CHANGES IN EQUITY AND DEBT CAPITAL DUE TO LEASING IN ACCORDANCE WITH THE INTERNATIONAL ACCOUNTING STANDARDS

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Abstract

The different accounting treatment of leasing in accordance with the Greek and the International Accounting Standards (IAS 17) significantly affects the Equity (negatively) and the Debt Capitals (positively) for the real estate subsector, the services sector and the Mid Cap and Small Cap companies. The statistically significant impact of the IAS 17 on the Equity and Debt Capitals, as well as the future expansion of the use of the IAS/IFRS allow for an approach of the companies optimum debt ratio and capital structure through the cognitive objects of Finance (weighted average cost of capital) and Accounting (financing of fixed assets) on a macroeconomic level.

Keywords: International Accounting Standards (IAS), Leasing, Capital Structure, Equity Capital, Debt Capital.
JEL Classification: M21, M48

Introduction

Under Greek Accounting Standards (GAS), the Tax Code of Account Books and Records required all businesses keeping category C books (article 7) to implement the Hellenic General Accounting Plan, which together with Company Law (Law 2190/1920, Law 3190/1955) and Tax Law (Direct Taxation – Law 2238/1994, Indirect Taxation – Law 2859/2000) are largely in line with European Union (EU) directives aimed at strengthening the outreach of Greek firms, as well as providing more detailed company data to investors.

In summary, the relationship between statutory bodies and legislation with regard to GAS is shown in Figure 1:
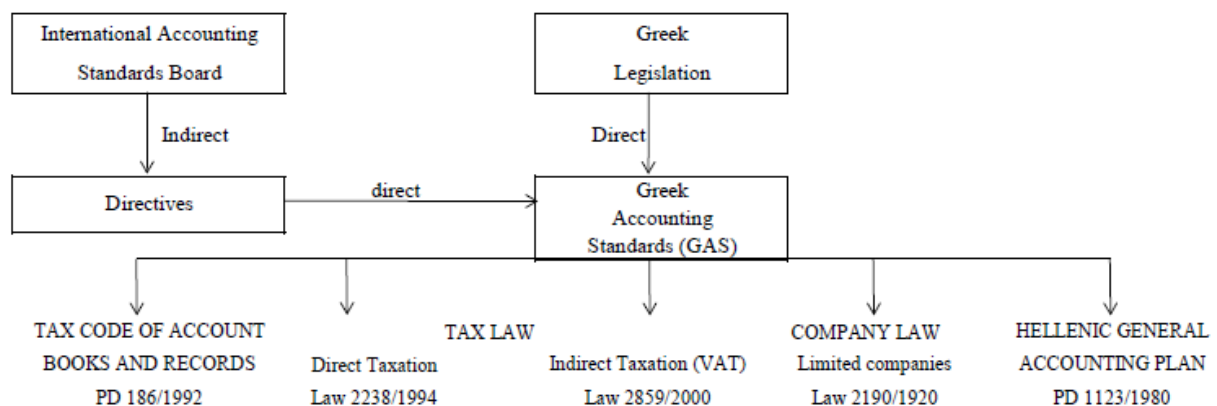
Figure 1: Relationship between statutory bodies and legislation with regard to GAS

From the examination of alternative financing methods in different countries, where different rules apply for measuring assets and financial results, the need arose to adopt common standards. Moreover, the listing of shares of the companies of one country on the stock exchanges of other countries, as well as the auditing requirements of businesses that operate in different countries but belong to a group of companies, have made accounting standards necessary also at an international level.

At the same time, Greece's adoption of the euro and accession to EMU initially took place with positive prospects in the new economy of technology and knowledge. In the EU there are already 32 stock exchanges and 23 derivatives markets which are expected to embark on a process of integration.

During the past 25 years, with the examples of the listing of corporations (i.e. companies limited by shares) on the Athens Stock Exchange, in the framework of attracting foreign investors, the need emerged for knowledge of and compliance with International Accounting Standards (IAS). Efforts to raise funds even on the domestic capital market show that accounting standards are an issue that concerns not only a handful of multinational corporations, but all companies of significant size. Clearly, the extension of IAS and, since 2002, of International (Accounting) Financial Reporting Standards (IFRS), does not address matters concerning the way in which account books are posted and records issued. Their wider application relates primarily to the disclosure of financial statements, the method of creating accounting records, as well as the rules governing their valuation.

The accounting treatments that have prevailed in European countries have more similarities than differences. However, accounting standards are expected to resolve numerous outstanding issues. Accounting treatments also include tax provisions, the implementation of which may yield a different result. This appears in tax returns, whereas financial statements must mandatorily be prepared on the basis of accounting standards. In Greece, however, similar problems still exist and basic accounting principles are distorted because of conflicting provisions of commercial and tax law, due to the uneven manner of dealing with 'accounting differences', as well as to piecemeal decisions drafted by senior public administrators.

In the analysis that follows, we consider the harmonisation of GAS with IAS to be imperative, either directly by extending their compulsory implementation (applicable since 2005 for corporations listed on the Athens Stock Exchange), or indirectly through EU directives, since there are clearly associated problems in the analysis of financial statements of corporations listed on the Athens Stock Exchange and efforts must be made to significantly narrow the existing gulf, not only between tax and commercial legislation but also between book and fair values.

Taking the conflicting provisions of GAS with regard to Leasing, we choose the corresponding IAS 17, as a principal way of financing companies which significantly affects the success or failure of achieving their optimal capital structure. This is the mix of long-term debt capital together with common and preferred stock which maximizes the market price of a company's shares or, alternatively, minimizes its total cost of capital. Then, equation (1) can be used for the Weighted Average Cost of Capital (WACC) which we shall correlate with the dissemination of accounting standards in Greece:

$$WACC = W_d K_d (1 - t) + W_{ps} K_{ps} + W_{ce} (K_s \text{ or } K_e) \tag{1}$$

where W_d, W_{ps}, W_{ce}: the respective percentages of loans, preferred and common stock relative to the target for total long-term capital, K_d: loan cost, t: marginal tax rate, K_{ps}: cost of preferred stock, K_s or K_e: cost of retained earnings or newly issued common stock.

IAS 17: Leases

Whether a leasing relationship constitutes financial leasing or not depends principally on the substance of the transaction rather than the form of the contract. A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership. Such a lease is normally non-cancellable and secures for the lessor not only the recovery of, but also a return on the capital he or she invested. A simple (operating) lease is one which does not transfer substantially all the risks and rewards incidental to ownership.

According to GAS, the lease payments of finance leases are recognised both as expenses of the lessee and as income of the lessor who thus records the corresponding depreciation expense. Under IAS, however, the principle of 'substance over form' is applied and the concept of economic ownership is introduced to accounting: lease payments are considered for the lessee partly as a depreciable asset and a liability and partly as capitalized expenses and a liability. For the lessor, lease payments are considered partly as a receivable and sale value and partly as a receivable and income - interest.

The reason for the above is that GAS do not deal also with the case of financial leasing, while, in contrast, they concur with IAS in the case of simple (operating) leasing, with the only difference that Greek tax legislation does not accept the advance paid to the lessor beyond the regular lease payments.

According to Law 1665/86 on "financial leasing contracts", as amended by article II of Law 2367/95:
     * par. 4: "Lease payments by the lessee .... are considered to be operating expenses and are deductible from the lessee's gross income".
     * par. 5: "In the case of financial leasing contracts, which are concluded as of the entry into force of this law, the financial leasing company shall be entitled to calculate depreciation on movable assets on a straight line basis according to the years of duration of the contract, as well as on immovable assets in accordance with the provisions in force from time to time governing depreciation on immovable assets".

Consequently, the Greek lessee who applies IAS 17 will record the lease rentals payable under Assets on the basis of the contract for the financial leasing of fixed assets and under liabilities as a financing obligation, while the said lessee will make the corresponding entries of depreciation and sinking payments. The lessee will then be considered to have violated tax provisions, even though the results are burdened with the same amount, since in effect the (annual) lease rental is divided into depreciation on fixed assets and interest on financing and no problem arises for the financial leasing company, at least with respect to movable fixed assets. This is yet another instance in which tax laws regulate accounting matters, contrary to IAS, without any substantial tax advantage.

The main difference in Greek legislation is that it does not specifically deal with financial leasing for which IAS 17 provides that, if it is not presented in the lessee's financial statements it reduces the presentation of his/her economic resources and liabilities, i.e. it distorts the value of his/her company's ratios.

If all other parameters remain the same for two corporations, with the only difference that one company acquires fixed assets under a finance lease (exclusive use for the greater part or entire duration of their life, periodic payment of a long-term liability and payment of insurance premiums, repair and maintenance expenses, etc.), while the other company acquires fixed assets with a long-term loan, both companies should operate in the same legal and financial framework. However, due to the aforesaid difference, their financial statements are not comparable.

Justification for Sample Selection

Since 2005 the adoption of IAS and IFRS has been compulsory for companies in EU member states, whose shares or other securities are listed on an organised stock exchange of any EU member state. The purpose of IFRS 1 is to ensure that a company's first financial statements under IAS and IFRS contain high quality information that:

* is transparent to users and comparable for all periods presented,
* provides an appropriate starting point for the company's subsequent accounting,
* can be obtained at a cost that does not exceed the benefits provided to users.

Thus, the data from the first financial statements prepared in accordance with IAS and IFRS, as well as with GAS, provided the comparable information for this study. From the database of 266 corporations of the Athens Stock Exchange for 2011, a sample of 62 corporations was used to provide the necessary information for correlating IAS 17 with the financial structure of their capital (Equity and Debt Capital). The main reasons for excluding the other corporations involve instances where either IAS 17 are not applied or there is no reference to its relation to the capital structure of the corporations, or cases where particular (non-comparable) accounting treatments are applied (Sectoral Accounting Plans of Insurance or Banking Corporations).

The study's quantitative variables are taken from the annual bulletins issued by ATHEX and pertain to information before (GAS) and after the application of IAS and IFRS which relates the adoption of IAS 17 to the Equity and Debt Capital of the 62 corporations.

Correspondingly, the study's qualitative variables pertain to the categorisation of the 62 corporations by subsector (Chemicals, Food & Beverages, Health Care, etc.), by sector (Industry, Commerce, Services) and by capitalization (Small-Cap, Mid-Cap and Large-Cap).

Statistical Analysis

Testing for differences between Equity Capital and Debt Capital

To ascertain whether the accounting aggregates and ratios under examination have been altered by the application of IAS/IFRS, we use the Wilcoxon (paired samples) test to see if the means of Equity Capital (EC) and Debt Capital (DC) differ. We formulate our null and alternative hypothesis as follows:

H_O: mean EC/DC (GAS) = mean EC/DC (IAS) or
mean EC/DC (GAS) - mean EC/DC (IAS) = 0
H_a: mean EC/DC (GAS) $\neq$ mean EC/DC (IAS) or
mean EC/DC (GAS) - mean EC/DC (IAS) $\neq 0$
The results of the statistical test are as follows:

Table 1: Testing for differences in EC and DC

	EC (GAS) – EC (IAS)	DC (GAS) – DC (IAS)
Z	-,354[a]	-6,504[a]
Asymp. Sig. (2-tailed)	,723	,000

a. Based on positive ranks

As can be seen in the above table, there is no statistically significant difference between mean Equity Capital based on GAS and mean Equity Capital based on IAS. In contrast, there is a statistically significant difference between mean Debt Capital based on GAS and mean Debt Capital based on IAS.

Equity Capital

In order to investigate the degree to which IAS 17 and the differences that resulted from its application explain the overall difference in Equity Capital before and after the adoption of IAS, we formulated and tested the following hypothesis:

Ho: The difference in Equity Capital which is due to adoption of IAS 17 is independent of the overall difference in Equity Capital which resulted when the financial statements of companies were prepared in accordance with IAS.

As shown by the following analysis of variance tables and, specifically, by the F-test, there is a significant effect, at a significance level of $\alpha<0.01$, on the difference from the application of IAS 17 for the computation of Equity Capital, as the latter is calculated after adoption of IAS.

Table 2: Analysis of Variance (ANOVA[b]) – EC

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,077E16	1	3,077E16	18,574	,000[a]
	Residual	9,941E16	60	1,657E15		
	Total	1,302E17	61			

a. Predictors: (Constant), DIFFERENCE IN EC FROM IAS 17
b. Dependent Variable: EC_difference

We then develop a linear regression model of the form:

$$\Psi = Bo + B1 \times X ,$$ (2)

where Ψ (dependent variable) is the difference in Equity before and after IAS, while X (independent variable) is the difference in Equity arising from IAS 17.

The results of the model are as follows:

Table 3: Linear regression model coefficients[a] – EC

Model	Unstandardized Coefficients		Unstandardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2047285,914	5211719,917		,393	,696
DIFFERENCE IN EC FROM IAS 17	-1,146	,266	-,486	-4,310	,000

a.   Dependent Variable: EC_difference

Table 4: Linear regression model results[b] – EC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,486[a]	,236	,224	4,07039E7	2,084

a. Predictors: (Constant), DIFFERENCE IN EC FROM IAS 17
b. Dependent Variable: EC_difference

As shown by the data in Tables 3 & 4 (Equity Model Coefficients and Results), the difference in Equity from IAS 17 significantly affects the difference in Equity before and after IAS. Observing, however, the value R2 (23.6%), it becomes clear that the explanatory power of the model is limited, since it is very likely that there are other factors, in addition to the difference in Equity from IAS 17, which affect the difference in Equity before and after IAS.

The considerable importance of Equity in a company's total capital is due to the fact that, along with long-term debt capital, it constitutes the most appropriate means for financing its fixed assets. The high return on investments outweighs the high financing cost, while the high degree of investment risk is offset by the low degree of Equity risk.

Debt Capital

Similarly, to investigate the effect of the change in Debt Capital from financial leasing in accordance with IAS 17 on the difference in the valuation of Debt Capital after the adoption of IAS, we formulated and tested the following hypothesis:

Ho: The difference in Debt Capital which is due to adoption of IAS 17 has no significant effect on the overall difference in Debt Capital as presented in financial statements before and after the application of IAS.

As shown by the following analysis of variance tables and, specifically, by the F-test, there is a significant effect, at a significance level of α<0.01, on the difference from the application of IAS 17 for the computation of Debt Capital, as the latter is calculated after adoption of IAS.

Table 5: Analysis of Variance (ANOVA[b]) – DC

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	8,995E16	1	8,995E16	957,604	,000[a]
Residual	4,603E15	49	9,394E13		
Total	9,456E16	50			

a. Predictors: (Constant), DIFFERENCE IN DC FROM IAS 17
b. Dependent Variable: DC_difference

Then, we develop a corresponding linear regression model of the same form as in § 4.2, namely:

$$\Psi = B'o + B'1 \text{ x } X , \hspace{3cm} (3)$$

Where, this time, Ψ (dependent variable) is the difference in Debt Capital before and after IAS, while X (independent variable) is the difference in Debt Capital arising from IAS 17.

The results of the model are as follows:

Table 6: Linear regression model coefficients[a] – DC

Model	Unstandardized Coefficients		Unstandardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5787324,584	1392789,946		4,155	,000
DIFFERENCE IN DC FROM IAS 17	1,100	,036	,975	30,945	,000

a.   Dependent Variable: DC_difference

Table 7: Linear regression model results[b] – DC

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,975[a]	,951	,950	9,69207[E]6	2,035

a.   Predictors: (Constant), DIFFERENCE IN DC FROM IAS 17
b.   Depended Variable: DC_difference

As shown by the data in Tables 6 & 7 (Debt Capital Model Coefficients and Results), the difference in Debt Capital from IAS 17 significantly affects the difference in Debt Capital before and after IAS with a very high R2 value (95.1%). Consequently, the model-equation with high explanatory power which illustrates with a minimum error of 0.05% the relationship of the difference in Debt Capital before and after IAS is the following:
DC before and after IAS = 5.787.324,584 + 1.1 x Difference in DC from IAS 17(4).

Kalantonis, Zopounidis (2009) estimate that the adjustment of accounting reporting to modern-day requirements enhances the explanatory power of financial statements with regard to company profits. The considerable importance of Debt Capital in a company's total capital is due to the fact that it can contribute towards attaining an optimum balance between liquidity and profitability. The low risk and high cost of long-term borrowing for the acquisition of the company's fixed assets, which are characterised by high liquidity risk and high return, contribute to the rational structure of Asset Accounts and the shaping of a debt ratio that is beneficial for the company.

Results – Conclusions – Future Directions

The results were tested for normality of residuals and heteroskedasticity. The residuals were normally distributed and no heteroskedasticity was detected. Observing the R2, it is clear that in the case of Debt Capital the model exhibits high levels of adjustment. Moreover, the coefficients of the independent variables of the models in both tests, as shown by the t-tests which were carried out, are statistically significant. The statistical processing of the data on the 62 corporations of the Athens Stock Exchange also showed the greatest impacts of the application of IAS 17 by subsector, sector and capitalization.

As can be seen in the diagrams in the Appendix, the real estate subsector with -75.040.093€ and 100.000.000€ (Diagrams 1 and 4), the services sector with -11.004,44€ and 24.113.161€ (Diagrams 2 and 5) and Mid-Cap companies with -3.429,26€ and 11.870.988€ (Diagrams 3 and 6) show the greatest average impacts on Equity (negative) and Debt Capital (positive) respectively. The results of the study which pertain to the impact of IAS 17 on Debt Capital agree with Lantto, Sahlström (2009), while those which pertain to the impact of IAS 17 on Equity agree with Cortesi, Montani, Tettamanzi (2009) and Cordazzo (2009). In general, the use of Debt Capital reduces the total cost of capital due to the tax advantage and increases a company's share price, but the excessive use of Debt Capital may produce the opposite results (decrease of share price, offsetting of tax advantage or even loss) by increasing possible financial distress in the future and the company's cost of representation.

The combination of an increase in share price (and, by extension, in the company's value) and a lower weighted average cost of capital determines the optimal debt ratio (Debt Capital/Equity or Debt Capital/Equity + Debt Capital) or capital structure. For Myers (1984), high retained earnings with a low debt ratio constitute "reserve borrowing power" which at the right moment in the future will allow financing with the best possible combination of additional Debt Capital and total cost of capital, while averting the need to issue new share capital.

In Management Accounting, the decision concerning the appropriate selection of the time, size and terms for raising debt capital or not is crucial. According to Greek legislation, IAS and IFRS must be applied also by Public Enterprises not listed on the Athens Stock Exchange (article 1, Law 3899/2010), Basic and Supplementary Insurance Organisations (article 36, Law 3556/2007) and Public Health Facilities (article 28, Law 3918/2011).

The future dissemination of International (Accounting) Financial Reporting Standards and the statistically significant impact of leases (IAS 17) on variations in Equity and particularly Debt Capital enable debt ratio and capital structure to be determined through the different approaches of Finance and Accounting on a macroeconomic level, as shown typically in the grey zone of Figure 2.
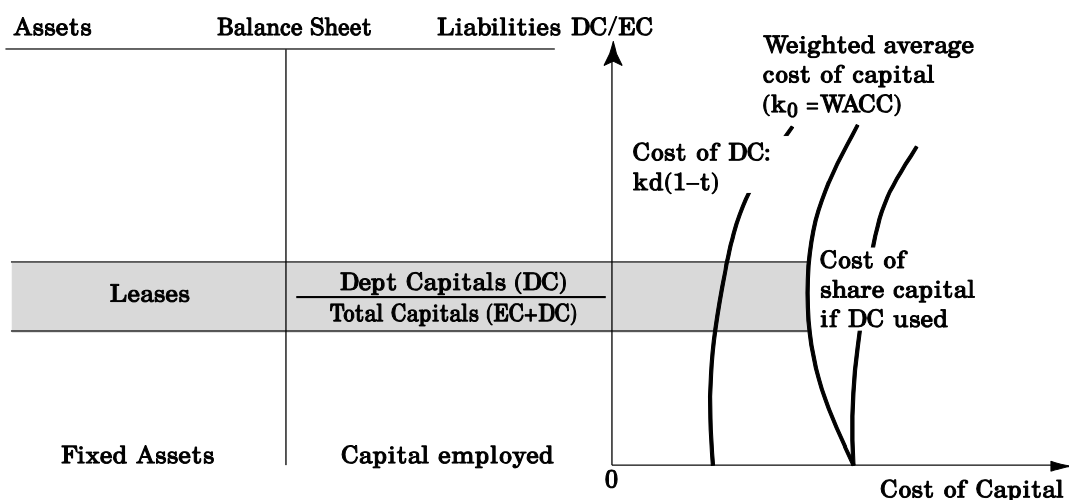
Figure 2: Debt ratio and capital structure

Thus, as the debt ratio increases, the total capital cost curve initially decreases to a minimum level before rising and forming a disc that delimits the area of optimisation of debt ratio (capital structure) and is significantly impacted by the sources, methods and terms for financing fixed assets.

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Appendix

Diagram 1: Difference in Equity arising from IAS 17

Diagram 2: Difference in Equity arising from IAS 17

Diagram 3: Difference in Equity arising from IAS 17

758,178

-1.584,19

-3.429,26

119,54

■OTHER   ■LARGE-CAP   ■MID-CAP   ■SMALL-CAP

Diagram 4: Difference in Debt Capital arising from IAS 17

SUBSECTOR

■REAL ESTATE
■INDUSTRIAL GOODS & SERVICES
■COMMERCE
■CONSTRUCTION & MATERIALS
■MEDIA
■PERSONAL & HOUSEHOLD GOODS
■TRAVEL & LEISURE
■TECHNOLOGY
■TELECOMMUNICATIONS
■FOOD & BEVERAGE
■HEALTH CARE
■CHEMICALS
■FINANCIAL SERVICES

Diagram 5: Difference in Debt Capital arising from IAS 17

Diagram 6: Difference in Debt Capital arising from IAS 17