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Privatizations in the Airline Industry

Financial and Operating Benefits from Privatized Companies

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ABSTRACT

The main goal of this dissertation is to provide a definitive answer regarding the benefits of a privatization on the airline industry. Two different analysis were adopted in order to infer the impact of the change of ownership on the financial and operating performance. Both the market reaction to the privatization of an airline and the treatment of accounting data provided similar results that change of ownership from State Owned Enterprises to Private Enterprises is heavily correlated with general improvements of performance from privatized companies, even in cases where the privatization program does not imply a complete and one time sell of the company.

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I. Introduction

Few national matters are subject of such division on public opinion as when it comes to the topic of Privatizations, and Portugal has been no exception. At the beginning of the decade, the country was hit particularly hard by the Sovereign Debt crisis leading to a situation in which Portugal was unable of honouring its financial obligations without assistance from third parties. Portugal applied for a bailout programme in which the International Monetary Fund (IMF), the European Commission and the European Central Bank (ECB) would provide financial assistance (a loan of €79 billion) in exchange for financial measures and structural reforms. Privatizations took an important part on the adjustment programme and public opinion was once again divided as soon as TAP, the national flag carrier airline, was part of the programme. This was a particularly hot topic in Portugal, has it had been on the table since the late nineties without ever experiencing advances due strong opposition from syndicates and left-wing parties.

Privatization can be defined as the process of transfer of ownership of public companies - State Owned Enterprises (SOEs) – to the private sector (Megginson and Netter, 2001). This process can assume the form of a full privatization when the state no longer detains participation on the company's capital or partial privatization when the state keeps part of the capital of the company, usually to be able to sell it later at a higher price or to prevent abuses from the new owners.

Motivations behind a privatization are diverse, but they can usually be synthesized in the hope that the discipline of public ownership can improve chronic poor performances of state-owned enterprises (Megginson, Nash and Van Randenborgh, 1992), through increased efficiency seeking the maximization of profits.

Since the late seventies, when newly elected Margaret Tatcher announced a plan of mass privatization which included the national carrier airline, British Airways (Eckel, Eckel and Singal, 1997), many countries around the world have followed the same strategy for their flag airline companies. A flag carrier is a transportation company that operates in monopoly or, at least, beneficiates from special rights from the government of the country where it is located. Usually these are companies that are property of the state or, at least, the majority of the capital is public.

I expect with this study to approach the motivations and the context that involves a privatization of a flag carrier airline and the potential benefits that may arise through this transfer of property from state to public sector. As mentioned above, the privatization of Portuguese flag carrier airline, TAP, is a particularly sensible topic of public discussion and I expect to develop a better understanding of what kind of changes privatized airlines are usually subject of and the impact on several factors of crucial importance such as financial performance, employment changes or carriers maintenance.

This thesis proceeds as follows. Section II contains the literature review regarding both the topics of privatization and regulation, in particular concerning the air industry. Section III carries on the presentation and summary of the data used in this study, as well as the hypothesis under analysis. Section IV provides an inside about the methodology used to treat the sampled information and Section V shows the results obtained for each analysis regarding the mentioned hypothesis in study. Finally, Section VI consists on the conclusions of this work, mentioning both the limitations of the analysis and possible future research.

II. Literature Review

> *"(...) a good government that wants to further 'social goals' would rarely own producers to meet its objectives." (Shleifer, 1998)*

Before entering into the field of privatization on the airline transportation industry, it may be important to first shed a light about both efficiency and economics gains of privatization, as well as the motivations of governments behind this mechanism.

Megginson and Netter (2001) define privatization as the sale of state-owned enterprises (SOEs) from governments to private economic agents. The global idea is generally related with the fact that capital markets can and will exercise discipline on the way the company is managed – it would be unlikely to have a state allowing a large SOE to face bankruptcy letting the threat of financial distress costs to become less of a priority. Although much has changed since early 1980s with the introduction of Britain's Margaret Tatcher government of a massive privatization program and consequent global spread of this phenomenon, it would be an overstatement to assume that political merits of government versus private ownership is a finished debate.

One important common finding across literature and which is highlighted by Megginson, Nash and Van Randenborg (1992), is that official motivations behind the launching of privatization programmes are very similar across different governments from different countries. The main objectives are raising revenue for the state and improve efficiency of the company. The authors still enumerate the following objectives: introduce competition; promote wider share ownership in some cases; expose SOEs to market discipline through profit maximization; and finally, to reduce governmental interference.

Although privatization can be seen as a simple political instrument of changing ownership of a company through a sell to private economic groups, the reality is that this is a very complex process that can assume different mechanisms and it is important to categorize different types of privatizations. For the purpose of this article, we shall focus on what it is particular important for the airline industry, and that will be the nature of the privatization and the degree of control transferred by governments to the new owners of the company.

Regarding the nature of privatization, Vickers and Yarrow (1991) characterize three types of privatizations: 1) privatization of competitive firms – transfer of an SOE which operates in a competitive market to private hands; 2) privatization of monopolies – the case of many flag carrier airlines as we will see next; 3) the last type, contracting out of publicly financed services, usually concessions. Type 1 and Type 2 carry a significant different as in the second type government still retain a strong influence and control on the transferred company in the form of regulation, which may lead to the idea that, according to the authors, "where governments involvement in the affairs of a private enterprise is substantial, the differences between public and private can become a matter of degree".

Still related with different types of privatizations, but concerning the method used for the process, privatizations may not assume the form of a simple unique asset sale. Instead, it is common for governments to issue shares and use an incremental modality where the sale of the company is done progressively by selling part of their stake in the company, similar to what is done in an IPO (Megginson and Netter, 2001). In sum, Brada (1996) distinguishes between four methods of privatization: through restitution – identifiable property returns to previous owners or their heirs; through sale of state property, where the government receives a sum in exchange for the property; through mass or voucher privatization, where eligible citizens are given vouchers for free or at nominal cost to bid for stakes in SOEs; finally, through a privatization from below, "through the startup of new private businesses".

It is well established across literature, both by theoretical and empirical studies, that private firms indeed outperform SOEs and privatization itself increases the operating efficiency of divested firms (Megginson, Nash and Van Randenborg, 1992). Privatization leads to effective restructuring of privatized firms that were producing at inefficiently high levels (in order to maximize employment, for instance), but only if both control and cash flow rights pass to the private hands, making it impossible for governments to influence managers to produce at inefficient levels by offering them operating subsidies (Boycko, Shleifer and Vishny, 1994). Similar results are backed by studies of authors such as Vining and Boardman (1992) and Backx, Carney and Gedajlovic (2002).

In contrast, similar studies did not achieve similar results such as those of Caves and Christensen (1980), Kay and Thompson (1986), Wortzel and Wortzel (1989) and Kole and Mulherin (1997) which suggest that government ownership may not necessarily imply less operating efficiency. In the middle way of these two possible findings, Dewenter and Malatesta (1998) report mixed evidences on profitability improvement after privatization, although they find significant performance improvement before privatization due restructuring programs carried by governments prior to the sale.

Although privatization can be considered a phenomenon fairly well investigated and well addressed in literature, the same does not occur when we narrow our research to the study on airline industry. In fact, literature falls short in addressing general conclusions about the phenomenon in this industry, instead focusing on the study of several specific cases. There are, however, few articles from which it is possible to draw some conclusions about the thematic addressed in this document.

Al-Jazzaf (1999) is one of the authors that focus on the impact of privatization on airlines performance. An empirical analysis containing airlines performances from 10 different countries suggested an overall positive impact on performance from these companies after

privatization. This positive impact was reflected on sales and employment rapidly growth and moderate improvement on net income, total assets, capital expenditures and dividends. Efficiency and yield also improved after privatization. On the downside, profitability suffered slightly decline due financial and administrative costs as well as increases in capital investment spending.

Another important study in this field is the one in which Galal et al (1994) evaluate the welfare consequences of selling public enterprises. Although their work does not focus exclusively on the airline industry, an important part of the sample used in the empirical analysis integrates airlines from a developed country (UK) and two developing countries (Malaysia and Mexico) and establishes comparisons between evidences across these countries. Although the process of privatization was distinct for the several companies studied, almost all of them went from chronic losses to years of high profitability, at the same time as the employment improved, consumers were beneficiated from better adjusted prices and governments stopped subsidizing consecutive losses and improved fiscal revenues. The only exception was *Mexicana de Aviación* which proved that sometimes divested companies will not perform well as do not many other private companies.

A paradigmatic case of privatization in airline industry was the one of British Airways, one of the biggest companies to be privatized at the time, which took part of a mass privatization program of the government of UK's Prime Minister Margaret Tatcher in the decade of 1980 that led to profound changes on how the national governments view the presence of the state in the economy during the following decades. Due concerns that previous studies focused only on accounting data, which could be manipulated by management to maximize their value, Eckel, Eckel and Singal (1996) employed a different method to evaluate changes on efficiency of British Airways after privatization took place. They analyzed the effect of privatization on the performance of the company by examining the privatization's impact on

competitors' stock prices. Competitors from US saw their stock prices falling a significant 7% the following months upon British Airways privatization, while closer rivals experienced an even greater drop in stock price. Also, airfares in markets where British Airways also operated suffered a significant decrease on their stock prices. These results suggest that the change of ownership of the company to private hands improved economic efficiency and that improvement was almost immediately perceived by investors.

Backx, Carney and Gedajlovic (2002) also took significant steps away from the performance evaluation by just analyzing accounting data. Financial performance alone cannot be the sole requirement for assessing the efficiency and general performance of public organizations (Negandhu and Ganduly, 1986). Taking that into account, he authors opted to utilize two dimensions, one efficiency-financial performance dimension and a general-industry specific dimension, being the second particularly important due to the divergent goal structures of private and public organizations – public firms may have many other goals that are non-related with financial performance, which does not mean that public firms may be less efficient than their private counterparts. Conclusions of this study indicate that ownership plays an important role on the performance of international airlines: "in general, the results indicate that public sector airlines under-perform relative private sector airlines; in addition we find that airlines with mixed ownership tend to perform better than public sector airlines but worse than private sector carriers" (Backx, Carney and Gedajlovic, 2002).

Finally, it is important to address one last issue to understand the context involving the change of ownership from State to private hands. Even after the privatization, governments can retain some control over the firm in the form of regulation (Vickers and Yarrow, 1991), where monopoly power and other market failures are still present. When a firm is both privatized and regulated, the government can take some decisions that can affect how the company operates and which my lead to the same problems that privatization was intended to solve –

such as forcing low prices may demotivate companies to keep heavily investing as they will not be able to recover its sunk costs by reflecting the additional costs on their prices.

Most privatizations are accompanied by a deregulation program prior to the change of ownership (Megginson and Netter, 2001) as part of a restructuring program. This is used as an instrument of governments not only to improve market competitiveness but also to make their companies more appellative and valuable to the eyes of potential buyers.

The persistence of the same regulation after the privatization may help explaining an improvement in partially privatized SOEs performance without implying any changes in the firms' efficiency, as denotes Sun, Tong and Tong (2002) when analyzing the impact of partial privatizations of Chinese public enterprises. This may happen when companies still retain a lot of their monopoly power and still benefit from their monopoly rents and lack of competition.

Findings from Grimm and Milloy (1993) from studies of airline industry in Australia suggest that deregulation has a very positive impact on consumers' welfare and firms' performance. Consumers have benefited from lower fares and quality of service while airlines where able to cut costs and become much more competitive.

III. Data and Hypothesis

In order to evaluate the full impact of privatizations in the air transportation industry, there is the need to first define the dimensions that are most likely to provide clear information about the consequences of this mechanism.

One possible step towards an understanding of how deeply this mechanism will affect the performance of an airline company is to analyze whether stock market perceives the change from government to private ownership as beneficial or not for that company. This dimension is particularly important since stock markets are unbiased and cannot be subject of manipulation as what happens with accounting data, which managers can select accounting procedures in order to manipulate accounting profits (Hopwood, 1972). Also, the analysis of stock price reaction of main competitors can be extremely important to infer the expected impact on performance of the privatized firm.

Although market perception can be seen as an important tool to the analysis of the impact of privatization, it does not tell much about what really happens to the privatized company after the change of ownership takes place. A complementary internal analysis may provide valuable information for this study that the prior analysis may not disclose. However, evaluating the effects of this mechanism can be a difficult task due to a number of methodological issues such as data availability and comparability that makes international generalization difficult. Also, there is a major limitation to performance analysis of privatized companies as actual performance would be compared to a hypothetical benchmark. To address these issues, it may be worth instead focusing on the influence of ownership on firm performance. This analysis will rely on the main assumption behind the process of privatization - different owners seek different goals for their companies. Taking that into account, by setting a number of financial performance variables as well as industry specific

measures it is expected to develop a better understanding of if there are significant differences across airlines with distinct ownership structures.

Taking all these considerations into account, a comprehensive analysis of the subject of change in ownership will address both external and internal dimensions, being the first related with the markets' perception and the former related with accountant data.

Table 1
Privatized airlines sample
and main competitors

Airline	**Country of Origin**	**Prospectus Release**	**Main Competitors**
Iberia	Spain	16 March 2001	Lufthansa Air France Southwest Airlines
Aer Lingus	Rep. Ireland	12 September 2006	British Airways Ryanair Easyjet
TAP	Portugal	15 January 2015*	Lufthansa Air France - KLM Ryanair

*Since privatization was carried under a direct sell, there was no prospectus; instead it was considered the moment the government revealed

Hypothesis I – Table I summarizes the sample chosen to infer the reaction of the stock market facing the privatization of an airline company. It is be constituted by the most recent and relevant cases of privatization in Europe. Recent cases are crucial to this analysis since they provide more detailed information regarding the process of privatization addressing this way the problem of data availability. All companies under analysis had government (voting) shares decreased to below 50% at that time. Also, the choice of European companies is based on several reasons: industry with accessible stock data; presence of multiple independent market segments not affected by the privatization which will be used as a natural control group; and finally, competitors being traded in financial markets and also easily identifiable

due to a strongly integrated market and a high number of common destinations with privatized company. Airlines which earn a large portion of their revenue from routes served by the privatized company are considered as the main competitors. However, only companies publicly traded at that time will be eligible to this study.

Hypothesis II - The internal analysis will be carried using panel data from the period of 2012 - 2014 on a sample of medium to large international airlines detailed in Table II. To be included in this sample companies must fulfil several requirements: 1) complete accounting data for all the variables subject to the study; 2) at least 10 years operating in the industry; 3) government shares have not changed above or below the level of 50% in the ownership of the company for the period in question; 4) subsidiaries are only considered individually if presenting independent reports. The list of the companies used in this following analysis and summarized in Table 2 was based on a preliminary compilation of International Civil Aviation Organization (ICAO) and financial data was made available through Thomson Reuters Eikon terminal. The sample comprises 42 airline companies which are categorized according to their ownership structure. They also present several key performance indicators that will allow the inference of if there is a significant better performance from private owned companies when compared to state-owned enterprises.

Table II
Airlines and their ownership structure

Company Name	Country	Ownership Structure
Croatia Airlines	Croatia	Public
Aeroflot	Russia	Mixed
Transaero	Russia	Private
Turkish Airlines	Turkey	Mixed
Atlantic Airways	Faroe Isl.	Public
Finnair	Finland	Mixed
Air France	France	Mixed
Lufthansa	Germany	Private
Ryanair	Rep. Ireland	Private
Royal Dutch Air	Netherlands	Mixed
TAP	Portugal	Public
SAS Airlines	Sweden	Mixed
IAG	United Kingdom	Private
Kenya Airways	Kenya	Mixed
Air Mauritius	Mauritius	Mixed
United Airways	Bangladesh	Public
Air China	China	Mixed
Eastern Airlines	China	Mixed
Southern Airlines	China	Mixed
Shandong Airlines	China	Private
Air India	India	Public
Garuda Indonesia	Indonesia	Mixed
Japan Airlines	Japan	Private
Jeju Air	Rep. Korea	Private
Korean Airlines	Rep. Korea	Private
Malaysia Airlines	Malaysia	Public
Pakistan Airlines	Pakistan	Mixed
Singapore Airlines	Singapore	Public
Tiger Airways	Singapore	Mixed
Thai Airways	Thailand	Mixed
LATAM	Chile	Private
Aeromexico	Mexico	Private
Avianca	Colombia	Private
Royal Jordanian Air	Jordania	Mixed
Emirates	UAE	Public
Air Canada	Canada	Private
American Airlines	United States America	Private
Qantas Airways	Australia	Private
Cathay Pacific Airways	Hong Kong	Private
Air New Zealand	New Zealand	Public
El Al Israel Airlines	Israel	Mixed

IV. Methodology

4.1 Hypothesis I - Markets' Perception

The methodology used in Eckel, Eckel and Singhal (1997) will serve as the major reference to this analysis. In this work, the authors examined the competitors' stock prices for the following days after the privatization of British Airways took place, in order to find potential variations of the stocks' returns that could be related with the expectation of a better performance of the British carrier.

The main assumption behind the authors' analysis is that firm stock prices depend on several factors such as market setting and the performance of both the company and its competitors. The privatization of a company usually comes with major strategic changes for the targeted company and its rival firms stock prices will inevitably react to the expected behaviour of the privatized company. Taking that into account, rival firms can benefit from this event in case there is a strong possibility that the newly privatized firm will look for improving its financial situation through, for instance, setting higher prices or eliminating routes. However, they can also suffer from increased competition by the newly privatized firm due to the improvement of productive efficiency and lower costs. Also, the magnitude of the reaction of rival firms will be highly dependent on the level of exposure they have with the privatized company – direct competitors will benefit or suffer more than companies which mainly operate in different markets.

Finally, there is one more concern to address. Privatizing a company is a very long and complex process in which the simple announcement of governmental intention is by no means definitive enough to financial markets to adjust immediately to the event. Financial markets are expected to strongly react to unexpected actions or credible announcements. Taking it into

account, it is important to define a point of no return in the process of privatization that will lead to the highest magnitude in the reaction of the markets. This point would be, according to the above mentioned study, the presentation of a preliminary or definitive version of the prospectus of the sell. Even if this event may not be totally unanticipated, this is a point in which privatization leaves its status of intention and legal steps are taken to start the process by revealing the details of the process to potential investors.

4.1.1 Event Studies – Measurement of abnormal returns

To assess the financial impact of changes in corporate policy – in which includes changes in corporate control – it is very common to use the event study method (McWilliams and Siegel, 1997). It helps researchers to infer the effect associated with an unanticipated event through the existence of an "abnormal" stock price return triggered by reaction of the market to that same event.

In the following analysis, the presentation of the prospectus will be defined as the unanticipated event, as this is the most credible and definitive signal to the market that the privatization will indeed take place. The Estimation Window will consist on the 250 to 50 days prior the event and Event Window will be short – airlines are large companies and heavily traded, so a shorter window will provide better information about the event - consisting on the following 2 trading days following the event date (0) and isolated from confounding events that could have an impact on share price during the window. The model used for this estimation is given by

$$R_{it} = \alpha_i + \beta_i R_{m+} \varepsilon_{it}, \quad (1)$$

where R_{it} is the rate of return on the share price of firm i on day t, R_m is the rate of return on a market portfolio of stocks, α is the intercept term, β is the systematic risk of stock i and ε_{it} the error term, with $E(\varepsilon_{it}) = 0$. After the estimation of the equation (1), the research is in condition of derive the daily abnormal returns (AR) for the *i*th firm, using the following equation

$$AR_i = R_{it} - (a_i + b_i R_m), \quad (2)$$

where a_i and b_i are the ordinary least squares (OLS) estimates obtained from the regression (1) over the Estimation Window. The abnormal returns (ARi) represent returns earned by the firm after the analyst has adjusted for the "normal" return process, that is, the rate of return on the stock is adjusted by subtracting the expected return from the actual return.

The sum of abnormal returns can be cumulated for a number of *k* days and serves to measure the total impact of the event for the given window

$$CAR_i = \sum AR_{ik} \quad (3)$$

This sum is represented by the measure of cumulative abnormal returns (CAR_i) and it will be used to infer the global effect of the privatization on main competitors' stock price.

4.2 Hypothesis II – Accounting Data

Megginson, Nash and Van Randenborgh (1994) are responsible for one of the most comprehensive and definitive empirical studies regarding changes in a company for the periods of pre- and post-privatization. The authors set several variables consisting on accounting ratios that would provide valuable information regarding the impact of the

privatization on the operating and financial performance of companies across different countries. The same methodology will be used in the following analysis.

Although their study does not focus on any particular industry, the indicators used in the analysis make it possible to still conserve its pertinence when applied to any given specific industry. However, airline companies share among them several additional industry specific indicators regarding the output and that should be used to correct and enrich the analysis. Having that in mind, a new indicator will be used in this analysis compared to the original study. The methodology behind this analysis will comprise the following variables:

A) Profitability

State-owned enterprises usually focus on addressing social needs instead of aiming for profits. This is the main difference between public and private companies, as private investors are ultimately interested whether they will achieve positive returns from their investment or not. Profitability is expected to increase with participation of private capital in the company.

B) Operating Efficiency

Governments adopt privatization programs with concrete goals in mind, being the improvement of operating efficiency one of the most important as the company will be then exposed to the market forces, forcing it to be as competitive as possible.

C) Capital Investment

Capital expenditures should theoretically be higher for SOEs when compared to private companies as these companies benefit from resources and borrowing power of the government supporting them. Also, according to empirical studies from Boycko, Shleifer, and Vishny (1993), it is suggested that governments may be willing to subsidize inefficient investments in order to obtain maximum level of employment or to achieve any other social desirable objectives.

D) Output

There are several reasons why governments expect sales to grow after the privatization of the company. Better incentives, more flexible financing opportunities, increased competition and greater scope for entrepreneurial initiative are the most important reasons considered by the authors of the aforementioned study to explain the expected positive changes of output after the privatization program.

E) Employment Changes

Employment changes are one of the most crucial arguments used by the opposition behind almost every privatization programme. As mentioned before, State-Owned Enterprises usually are expected to address social desirable goals rather than being profitable and those companies are used as a government vehicle to improve employment levels by sacrificing its operating efficiency. The fear behind the opposition to any privatization program is that private investors may look to improve the company's profitability through large-scale job cuts. Despite that, economic literature provides evidence that privatization can usually boost the company's operations and employment rates can be maintained or even to grow in line with the company's growth.

F) Changes in Leverage

Public companies usually face extremely high debt levels due to the not only important borrowing power of the government but also because those companies do not have the possibility to obtain funds by selling equity to private investors. This problem may be partially solved with the change in ownership, as private investors will dispose of additional alternatives of financing as well as the company will no longer be motivated to invest in inefficient projects.

G) Dividend Payout

It is rational to expect that dividend payouts will increase with the change of ownership to private hands as state never demands dividends and private investors typically do. This indicator is also expected to be tightly linked with how profitable the company is, even though dividend policy can be used as a tool from management to attract new investors and to "bond" with existing ones.

The original study of Megginson, Nash, and Van Randenborgh (1994) assumed that these indicators would reflect important changes between the periods of pre- and post-privatization regarding the companies' financial and operating performance. However, as mentioned before, due to the problem of data availability, it is not possible to replicate this analysis to a sample composed exclusively by airline companies.

To address this fundamental problem, the following analysis will not take into account the changes of financial and operating performance around the privatization period. Instead, we will confront the values obtained for a recent period of three years of a sample composed by airline companies with Public, Private and Mixed ownership. The assumption behind this procedure is the fact that the fundamental changes expected to be caused by a privatization depend exclusively on the nature of the nature of the company's ownership and not whether the company has previously been privatized or not. This is, the privatization is just the mechanism behind the change of ownership from public to private hands – the effects on privatized companies are ultimately correlated with the new ownership structure and not with the process itself.

4.2.1 Correlation between ownership structure and key performance indicators

As mentioned above, several variables will be taken into consideration for the following analysis and they are expected to provide valuable information about the impact of the ownership structure on the company's operating and financial performance.

Table III
Summary of economic characteristics under analysis (Megginson, Nash and Van Randenborgh, 1992)

Characteristics	**Proxy**
Profitability	Return on Sales (ROS) = Net Income / Sales
Operating Efficiency	Sales Efficiency (SALEFF) = Sales / Number of Employees
Capital Investment	Capital Expenditures to Assets (CETA) = Capital Expenditures / Total Assets
Output	Load Factor
Leverage	Debt to Assets (LEV) = Total Debt / Total Assets
Dividends Payout	Dividends to Sales (DIVSAL) = Cash Dividends / Sales
Employment	Number of Employees

Table III contemplates the economic characteristics that will be evaluated in order to draw conclusions whether structure ownership itself is correlated or not with the performance of the company. For each characteristic, an empirical proxy will be employed in order to process information presented by the companies' accounting data. All proxies will consist on economic and financial ratios that enable the comparability between airline companies of different sizes.

$$Proxy_i = \alpha + \beta \text{ Ownership Structure} + \varepsilon \quad (4)$$

In order to test the correlation between each indicator and the ownership structure, the Ordinary Least Squares (OLS) method will be applied in order to find the correlation between

variables under study. Ownership Structure will be the independent variable and it will be presented as the percentage of private participation in the capital of the company. Using equation (4) it will be possible to infer the impact that the private capital on the company's ownership structure has on the financial and operating performance of the airline. The i^{th} dimension of performance of the company reflected by its proxy is represented in the equation as the dependent variable.

To infer the impact of ownership structure on the company's output, some adjustments need to be made regarding the original methodology. Having that in mind, the load factor appears to be the best indicator of the output of the airline – it measures the capacity utilization of the equipment and it is usually used to assess how efficiently the airline company fills seats and generates revenues.

V. Empirical Results

5.1 Hypothesis I - Markets' Perception

The main competitors listed in the Table I form a portfolio for each privatized company, in which each competitor is equally weighed in terms of its composition. The following results were obtained using formulas (1), (2) and (3).

Table IV
Post-Privatization Abnormal Returns and Cumulative Abnormal Returns

Iberia

Event Date	AR's	Sign Test	CAR's	Sign Test
0	0.012	1.428	0.012	1.428
+1	-0.024	-1.429	-0.012	-1.842
+2	0.008	0.549	-0.004	-0.192

Aer Lingus

Event Date	AR's	Sign Test	CAR's	Sign Test
0	-0.004	-0.510	-0.004	-0.510
+1	0.007	1.059	0.003	0.700
+2	-0.007	-1.080	-0.004	-0.464

TAP (Transportes Aéreos Portugueses)

Event Date	AR's	Sign Test	CAR's	Sign Test
0	-0.027	-5.303**	-0.027	-5.303**
+1	-0.030	-3.847*	-0.057	-3.269*
+2	-0.005	-6.695**	-0.062	-5.696**

Figures are reported in percentage rate terms

* Statistical significance at the 5% level

** Statistical significance at the 2% level

It is not surprising that all portfolios present negative cumulative abnormal returns (CAR's) since investors perceive that main competitors are expected to suffer from increased competition from the newly privatized firm, which is expected to be more efficient and present both lower costs and improved services in the same markets they operate.

The overall impact of this event is significantly higher in the case of the Portuguese flag carrier TAP. This can be explained by the assumptions of the carried analysis – even though they were giving up on the absolute majority position in the company, both Spanish and Irish government had already been decreasing their participation in the companies in the previous years while for TAP this was the first time Portuguese government was opening the company to outside investors. This may have helped to accentuate the credibility of this event. Also, due to the nature of the privatization of the Portuguese airline – major participation in TAP was being directly sold to another airline while Iberia and Aer Lingus remaining shares were sold on a public offering to small investors – there is the possibility of stock markets had incorporated the potential additional benefits of a direct sell, such as the appointment of a new management team or the seizing of synergies between the privatized company and the new owners.

5.2 Hypothesis II – Accounting Data

Table V
Descriptive Statistics

Variable	Observations	Mean	Std. Dev	Min	Max
Ownership Structure	41	.649	.398	0	1
ROS	41	-.014	.102	-.450	.140
SALEFF	41	.248	.113	.055	.576
CETA	41	.076	.056	.011	.327
Load Factor	41	.786	.049	.681	.907
LEV	41	.412	.191	.053	1.010
DivSal	41	.000	.002	0	.010
Employment	41	28 198	28 738	171	118 220

Analyzing the descriptive statistics presented in Table V, it is possible to retain some information about the sample used in this hypothesis. Except for the number of employees, all values are presented in percentage.

The most obvious characteristic of the sample is that it comprises several airline companies with different capital structures, which can be pure State-Owned Enterprises, Private Companies and airline companies with Mixed Structure. It is also possible to perceive that the companies presented vary on a wide range of dimensions according to the number of employees – the largest airline company presented in the sample is almost 700 times bigger than the smallest airline company.

Continuing the brief analysis, it is also possible to infer that a significant portion of the companies present highly leveraged and on average are not profitable. It is also possible to see that generally airline companies present a lower variation of the number of seats filled (load factor) as shown by the low value of the standard deviation for this variable.

Table VI
Correlation Matrix

	Own	ROS	SALEFF	CETA	Load Factor	Lev	DivSal	Empl
Ownership	1							
ROS	0.275	1						
SALEFF	0.424	0.449	1					
CETA	0.096	-0.028	-0.256	1				
Load Factor	0.536	0.371	0.272	-0.023	1			
Lev	-0.4	-0.669	-0.296	-0.082	-0.337	1		
DivSal	0.097	0.077	0.154	0.129	-0.104	-0.117	1	
Employment	0.055	0.064	0.011	0.017	0.271	0.072	-0.14	1

Table VI summarizes the correlations between all variables under analysis. Being the first column the most pertinent, this is, the correlation between ownership structure (represented by % of private capital) and each variable, it is possible to see that just the variable Leverage is negatively correlated with the presence of private capital in the ownership structure of an airline company. This aspect is in line with the idea that SOEs have no possibility to sell equity in order to be financed as well as this type of companies usually seek other goals rather than just profit. Having that in mind, private investors attribute more importance to the financial goals of the company and that one explanation why private companies are less leveraged than public enterprises.

Although all the information shown in the correlation matrix appears to be in line with the predicted relationships between Ownership Structure and each one of the variables, not all the hypothesis are confirmed. For a significance level of 0.01, there are just three variables statistically significant. This implies that we can only conclude that the increase of private capital in the airline's ownership structure affects positively the company's operating efficiency and the level of output, as well as it has a positive impact on the company's process of deleveraging.

Table VII

Regression Analysis for Ownership Structure as Dependent Variable

Independent Variable	Expected Causality	Coefficient	p-value	R2
ROS	(+)	.07	.081	.076
SALEFF	(+)	.121	.006	.180
CETA	(+)	.014	.550	.009
Load Factor	(+)	.066	.000	.288
LEV	(-)	-.193	.010	.160
DivSal	(+)	.000	.545	.010
Employment	(+)	3964	.733	.003

Finished the analysis of the correlation between each variable, it is time to proceed to the regression analysis and to understand the impact that ownership structure has on each dimension of performance of the company. Taking that into account, several regressions have been carried for different dependent variables in order to quantify how affected they are by the level of private capital in the airline ownership structure.

Table VII summarizes the results obtained for the several regressions carried for the analysis of all 41 observations. As previously shown by the correlation matrix, a superficial look at the values for the coefficients demonstrates that those are in line with the expected causality, although not all present statistic significance.

Capital Expenditure to Assets (CETA), Dividends to Sales (DivSal) and Employment are the variables that are least impacted by the ownership structure of the company in this sample. Even though Ownership Structure has a positive impact on those variables, the causality level appears to be very tenuous as the low values for R-squared clearly demonstrate. Also, none of the coefficients obtained are statistical significant. The first may be explained by the fact that there is not a huge variation in the amount of capital expenditure between private and public companies, being the difference related with the profile of the investments – private investors

will seek positive returns while public companies pursue social goals. Dividend policy can owe its insignificance to the fact that the amount of dividends distributed is in fact a very small portion of the company's sales making the comparison almost irrelevant and that most companies prefer to used internal generated funds to further its investments rather than to distribute to its investors (Black and Scholes, 1974). Finally, explanation for the not significance of the impact of ownership structure on Employment may be related with the fact that it matters most for private investors how human resources are affected to the company's operations or the impact of their wages on total yearly expenditure rather than the simple number of workers.

The impact of ownership structure on the airline's profitability is positive and statistically significant for a level of 10% as represented by a low p-value. An additional 1 pp of private capital in the company's ownership structure is reflected by a 0.07 increase in the Return on Sales (ROS). However, it presents a low R-squared value meaning that ownership structure has a relatively low impact on profitability for the companies on this sample.

Company's operating efficiency and leverage reflect two of the most affected dimensions by the company's ownership structure. Both models present statistically significant values for a 1% level regarding the obtained coefficients. However, it is the Output which reflects the highest impact by the ownership structure. Is coefficient value is not only significant for a level of 1%, but ownership structure also accounts for the explanation of more than 28% of the airline's Load Factor.

For the sample analyzed, it is possible to conclude that a massive improvement can expected on the output level of the company after both a partial or total privatization of an airline. Also, it may lead to significant improvements regarding its general financial and operating efficiency without sacrificing the level of employment.

VI. Conclusions

After running the proposed analysis, it is possible to draw some conclusions. The main conclusion that was reached after finished this study is that privatizations do in fact have positive (or at least, not negative) impact on the general financial and operating performance of companies in airline industry.

This is not surprising since literature is generally convergent regarding the general benefits from privatization programs. However, this study proposed to provide a definitive answer to any interested person who would like to form an opinion based on actual data presented in a simple and condensed way, without entering on complex and long statistical analysis.

In order to achieve that goal, it was my concern to obtain stock data from sources available to any interested reader who might want to replicate this study or to apply a similar analysis to any other industry at their will. Also, the analysis carried were based on the work of several authors who had previously aimed to draw conclusions from the implications of privatization whether for a general area of for a specific company, which it is important in order to add validation to this work.

Despite the fact that it was possible to reach the proposed goals for this work, some limitations were clear during its progress. Data availability was undoubtedly the main restraint in both analysis – the event study would provide stronger results for a sample containing more and diverse examples of privatized companies, while in the regression analysis, the used sample contained a very few pure State Owned Enterprises. In both cases, it would have been beneficial to have used improved samples which would probably address the problem of some results not being statistical significant.

The airline industry is a very complex sector and the privatization of flag carriers still faces strong reservations by several governments and population in general. Although literature and this very own study provide an indication of the general benefits from privatization programs in the industry, further research should focus on the specific areas in which those improvements reflect on the welfare of the general population in order to provide strong empirical support to the discussion of whether to privatize or not and address unfounded fears provoked by those who directly benefit from the injection of public funds to subsidize inefficient companies at the taxpayers' expense.

Finally, it might be important to make clear that although general literature and real cases of privatization show that privatization programs are heavily related with improved companies' performance, not all cases of privatization on the airline industry were well succeeded. It is important to understand that several factors affect the end result of the change of ownership, namely the competition the company is facing and whether it is possible to seize competitive advantages, the changes in regulation, the impact of potential synergies and the process of how the privatization of the company will be carried out, among others. All these factors played a crucial role on both successful and failed cases, so further research would be welcome to improve the general understanding of why do some companies improve and others end up facing bankruptcy.

VII. References

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