thus, airlines that had registered scores $\geq$ 480 & $<$ 699 were considered to be airlines that have high frequency. 25% of the airlines observed had an average frequency above 699; thus, they were considered to be airlines that have very high frequency of flights.

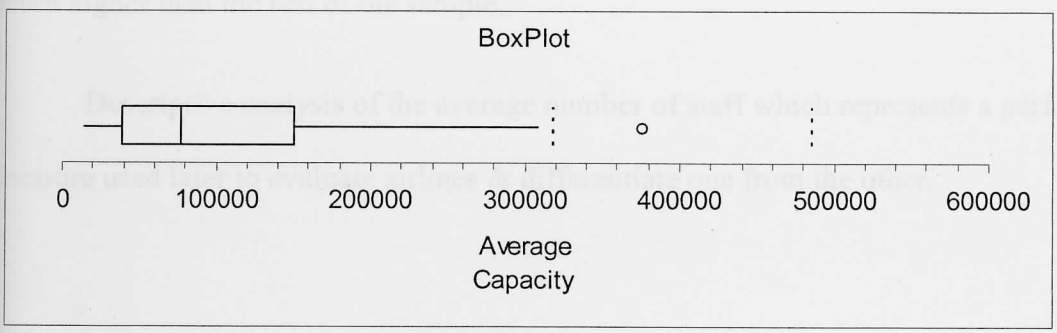
We also notice that there are no extreme values and no outliers.

Descriptive analysis of the average capacity which represents a performance measure used later to evaluate airlines & differentiate one from the other.

Descriptive statistics

Average Capacity

Count	18
Mean	114,299.57
Sample Variance	9,810,745,659.72
Sample Standard Deviation	99,049.21
Minimum	14244.67
Maximum	377066.33
Range	362821.67
1st quartile	38,978.16
Median	77,273.33
3rd quartile	150,725.50
Interquartile range	111,747.33
Mode	#N/A
Low Extremes	0
Low Outliers	0
High Outliers	1
High Extremes	0



The count indicates that 18 observations were used to conduct the descriptive statistics. The average capacity allocated to flights departing and arriving to Lebanon

(number of seats deployed on the route per year) ranged from a minimum of 14245 and a maximum of 377066; thus, the range was equal to 362822. The mean of the average capacity allocated to flights departing and arriving to Lebanon is 114,300. The sample standard deviation from the mean was equal to 99,049.

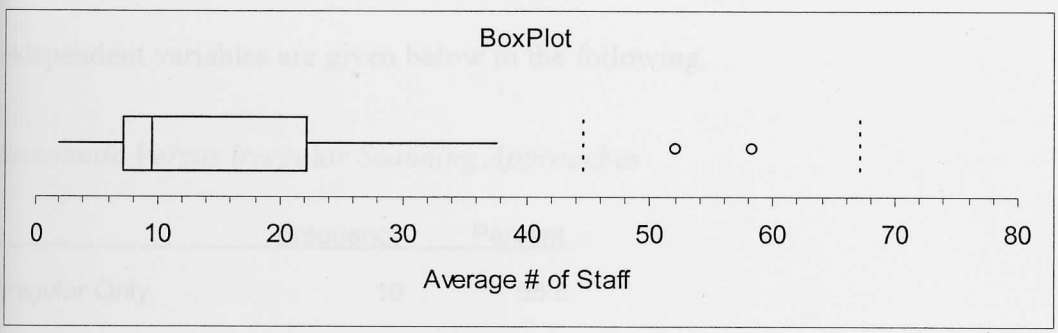
The average capacity allocated to flights to and from Lebanon was categorized into four groups: very low capacity, low capacity, high capacity, & very high capacity. 25% of the airlines observed had an average capacity of below 38,978; thus, they were considered to be airlines that have very low capacity. 50% of the airlines observed had an average capacity of below 77,273; thus, airlines that had registered scores $\geq$ 38,978 & $<$ 77,273 were considered to be airlines that have low capacity. 75% of the airlines observed had an average capacity of below 150,726; thus, airlines that had registered scores $\geq$ 77,273 & $<$ 150,726 were considered to be airlines that have high capacity. 25% of the airlines observed had an average capacity above 150,726; thus, they were considered to be airlines that have very high capacity.

We also notice that there are no extreme values. However, there is one high outlier which indicates that there is one airline in this sample that registers a capacity level that is much higher than the rest of the sample.

Descriptive analysis of the average number of staff which represents a performance measure used later to evaluate airlines & differentiate one from the other.

Descriptive statistics

Average # of Staff	
Count	18
Mean	17.87
Sample Variance	268.88
Sample Standard Deviation	16.40
Minimum	2
Maximum	58.33
Range	56.33
1st quartile	7.16
Median	9.50
3rd quartile	22.16
Interquartile range	15.00
Mode	9
Low Extremes	0
Low Outliers	0
High Outliers	2
High Extremes	0



The count indicates that 18 observations were used to conduct the descriptive statistics. The average number of staff hired by airlines operating in Lebanon ranged from a

minimum of 2 and a maximum of 58; thus, the range was equal to 56. The mean of the average number of staff hired is 17.87 i.e. 18. The sample standard deviation from the mean was equal to 16.40 i.e. 16.

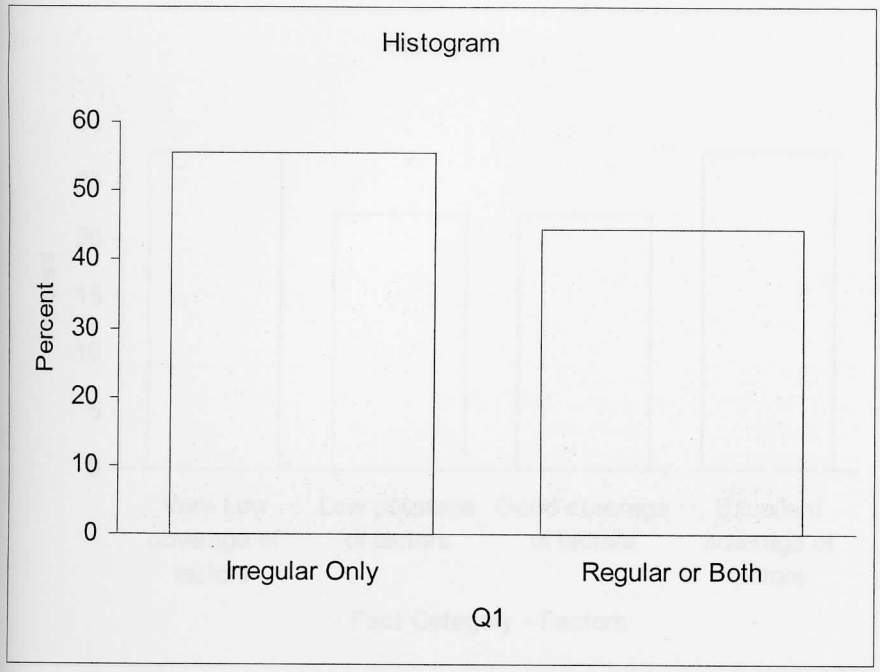
The average number of staff hired by airlines operating in Lebanon was categorized into four groups: very low number of staff, low number of staff, high number of staff, & very high number of staff. 25% of the airlines observed had an average number of staff below 7.16; thus, they were considered to be airlines that have very low number of staff. 50% of the airlines observed had an average number of staff below 9.5; thus, airlines that had registered scores ≥ 7.16 & < 9.50 were considered to be airlines that have low number of staff. 75% of the airlines observed had an average number of staff below 22.16; thus, airlines that had registered scores ≥ 9.50 & < 22.16 were considered to be airlines that have high number of staff. 25% of the airlines observed had an average number of staff above 22.16; thus, they were considered to be airlines that have very high number of staff.

We also notice that there are no extreme values. However, there are two high outliers which indicate that there are two airlines in this sample that have an average number of staff that is much higher than the rest of the sample.

A qualitative frequency distribution & the corresponding histogram of the independent variables are given below in the following.

Systematic Versus Irregular Scanning Approaches

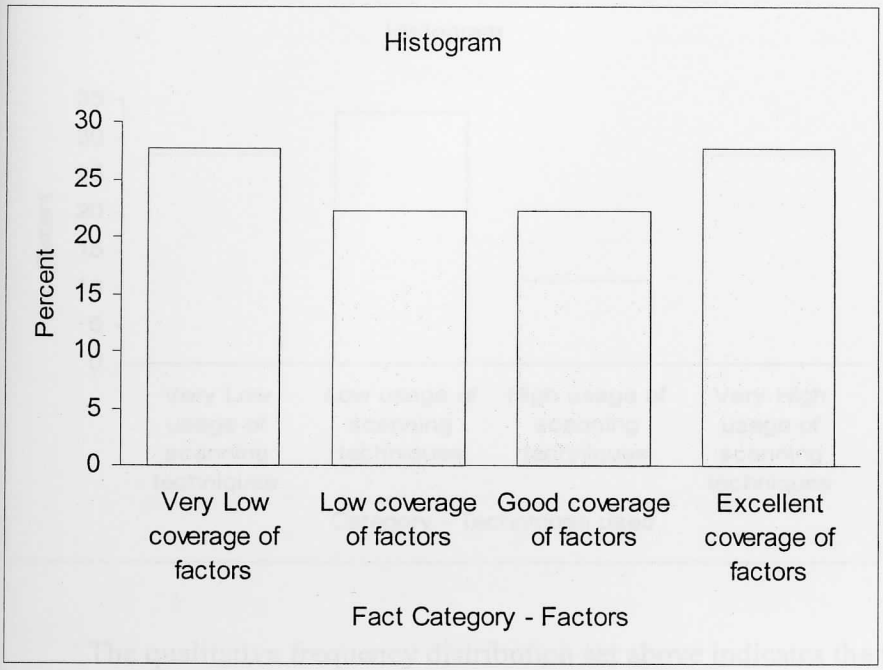
	Frequency	Percent
Irregular Only	10	55.6
Regular or Both	8	44.4
	18	100.0



The qualitative frequency distribution set above indicates the following: 10 out of the 18 airlines sampled have adopted an irregular scanning approach which is equivalent to 55.6% of the sample while 8 out of the 18 airlines sampled have adopted a systematic scanning approach which is equivalent to 44.4% of the entire sample size. The Histogram also indicates the same fact.

The level of scanning and reviewing the macro-environmental factors

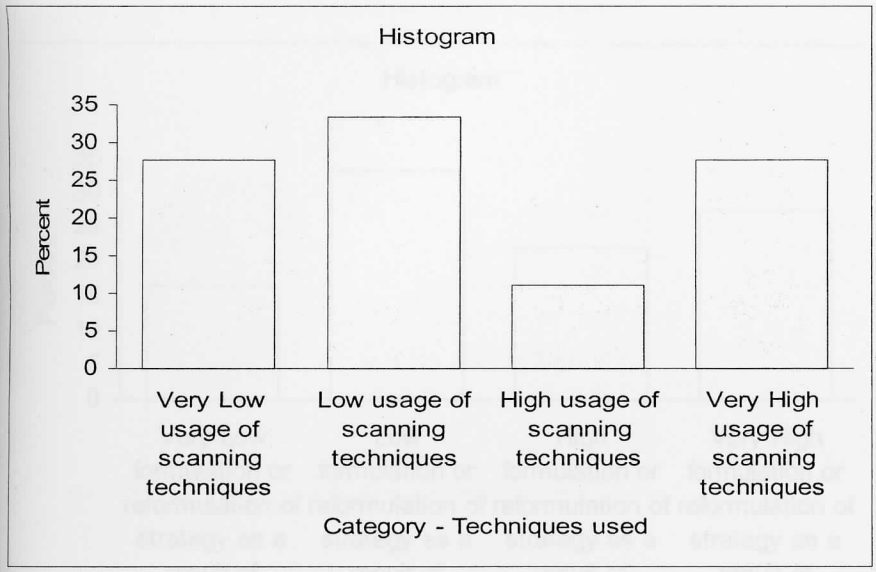
	Frequency	Percent
Very low coverage of factors	5	27.8
Low Coverage of factors	4	22.2
Good Coverage of factors	4	22.2
Excellent coverage of factors	5	27.8
	18	100.0



The qualitative frequency distribution set above indicates the following: 5 out of the 18 airlines sampled have very low coverage of macro-environmental factors which is equivalent to 27.8% of the sample while 4 out of the 18 airlines sampled have a low coverage of macro-environmental factors which is equivalent to 22.2% of the entire sample size. Moreover, 4 out of the 18 airlines sampled have a good coverage of macro- environmental factors which is equivalent to 22.2% of the entire sample size. Finally, 5 out of the 18 airlines sampled have an excellent coverage of macro-environmental factors which is equivalent to 27.8 % of the sample. The Histogram also indicates the same fact.

Usage of scanning & forecasting Techniques

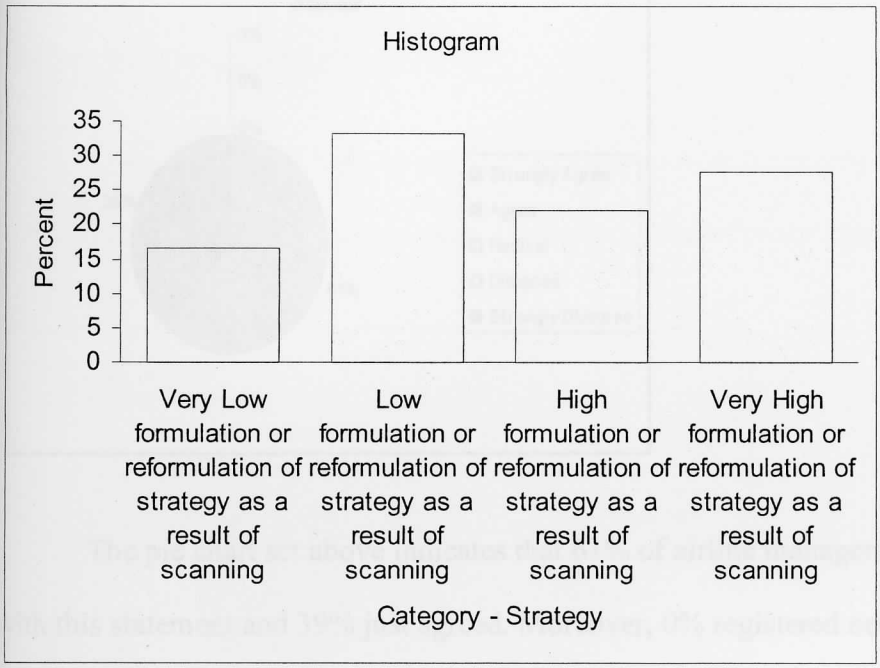
	Frequency	Percent
Very low usage of techniques	5	27.8
Low usage of techniques	6	33.3
High usage of techniques	2	11.1
Very high usage of techniques	5	27.8
	18	100.0



The qualitative frequency distribution set above indicates the following: 5 out of the 18 airlines sampled have a very low usage of scanning and forecasting techniques which is equivalent to 27.8% of the sample while 6 out of the 18 airlines sampled have a low usage of scanning & forecasting techniques which is equivalent to 33.3% of the entire sample size. Moreover, 2 out of the 18 airlines have a high usage of scanning & forecasting techniques which is equivalent to 11.1% of the entire sample size. Finally, 5 out of the 18 airlines sampled have very high usage of scanning and forecasting techniques which is equivalent to 27.8 % of the sample. The Histogram also indicates the same fact.

Formulation or Reformulation of strategies based on findings derived from the environmental scanning

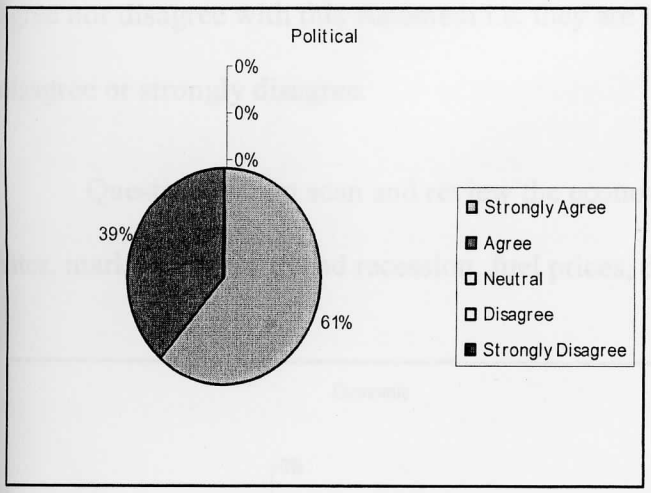
	Frequency	Percent
Very low formulation or reformulation of strategy	3	16.7
Low formulation or reformulation of strategy	6	33.3
High formulation or reformulation of strategy	4	22.2
Very high formulation or reformulation of strategy	5	27.8
	18	100



The qualitative frequency distribution set above indicates the following: 3 out of the 18 airlines sampled have a very low formulation or reformulation of strategy based on the findings derived from the environmental scanning which is equivalent to 16.7% of the sample while 6 out of the 18 airlines sampled have a low formulation or reformulation of strategy based on the findings derived from the environmental scanning which is equivalent to 33.3% of the entire sample size. Moreover, 4 out of the 18 airlines sampled have a high formulation or reformulation of strategy based on the findings derived from the environmental scanning which is equivalent to 22.2% of the entire sample size. Finally, 5 out of the 18 airlines sampled have very high formulation or reformulation of strategy based on the findings derived from the environmental scanning which is equivalent to 27.8 % of the sample. The histogram also indicates the same fact.

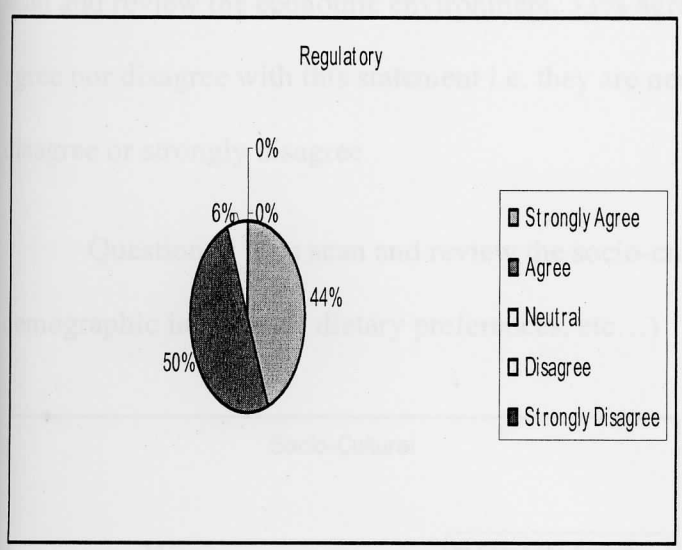
I also wanted to construct a pie chart for each question included in my questionnaire and that has a scaling of 1 to 5.

Question 2: You scan and review the political environment (terrorism, war, protests, etc…)



The pie chart set above indicates that 61% of airline managers have strongly agreed with this statement and 39% just agreed. Moreover, 0% registered neutrality, disagreement & strong disagreement.

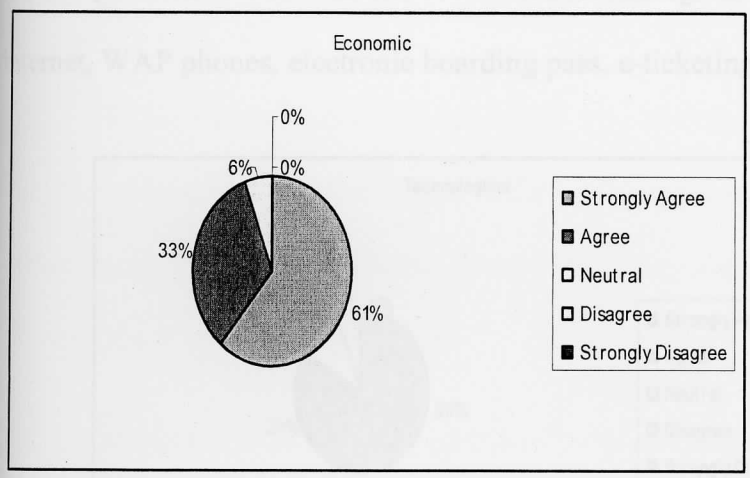
Question 3: You scan and review the regulatory environment ("Freedoms of air", "Bilateralism", the "liberalization" process, etc…)



The pie chart set above indicates that 44% strongly agree with this statement i.e. they scan and review the regulatory environment, 50% agree with this statement while 6% neither

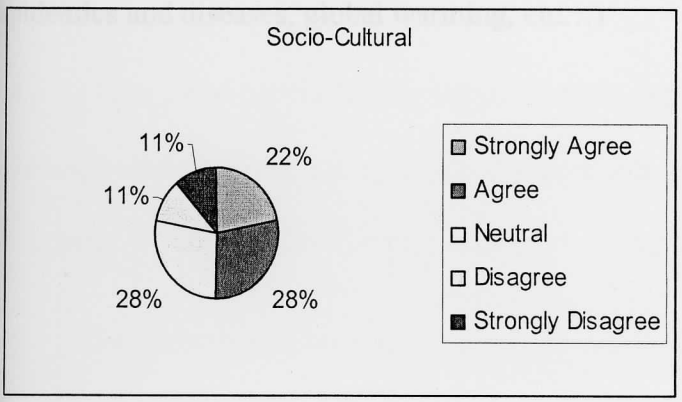
agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 0% disagree or strongly disagree.

Question 4: You scan and review the economic environment (currency exchange rates, market expansion and recession, fuel prices, discretionary income, etc…)



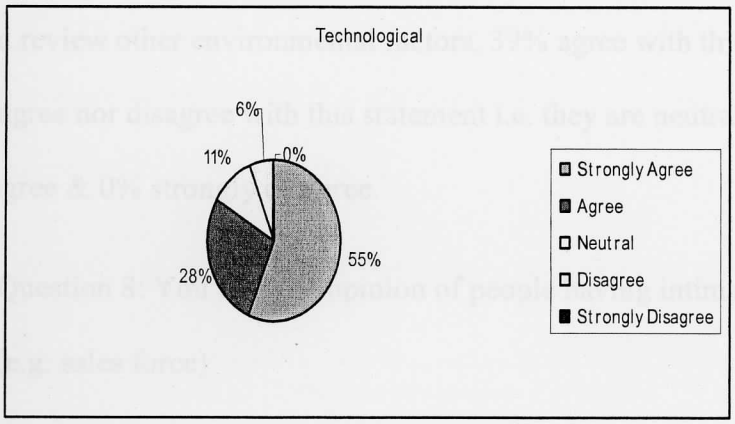
The pie chart set above indicates that 61% strongly agree with this statement i.e. they scan and review the economic environment, 33% agree with this statement while 6% neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 0% disagree or strongly disagree.

Question 5: You scan and review the socio-cultural environment (religion, language, demographic influences, dietary preferences, etc…)



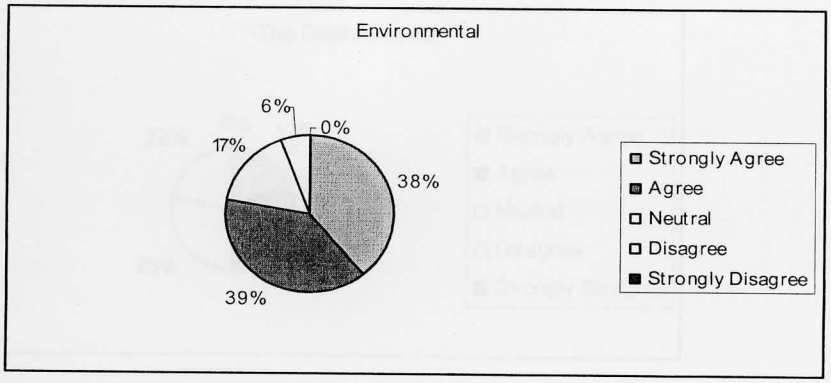
The pie chart set above indicates that 22% strongly agree with this statement i.e. they scan and review the socio-cultural environment, 28% agree with this statement while 28 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 11% disagree & another 11% strongly disagree.

Question 6: You scan and review the technological environment (e-commerce, internet, WAP phones, electronic boarding pass, e-ticketing, GDS, etc…)



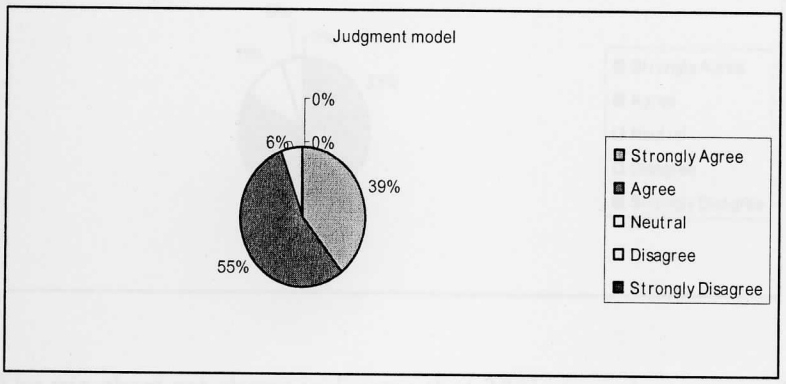
The pie chart set above indicates that 55% strongly agree with this statement i.e. they scan and review the technological environment, 28% agree with this statement while 11 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 6% disagree & 0% strongly disagree.

Question 7: You scan and review the other environmental factors (bird strikes, epidemics and diseases, global warming, etc…)



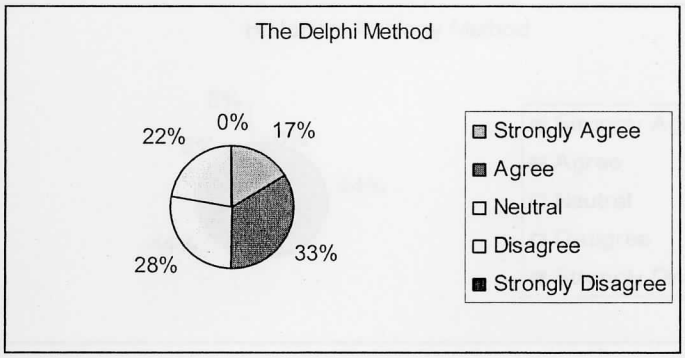
The pie chart set above indicates that 38% strongly agree with this statement i.e. they scan and review other environmental factors, 39% agree with this statement while 17 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 6% disagree & 0% strongly disagree.

Question 8: You take the opinion of people having intimate knowledge of relevant factors (e.g: sales force)



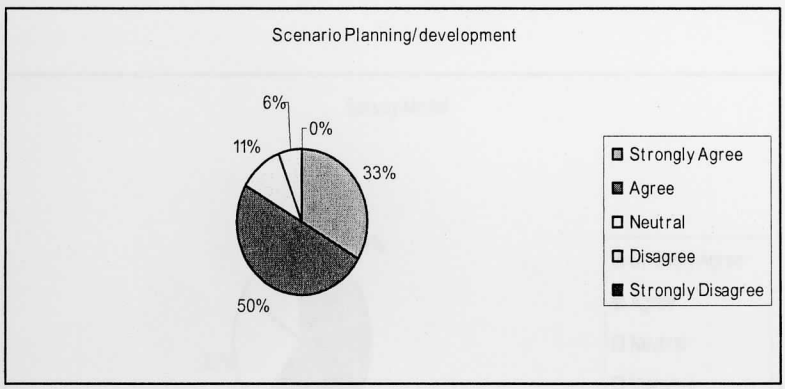
The pie chart set above indicates that 39% strongly agree with this statement i.e. they take the opinion of people having intimate knowledge of relevant factors, 55% agree with this statement while 6 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 0% disagree & strongly disagree.

Question 9: You take the opinion of a panel of independent experts



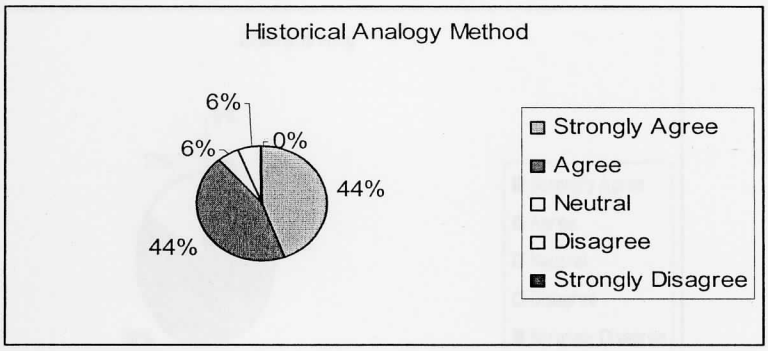
The pie chart set above indicates that 17% strongly agree with this statement i.e. they take the opinion of a panel of independent experts, 33% agree with this statement while 28 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 22% disagree & 0% strongly disagree.

Question 10: You carefully construct scenarios based on trends and events



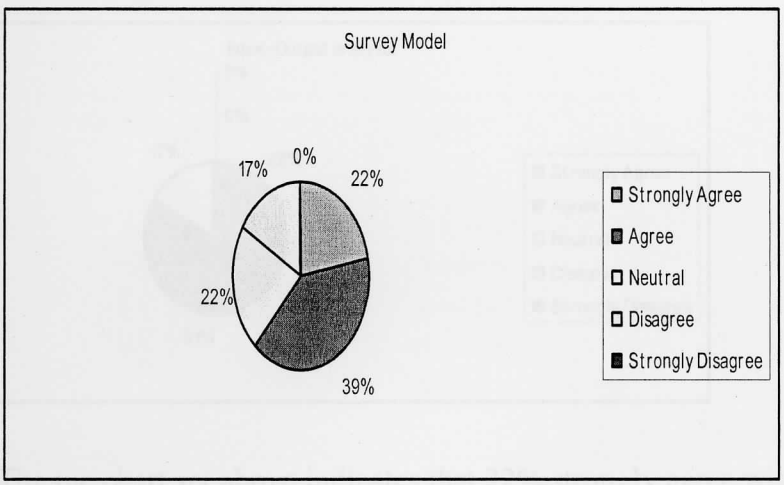
The pie chart set above indicates that 33% strongly agree with this statement i.e. they carefully construct scenarios based on trends and events, 50% agree with this statement while 11 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 6% disagree & 0% strongly disagree.

Question 11: You run analysis based on some analogues condition (s) of the past



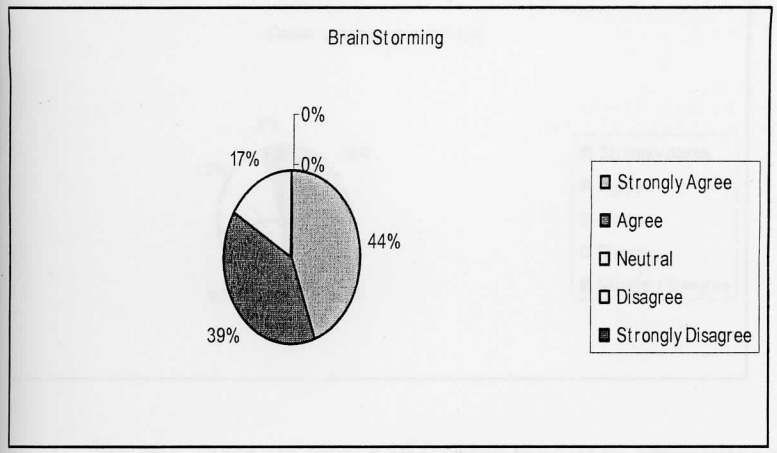
The pie chart set above indicates that 44% strongly agree with this statement i.e. they run analysis based on some analogues condition (s) of the past, 44% agree with this statement while 6 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 6% disagree & 0% strongly disagree.

Question 12: You run surveys to test the intention of people regarding purchase decisions



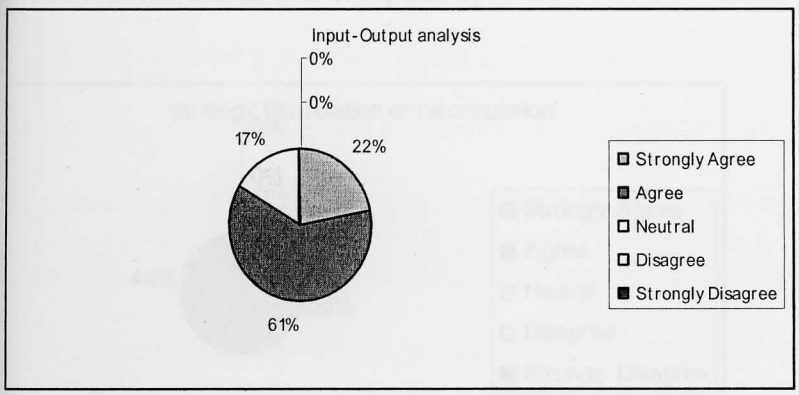
The pie chart set above indicates that 22% strongly agree with this statement i.e. they run surveys to test the intention of people regarding purchase decisions, 39% agree with this statement while 22 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 17% disagree & 0% strongly disagree.

Question 13: You brainstorm to generate new ideas



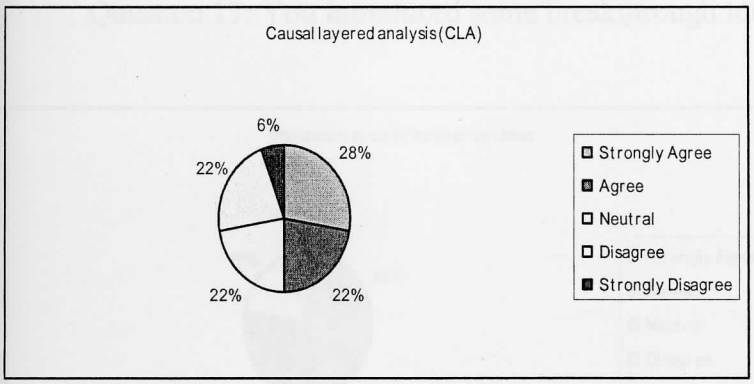
The pie chart set above indicates that 44% strongly agree with this statement i.e. they brainstorm to generate new ideas, 39% agree with this statement while 17 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 0% disagree & strongly disagree.

Question 14: You analyze a certain output based on a given input



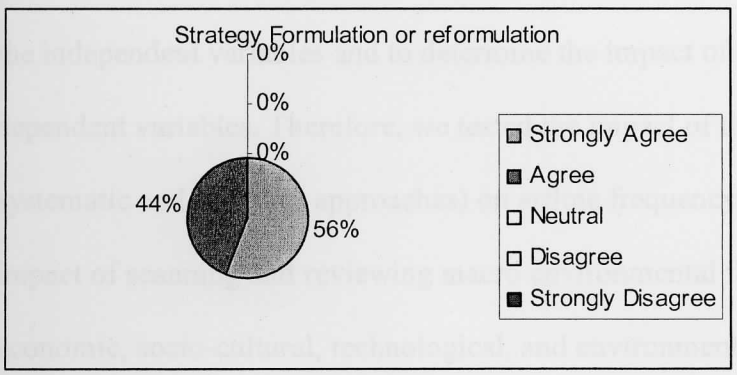
The pie chart set above indicates that 22% strongly agree with this statement i.e. they analyze a certain output based on a given input, 61% agree with this statement while 17 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 0% disagree & strongly disagree.

Question 15: You inquire into the causes of a social phenomenon



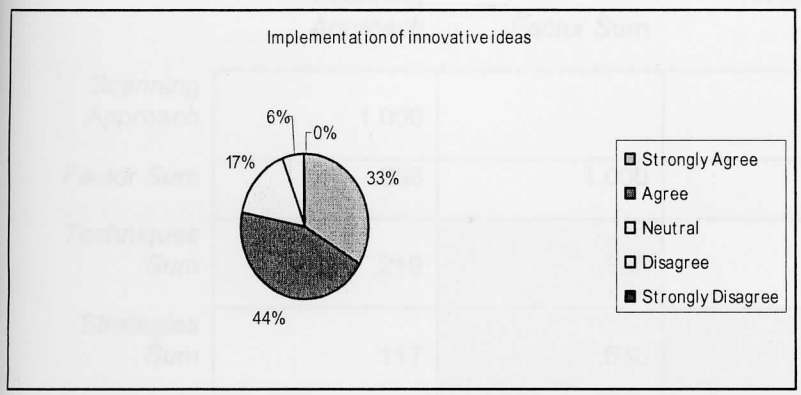
The pie chart set above indicates that 28% strongly agree with this statement i.e. they inquire into the causes of a social phenomenon, 22% agree with this statement while 22 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Moreover, 22% disagree & 6% strongly disagree.

Question 16: You formulate new strategies or reformulate existing strategies applied in the Lebanese market (e.g. aggressive, defensive, customer-focus, growth, no growth, differentiation, niche, low-cost, etc…)



The pie chart set above indicates that 56% strongly agree with this statement i.e. they formulate new strategies or reformulate existing strategies applied in the Lebanese market based on the findings of the environmental scanning, 44% agree with this statement while 0 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Also, 0% disagree & strongly disagree.

Question 17: You introduced some breakthrough ideas and innovations in Lebanon.



The pie chart set above indicates that 33% strongly agree with this statement i.e. they introduced some breakthrough idea or innovation in Lebanon, 44% agree with this statement while 17 % neither agree nor disagree with this statement i.e. they are neutral about the matter. Also, 6% disagree & 0% strongly disagree.

4.3 CORRELATION ANALYSES

We conducted correlation analyses to determine whether a **co-linearity** exists among the independent variables and to determine the impact of the independent variables on the dependent variables. Therefore, we tested the impact of the scanning approach (such as systematic and irregular approaches) on airline frequency, capacity, and number of staff, the impact of scanning and reviewing macro environmental factors (such as political, regulatory, economic, socio-cultural, technological, and environmental factors) on airline frequency, capacity, and number of staff, the impact of the usage of scanning and forecasting techniques (such as the judgment model, the Delphi technique, the scenario planning/development technique, the historical analogy model, the survey model, the brainstorming technique, the input-output analysis, and causal layered analysis) on airline frequency, capacity, and number of staff, the impact of strategy formulation or reformulation based on findings derived from environmental scanning on airline frequency, capacity, and number of staff.

Correlation Matrix 1

	Scanning Approach	Factor Sum	Techniques Sum	Strategies Sum	Average Frequency
Scanning Approach	1.000				
Factor Sum	.255	1.000			
Techniques Sum	.219	.590	1.000		
Strategies Sum	.117	.636	.737	1.000	
Average Frequency	-.152	.262	.061	.204	1.000

18 sample size

± .468 critical value .05 (two-tail)

± .590 critical value .01 (two-tail)

The correlation matrix set above is comparing all our independent variables with the average frequency of flights which is derived by adding up the frequency of flights of 2007, 2008, and 2009 then dividing the sum obtained by 3 (the average frequency was used because some of the airlines sampled had recently started their operations in Lebanon so no figures were available for 2007 & 2008).

I will now be starting to analyze the figures obtained by running the abovementioned correlation analysis. The correlation between the scanning approaches adopted and the score of factors is 0.255 which indicates that the correlation is not significant between the scanning approaches adopted & the factors that are being scanned and reviewed at a 0.05 level. The correlation between the scanning approaches adopted and the score of techniques used for scanning and forecasting is 0.219 which indicates that the correlation is not significant between the scanning approaches adopted & the techniques that are being used for scanning

and forecasting at a 0.05 level. The correlation between the scanning approaches adopted and the score of strategies formulated or reformulated is 0.117 which indicates that the correlation between the scanning approaches adopted & the strategies formulated or reformulated is not significant at a 0.05 level. The correlation between the scanning approaches adopted and the average frequency is -0.152 which indicates that the correlation is not significant between the scanning approaches adopted & the average frequency at a 0.05 level.

The correlation between the score of factors and the score of techniques used for scanning and forecasting is 0.590 which indicates that the correlation between the factors scanned and review & techniques used for scanning and forecasting is significant at a 0.01 level. The meaning of this is: the more airlines are scanning and reviewing factors the more techniques they are using to scan these factors. In fact, the positive correlation is apparent because the matrix shows that the significant correlations at a level 0.01 are those with values equal or above 0.590. The correlation between the score of factors and the score of strategy formulation or reformulation is 0.636 which indicates that the correlation between the factors scanned and the strategies formulated or reformulated is significant at a 0.01 level. The meaning of this is: the more airlines are scanning and reviewing factors the more they are formulating or reformulating strategies. The correlation between the score of factors and the average frequency is 0.262 which indicates that the correlation is not significant between the factors scanned and the average frequency at a 0.05 level. The correlation between the score of techniques used for scanning and forecasting & the score of strategy formulation or reformulation is 0.737 which indicates that the correlation between the techniques used for scanning and forecasting and strategy formulation & reformulation is significant at a 0.01 level. The meaning of this is: the more scanning and forecasting techniques airlines are using the more they are strategizing based on the findings of the scanning. The correlation between the score of techniques used for scanning and forecasting & the average frequency is 0.061

which indicates that the correlation between the techniques used for scanning and forecasting and the average frequency is not significant at a 0.05 level. The correlation between the score of strategy formulation and reformulation & the average frequency is 0.204 which indicates that the correlation between strategy formulation and reformulation & the average frequency is not significant at a 0.05 level.

It is apparent in the abovementioned that there is a significant correlation among the independent variables. However, this will not cause a problem because all correlations are between -0.7 and 0.7.

Correlation Matrix 2

	Scanning Approach	*Factor Sum*	*Techniques Sum*	*Strategies Sum*	*Average Capacity*
Scanning Approach	1.000				
Factor Sum	.255	1.000			
Techniques Sum	.219	.590	1.000		
Strategies Sum	.117	.636	.737	1.000	
Average Capacity	.023	.273	.042	.193	1.000

18 sample size

± .468 critical value .05 (two-tail)
± .590 critical value .01 (two-tail)

The correlation between the scanning approaches adopted and the average capacity is 0.023 which indicates that the correlation between the scanning approaches adopted and the average capacity is not significant at a 0.05 level. The correlation between the score of factors and the average capacity is 0.273 which indicates that the correlation between the factors that are scanned and reviewed and the average capacity is not significant at a 0.05 level.

The correlation between the score of scanning and forecasting techniques used and the average capacity is 0.042 which indicates that the correlation between the scanning and forecasting techniques used and the average capacity is not significant at a 0.05 level. The correlation between the score of strategy formulation and reformulation & the average capacity is 0.193 which indicates that the correlation between strategy formulation or reformulation & average capacity is not significant at a 0.05 level.

Correlation Matrix 3

	Scanning Approach	Factor Sum	Techniques Sum	Strategies Sum	Average # of Staff
Scanning Approach	1.000				
Factor Sum	.255	1.000			
Techniques Sum	.219	.590	1.000		
Strategies Sum	.117	.636	.737	1.000	
Average # of Staff	-.138	.234	-.134	-.016	1.000

18 sample size

± .468 critical value .05 (two-tail)
± .590 critical value .01 (two-tail)

The correlation between the scanning approaches adopted and the average number of staff is -0.138 which indicates that the correlation between the scanning approaches adopted and the average number of staff is not significant at a 0.05 level. The correlation between the score of factors and the average number of staff is 0.234 which indicates that the correlation between the factors that are scanned and reviewed and the average number of staff is not significant at a 0.05 level.

The correlation between the score of scanning and forecasting techniques used and the average number of staff is -0.134 which indicates that the correlation between the scanning and forecasting techniques used and the average number of staff is not significant at a 0.05 level. The correlation between the score of strategy formulation and reformulation & the

average number of staff is -0.016 which indicates that the correlation between strategy formulation or reformulation & average number of staff is not significant at a 0.05 level. I continued constructing correlation matrices by comparing every single question individually with the performance measures that are clearly identified above: average frequency, average capacity, and average number of staff. However, I still couldn't find any strong positive correlation between the independent variables and the performance measures.

4.4 CROSS TABULATION

To test whether a relationship between scanning approaches (systematic versus irregular) & the frequency of flights to and from Lebanon during 2009 exists we constructed a categorical variable for the frequency of flights to and from Lebanon during 2009 based on the quartiles of the variable. Cross tabulation was used for the purpose of determining whether there is a relationship between the abovementioned or not. The computer output shown below and the P-Value of 0.7548 indicate that there is no relationship between the two.

Cross tabulation 1

		Fact Category - Frequency 2009				
		Very Low Frequency	Low Frequency	High Frequency	Very High Frequency	Total
Q1	Irregular Only	**2**	**3**	**2**	**3**	10
	Systematic	**3**	**1**	**2**	**2**	8
	Total	5	4	4	5	18

1.19	chi-square
3	df
.7548	p-value

To test whether a relationship between scanning approaches (systematic versus irregular) & the total capacity allocated to flights during 2009 exists we constructed a categorical variable for the capacity of 2009 based on the quartiles of the variable. Cross

tabulation was used for the purpose of determining whether there is a relationship between the abovementioned or not. The computer output shown below and the P-Value of 0.7548 indicate that there is no relationship between the two.

Cross tabulation 2

		Category - Capacity 2009				
		Very Low Capacity	Low Capacity	High Capacity	Very High Capacity	Total
Q1	Irregular Only	2	3	2	3	10
	Systematic	3	1	2	2	8
	Total	5	4	4	5	18

1.19	chi-square
3	df
.7548	p-value

To test whether a relationship between scanning approaches (systematic versus irregular) & the total number of staff working for airlines operating in Lebanon during 2009 exists we constructed a categorical variable for number of staff working for airlines operating in Lebanon during 2009 based on the quartiles of the variable. Cross tabulation was used for the purpose of determining whether there is a relationship between the abovementioned or not. The computer output shown below and the P-Value of 0.5310 indicate that there is no relationship between the two.

Cross tabulation 3

		Category - # of Staff 2009				
		Very Low # of Staff	Low # of Staff	High # of Staff	Very High # of Staff	Total
Q1	Irregular Only	1	3	3	3	10
	Systematic	3	2	1	2	8
	Total	4	5	4	5	18

2.21	chi-square
3	df
.5310	p-value

We repeated the same process comparing the categories of factors scanned and reviewed with the performance measures then comparing the categories of scanning & forecasting techniques with the performance measures; however, the outcome was the same there is no relationship between the independent variables that I have identified earlier and the performance measures.

4.5 MEANS & CONFIDENCE INTERVALS

The table set below shows the average score of macro-environmental factors scanned and reviewed when an airline is systematically scanning its environment. It also points out the average score of macro-environmental factors scanned and reviewed when an airline is non-systematically (irregularly) scanning its environment. Clearly, all the macro-environmental factors except the socio-cultural factor have higher means for airlines that systematically scanning their environment compared with airlines that irregularly scan their environment. Thus, it is apparent that airlines adopting systematic scanning review macro-environmental factors more than airlines adopting irregular scanning.

Airlines adopting the systematic approach have an average score of 4.75 for reviewing the political factors while airlines adopting the irregular approach have an average score of 4.5 for reviewing the political factors. The difference of the two means or averages is 0.25 which means that scanning and reviewing the political factors is more common for airlines adopting the systematic approach than to airlines following the irregular approach. The standard deviation from the mean is 0.46 for airlines following the systematic approach and 0.53 for airlines implementing the irregular approach. The scores for reviewing the political environment for an airline following a systematic approach range from 4.4 to 5.1. The scores for reviewing the political environment for an airline following an irregular approach range from 4.2 to 4.8. This gives an additional indication that airlines adopting

systematic scanning are scanning and reviewing the macro-environmental factors surrounding them more thoroughly.

We can sum up the below table in the following manner: airlines adopting systematic scanning review their macro-environmental factors (example: political, regulatory, economic, technological, and environmental) except their socio-cultural environment more than airlines adopting irregular scanning.

	Systematic					Non-Systematic					
	N1	STD	Lower Limit	Upper Limit	Mean	N1	STD	Lower Limit	Upper Limit	Mean	Difference of Means
Political	8	0.46	4.4	5.1	4.75	10	0.53	4.2	4.8	4.5	0.25
Regulatory	8	0.52	4.3	5.0	4.625	10	0.63	3.9	4.5	4.2	0.425
Economic	8	0.46	4.4	5.1	4.75	10	0.70	4.0	4.8	4.4	0.35
Socio-Cultural	8	1.16	2.5	4.0	3.25	10	1.43	2.8	4.2	3.5	-0.25
Technological	8	1.07	3.8	5.2	4.5	10	0.79	3.8	4.6	4.2	0.3
Environmental	8	0.52	4.0	4.7	4.375	10	1.10	3.3	4.5	3.9	0.475

The table set below indicates that airlines following a systematic scanning approach use more scanning and forecasting tools than do airlines adopting irregular scanning.

- Judgment Model: This technique is more frequently adopted by airlines following a systematic scanning approach than by airlines adopting irregular scanning; for, the mean of 4.625 scored by airlines using the systematic approach is more than 4.1 (the mean scored by airlines adopting irregular scanning).
- The Delphi Method: This technique is more frequently adopted by airlines following a systematic scanning approach than by airlines adopting irregular scanning ; for, the mean of 3.875 scored by airlines using the systematic approach is more than 3.1 (the mean scored by airlines adopting irregular scanning).
- Survey Model: This technique is more frequently adopted by airlines following a systematic scanning approach than by airlines adopting irregular scanning; for, the

mean of 4 scored by airlines using the systematic approach is more than 3.4 (the mean scored by airlines adopting irregular scanning).

- Input-Output Analysis: This technique is more frequently adopted by airlines following a systematic scanning approach than by airlines adopting irregular scanning ; for, the mean of 4.375 scored by airlines using the systematic approach is more than 3.8 (the mean scored by airlines adopting irregular scanning).

On the other hand, no difference is registered when comparing airlines adopting a systematic approach and airlines adopting an irregular scanning approach; in what concerns the usage of some techniques. These techniques are:

- Scenario planning/Development: There is no difference between airlines adopting the systematic approach and airlines adopting the irregular approach; in what concerns the usage of this technique; for, the difference in means of 0.025 in favor of airlines running systematic scanning is actually no difference at all.

- Historical Analogy Method: There is no difference between airlines adopting the systematic approach and airlines adopting the irregular approach; in what concerns the usage of this technique; for, the difference in means of -0.05 in favor of airlines running irregular scanning is actually no difference at all.

- Brainstorming: There is no difference between airlines adopting the systematic approach and airlines adopting the irregular approach; in what concerns the usage of this technique; for, the difference in means of -0.05 in favor of airlines running irregular scanning is actually no difference at all.

Finally, there is one technique more frequently used by airlines adopting irregular scanning as it means indicate. This technique is the: causal-layered analysis (the mean of

airlines following a systematic scanning is 3.125< 3.7 the mean of airlines following an irregular approach).

	Systematic					Non-Systematic					Difference of Means
	N1	STD	Lower Limit	Upper Limit	Mean	N1	STD	Lower Limit	Upper Limit	Mean	
Judgment model	8	0.52	4.3	5.0	4.625	10	0.57	3.8	4.4	4.1	0.525
The Delphi Method	8	0.83	3.3	4.4	3.875	10	1.10	2.5	3.7	3.1	0.775
Scenario Planning/ developme nt	8	0.64	3.7	4.5	4.125	10	0.99	3.6	4.6	4.1	0.025
Historical Analogy Method	8	1.16	3.5	5.0	4.25	10	0.48	4.0	4.6	4.3	-0.05
Survey Model	8	1.07	3.3	4.7	4	10	0.97	2.9	3.9	3.4	0.6
Brain Storming	8	0.71	3.8	4.7	4.25	10	0.82	3.9	4.7	4.3	-0.05
Input-Output analysis	8	0.52	4.0	4.7	4.375	10	0.63	3.5	4.1	3.8	0.575
Causal layered analysis (CLA)	8	1.46	2.2	4.1	3.125	10	1.16	3.1	4.3	3.7	-0.575

I used another statistical method to confirm the results regarding the usage of scanning & forecasting techniques by airlines adopting systematic scanning versus airlines adopting non-systematic scanning. The numbers showing in the table below were computed in the following manner:

- The favorable answers (strongly agree or agree) to the questions related to the scanning and forecasting techniques were given a score of 1 while unfavorable answers (neutral, disagree, or strongly disagree) were given a score of 0.
- The sum of the favorable answers was computed then for every single scanning and forecasting technique separately for every single approach.

- Finally, I divided the sums with the total number of airlines adopting a systematic scanning approach and with the total number of airlines adopting an irregular approach separately to come up with percentages indicating the level of usage of a specific technique by airlines adopting a specific approach.

I will now be interpreting the results:

Judgment Model: This technique is more frequently used by airlines using the systematic scanning approach than by airlines using the irregular approach; for, all managers (100%) using systematic scanning concede that they use this technique while only 90% of managers of airlines using the irregular approach concede that they use this technique.

Almost all the results are similar to the results depicted in the table set above except for the results of the brainstorming technique. Here, we see that 87.50 % of airline managers running the systematic approach have answered favorably when it comes to using this technique while only 80% of airline managers running the irregular approach have answered favorably when it comes to using this technique while we previously saw no difference between scanning approaches adopted in what concerns this technique.

	Systematic		Non-Systematic	
Judgement Model	N1 = 8	8 100%	N1=10	9 90%
The Delphi Method	N1 = 8	5 62.50%	N1=10	4 40%
Scenario Planning/Development	N1 = 8	7 87.50%	N1=10	8 80%
Historical Analogy Model	N1 = 8	6 75.00%	N1=10	10 100%
Survey Model	N1 = 8	6 75%	N1=10	5 50%
Brainstorming	N1 = 8	7 87.50%	N1=10	8 80%
Input-Output Analysis	N1 = 8	8 100%	N1=10	7 70%
Causal Layered Analysis	N1 = 8	3 37.50%	N1=10	6 60%

Now, I will be moving on to another comparison of means. I will be comparing through the table set below the systematic and non-systematic scanning approaches with strategy formulation or reformulation.

Airlines adopting the systematic approach have an average score of 4.75 for formulating or reformulating strategies based on the findings of the environmental scanning while airlines adopting the irregular approach have an average score of 4.4 for formulating or reformulating strategies. The difference of the two means or averages is 0.35 which means that formulating or reformulating strategies based on the findings of the environmental scanning is more frequent for airlines adopting the systematic approach than to airlines following the irregular approach. The standard deviation from the mean is 0.46 for airlines following the systematic approach and 0.52 for airlines implementing the irregular approach. The scores for formulating or reformulating strategies for an airline following a systematic approach range from 4.4 to 5.1. The scores for formulating or reformulating strategies for an airline following an irregular approach range from 4.1 to 4.7.

However, applying new and innovative ideas is more common for airlines adopting the irregular approach than to airlines adopting the systematic approach since the difference of means is -0.1.

	Systematic					Non-Systematic					
	N1	STD	Lower Limit	Upper Limit	Mean	N1	STD	Lower Limit	Upper Limit	Mean	Difference of Means
Strategizing	8	0.46	4.4	5.1	4.75	10	0.52	4.1	4.7	4.4	0.35
Innovating	8	1.07	3.3	4.7	4	10	0.74	3.7	4.5	4.1	-0.1

So far we have been comparing the independent variables among each other. Now, we will be comparing the independent variables with the dependent variables.

There is no indication that adopting the systematic approach to scanning will have a positive impact on the performance measures as shown by the table below; for, the means of frequency (478.96) & number of staff (15.42) are less than the means of frequency (563.4) & number of staff (19.83) registered by airlines adopting irregular scanning. However, the mean for capacity registered by airlines adopting systematic scanning (116736.2) is more than the mean for capacity registered by airlines adopting irregular scanning (112350.3) which means that airlines adopting systematic scanning have more capacity than airlines adopting irregular scanning.

The below mentioned indicates that although airlines adopting a systematic approach have witnessed a decrease in frequency and number of staff, they also have witnessed a rise in total number of seats deployed on the route per year.

We can interpret the decrease in the number of staff in case of airlines adopting systematic scanning when the capacity is rising in the following manner: the learning curve of staff members is increasing allowing them to handle more transactions than they did previously.

	Systematic					Non-Systematic					
	N1	STD	Lower Limit	Upper Limit	Mean	N1	STD	Lower Limit	Upper Limit	Mean	Differer of Mea
Av. Frq	8	220.15	333.95	623.97	478.96	10	333.75	389.76	737.04	563.4	-84.44
Av. Cap	8	114760	41146	192326.4	116736.2	10	90987.7	65013.07	159687.5	112350.3	4385.8
Av. # of Staff	8	17	4.22	26.62	15.42	10	16.53	11.23	28.43	19.83	-4.41

The below table indicates that airlines that register a high coverage of the factors in their macro-environment perform better than airlines who do not.

The mean of flight frequency during 2009 for airlines registering high coverage of macro-environmental factors is 645.1 while the mean of flight frequency during 2009 for airlines registering low coverage of macro-environmental factors is 549.8 *(645.1>549.8)*.

The mean of the capacity during 2009 for airlines registering high coverage of macro-environmental factors is 163696.7 while the mean of the capacity during 2009 for airlines registering low coverage of macro-environmental factors is 107424.9 *(163696.7> 107424.9)*.

The mean of the number of staff employed during 2009 for airlines registering high coverage of macro-environmental factors is 22.3 while the mean of the number of staff employed during 2009 for airlines registering low coverage of macro-environmental factors is 15.3 *(22.3>15.3)*.

	High Coverage of Factors					Low Coverage of Factors					
	N1	STD	Lower Limit	Upper Limit	Mean	N1	STD	Lower Limit	Upper Limit	Mean	Diffe of M
Frq 09	9	334.5	450.3	839.9	645.1	9	297.1	376.75	722.8	549.8	95
Cap 09	9	152105.6	75121.9	252271.5	163696.7	9	81019.8	60245.10	154604.7	107424.9	562
# of Staff 09	9	20.6	10.3	34.3	22.3	9	9.8	9.62	21.0	15.3	

The below table indicates that airlines that intensively formulate or reformulate strategies based on the findings derived from their macro-environmental scanning perform better than those who do not strategize as intensively.

The mean of flight frequency during 2009 for airlines that intensively formulate or reformulate strategies is 675 while the mean of flight frequency during 2009 for airlines registering less intensive formulation or reformulation of strategies is 519.9 *(675>519.9)*.

The mean of the capacity during 2009 for airlines that intensively formulate or reformulate strategies is 178887 while the mean of the capacity during 2009 for airlines registering less intensive formulation or reformulation of strategies is 92234.7 *(178887> 92234.7)*.

The mean of the number of staff employed during 2009 for airlines that intensively formulate or reformulate strategies is 21 while the mean of the number of staff employed during 2009 for airlines registering less intensive formulation or reformulation of strategies is 16.7 *(21>16.7)*.

	High Strategizing					Low Strategizing					
	N1	STD	Lower Limit	Upper Limit	Mean	N1	STD	Lower Limit	Upper Limit	Mean	Difference of Means
Frq 09	9	285.5	508.7	841.3	675.0	9	332.0	326.5	713.2	519.9	155.1
Cap 09	9	150324.7	91349.2	266424.6	178887	9	68267.0	52481.2	131988.2	92234.7	86652.2
# of Staff 09	9	20.3	9.2	32.8	21.0	9	11.3	10.1	23.2	16.7	4.333333

There is no indication that the high usage of scanning and forecasting techniques will have a positive impact on the performance measures as shown by the table below; for, the means of capacity (119915) & number of staff (16.9) registered by airlines making high usage of scanning and forecasting techniques are less than the means of capacity (145517.2) & number of staff (20.1) registered by airlines making low usage of scanning and forecasting techniques.

	High Usage of Techniques					Low Usage of Techniques					
	N1	STD	Lower Limit	Upper Limit	Mean	N1	STD	Lower Limit	Upper Limit	Mean	Differenc of Means
Frq 09	7	345.0	348.8	870.9	609.9	11	304.4	447.0	732.1	589.5	20.3
Cap 09	7	104166.9	41092.7	198737.3	119915	11	135625.8	82013.0	209021.3	145517.2	-25602.2
# of Staff 09	7	19.1	2.4	31.3	16.9	11	14.7	13.2	27.0	20.1	-3.23377

4.6 REGRESSION ANALYSIS

Regression 1: Scanning Approach Versus Average Number of Staff

The P-Value of 0.5858 (shown in the table below) indicates that there is no significant relationship between the scanning approaches adopted and the average number of staff.

r^2	0.019	n	18
r	-0.138	k	1
Std. Error	16.741	Dep. Var.	**Average # of Staff**

ANOVA table

Source	*SS*	*df*	*MS*	*F*	*p-value*
Regression	86.6975	1	86.6975	0.31	.5858
Residual	4,484.2222	16	280.2639		
Total	4,570.9198	17			

Regression output

					confidence interval	
variables	*coefficients*	*std. error*	*t (df=16)*	*p-value*	*95% lower*	*95% upper*
Intercept	28.6667	19.8083	1.447	.1671	-13.3251	70.6584
Systematic vs Irregular	-4.4167	7.9410	-0.556	.5858	-21.2508	12.4175

Regression 2: Scanning Approach Versus Average Frequency

The P-Value of 0.5474 (shown in the table below) indicates that there is no significant relationship between the scanning approaches adopted and the average frequency.

r^2	0.023	n	18
r	-0.152	k	1
Std. Error	289.588	Dep. Var.	**Average Frequency**

ANOVA table

Source	*SS*	*df*	*MS*	*F*	*p-value*
Regression	31,690.6448	1	31,690.6448	0.38	.5474
Residual	1,341,783.3861	16	83,861.4616		
Total	1,373,474.0309	17			

Regression output

					confidence interval	
variables	*coefficients*	*std. error*	*t (df=16)*	*p-value*	*95% lower*	*95% upper*
Intercept	732.2833	342.6457	2.137	.0484	5.9070	1,458.6597
Systematic vs Irregular	-84.4417	137.3639	-0.615	.5474	-375.6400	206.7567

Regression 3: Scanning Approach Versus Average Capacity

The P-Value of 0.9289 (shown in the table below) indicates that there is no significant relationship between the scanning approaches adopted and the average capacity.

r^2	0.001	n	18
r	0.023	k	1
Std. Error	102071.416	Dep. Var.	**Average Capacity**

ANOVA table

Source	*SS*	*df*	*MS*	*F*	*p-value*
Regression	85,492,561.8568	1	85,492,561.8568	0.01	.9289
Residual	166,697,183,653.4330	16	10,418,573,978.3396		
Total	166,782,676,215.2900	17			

Regression output

					confidence interval	
variables	*coefficients*	*std. error*	*t (df=16)*	*p-value*	*95% lower*	*95% upp*
Intercept	103,578.5667	120,772.5282	0.858	.4038	-152,447.7542	359,604.887
Systematic vs Irregular	4,385.8667	48,416.7238	0.091	.9289	-98,253.0020	107,024.735

Regression 4: Macro-environmental Factors scanned and reviewed versus Average Number of Staff

The P-Value of 0.3505 (shown in the table below) indicates that there is no significant relationship between the macro-environmental Factors scanned and reviewed and the average number of staff.

r^2	0.055	n	18
r	0.234	k	1
Std. Error	16.434	Dep. Var.	**Average # of Staff**

ANOVA table

Source	*SS*	*df*	*MS*	*F*	*p-value*
Regression	249.7980	1	249.7980	0.92	.3505
Residual	4,321.1218	16	270.0701		
Total	4,570.9198	17			

Regression output					*confidence interval*	
variables	*coefficients*	*std. error*	*t (df=16)*	*p-value*	*95% lower*	*95% upper*
Intercept	-13.4372	32.7828	-0.410	.6873	-82.9335	56.0592
Factors Sum	1.2331	1.2822	0.962	.3505	-1.4850	3.9512

Regression 5: Macro-environmental Factors scanned and reviewed versus Average Frequency

The P-Value of 0.2932 (shown in the table below) indicates that there is no significant relationship between the macro-environmental factors scanned and reviewed and the average frequency.

r^2	0.069	n	18
r	0.262	k	1
Std. Error	282.737	Dep. Var.	**Average Frequency**

ANOVA table

Source	*SS*	*df*	*MS*	*F*	*p-value*
Regression	94,427.6575	1	94,427.6575	1.18	.2932
Residual	1,279,046.3734	16	79,940.3983		
Total	1,373,474.0309	17			

Regression output					*confidence interval*	
variables	*coefficients*	*std. error*	*t (df=16)*	*p-value*	*95% lower*	*95% upper*
Intercept	-82.8305	564.0146	-0.147	.8851	-1,278.4881	1,112.8271
Factors Sum	23.9751	22.0594	1.087	.2932	-22.7888	70.7389

Regression 6: Macro-environmental factors scanned and reviewed versus average capacity

The P-Value of 0.2739 (shown in the table below) indicates that there is no significant relationship between the macro-environmental factors scanned and reviewed and the average capacity.

r^2	0.074	n	18
r	0.273	k	1
Std. Error	98232.609	Dep. Var.	**Average Capacity**

ANOVA table

Source	*SS*	*df*	*MS*	*F*	*p-value*
Regression	12,388,348,997.0060	1	12,388,348,997.0060	1.28	.2739
Residual	154,394,327,218.2840	16	9,649,645,451.1428		
Total	166,782,676,215.2900	17			

Regression output

					confidence interval	
variables	*coefficients*	*std. error*	*t (df=16)*	*p-value*	*95% lower*	*95% upper*
Intercept	-106,176.2634	195,957.9524	-0.542	.5954	-521,588.5624	309,236.0356
Factors Sum	8,683.9498	7,664.1901	1.133	.2739	-7,563.4073	24,931.3069

We continued the same process by comparing usage of scanning & forecasting techniques with the performance measures as well as extent of strategizing based on the findings of environmental scanning with the performance measures to get the same result. There is no significant relationship between the independent and the dependent variables.

4.7 GOODNESS OF FIT TEST

Goodness of Fit Test 1 – comparing scanning approaches with average frequency

In the following, we conducted a goodness of fit test to determine whether the distribution for companies using irregular scanning differs from the overall distribution. The P-Value of 0.9123 obtained shows that there is no difference between the overall distribution in terms of frequency and the companies using irregular scanning techniques. Here, we compared an independent variable with a dependent variable.

observed	expected	O - E	$(O - E)^2 / E$	% of chisq
2	2.778	-0.778	0.218	41.09
3	2.222	0.778	0.272	51.36
2	2.222	-0.222	0.022	4.19
3	2.778	0.222	0.018	3.35
10	10.000	0.000	0.530	100.00

.53	chi-square
3	df
.9123	p-value

Goodness of Fit Test 2 – comparing scanning approaches with reviewing the political environment.

In the following, we conducted a goodness of fit test to determine whether the distribution for companies using irregular scanning differs from the overall distribution when it comes to scanning the political environment. The P-Value of 0.4711 obtained shows that there is no difference between the overall distribution when it comes to scanning the political environment and the companies using irregular scanning techniques. Here, we compared two independent variables with each other.

observed	expected	O - E	$(O - E)^2 / E$	% of chisq
5	3.889	1.111	0.317	61.11
5	6.111	-1.111	0.202	38.89
10	10.000	0.000	0.519	100.00

.52	chi-square
1	df
.4711	p-value

Goodness of Fit Test 3 – comparing scanning approaches with reviewing the regulatory environment.

In the following, we conducted a goodness of fit test to determine whether the distribution for companies using irregular scanning differs from the overall distribution when

it comes to scanning the regulatory environment. The P-Value of 0.5990 obtained shows that there is no difference between the overall distribution when it comes to scanning the regulatory environment and the companies using irregular scanning techniques. Here, we compared two independent variables with each other.

observed	expected	O - E	(O - E)² / E	% of chisq
1	0.556	0.444	0.356	34.69
6	5.000	1.000	0.200	19.51
3	4.444	-1.444	0.469	45.80
10	10.000	0.000	1.025	100.00

1.03	chi-square
2	df
.5990	p-value

We repeated the goodness of fit test several times with no difference in distribution showing.

4.8 HYPOTHESIS TESTING

Hypothesis 1: Factors Scanned & Reviewed versus frequency 2009

We started running the hypothesis test by first sorting in an ascending order the categories we had divided the factors into. We then assembled the first two categories that had registered low scores in scanning and reviewing the macro-environment together and the other two categories that had registered high scores in scanning and reviewing the macro-environment together. We then ran a hypothesis test comparing two independent groups by considering the frequency of flights in 2009 with high factor coverage scores as group 1 and frequency of flights in 2009 with low factor coverage scores as group 2. Then, we ran a pooled variance t-test and came up with the following output. The p-value of 0.2659 (check below table) indicates that there is no relationship between factor coverage and Frequency of 2009.

Hypothesis Test: Independent Groups (t-test, pooled variance)

Frequency Group 1	Frequency Group 2	
645.11	549.78	mean
334.48	297.14	std. dev.
9	9	n

16	df
95.333	difference (Group 1 – Group 2)
100,085.403	pooled variance
316.363	pooled std. dev.
149.135	standard error of difference
0	hypothesized difference
0.64	t
.2659	p-value (one-tailed, upper)

Hypothesis 2: Factors Scanned & Reviewed versus Capacity 2009

The p-value of 0.1709 (check below table) indicates that there is no relationship between factor coverage and the capacity of 2009.

Hypothesis Test: Independent Groups (t-test, pooled variance)

Capacity Group 1	Capacity Group 2	
163,696.67	107,424.89	mean
152,105.64	81,019.78	std. dev.
9	9	n

16	df
56,271.778	difference (Group 1 – Group 2)
14,850,165,879.181	pooled variance
121,861.257	pooled std. dev.
57,445.947	standard error of difference
0	hypothesized difference
0.98	t
.1709	p-value (one-tailed, upper)

Hypothesis 3: Factors Scanned & Reviewed versus Number of staff 2009

The p-value of 0.3472 (check below table) indicates that there is no relationship between factor coverage and the number of staff 2009.

Hypothesis Test: Independent Groups (t-test, pooled variance)

# of Staff Group 1	# of Staff Group 2	
2.67	2.44	mean
1.41	0.88	std. dev.
9	9	n

16	df
0.222	difference (Group 1 – Group 2)
1.389	pooled variance
1.179	pooled std. dev.
0.556	standard error of difference
0	hypothesized difference
0.40	t
.3472	p-value (one-tailed, upper)

We repeated the hypothesis testing my comparing techniques usage with the performance measures, strategy formulation with the performance measures, and approaches to scanning with the performance measures.

The P-Values obtained were the following:

	Dependent Variables		
Independent Variables	Frequency 09	Capacity 09	# of Staff 09
Techniques Usage	0.4486	0.7191	0.7783
Strategies Formulation	0.1519	0.0675	0.2917
Approaches Adopted	0.7701	0.476	0.7208

These P-Values indicate that there is no significant relationship between the techniques adopted and the performance measures, strategies formulated or reformulated and the performance measures (although the relationship between strategies formulated or reformulated and the capacity of 2009 is close to significance with a p-value of 0.0675).

Finally, there is no significant relationship between the approaches adopted and the performance measures.

4.9 FACTOR ANALYSIS & STEPWISE REGRESSION

Since the statistical analysis of the data indicated that there is no significant relationship among the independent and dependent variables, I have conducted a factor analysis to see if there is a way for me to group the questions in a way that will result in distinguishing a better relationship between the independent and the dependent variables and still have a logical explanation to this new grouping suggested by the factor analysis.

We now move to analyzing the communalities table we obtained as a result of our factor analysis. Here, we inspected the squared multiple correlation coefficient (R^2) of each variable with all other variables. Variables with high R^2 s are well correlated with a linear combination of the other variables while variables with small R^2 s are unique variables, not well correlated with a linear combination of the other variables. It is apparent that the R^2 s computed for the variables adopted in my study and shown in the communalities table are high; therefore, each of the variables adopted in my study are highly correlated with a linear combination of the other variables. For example, the question related to the macro-environmental scanning approach adopted by airlines operating in Lebanon is highly correlated with all the other variables since it has an R^2 of 0.899.

Communalities

	Initial	Extraction
Q1	1.000	.899
Q2	1.000	.809
Q3	1.000	.829
Q4	1.000	.814
Q5	1.000	.818
Q6	1.000	.823
Q7	1.000	.789
Q8	1.000	.817
Q9	1.000	.793
Q10	1.000	.929
Q11	1.000	.806
Q12	1.000	.821
Q13	1.000	.922
Q14	1.000	.868
Q15	1.000	.821
Q16	1.000	.704
Q17	1.000	.875

Extraction Method: Principal Component Analysis.

We will continue by analyzing the tables derived from the factor analysis. The component matrix suggests that we group our variables into 6 factors and see if there is a

logical explanation to these 6 components. If yes, then continue our analysis by comparing these groupings with the performance measures that I have identified earlier in my study.

Component Matrix[a]

	Component					
	1	2	3	4	5	6
Q3	.845	-.108	.110	-.125	-.193	-.194
Q7	.839	.110	-.054	-.020	.133	.229
Q8	.762	-.373	-.140	.020	-.056	-.272
Q16	.709	-.407	-.003	.041	.174	-.058
Q11	.673	.168	-.329	-.046	-.046	-.461
Q14	.633	-.406	-.393	.280	-.213	.157
Q17	.631	.493	-.228	-.346	-.239	-.066
Q9	.601	.357	.466	.281	-.038	-.082
Q6	.572	-.418	-.061	.041	.560	.052
Q4	.570	-.455	.379	-.281	.241	.032
Q15	.528	.525	-.288	-.392	.075	.155
Q5	.213	.632	.549	-.189	.167	-.086
Q12	.452	.616	.205	.325	-.301	.000
Q13	.288	.393	-.599	.178	.094	.534
Q2	.342	-.115	.512	-.386	-.073	.512
Q10	.134	.486	.091	.597	.553	-.069
Q1	.410	-.346	.343	.535	-.397	.220

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

Sometimes the factor pattern can be further clarified by the rotated component matrix. The values in the matrix are factor loadings, the correlations between each variable and each factor.

The rotated component matrix set below suggests the same thing as the component matrix in what concerns grouping our variables into 6 factors.

The variables that should be included under every singly factor according to the rotated component matrix are:

Factor 1: Include Q6, Q16, Q4, Q8, and Q7 under this factor.

Factor 2: Include Q17, Q11, Q15, and Q3 under this factor

Factor 3: Include Q10, Q9, Q5, and Q12 under this factor

Factor 4: Include Q1 and Q14 under this factor

Factor 5: Include Q13 under this factor

Factor 6: Include Q2 under this factor

Rotated Component Matrix[a]

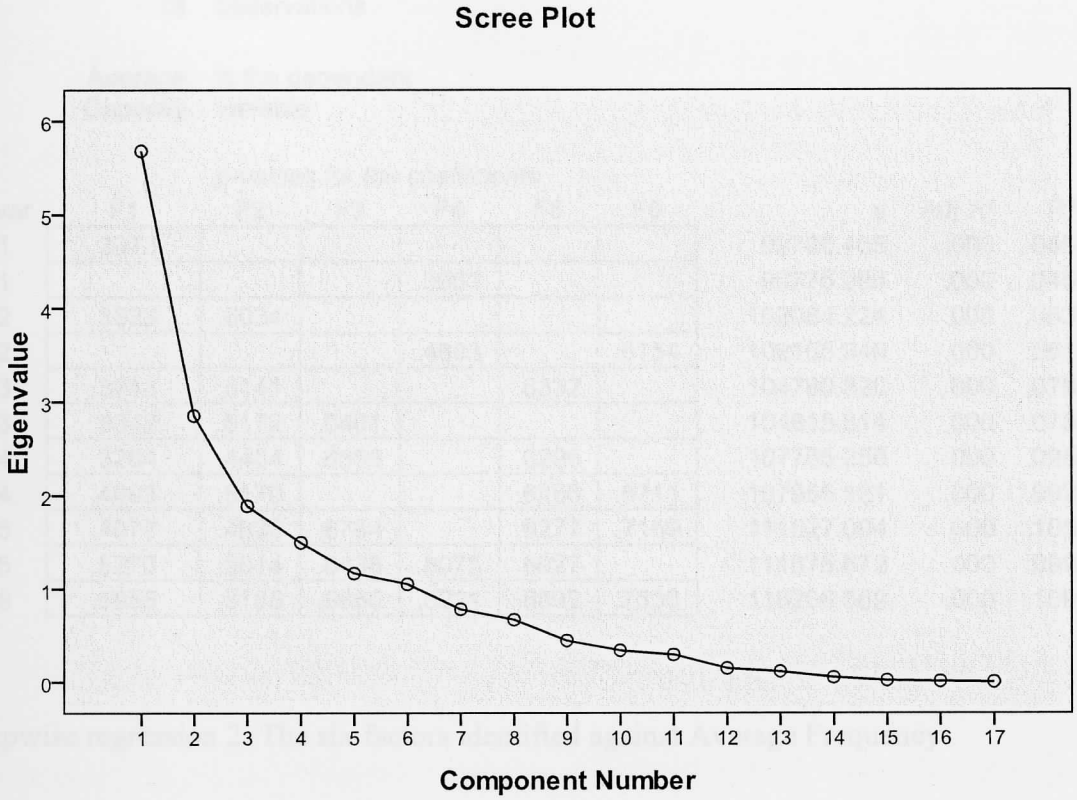
	Component					
	1	2	3	4	5	6
Q6	.889	-.063	.031	-.033	.162	.031
Q16	.775	.198	.012	.243	.007	.068
Q4	.727	.066	.028	.039	-.234	.474
Q8	.692	.452	-.077	.333	-.092	-.089
Q7	.533	.426	.276	.163	.400	.247
Q17	.025	.876	.160	-.040	.245	.137
Q11	.373	.740	.130	.043	.028	-.317
Q15	.088	.663	.165	-.280	.476	.203
Q3	.517	.618	.141	.324	-.135	.191
Q10	.136	-.211	.789	-.110	.296	-.380
Q9	.180	.282	.749	.309	-.053	.150
Q5	-.113	.244	.726	-.297	-.133	.335
Q12	-.198	.424	.664	.366	.161	.024
Q1	.213	-.116	.164	.883	-.056	.175
Q14	.506	.250	-.252	.605	.329	-.110
Q13	-.014	.194	.045	.042	.934	-.083
Q2	.177	.031	.070	.107	.006	.872

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 25 iterations.

The Scree plot also suggests that we group our variables into 6 factors since there is a drop in eigenvalue between component 6 and 7.



Using the factors obtained by the factor analysis we constructed variables F1 to F6 representing the sum of the individual variables in each factor. We then ran regression analysis with the factors as independent variables against the three performance measures and the three ratios. The computer output set below shows the stepwise regression for the two best models of each size.

Stepwise Regression 1: The six factors identified against Average Capacity

The output for capacity as a dependent variable showed that the overall model is not significant; for, the P-value of the six factors taken together is 0.9601. However, it is

interesting to note that models with one variable only showed that the factors F1 & F4 have the most influence on capacity.

Regression Analysis -- Stepwise Selection displaying the 2 best models of each size

18 observations

Average Capacity is the dependent variable

p-values for the coefficients

Nvar	F1	F2	F3	F4	F5	F6	s	Adj R^2	R^2	Cp	p-val
1	.3973						99766.405	.000	.045	.000	.39
1				.3983			99776.288	.000	.045	.000	.39
2	.3323	.6034					102084.224	.000	.063	.000	.61
2				.4693		.6154	102155.949	.000	.061	.000	.62
3	.3243	.5141			.6332		104780.320	.000	.078	1.382	.75
3	.3342	.5172	.6401				104815.614	.000	.078	1.390	.75
4	.3264	.4454	.6358		.6295		107765.256	.000	.095	3.180	.84
4	.4093	.5170			.6260	.6711	107955.121	.000	.092	3.219	.85
5	.4077	.4630	.6784		.6277	.7169	111527.094	.000	.105	5.053	.91
5	.5273	.5014	.6438	.8075	.6927		111876.672	.000	.099	5.122	.92
6	.5955	.5185	.6860	.8221	.6892	.7330	116206.569	.000	.109	7.000	.96

Stepwise regression 2: The six factors identified against Average Frequency

The output for frequency as a dependent variable showed that the overall model is not significant for the P-value of the six factors taken together is 0.5199. Although the model is not significant it is interesting to note that F5 has a p-value of 0.0707 in the model of size 5 and a p-value of 0.0775 in the model of size 6 which indicates that F5 has a significant influence (on a level of 0.1) on frequency. Since F5 represents the usage of brainstorming as a scanning and forecasting technique the findings of the stepwise analysis mean that airlines using this technique will register higher frequency than airlines that do not.

Regression Analysis -- Stepwise Selection displaying the 2 best models of each size

18 observations

Average Frequency is the dependent variable

p-values for the coefficients

Nvar	F1	F2	F3	F4	F5	F6	s	Adj R^2	R^2	Cp	p-valu
1					.1336		272.494	.081	.135	.257	.133
1						.3317	284.224	.000	.059	1.511	.331
2					.1314	.3050	271.411	.088	.195	1.260	.195
2		.4892			.1080		276.829	.051	.163	1.795	.263
3		.3657			.0881	.2449	272.560	.081	.243	2.481	.258
3				.6138	.1257	.2845	278.302	.041	.211	3.013	.331
4		.2985	.5466		.0936	.2809	278.770	.038	.264	4.124	.369
4	.5769	.3019			.0901	.3332	279.351	.034	.261	4.174	.376
5	.3423	.2358		.3786	.0707	.3278	281.131	.022	.309	5.382	.421
5	.5518	.2456	.5260		.0950	.3833	285.724	.000	.287	5.756	.476
6	.3421	.2019	.5494	.4030	.0775	.3778	288.668	.000	.333	7.000	.519

Stepwise regression 3: The six factors identified against Average Number of Staff

The output for average number of staff as a dependent variable showed that the overall model is not significant for the P-value of the six factors taken together is 0.9128.

Regression Analysis -- Stepwise Selection displaying the 2 best models of each size

18 observations

Average # of Staff is the dependent variable

p-values for the coefficients

Nvar	F1	F2	F3	F4	F5	F6	s	Adj R^2	R^2	Cp	p-valu
1	.4024						16.524	.000	.044	.000	.402
1						.5250	16.683	.000	.026	.000	.525
2	.2188	.3071					16.464	.000	.110	.000	.415
2	.3741		.6208				16.923	.000	.060	.146	.627
3	.1996	.2896		.5898			16.859	.000	.129	1.251	.571
3	.2903	.3185				.6796	16.934	.000	.122	1.351	.598
4	.2551	.3022		.5991		.6844	17.381	.000	.141	3.103	.714
4	.2062	.2999		.5693	.7846		17.444	.000	.135	3.184	.732
5	.2592	.3091		.5760	.7717	.6824	18.024	.000	.147	5.022	.830
5	.2779	.3925	.8726	.6095		.6850	18.070	.000	.143	5.079	.839
6	.2841	.3915	.8835	.5897	.7844	.6854	18.807	.000	.149	7.000	.912

Stepwise regression 4: The six factors identified against Average Capacity to Frequency Ratio

The output for average capacity to frequency as a dependent variable showed that the overall model is not significant for the P-value of the six factors taken together is 0.9967.

Regression Analysis -- Stepwise Selection displaying the 2 best models of each size

18 observations

Average Capacity To Frequency Ratio is the dependent variable

p-values for the coefficients

Nvar	F1	F2	F3	F4	F5	F6	s	Adj R^2	R^2	Cp	p-val
1	.6036						110.362	.000	.017	.000	.60
1				.6085			110.387	.000	.017	.000	.60
2				.5634	.6512		113.207	.000	.031	.000	.79
2	.5805				.6807		113.318	.000	.029	.000	.80
3		.7315		.6083	.5926		116.671	.000	.039	1.062	.90
3			.7460	.5755	.6319		116.726	.000	.038	1.072	.90
4		.8242	.8464	.6141	.6099		120.894	.000	.042	3.028	.96
4		.7679		.6474	.6219	.8539	120.911	.000	.042	3.032	.96
5		.8461	.8660	.6524	.6378	.8740	125.693	.000	.044	5.004	.98
5	.8767		.8121	.7547	.6669	.8869	125.767	.000	.043	5.017	.98
6	.9485	.8975	.8694	.7502	.6689	.8917	131.256	.000	.044	7.000	.99

Stepwise regression 5: The six factors identified against Average Frequency to Staff Ratio

The output for average frequency to staff ratio as a dependent variable showed that the overall model is not significant for the P-value of the six factors taken together is 0.6471. Although the model is not significant it is interesting to note that F3 has a p-value of 0.0535 in the model of size 1 and a p-value of 0.0739 in the model of size 2 which indicates that F3 has a significant influence on average frequency to staff ratio (at a level of 0.1). Since F3 represents the airlines that scan and review their socio-cultural environment through the

usage of the Delphi method, the scenario planning/development technique, and the survey model; the findings of the stepwise analysis mean that these airlines will register higher frequency to staff ratios than other airlines.

18 observations

Average Frequency To Staff Ratio is the dependent variable

p-values for the coefficients

F1	F2	F3	F4	F5	F6	s	Adj R^2	R^2	Cp	p-v
		.0535				72.630	.164	.214	.000	
	.2753					78.817	.016	.074	.150	
		.0739		.4054		73.244	.150	.250	.000	
.4619		.0783				73.626	.141	.242	.000	
.5195		.1014		.4562		74.660	.117	.273	1.109	
		.0833	.7322	.4682		75.487	.097	.257	1.357	
.4889	.7566	.1152		.4347		77.181	.056	.278	3.024	
.5781		.1202		.4687	.8916	77.420	.051	.274	3.093	
.5416	.7667	.1359		.4498	.8970	80.274	.000	.279	5.008	
.5540	.7571	.1314	.9286	.4535		80.305	.000	.279	5.017	
.5953	.7675	.1549	.9290	.4696	.8997	83.812	.000	.280	7.000	

Stepwise regression 6: The six factors identified against Average Capacity to Staff Ratio

The output for average capacity to staff ratio as a dependent variable showed that the overall model is not significant for the P-value of the six factors taken together is 0.7333. Although the model is not significant it is interesting to note that F3 has a p-value of 0.0769 in the model of size 1 and a p-value of 0.0852 in the model of size 2 which indicates that F3 has a significant influence on average capacity to staff ratio (at a level of 0.1). Since F3 represents the airlines that scan and review their socio-cultural environment through the usage of the Delphi method, the scenario planning/development technique, and the survey model; the findings of the stepwise analysis mean that these airlines will register higher capacity to staff ratios than other airlines.

Regression Analysis -- Stepwise Selection displaying the 2 best models of each size

18 observations

Average Capacity To Staff Ratio is the dependent variable

p-values for the coefficients

Nvar	F1	F2	F3	F4	F5	F6	s	Adj R^2	R^2	Cp	p-value
1			.0769				14481.041	.132	.183	.000	.0769
1		.3421					15558.688	.000	.057	.000	.3421
2			.0852	.4729			14692.765	.106	.211	.000	.1688
2			.1027		.4732		14693.154	.106	.211	.000	.1688
3	.5387		.1368		.5254		14997.630	.069	.233	1.149	.2795
3			.1112	.5645	.5649		15023.134	.065	.230	1.187	.2852
4	.4894	.7203	.1446		.4824		15484.259	.007	.241	3.035	.4282
4	.7366		.1461	.7904	.5752		15519.894	.003	.237	3.086	.4372
5	.6671	.7648	.1597	.8483	.5396		16090.937	.000	.243	5.000	.5884
5	.5199	.7313	.1638		.5014	.9934	16116.480	.000	.241	5.035	.5947
6	.6849	.7749	.1811	.8547	.5590	.9897	16806.301	.000	.243	7.000	.7333

5 CONCLUSIONS, INTERPRETATIONS, AND RECOMMENDATIONS

5.1 CONCLUSIONS

In my thesis, we studied whether the macro-environmental factors affecting the performance of airlines are scanned and reviewed using appropriate scanning approaches and techniques and whether strategies are formulated based on the findings of the macro-environmental scanning by airlines operating in Lebanon. This was done by collecting the answers of 18 managers or supervisors of airlines operating in Lebanon stating their level of agreement regarding the approaches and techniques adopted by their airline in what concerns the macro-environment. The results were analyzed using various statistical techniques as described in the statistical analyses chapter. Our analysis revealed the following regarding airline operations in Lebanon:

H1 stated that: Airlines that systematically scan their macro environment are more successful. For H1 we found a relationship between the systematic scanning of the macro environment and one of the performance measures; notably, the average capacity allocated to flights departing and arriving to Lebanon (number of seats deployed on the route per year). This is based on comparing means. However, the other statistical analyses showed that this difference is not significant.

H2 stated that: Airlines with higher scores on scanning & reviewing their macro environmental factors are more successful. For H2 we found a relationship between high coverage of macro environmental factors and three of the measures of success the total frequency of flights (to & from) Lebanon in 2009, the capacity allocated to flights departing and arriving to Lebanon in 2009(number of seats deployed on the route per year), the number of staff employed in an airline in 2009. This is based on comparing means. However, again the other statistical analyses showed that this difference is not significant.

H3 stated that: Airlines with higher scores on using scanning & forecasting techniques are more successful. For H3 we found a relationship between high usage of scanning and forecasting techniques and one of the performance measures; notably, the total frequency of flights (to & from) Lebanon in 2009. This is based on comparing means. However, again the other statistical analyses showed that this difference is not significant.

H4 stated that: Airlines with higher scores on formulating or reformulating strategies based on their environmental scanning are more successful. For H4 we found a relationship between airlines with higher scores on formulating or reformulating strategies and three of the measures of success the total frequency of flights (to & from) Lebanon in 2009, the capacity allocated to flights departing and arriving to Lebanon in 2009(number of seats deployed on the route per year), the number of staff employed in an airline in 2009. This is

based on comparing means. However, the other statistical analyses showed that this difference is not significant.

H5 stated that: Airlines with higher scores overall are more successful. For H5 we did not find a relationship between all the independent variables taken together and the performance measure that are average frequency, average capacity, and average number of staff.

The lack of significant relationships between the independent and the dependent variables pushed us to:

a - run factor analysis

b- use the factors obtained by the factor analysis to construct variables F1 to F6

c- finally run stepwise regression analysis

The computer results showed that the overall model is not significant. However, it is interesting to note that the brainstorming technique has a significant impact on average frequency. Moreover, scanning and reviewing the socio-cultural environment using the Delphi method, the scenario planning/ development model, and the survey model has a significant impact on average frequency to staff ratio and on average capacity to staff ratio.

However, the general outcome remains the same since the overall model is not significant.

5.2 INTERPRETATIONS & RECOMMENDATIONS

Interpretations

In my opinion, some of the reasons why airlines operating in Lebanon that scan and review their macro environment using the appropriate scanning approaches and techniques

and that strategize based on the findings of their scanning do not register a significant difference in their performance figures compared to airlines that do not adopt the appropriate approaches and techniques could be perhaps:

- The existence of other factors or variables that are more relevant to the performance of airlines operating in Lebanon than the macro-environmental factors discussed in my study. These factors could be elements in the micro-environment of airlines such as their competitors, their customers, etc…
- Insufficient focus on proper implementation of strategies adopted based on environmental scanning, the need for more capable human resources, &/or unsatisfactory attention to quality services.

Recommendations

Studies should be done focusing on any of the following challenges: the micro environment of airlines operating in Lebanon and its impact on the performance measures. However, it is worth mentioning that doing such a study may be very difficult since the required information such as pricing strategies adopted or strategies adopted to fight the competition will not be easily surrendered; for, it is extremely sensitive information considered to be highly confidential.

The provision of quality services is a strong driver of performance enhancement. Looking at the airlines from the quality service perspective in a comprehensive and in-depth way could shed light on the lack of difference in performance registered by the airlines that I studied.

The human resources or the most effective and efficient utilization of human resources, I think it may not be enough to simply take into consideration the factors of the

macro-environment. The right leadership and the right human resources would most probably help the airlines to maximize the usefulness of their knowledge of the macro-environment. The right leadership that Jim Collins *(2001)* talks about and calls "Level 5 leaders", he describes them as ambitious foremost for the company, as setting up their succession for even greater success in the next generation, fanatically driven with an incurable need to produce sustained results, resolved to do whatever it takes to make the company great no matter how big or hard the decision. Leaders who know how to first get the right people on the bus, the right management teams who will do the right thing, concentrate fully on their work and deliver the best results they are capable of, people who confront the brutal facts without loosing faith, who act on the implications of the brutal reality, who ask questions, dialogue, debate, execute decisions, analyze guided by three guiding drivers which are understanding of what they are deeply passionate about, what they can be the best in the world at, and what drives their economic engine (the denominator that has the singly greatest impact). Level 5 leaders create a culture full of self-disciplined people who are engaged in disciplined thoughts and who then take disciplined actions. Jim Collins writes: "Bureaucratic cultures arise to compensate for incompetence and lack of discipline, which arise from having the wrong people on the bus in the first place. If you get the right people on the bus, and the wrong people off, you don't need stultifying bureaucracy".

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APPENDIX A

Dear Manager

This survey is about "the impact of the macro-environment on the performance of airlines operating in Lebanon". This questionnaire is part of an MBA project for submission to Haigazian University. You are kindly requested to answer to all the questions and to answer as frankly and honestly as possible, because by doing so, you can make a valuable contribution to this study. It is important to note that your responses will be kept confidential, since their use is strictly for educational purposes.

We sincerely appreciate your sense of corporate social responsibility and collaboration without which it is very difficult to continue this research.

Please indicate if you hold:

☐ Regular committee meetings designed for scanning the macro-environmental factors affecting your operations in Lebanon

☐ Irregular schedules and adhoc structure in response to periodic events to scan the macro-environmental factors affecting the Lebanese operations.

☐ Both

Please answer the questionnaire using **the following scale:**

Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

Please read each one of the statements below and then answer by ticking the box that expresses best your level of agreement.
Note that you can only give one answer for each item.

	Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
1- You scan and review the political environment (terrorism, war, protests, etc...)					
2- You scan and review the regulatory environment ("freedoms of air", "bilateralism", the "liberalization" process, etc…)					
3- You scan and review the economic environment (currency exchange rates, market expansion and recession, fuel prices, discretionary income, etc…)					
4- You scan and review the socio-cultural environment (religion, language, demographic influences, dietary preferences, etc…)					
5- You scan and review the technological environment (e-commerce, internet, WAP Phones, electronic boarding pass, e-ticketing, GDS, etc…)					
6- You scan and review other environmental Factors (bird strikes, epidemics and diseases, global warming, etc…)					

The environmental scanning and forecasting techniques you use in Lebanon are:

	Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
1- The opinion of people having intimate knowledge of relevant factors (e.g.: sales force).					
2- The opinion of a panel of independent experts.					
3- Scenarios constructed carefully based on trends and events.					
4- Analysis based on some analogues condition(s) of the past.					
5- Surveys testing the intention of people regarding purchase decisions.					
6- Brainstorming to generate new ideas.					
7- Analysis of a certain output based on a given input.					
8- Inquiring into the causes of a social phenomena					

9-Others, please specify _____

You analyze the data collected from your environmental scanning and forecasting techniques to:

	Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
1-Formulate new strategies or reformulate existing strategies applied in the Lebanese market (e.g. aggressive, defensive, customer-focus, growth, no growth, differentiation, niche, low cost, etc…).					
2- You introduced some breakthrough ideas or innovations in Lebanon.					

Please Specify

	2007	**2008**	**2009**
1- The total frequency of flights (to & from) Lebanon for the past three years			
2- The capacity you allocated to flights departing and arriving to Lebanon for the past three years (number of seats deployed on the route per year)			
3- The number of your staff in Lebanon for the past 3 years			