THE GREEK CORPORATION INCOME TAX: SOME ASPECTS OF BUSINESS TAX HARMONIZATION

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SUMMARY OF THE THESIS:

THE GREEK CORPORATION OF INCOME TAX:

SOME ASPECTS OF BUSINESS TAX

HARMONIZATION

The thesis aims to access the present corporation income tax system in Greece, to consider what changes membership of the E.E.C. is likely to involve and to estimate the impacts resulting from these changes upon economic variables.

As a background of our discussion, the first chapter discusses the rationale of corporation income tax, the shifting and incidence question, and finally the effects of corporate taxation upon the economy. The discussion of the rationale is mainly concerned with the separate and conduit theories of corporate taxation. In addition, the ability-to-pay and benefit principles are discussed. Dealing with the shifting question we discuss the statistical and economic problems which the empirical studies face. The effects of corporate taxation are discussed in the context of dividend policy, methods of financing, and resource allocation.

Chapter two discusses the alternative corporate tax systems from both the domestic and the international point of view. This discussion starts with a new classification of the alternative systems of corporate taxation. The systems are judged under various goals such as dividend policy, methods of financing investment programmes, income distribution and resource allocation. From the international point of view we establish rules for efficiency and equity for each system.

In Chapter three the dividend deduction system is discussed as it is applied to Greece. This chapter begins with a critical discussion of the overall tax structure whose the main characteristics are the predominance of indirect taxes, the lack of a capital gains tax, the minor role of the wealth taxes and the corporate tax followed by a plethora of tax incentives. We construct a tax discriminatory variable between dividend and retention to test the/

existence and effectiveness of such discriminatory policy in Greece.
The role of the internal generated funds, of the banking system and of
the public financial institutions in financing investment projects
is discussed. Then we go on to calculate tax savings from depreci-
ation and investment allowances in the Greek manufacturing.

Chapter four contains an econometric analysis of dividend and
investment behaviour. The dividend model is a generalization of the
previous dividend models. Various econometric techniques are used
to estimate this model. A joint profits-accelerator model is used
to test if retained profits had any contribution to financing invest-
ment projects. The simultaneity and interdependence of dividend and
investment decisions are tested using both single equation and simul-
taneous equation models. Finally, a modified neo-classical invest-
ment model is used to test the effectiveness of tax incentives in
Greece.

Chapter five deals with the problem of corporate tax harmoniz-
ation, within the E.E.C. We begin the discussion by stating the
objectives and the achievements of the Community in the area of taxa-
tion. The three proposals which have been made for corporate tax
systems harmonization are discussed. Emphasis is given to the last
proposal concerning the imputation system. In the second part of
this chapter the causes of the divergencies between the taxable base
of the E.E.C. member states are discussed. We express some preli-
minary ideas how these discrepancies would be lessened. Finally, a
theoretical discussion of tax rate harmonization takes place.

The final chapter outlines the main changes which membership
of the E.E.C. is likely to involve in the Greek corporate tax sys-
tem, evaluating their likely effects upon the Greek economy in terms
of equity, efficiency and growth. The study uses a partial equili-
brium analysis to estimate these effects since both the appropriate
econometric model to capture the simultaneous feedbacks among the
E.E.C. member countries and the required data for the Greek economy
are not available. The final section of this chapter re-capitulate
the main findings and methods used by this thesis. In addition,
some indications are made for further research in this area of tax-
ation.

I would like to Dedicate

the Thesis

to

My mother, my wife

and

my son.

ACKNOWLEDGMENTS

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CHAPTER ONE

THE ECONOMICS OF CORPORATE INCOME TAX

1.1 Introduction

> One of the few changes which have not been
> made to corporation tax is its abolition.
>
> (M. King, 1977)

The above quotation expresses the challenge of the Corporation income tax (CIT hereafter). Two issues are implicitly raised by this quotation, first, the importance of the CIT and second, the lack of consensus among economists about its incidence and its effects. In every country the CIT has been the subject of both academic debate and political experimentation. The existence of CIT has been defended on a variety of grounds and this form of taxation seems to be a permanent element of most countries' tax structures. This is due to the innovation in public policy towards corporations to influence their behaviour. The increasing dominance of the corporate forms of enterprise has led to the separate taxation of companies and this kind of taxation is seen as a major element in any co-ordinated government policy to stimulate investment and raise the rate of economic growth. However, the incidence of CIT and its effects upon economic areas such as growth, stability and income distribution have led to a great deal of intelectual dispute and disagreement among economists. This led to repeated and various suggestions for reforming the system of corporate taxation.

In addition, the interest in CIT has been not only concentrated at domestic considerations. The increasing economic interdependence between the nations, mainly through direct investment abroad, has raised the problem of harmonizing the CIT systems, as a means of reducing inefficiencies and inequities at an international level. This task has been undertaken by both O.E.C.D and the E.E.C. The former by providing tax treaty models, whereas the latter by draft directives for its member states.

The role of CIT in a developing country is particularly important since it is used, mainly, as a means of promoting growth through the use of tax incentives. In a developing and growth-oriented economy such as the Greek, the need to take the maximum of capital for development puts a different emphasis on the corporate income tax development. Greece had exclusively used CIT as one of the main instruments for economic development. On international considerations, the role of CIT was to attract foreign capital for supporting the financing of economic development. However, both the structure and rates of CIT have been stable for a long period, use was made of the investment incentives to stimulate investment. Greece will become soon the tenth member of the E.E.C. Thus, the role of CIT will become more significant. Not only, it will have a role to play within the Greek economy but it will have also to conform the E.E.C rules for tax harmonization. This raises the need to reconsider the whole structure of the CIT in Greece within the new circumstances. Therefore the aim of this thesis is threefold:

a. To assess the present corporation income tax system in Greece.

b. To consider what changes membership in the E.E.C. is likely to involve and,

c. To estimate the impacts resulting from these changes upon economic variables.

The subject, important enough at any time, is of particular importance now for two reasons. First, the Greek economy is in a transitional stage, when efforts are being channelled towards the rapid economic development of the country. Second, Greece will become the tenth member of the E.E.C. on 1st January, 1981. Thus, the need, if any, for a tax reform, is not only as a step towards improvement of the tax system itself but also as a step towards harmonization.

The first issue which must be faced is the place of CIT in the national tax system, especially the proper relation between corporate and personal income taxes. In the U.S.A. the case of full integration or the provision of dividend relief usually depends on the acceptance of the conduit theory of the corporation.

In Europe, the introduction of tax credit systems was meant to

reduce the tax burden on dividends, but it did not reflect any reservations about the separate economic reality of corporate entities (G. Gourevitch, 1977). Within the E.E.C the three suggestions which have been made, adopt three different views regarding this relation. Greece is unique in that respect, it has a system of corporate taxation which is not used by any other country.

The question of incidence and shifting of CIT is important because perhaps one of the most relevant issues in estimating the effect of business taxation on the economy in general, and on the private sector, in particular, is the incidence and shifting of the CIT. At the beginning of the last decade the study of incidence and shifting question followed new directions when empirical studies attempted to give a quantative answer to this question. These studies promoted understanding of the theoretical mechanisms of incidence and shifting but, unfortunately, their empirical results were contradictory and inconclusive. It has been argued that the analysis of shifting is both theoretically impossible and empirically difficult simply because there is neither a common base nor a uniform methodology for empirical studies (Thurow, 1967, Sahni and Mathew, 1977). A simplified, but for first time

∧in the literature, attempt is made in the present study to test the shifting hypothesis in Greece. Our purpose here is not to solve this problem but simply to give some evidence about the indications of tax shifting in Greece.

A third set of issues has to do with the effects of CIT upon the corporate sector and the economy in general. The effect of CIT through differentiation in favour of or against distribution of profits has been extensively discussed and questions about the amount and quality of investment resulting from this differentiation have extended the controversy. The effectiveness and desirability of discriminatory taxation of dividends have been questioned. The majority of the empirical studies agree that discriminatory taxation of dividends has decreased the proportion of profits that is distributed as dividends. However, the desirability question is more debatable since this policy helps existing firms but discourages new firms that must go to the market for funds. The most empirical studies of dividend policy

adopt an ad hoc specification of the dividend model which is tested, listing all the factors which may influence dividend behaviour and establishing an functional dividend equation. The present study will attempt to provide a priori theoretical justification based upon the nature of the Greek economy, for the choice of the explanatory variables in setting up its stohastic model. It goes on then, to test the interdependence assumption between dividend and investment decisions.

The main discussion on the effect of CIT upon firm's financial policy has concentrated on the discrimination between interest payments and dividend payments in computing taxable corporate profits. This discrimination favours debt finance over equity finance. The disagreement about this question is concerned with different assumptions about the capital market, the behaviour of the investors and their certainty as to the profitability of future investment programmes. Unfortunately, the effect of the whole tax system upon the financial decisions of the firm has been neglected. A few theoretical studies have incorporated in their analysis not only the CIT but the whole tax structure (King, 1974, 1977 and Stiglitz, 1969, 1973, 1974). The Greek CIT system treats both dividend and interest payments equally. However, the whole tax structure discriminates between debt and equity finance.

The effect of CIT upon resource allocation is related to the long-run incidence of the CIT. In the long-run it is possible for capital to leave the taxed sector and to move to the non-taxed sector, which results in an equalization of the net rate of return on capital between the two sectors. This is the view adopted by Harberger (1962) who concluded that this flow of capital from one sector to the other creates an efficiency loss for the whole economy. King and Stiglitz have questioned these results arguing that the CIT does not induce capital to mov.e from one sector to the other. The different outcomes reached by these studies are due to the different assumptions adopted by the researchers, Harberger, for example, assumes that all investment is equity financed, whereas King and Stiglitz assume all investment is debt financed. Greece faces a sig-

nificant resource allocation problem. This study attempts an assessment of the role of CIT in alleviating this problem. Finally, this dissertation will attempt to answer to what extent is corporate tax harmonization necessary within the EEC analysing its final proposal for harmonization the CIT systems and expressing some preliminary ideas how to harmonize the tax base. Then, it proceeds to outline the main changes which membership of the E.E.C is likely to involve in the Greek CIT system, evaluating their likely effects upon the Greek economy in terms of equity, efficiency and growth.

At least two important constraints are the main obstacles to this dissertation; first, the absence of related background studies for the Greek economy (KEPE, 1976, & EEC, 1976); and second, the inadequecy and doubtful reliability of the existing data. The absence of background studies is particularly perceptible when we evaluate the impact of harmonization. Therefore, the aim of this dissertation is to cover a part of this gap and to stimulate further research in this important area.

The detailed structure of the thesis is as follows: As a background of our discussion, this opening chapter discusses the rationale of CIT, the shifting and incidence question, and finally the effects of CIT upon the economy.

Chapter two discusses the alternative CIT systems from both the domestic and the international point of view. These systems are judged under various goals such as dividend policy, methods of financing, income distribution and resource allocation. From the international point of view the alternative systems are judged according to their contribution to international efficiency and equity. However, our main interest lies on the dividend deduction system (currently employed by Greece) and the imputation system (proposed by the EEC).

In chapter three the dividend deduction system is discussed as it is applied to Greece. Introducing this discussion a critical description of the whole Greek tax structure is attempted. The chapter looks at how far the available evidence bears out the theoritical expectation about the influence of dividend deduction system on various economic variables. We construct a tax discriminatory variable between retention and dividend to discuss the effect of CIT upon dividend policy. The effect of CIT upon methods of finance is confined only on qualitative discussion since the available data do not allow an econometric test. Finally, the tax savings from depreciation and investment allowances are calculated.

Chapter four contains an econometric analysis of dividend and investment behaviour. We test how taxation affects dividend policy by discriminating between dividend and retention. The simultaneity and interdependence of dividend and investment decisions is also tested using both single equations and simultaneous equations models. Using the tax savings variables calculated in the previous chapter we test the effectiveness of the tax incentive upon investment expenditures. Finally, we use these models to test the shifting and incidence of CIT in the Greek manufacturing.

Chapter five deals with the problem of CIT harmonization within the EEC. The last EEC proposal for harmonizing the system of CIT is evaluated and contrasted with the existing imputation systems within the EEC. Some preliminary ideas for tax base harmonization are suggested in the second part of this chapter.

The sixth chapter outlines the main changes which membership of the EEC is likely to involve in the Greek CIT system evaluating their likely effects upon the Greek Economy in terms of equity, efficiency and growth. This study uses a partial equilibrium analysis to estimate these effects since both the appropriate econometric model to capture the simultaneous feedbacks among the member countries and the required data for the Greek economy are not available.

1.2 THE RATIONALE OF CORPORATE TAXATION

1.2.1 Introduction

The existence of CIT per se and its relationshop to the personal income tax are two questions which have produced a great deal of discussion between the tax experts[1]. The existence of CIT has been defended on a variety of grounds despite the considerable inefficiency it introduces, this form of tax seems to be a permanent element of most countries' tax structure. As is well stated by Musgrave:

> "Treasuries like the CIT because it is a convenient way to get revenue. Labour unions like it because they think it falls on profits and makes the tax structure more progressive. Businesses do not mind it because they tend to believe that the tax is passed on, and consider it objectionable only when/

management decisions are interfered with.
Proponents of equity feel that in an imperfect
world the tax is appropriate as an offset to the
lack of capital gains taxation. Others, not so
equity minded, fear that integration would open
the door to the taxation of unrealized capital
gains and prefer to stay with the absolute cor-
poration tax. Still others view it as an inst-
rument of economic policy", and he concludes,
"For these and other reasons an absolute corpor-
ation tax has remained popular and continues to
receive support from both liberal and conser-
vative circles, but all this, alas, is an ex-
planation, not a justification for such a tax".
<div align="center">(R.musgrave,1970)</div>

The controversial issue in the debate is the question: Are the cor-
poration and its shareholders really synonymous? On this question,
politicians, economists and businessmen alike differ among themselves.
The law provides the corporation with a legal personality. However,
does the corporate income belong to the corporation or to the share-
holders? If it belongs to the former then a justification for a sep-
arate tax on corporation exists; but if to the latter, then there is
no justification for its existence. Two diametrically opposite views
have been expressed regarding this question, and different arguments
have been used by each side to support its view. A brief survey of
these follows.

1.2.2   The Conduit and Separate Approaches

The first school of thought, the separate approach, is in line
with the law, which realizes the corporation as a legal entity, separ-
ate from its shareholders. Therefore the existence of CIT is justified
on its own merits and hence should not be closely integrated with the
personal income tax. in Professor van den Tempel's words,

> "Modern industrial development has meant that
> notably the public share compahy of which the
> shares are quoted on the stock exchange, when
> seen from an economic and social point of
> view has an existence of its own, independent
> of that of the shareholders"(van den Tempel,
> 1970).

This school of thought accepts that the interest of a corporation
is to be found in the sphere of production and that it may not coin-

cide with the shareholders' interest. It rejects the idea that the
share company is a form of contractual co-operation but it accepts
that it is the share company which has the status of entrepreneur and
which competes with the enterprises of natural persons. Finally, it
concludes: that the income of a corporation cannot exclusively be
seen as partly already distributed and partly not yet distributed,
dividends; and that since corporations and shareholders are separ-
ate for most purposes, there is no need to integrate them for tax
purposes.

On the other hand, the conduit approach views the corporation as no
more than a legal intermediary between the shareholder and the income -
creating production process.[2] A corporation, in comparison with other
forms of enterprise, is considered as the form adequately equipped to
sustain the increasingly large scale of operations demanded by chang-
ing technological and economic conditions and it is clear that busin-
esses would have been constrained in their attempts to raise capital
and in the extent of their activities if the corporate form had not
been devised. The law provides a corporation with a legal personal-
ity separate from that of its shareholders. However, it remains an
artificial creation and even though shareholders may have only limi-
ted control over their corporation, they are the ultimate recipients
of the income and the ones who have the taxable capacity. Therefore,
the existence of a separate tax on corporate income and the absence
of any link between the personal and corporate taxes are unjustified.
Professor Musgrave says:

> "All taxes are ultimately paid by people, and
> equity deals with the distribution of the tax
> bill among individuals or families. Corporat-
> ions as such cannot bear the ultimate burden.
> They are important legal entities and powerful
> decision making units, but they do not have a
> taxable capacity of their own." (R.Musgrave 1970)

These equity considerations are dealt with in the next section
under the principle of benefit and ability-to-pay taxation.

1.2.3 Benefit and Ability-to-pay Principles

The first question concerns the principle on which the CIT should
be based. Specifically, is it a case for applying the benefit prin-
ciple or the ability to pay one? The proponents of the separate

approach argue that a corporation enjoys special privileges and benefits, on the one hand, but it produces external diseconomies on the other. The corporate form of making business enables a corporation to assemble a large sum of capital, which may lead to higher rates of profits. These profits roughly measure the benefit the firm gets from incorporation. However, the counter argument says that if a separate tax on profits is justified on these grounds then this tax should be imposed on "incremental earnings", that is, the amount of profits which a corporation earns above what it could have earned under any other legal form of doing business. However, such a tax would be completely impracticable. It is true,too, that a corporation enjoys some benefits provided by the government. However, these benefits are provided not only to a corporation but to other forms of business, and to profitable and unprofitable enterprises alike. The connection, therefore, of these benefits to specifically corporate profits seems implausible. Finally, it is argued that the CIT is justified as a payment for social costs produced by a corporation, for example, pollution costs. Professor Harberger, rejecting this argument, says:

> "The only sense that can be made of this argument if it is regarded as justifying the tax from a social welfare point of view - is that corporations engender external diseconomies in amounts which are proportional to their profits-clearly an absurd contention. Indeed, it is highly likely that the use of capital in the corporate sector, far from producing diseconomies, generates external benefits on a scale far surpassing that of other uses of capital".(A.Harberger, 1968).

As such benefits he considers the assembling of large sums of capital, the exploitation of economies of scale, and the fostering of the development of the capital market in equities. Professor R.Musgrave continues,

> "but there is no reason why such a tax should be imposed on corporations only, nor why the tax base should be defined in terms of profits rather than, say, value added. Beyond this the value of incorporation as such is a benefit(not a cost) to the economy and not a proper object of benefit taxation". (R.Musgrave, 1970)

The 'conduit' theorists, on the other hand, argue that the
CIT is simply one element in the whole system of ability-to-pay
taxation, and as such, should be carefully merged with the other
parts without significant gaps or overlaps. They accept that
in the absence of a separate corporate tax individuals would ac-
cumulate income in corporation and then realize it in the form
of capital gains at a low or zero rate of tax. The problem, then
is neither to penalize the corporate form of doing business, nor
to permit it to serve as a tax shelter for its owners. There-
fore, from an equity point of view it can be argued that firms
should be required to distribute all their profits and raise cap-
ital through the capital market. Against the 'conduit' theory,
on the other hand, it has been argued that both distributed and
undistributed profits belong to shareholders, but they are not
equivalent to each other since the latter belong to shareholders
in a technical and restricted sense only (C.Sandford , 1978).

1.2.4   A Tool for Economic Policy

Another argument in favour of a separate CIT concerns the
effectiveness of national economic and fiscal policies. The gover-
nment may use the CIT as a means of channelling resources and in-
fluencing financial flows; Policy - makers have an instrument to
control short-term flactuations in aggregate demand. Consumption
spending depends primarily on disposable income which is related to
corporate profits through the dividend paid out. Therefore, the
extent to which CIT can be used as an instrument for stabilization
policy, depends on the amount of dividends paid out in relation
to the gross national income. Devices such as accelerated depre-
ciation, tax credit, tax rate changes, and the like are also used,
to control short-term flactuations in corporate investment.

1.2.5   The Pragmatic or Cynical Approach

The final argument in favour of the CIT is a purely prag-
matic or cynical one. Its ability to raise revenue makes CIT
attractive to both economists and politicians. The former pre-
fer CIT because it is easy to administer and provides them with
high yields at a relatively low cost. The latter prefer CIT be-
 cause there is no other tax which provide them with so high
yields while making so few voters angry.

1.2.6   Conclusion

The Carter Report states:

Equity and neutrality could best be achieved under
a tax system in which there were no taxes on organ-
izations as such and all individuals and families
holding interest in organizations were taxed on the
accrued net income from such interests on the same
basis as all other net gains (Carter Report, 1967).

Unfortunately, it concludes, that even were it not desir-
able we should have a tax on companies because it is practi-
cally difficult to tax accrued capital gains.

In the light of the above discussion we could argue that while
it is important for a group of people who form a company to en-
joy freedom of action it is also necessary to acknowledge the fact
that the granting of legal personality to the company may give
rise to problems of an essentially economic kind. Looking at the
corporation as a decision-making unit, it may be true that its
interests do not coincide with the shareholders' interests. However,
is that a sufficient reason to justify a charge on tax on the com-
pany? The /

application of the benefit principle to corporate income seems hard to defend in view of the various critisms made. Therefore, the application of the ability-to-pay principle seems to be the less vulnerable of the two to critism. The above described philosophies are reflected in the choice of the system of corporate taxation. Three systems, the classical or separate, the imputation, and the two-rate system are the most common nowadays. These systems plus other alternative systems are fully discussed in chapter two.

1.3 INCIDENCE AND SHIFTING OF THE CIT

1.3.1 Theoretical Considerations

> "So much has been written about the response of
> firms to changes in CIT, and so little resolved,
> that one enters this field with great hesitation".
> (K.Coutts, W. Godley and W. Nordhaus, 1977).

The economic relationships between the members of a society may give rise to the possibility, for a taxpayer, of trying to shift the tax burden to other members of the society. The discussion of the incidence of the individual income taxes and of the excise taxes on specific commodities has led, at least, to "a reasonable presumption" regarding the economic effects of a tax change. In contrast, there is no unanimous agreement as to whether or not the CIT is shifted. Some students of taxation argue that the fact that no generally accepted theory has been developed, is due to the fact that this study is related to price and wages determination, two subjects on which there is no unanimous consensus among economists. Some others argue that the inadequacy of methods of testing the theory is the obstacle to reaching definite conclusions.

Analysis of the CIT depends critically on the assumptions made concerning the behaviour of the firm. The traditional argument is that the CIT cannot be shifted in the short-run under both competitive and monopolistic conditions. This is because in the short-run the imposition of the CIT changes neither the marginal revenue nor the marginal cost, which implies that there will be no change in the pre-tax profit maximization combination of price and output. On the other hand, non-profit maximization theories accept a degree of shifting. The Baumol sales revenue maximization hypothesis allows

for shifting up to 100 per[3]cent of the CIT (W.Baumol, 1953). It depends on how the imposition of CIT affects the relation between realised profits and the minimum acceptable level of profits. Under the target rate of return or full-cost pricing hypothesis the firm aims to achieve a target rate of return on employed capital, thus, it sets price so as to cover average total cost at some standard value of sales, plus a "customary" profit margin. Furthermore, this margin is likely to be calculated net of tax, so that the CIT might be viewed as an element of average cost and consequently added to price.

While these studies yield useful preliminary insights, they have been criticised on various grounds.[4] First none of the above theories gets outside the confines of partial equilibrium analysis. There is no doubt that partial adjustments are important elements of the general change, but that is all. Partial equilibrium analysis is not designed to cope with the overall changes induced by the CIT. A general equilibrium framework is considered more efficient for capturing the intricacies of the interdependence among markets in order to analyze the final outcome of tax shifting. Second, these studies were unable to isolate the effects of the CIT and to give answers to questions such as what is meant by different degrees of shifting, indicators of shifting, and the measurement of shifting, using econometric techniques. This was left to a series of subsequent studies, utilizing econometric models, beginning in the early 1960's.

1.3.2. Empirical Evidence

Two approaches have been followed to study empirically the tax incidence question, the rate of return approach and the factor-share approach. The former approach uses multi variate regression techniques and tries to isolate the corporate taxation effect from other variables which influence the rate of return. The Krzyzaniak and Musgrave (K - M hereafter) study in 1963 is considered representative of this approach and a landmark in the econometric study of incidence. The factor share approach is based on the assumption that if, ceteris paribus, the before-tax share of profits in income originating in the corporate sector increases following an increase in

corporate tax rate, shifting has occurred. On the other hand, if the pre-tax profit share does not increase the tax is not shifted, irrespective of what the rate of return indicates. This approach is represented by studies made by Hall and Turek, (J.Hall, 1964 and J.Turek, 1970).

It is not the purpose of this section to offer a full review of the subject. Instead we discuss the reasons why empirical work has failed to reach an unanimous, accepted conclusion. The K-M study, despite the methodological drawbacks and the fact that the conclusions reached are not accepted by the whole body of students of incidence is important because it laid the foundation of a new type of study of incidence. It can therefore be used to demonstrate important problems of econometric analysis in this field.[5]

The essential idea underlying the K-M analysis is as follows: if corporate taxation is borne by firms, changes in the tax rate have no effect on the gross rate of return on corporate capital. In contrast, if the CIT is shifted forward then the gross rate of return increases to recoup the tax in order to keep the net rate of return constant. K - M related the gross rate of return on corporate capital first to the ratio of inventory to sales in manufacturing, with a lag of one year; second, to the change in the ratio of consumption to GNP, with a lag of one year; third, to the current year's ratio of non corporate tax accruals to GNP less transfer payments; and, finally, to the CIT as a percentage of the corporate capital stock. K - M reached the conclusion that the coefficient of the last variable was equal to 134 per cent, which means that the CIT is not only passed on to consumers but passed on by more than hundred per cent; that is, the imposition of the CIT increased the rate of return on capital.

Like every pioneering work, the K-M study has been severely critized on various grounds. This criticism can be elaborated in terms of four specific points. First the selecting, defining and measuring of the variables to be included in the model. K-M admit that they reached their formulation of rate of return relationship after a great deal of experimentation. Despite the fact that they postulate an eight equation macro model from which they supposedly draw their variables,

their approach is considered an ad hoc single equation one. This is so because there is no theoretical justification of the variables included; it seems rather that the inclusion of the variables was based on purely statistical considerations. Slitor and Goode, complain about the imprecision of the definition of the variable used to measure the effective tax rates . (R.Slitor, 1966, and R.Goode,1966). They argue that, including excess profits taxes in its numerator and losses of the deficit companies in the denominator, the tax variable fails to isolate the rate changes that can logically be expected to induce corporate attempts at tax shifting. In addition, Goode has pointed out that the rate of return on corporate profits is subject to large errors of measurement. He suggests that the relevant capital base is the average of the years instead of capital at the beginning of the year as specified by K - M.

The second major criticism of the K - M study is related to the significance of variables omitted from their model. Krupp emphasized that we must ask which consequences follow from a misspecification of the basic equation (J-H. Krupp, 1969). The exclusion of a number of endogenous variables such as prices, wages and costs of raw materials, from the reduced form equation may raise, at least, two problems. First, the model may fail to explain reality and second, the estimates of the parameters are both biased and inconsistent. In addition to that, the included variables act as a proxy for those excluded, yet the estimated coefficients also contain the influence of these omitted variables. Unfortunately, the inclusion of the omitted variables would create other problems. The correlation between the explanatory variables raises the problem of multicollinearity which makes the parameter estimates lose their precision. Clearly, there is a trade-off between the above two problems. Two studies tried to overcome these problems. The first, by Cragg, Harberger, and Mieskowski (K-H-M), introduced a 'cyclical variable' in the form of the employment rate and a 'dummy variable' to represent wartime mobilization for war-related years (J.Cragg, A.Harberger & P.Mieskowski, 1967,1970). The second, by Slitor, added as independent variable the ratio of 'actual to potential GNP (R.slitor 1966). Both these studies reached results which are not in agreement with those found of K-M. The existing econometric difficulties made C-H-M realise that even their modification on K-M model is inadequate to provide

reliable results. Slitor concluded that "the issue of shifting and incidence of the corporate tax remains in a highly unsettled state" (R.Slitor, 1963).

A third criticism of the K - M studs is related to the limitations of the single equation model and of the estimation method used. The single-equation model fails (i) to take account of all variables, which are highly correlated with the rate of return, (ii) to include only the explanatory variables, which are not correlated with each other, and (iii) to test an equation, which contains only one dependent variable (Agapitos, 1974). These problems are serious if the single equation may be part of a larger interdependent system. Therefore, what is needed is a multi-equation model which explicitly specifies the jointly dependent nature of the CIT burden, the rate of return on capital, the payment of labour, and the price level, as the key economic variables. K - M some years after the appearance of their work realized that "our initial effort should eventually come to be replaced by a more complex approach, involving a structural model in which price, wage and shifting behaviour are specified and all equations are identified" (K - M, 1967).

The K - M study also suffers from the limitations of the estimation method. They use the instrumental variable technique, which raises the problem of the choice of instrument. Gordon (1967) has demonstrated the inaccuracy of the K - M technique by replacing the use of instrumental variable technique by non-linear estimation techniques.

Finally, Agapitos (1974) has raised the question of aggregation bias in the statistical estimates. He considers that the aggregation error in the K - M model may be serious since K - M, do not refer to the industry-level statistics but to the national aggregate.

Concluding, during the last decades interest in the incidence of CIT question has been great despite the fact that the various studies left unsettled the actual direction of such incidence. With this background we proceed to study the effects of CIT upon various economic decisions.

1.4 DIVIDEND POLICY AND CORPORATE TAXATION

1.4.1 Introduction

"An understanding of the forces that influence corporate dividend decisions is important to economists for several reasons." (P.Darling,1957). Dividend policy[6] has important consequences for both the whole economy and the business sector. Changes in dividend policy have an impact on the level of gross national product and its components. In particular, dividend policy can be used as a means of promoting growth, stabilizing the economy and affecting the distribution of income. The growth of the economy is traditionally related to investment[7], since, for given profits, smaller dividends involve greater corporate savings, that is, more available funds for financing investment programmes, it is argued, that this is a way in which dividend policy affects growth. At the same time changes in dividend payments affect aggregate demand so that their control may afford as a means of stabilizing the economy. It has also been argued that a shift from dividends to retained earnings may lead to an apparent change in the distribution of income even though post-tax profits and the underlying real distribution have remained unchanged (M.King, 1977).

1.4.2 The Modigliani - Miller Theorem

It is convenient to begin our discussion of dividend policy with the neoclassical view expressed by Modigliani and Miller (M - M), (F. Modigliani and M. Miller, 1961, 1967). Their theorem is based upon the assumptions of perfect capital markets, rational behaviour and perfect certainty. In perfect capital markets there are no brokerage fees, and transactions costs when securities are bought, sold or issued and there are no tax differentials either between distributed and undistributed profits or between dividends and capital gains. Rational behaviour requires investors to be indifferent between dividend payments and capital gains. Finally, complete certainty on the part of investors as to the profitability of future investment programmes means that they need not distinguish between stock and bonds as sources of funds. Under such circumstances they conclude that firm's valuation ratio ($\frac{\text{Share price}}{\text{earnings per share}}$) will be independent of dividend pay-out ratio. This is so because otherwise, holders of low-return (high-priced) shares could increase their wealth by selling

these shares and investing the proceeds in shares offering a higher rate of return. This process would tend to drive down the prices of the low-return shares and drive up the prices of high-return shares until the differential in rates of return had been eliminated. If the investor needs income in some future time period he can sell some of his shares to realize capital gains. Finally, they conclude that retained profits rather than dividends are the primary decision variable and they regard the decision in question simply as an investment decision.

The M - M assumptions have been critized on various grounds. The presence of taxation in general, discrimination between distributed and undistributed profits and between dividends and capital gains in particular, plus the presence of transactions cost, are the rule and not the exemption in any economic society. Therefore, the introduction of taxation and transaction costs may mean that there will be an optimum dividend policy for the firm: distribution policy will no longer be unimportant. These elements and others which are discussed below make dividend policy a matter of considerable complexity. In practice there are complications which should be taken into account. We would put these under two broad headings; first, tax considerations both for firms and for their shareholders; and, second, the importance which shareholders and firms attach to dividends. We proceed first to discuss the non-tax considerations which may affect dividend policy.

1.4.3 Non-Tax Factors Affecting Dividend Policy

A corporation has a choice whether to distribute its earnings to shareholders as dividends, to retain them for financing investment programmes or to adopt some combination of the two policies. The question is; what factors influence the firm in making its decision? Various theories have been developed concerning these factors. Some believe that dividends are the "primary and active decision variable in most situations" and their stable dividends are consistent with the goal of maximizing value per share (J.Lintner, 1956). Others believe that dividends play a passive role and that dividend policy is a by product of investment and financing decisions.(E .Lerner and W.Carleton 1966). Finally, some others believe that dividend policy

has a direct effect upon the value of the firm (M.Gordon, 1962).

The purpose of this dissertation is to discuss, only, the tax factors which affect dividend policy. However, a brief discussion of the non-tax factors may help us to understand better the whole spectrum of dividend policy. All these factors may lead in one direction but they most frequently lead to conflicting objectives. These objectives constitute the desires of three groups, the owners, the firms, and the government. Unfortunately, the body of the shareholders is far from homogenous in respect of these various objectives. This gives rise to two problems: first, the collection of information about their preferences, and second, the reconciliation of their conflicting objectives.

1.4.3.1 The Owners

Shareholders may belong to different income classes. Those who belong to low income classes may prefer a higher percentage of profits to be distributed or they may prefer to maintain the existing payout ratio. On the other hand, shareholders who belong to higher income and personal income tax classes, may prefer lower dividend payments. The choice between high and low dividend payments is a choice of the form in which shareholders want their income, that is, dividends or capital gains.

A second,factor, which may be related to the first, is the position of shareholders as far as risk is concerned. If they are risk averters they may prefer the maximum income consistent with safety, that is, prefer current dividends to future capital gains. If they are risk-takers they hold shares primarily for capital gains, and therefore, prefer low dividend payments to high.

Income from other sources may also affect shareholders' desire to receive dividend or not. Since, firms supposedly work for their shareholders benefit, it is logical to argue that their dividend policy would be influenced by the need of shareholders for income. The extent to which this need of shareholders would affect corporation's dividend policy is a matter of the pattern of ownership, that is, whether it is a closely or publicly held company, the homogeneity of shareholders and the attitude of directors.

The opportunities available to shareholders to invest outside
the corporation may affect their choice regarding dividend policy.
It is supposed that directors properly retain earnings and reinvest
them as long as the return is as great as the shareholders could earn
in alternative uses of the funds. However, it is not always true that
directors give any consideration to this point, either because they
do not know what alternatives are open to shareholders or because
they put their personal interest above shareholders' interests.

Finally, tax considerations for the shareholders may also affect
the corporation's dividend policy. The distinction between a closely
and publicly held corporation is essential. In a closely held cor-
poration, dividend policy is likely to be much more determined by the
principal owners. If the latter have income from other sources,
which may fluctuate from year to year, they could arrange a dividend
policy in such a way as to minimize their total tax bill. The dif-
ferential treatment of capital gains and current income may also be
used for the benefit of shareholders. In a publicly held corporation
it is difficult to ascertain what dividend policy would be in the in-
terests of the whole body of shareholders since it is far from homo-
geneous but two devices which have been used to reduce tax liability
may be mentioned, namely, the practice of permitting shareholders to
receive profits in the form of stock splits or in the form of stock
dividends.

1.4.3.2 The Corporation

The corporation can use either external or internal funds for
financing its investment programmes. In a period of fast growth and
limited external funds it may finance its programmes at the expense
of dividends. In contrast, if there are no more profitable oppor-
tunities for expansion the firm is likely to adopt a high payout
ratio for two reasons. Either, to give shareholders a chance to in-
vest elsewhere or to allow them to increase their comsumption.

Corporations are not entirely free to determine their dividend
policy. As we saw in the previous section, their policy, particularly
in closely held corporations, is affected by shareholders. In addit-
ion, the corporate charter or the law may put some restrictions on
their policy. However, it should be realized that none of these re-

strictions are so severe as to deprive freedom from the firm to determine its policy.

Most firms are subject to some fluctuations in their profitability during the several phases of the business cycle. The fluctuations in profits induce firms to follow a stable dividend policy, that is, to retain during boom periods an amount of profits for distribution during slump periods, sufficient to keep their shareholders' income, on average, at the same level.

The managers of a corporation may be affected in their decision to distribute profits in the form of dividends by the threat of takeover bids. These activities may lead managers to distribute a higher level of profits in order to drive away takeover through a higher level of dividend. This hypothesis has been developed by Marris in 1964.

Concluding, we could say that the board of directors should take into account all the above factors in order to formulate a dividend policy that is in the best interest of both firm and shareholders. A change in dividend policy attracts the most attention of directors. They want to be sure that the determining factors warrant the change.

1.4.3.3 The Government

We mentioned in a previous section that changes in dividend policy have an impact on the level of gross national product and its components. The government may wish to influence dividend policy for several reasons. First, with a given amount of profits any change in dividends involves an equivalent change in retained earnings. The latter change may affect the level of corporate investment and this may affect the growth of the economy. In a later section we will discuss under what circumstances this is the case. Second, it has been argued that a change in dividend policy has important consequences for the distribution of income. It is added that dividend policy not only affects the distribution of income but the distribution of wealth as well. Third, in certain circumstances dividend policy may be used as a means of combating inflation. There is, however, no unanimous consensus among economists regarding its effectiveness. Some believe, that there is a correlation between dividend policy and the consum-

ption of shareholders; others deny the existence of such a correl-
ation but argue that the purchase of capital goods per se is an in-
flationary factor in the same way as the purchase of consumer goods
by the shareholders. Finally, if corporate saving does not affect
short-run investment but dividends influence consumption, a stabili-
zation device may be provided to the government as a means of affect-
ing demand in boom and slump periods.

1.4.4 Appropriation of Profits and Taxes.

We have seen that government may affect the appropriation of
profits through taxation and legal restraints. Since the latter meth-
od is less important than other methods used by the government to in-
fluence the appropriation of profits and not very common, we concen-
trate our discussion upon the former.

Taxation may affect dividend policy in various ways. The tax
system per se may affect dividend policy. As we will see in the dis-
cussion of the existing corporate tax systems, the interaction between
corporate and personal taxes involves the so-called double taxation of
dividends. The separate entity system, for example, implies full
double taxation of dividends, whereas the partial integration systems
attempt to alleviate it.

The former system may encourage firms to retain their profits in-
stead of distributing them to shareholders as a means of avoiding
double taxation. This is the so-called "lock-in".effect.

The tax rate may be used to affect dividend policy, too, through
differential treatment between dividends and capital gains and between
dividends and retained earnings. Some governments tax capital gains
at a lower tax rate than dividends and others exclude them from their
definition of income. This differential treatment may encourage
shareholders to wait for capital gains which are taxed at a lower
rate. The second type of differential between dividends and re-
tained earnings affects the opportunity cost of retained earnings.
It is expressed in terms of the net dividend foregone by shareholders
as a result of retaining earnings. This type of profits-tax differ-
ential plays a significant role in dividend behaviour. The ration-
ale behind this discriminatory treatment is that tax payment from
retained earnings is at the expense of total savings whereas tax

payment from dividend income is at the expense of consumption and
saving of the dividend recipients.

The fluctation of profits provides managers with another device
for reducing the total amount of tax paid, through dividend policy.
This is to establish a stable dividend policy instead of distribut-
ing the total amount of profits or a fixed proportion of profits each
year. The result of such a policy is to transfer shareholders' income
from higher to lower brackets according to the level of profits. This
implies that the total personal income tax bill is less, since the
average tax rate applied to this distribution of income is lower.

The questions which arise are: how effective is this discrimi-
natory tax policy in influencing dividend policy and what are its
consequences for the economy as a whole and for the business sector
particularly?

1.4.5 The Effectiveness of Tax Policy upon Dividend Policy

The above questions have produced a great debate between tax ex-
perts. Both theoretical and empirical studies have attempted to an-
swer these questions. Some doubts have been raised as to the desir-
ability of affecting dividend policy and the effectiveness of attempts
to do so.

The supporters of discriminatory tax policy between retained
earnings and dividends argue that more retained earnings lead to
higher investment. On the other hand, it is argued, the object of
corporate saving may be twofold. First, to finance investment prog-
rammes internally and second, to build up a reserve which can be used
to even out the payment of dividends. If the second is the reason for
retaining earnings then tax policy does not achieve the desired re-
sult, that is, to increase investment. Suppose that the first mo-
tive is the case, then more corporate savings lead to higher invest-
ment. This raises the resource allocation question. It has been
argued that a great dependence on internal funds is open to serious
objections. If the decision to finance investment programmes through
internal funds is based on profitability criteria and it is not a re-
sult of tax-avoidance or the pursuit of personal satisfaction by
managers, then these investments satisfy the test of the capital

market. Otherwise the quality of new investment is questionable[8].

It has also been argued that the discrimination of tax policy in favour of retained earnings favours the existing firms and discourages new firms that need funds from the capital market. By doing so, this discrimination results in a distortion operating against external finance.

Any attempts to provide an answer concerning the direction and magnitude of changes in national income resulting from a change in dividend policy requires us to take into account some other factors which have been assumed constant, so far. Does the change in question affect the propensity to spend of corporations, individuals and government? Any change in profits may have an effect upon the share of each group. How does this change affect the propensity to consume? Any change has an effect upon the economy through the multiplier. If the investment multiplier is higher than the consumption multiplier then a tax policy in favour of retained earnings is preferable to one which favours distribution, if the goal is to promote expansion.

Corporate saving can be used as a means of stabilizing the economy through their effect upon investment and consumption. A tax induced change in corporate saving may affect investment in a desirable direction, that is, to increase investment in period of insufficient aggregate demand or to decrease them in period of excess aggregate demand. Some doubts have arisen concerning the effectiveness of this policy since it has been found that investment reacts to changes in corporate saving after a substantial lag[9]. In contrast, in a period of higher profits, retained earnings tend to increase, however, comsumption rises by less than if all profits had been distributed, whereas when profits are falling, the dividends received by shareholders may be held constant by drawing from reserves and so consumption falls less than if no reserves were available.

1.4.6 Empirical Evidence

Empirical studies attempt to answer the following three questions: (1) Does the tax discriminatory policy affect the appropriation of profits? (2) Does more corporate savings lead to higher levels of investment? (3) if the answer in the second question is yes, are corporate savings invested in profitable investment prog-

rammes?

Three approaches have been used to study dividend behaviour.
The first, the ad hoc empirical approach, lists all the factors which
may influence on dividend behaviour and establishes a functional divi-
dend equation. To this approach belong studies made by Brittain
(1964, 1966), Fama and Babiak (1968) Feldstein (1967, 1970), Fisher,
(1970) and King (1974). The second, the income model approach,
assumes that dividends are a stable function of corporate income.
In this approach belong studies made by Tinbergen (1939), Modigliani ·
(1949), Dobrovsky (1951), Lintner (1956) and Fisher (1957). Finally
the utility maximization approach assumes that the dividend behaviour
is the outcome of an explicit optimization process where the object-
ive function, the managerial utility function, has as arguements the
level of dividends and retentions (M.King, 1977). This utility fun-
ction is maximized subject to a pre-tax profits constraint, where
this pre-tax profits are necessary to finance retained earnings and
dividends. It is worth mentioning the main characteristics of some
of these studies.

Lintner developed the following partial adjustment model which
relates aggregate dividends to the last year's dividends and after-
tax current year's profits:

$$D_t = a + crP_t + (1 - c) D_{t-1} + U .$$

where,

D_t = current year's dividends

D_{t-1} = last year's dividends.

P_t = current after-tax profits

r = the target payout ratio and

a and c are constants, a reflects the reluctance
of managers to cut dividends, whereas c is the speed-of-adjustment
factor. It takes values in the interval zero and one. If c = o
dividends will equal a + D_{t-1} , that is, will change independent of
profits by an amount of a. If c = 1 dividends will equal to a + rP.
The value of c depends on considerations such as the need for inter-
nal finance, the feeling of management about the changes in profits
etc.

Lintner based his model on interviews which he made with financial managers and its rationale is that dividend depends directly on both current net profits and last year's dividends. He concluded that dividends are the primary and active factor in making the appropriation of profits decision.

Brittain showed that the above model predicts better when cash flow rather than profits is used as the profits variable. He defines cash flow as the sum of after-tax profits plus depreciation allowances. The rationale of this approach is that the ability to pay dividends depends on gross profits rather than net profits. Brittain argues that net profits are a misleading indicator of profitability. His model also provides a relationship between dividends and the individual income tax rates and it tries to explain how changes in the latter affect the dividend payout ratio. He finally, concluded that the introduction of corporation tax via its effect on after-tax profits made the tax structure affect dividend policy substantially.

Feldstein used a model which in King's words is a considerable advance in scope and identification despite its inadequate specification. He generalized the Lintner model and using various advanced econometrics techniques concluded that differential taxation substantially influences dividend policy. He added in Lintner's model a tax discriminatory variable which represents the opportunity cost of retained earnings in terms of net dividend foregone. He found that the equilibrium elasticity of dividends with respect to the tax discriminatory variable is equal to 0.9 which means that a one per cent increase in the opportunity cost of retained earnings results a 0.9 per cent increase in dividends.[10]

Fisher (1970) using data for the same time period but using an adaptive expectation model reached the same conclusion, that is, the differential profits tax on distributed earnings plays a significant role in dividend policy. He assumed that taxation influences dividend policy in two ways. First, by changing the relative cost of distribution and second, by affecting the amount of profits available for distribution. He concluded that the second effect is predominant in contrast to Feldstein who found that the first effect is

more important. He finally argues that "clearly, more research is
needed before definite conclusions may be established"[11]

Feldstein and Fane (M.Feldstein and G.Fane, 1973) attempted to
give an answer to the second question, that is, whether higher cor-
porate savings lead to higher investment. They examine if changes
in corporate saving have an effect on capital formation through
changes in personal savings. They argue that even though the effect
of tax differention upon dividend policy is clear the effect of a
change in the latter upon capital formation is ambiguous. They
suggest that the clarification of this effect requires two separ-
ate questions. First, does an increase in corporate savings induce
firm to decrease external finance so that investment remains un-
changed? Feldstein and Flemming in another study found that an
additional one hundred pounds of retained earnings increase invest-
ment by about thirty pounds. Second, does any correlation between
corporate and personal saving exist and if the answer is yes, how
strong is that? They found that a rise in company saving is not off-
set by a decrease in personal saving and an additional pound of re-
tained earnings may increase total saving by less than 0.50 pounds
(M.Feldstein and J.Flemming, 1973).

Finally the profitability of the investment undertaken with these
funds was studied by another group of researchers. Little is the
first who raised the question whether retained earnings lead to high-
er earning for the company (I.Little, 1962). In other words, he
raised the question whether retained earnings are wisely invested.
He concluded that "ploughback appears to have no effect on growth".

Baumol et al considering the same question found that the rate
of return on new equity capital is very much higher than the rate of
return on either ploughback or new debts (Baumol et all, 1970).
Whittington, using a different methodology from Baumol's, with U.K.
data reached the same conclusion that retained earnings seem to be
less profitable than external finance (G. Whittington, 1972).

To summarize, dividend policy is a matter of great complexity.
Conflicting objectives render this policy difficult in practice.
This policy has significant impacts upon other corporate matters.

Higher dividends involve less retained earnings, however, less funds available for financing investment programmes. This impact has important consequences for the firm's financial policy to which we turn in the next section.

1.5 CORPORATE FINANCIAL POLICY AND TAXATION
1.5.1 Introduction

Three alternatives are open to a firm for financing investment programmes. First, through ploughing back retained earnings, second, through issuing new shares and finally, through debt. Each of these alternatives has its merits and demerits. Equity finance requires dividend payments whereas debt finance requires interest paymehts and finally the repayment of the principal. Dividend payments are not necessary, particularly in the absence of profits, whereas interest payments are, regardless of the existence of profits. The question is which method or combination of them constitutes the optimal financial policy for the firm.

Modigliani and Miller argue that in the absence of taxes and transaction costs in a perfect capital market the firm is indifferent to the method of financing its investment programmes since the cost of capital is invariant with the method of finance (M.Modigliani and M.Miller, 1958, 1963). The basic rationale of this proposition is that a perfect capital market provides all the firms, which belong to the same risk class, with the same opportunities. Therefore, any discrepancies between these firms in their market values can be eliminated through arbitrage operations by shareholders. As we saw in the previous section the assumption of the Modigliani - Miller theorem has been criticized on different grounds and first of all the introduction of taxes changes* the above proposition.

1.5.2 Taxation and the Cost of Capital

"The way in which taxation affects corporate financial policy and the level of investment through the structure of the cost of capital, is still a bone of contention" (King, 1974, p.21). In this section we shall analyze the effect of taxation upon the firm's choice of

financial policy. In order to isolate this effect we assume a
world without bankruptcy[12] and transaction costs. We also assume
a simplified tax structure consisting of the following characteri-
stics. A personal income tax (tp) on income from shares and loans,
a capital gain tax (tg) and a tax on corporate income (tc). A discr-
imination exists between dividend payments and interest payments.
In order to arrive at taxable profits interest payments are consider-
ed as costs and are deductible. In contrast, dividend payments are
not. In addition whereas dividends are taxed as personal income
and are thus subject to very high tax rates for individuals in
higher income brackets, most countries do not treat capital gains
as personal income and tax them at considerable lower rates. Fin-
ally, a heavy CIT may direct funds to go to the unincorporated
rather than to the incorporated sector of the economy. To com-
plete our description of the simplified tax structure we define the
opportunity cost of retaining profits in terms of net dividends
foregone (denoted by θ)[13]. This variable θ measures the degree of
discrimination between dividends and retentions. It is this dis-
crimination which makes 1 dr in the hands of the firm not equivalent
to 1 dr in the hands of the shareholders. Then $1 - \theta$ is the addit-
ional to CIT tax on dividends.

For simplicity of exposition we will examine financial policy in
terms of three two-way comparisons of the methods of finance open to
the firm[14]. We begin with the comparison between retention and issue
of new shares. If $tg > 1 - \theta$, that is, if the capital gain tax rate
is greater than the additional tax paid on dividends then the prefer-
able method of financing investment is the issue of new shares. The
intuition behind this result is clear. Since the tax on capital
gains is greater than the additional tax on dividends, there is an
incentive to spread the capital gains over the greater number of shares
by issuing more shares and paying out higher current dividends. On
the other hand, if the inequality holds with reverse sign, that is,
$tg < 1 - \theta$, then the preferable method of financing investment is by
retained earnings. Again the reason is obvious. By financing out of
retained profits the extra dividends which would have been paid out
if shares were issued, are instead paid out now in the form of capi-
tal gains. The question which arises is: which case is the most
probable in practice? It seems that the second case, that is,
$tg < 1 - \theta$ is the case for a typical tax structure. Therefore, we

may conclude that retention rather than the issue of new share is the preferable way of financing investment programmes.

We turn now to the second way of comparison, that is, between borrowing and issuing shares. If $1 - tp < \theta(1 - tc)$ then the preferable method of finance is new shares rather than borrowing. The shareholder subscribes to an issue of new shares instead of lending his savings at the market rate of interest. The above inequality says that the amount of net interest payments which the shareholder gives up is less than the amount of net dividends which he receives. On the other hand, if $1 - tp > \theta(1 - tc)$ then the superior method of finance is borrowing since the firm borrowing and uses its own income to pay off the interest and the principal. King (1977, p.54) has proved that the value of θ should obey the following constraint:

$$\theta \leq \frac{1 - tp}{1 - tc}$$

or $1 - tp \geq \theta(1 - tc)$. Since the latter inequality is always satisfied then borrowing is the preferable method of finance, rather than the issue of shares.

Finally the third comparison is between financing investment by retained earnings or by borrowing. If $(1 - tp) > (1 - tg)(1 - tc)$ then the preferable method is debt. The intuition of this condition is that by using retentions instead of debt a shareholder gives up $(1 - tp)$ units of net interest payments, the effective cost of which to the company is $(1 - tc)$, and receives an amount $(1 - tg)$ $(1 - tc)$ in the form of capital gains. (King 1977).

1.5.3 Optimal Financial Policy

We are ready to draw together the above results in order to describe the optimal financial policy of the firm. Since the above two-way comparison showed that the method of financing by issuing new shares is never the preferable one, the optimal financial policy should be looked for between retention and debt. The contrast between these two methods revealed that if

$$tp > tc + tg(1 - tc)$$

then the preferable way of finance is by using retained profits, otherwise by borrowing. From this inequality we see that if the value of personal income tax tp is above a critical value $K = tc + tg(1 - tc)$

the preferable method of finance is by using retentions. This crit-
cal value K depends on the rate of corporate tax tc and the rate of
capital gains tax tg. The treatment of capital gains tax can take
three different forms. First, some countries exclude from their de-
finitions of income capital gains, that is tg = 0. This implies
that the critical value of K depends only on the rate of corporate
tax. Therefore, if tp $>$ tc retentions are preferred to debt. Second,
capital gains may be taxed like the other kind of income, that is,
tp = tg. This implies that tp $<$ tc + (tc - tp tc) which implies that
debt finance is always preferred to retention finance. Finally, the
capital gains tax may take a value between zero and tp. That is,
capital gains enjoy a preferential treatment over the other income.
In the general case where tg = tp, retentions are preferred to debt
when tp $>$ $\dfrac{tc}{(1 - (1 - c)}$

The above discussion was based on the assumption of a world
without bankruptcy. This assumption plus the interest deductibility
made debt finance to be preferred than new share finance. However,
it is more realistic to relate the rate at which the firm borrow to
its debt-equity ratio along financial frontier. This means that the
nominal rate of interest which the firm must pay on its borrowing
will increase as the amount of borrowing increases. Therefore, the
removal of the above assumption limits the firm's dependence on debt
and creates a possible role of new shares issue.

Long-term debt is the appropriate method of corporate financing
if the earnings base has a proven record of stability which guaran-
tees, up to certain extent the payment of the debt service obligat-
ions. Failure to meet this claim as it falls due will lead the firm
into bankruptcy. The greater the debt finance the larger interest
payments in the future. This bankruptcy risks will ensure that, after
a certain level, the costs of debt will be rising at the margin fast
enough to offset any tax advantages. Clearly, there is a trade-off
between cheaper debt finance and the risk of default. The greater
the debt the greater the risk of default for the company.

1.6 RESOURCE ALLOCATION AND CORPORATE TAXATION

1.6.1 Introduction

It is likely that the CIT through its discriminatory nature aff-
ects economic decisions regarding resource allocations within the
private sector of the economy. However, in order to be able to reach
some conclusions regarding the allocative effects of the CIT one has
to know how it affects the behaviour of the owners of resources.
This is the reason why the allocative effects of CIT are associated
with the shifting and incidence process.

The CIT can discriminate against the corporate sector, against
capital intensive activities, against equity financing and, finally,
discriminates between retained and distributed profits. The first
two kinds of discrimination have an allocative effect between the
corporate (taxed) sector and the unincorporated (untaxed) sector,
whereas the other two kinds of discrimination affect the allocation
of capital within the corporate sector. The latter subject, which
constitutes the European concern about resource misallocation was
dealt with in the two previous sections, under the headings 'divi-
dend policy' and 'Corporate financial policy'. We turn now to the
first question, that is, the allocation of capital between the cor-
porate and unincorporated sectors, which is the main concern of U.S
Writters about resource misallocation (C.McLure, 1979).

When one examines the effect of CIT upon the allocation of capi-
tal resources it is necessary to distinguish between effects in the
short-run and in the long-run. We assume first that the CIT is shif-
ted in the short-run. The prices of corporate produced goods will
be higher and consumers will buy less of these goods, so that the
output of the corporate sector will be reduced. Since profits will
fall in the corporate sector, if we assume they were maximized ini-
tially, resources will tend to be reallocated from this sector to the un-
taxed sector. Therefore, even if the CIT were shifted forward, a
reallocation of resources occurs.

We relax now the assumption of short-run shifting and assume that
the CIT is not shifted in the short-run. Since in the short-run
capital is unable to leave the taxed sector it therefore bears the

burden of the tax. If this is so a disequilibrium situation is
created in the capital market. However, in the long-run capital may
flow out of the taxed sector into the untaxed sector. This flow of
capital results in changes in the relative prices of products, and
in the relative returns to factors of production. Then the distribu-
tion of the tax burden depends on a number of considerations, includ-
ing the mobility of both taxed and untaxed factors of production, the
nature of production functions, the elasticities of substitution be-
tween the factors of production in the two sectors and the elasticity
of substitution between the two sectors outputs in consumption. To
take account of all these considerations it is clear that incidence
analysis must go beyond the traditional partial equilibrium setting.
The classic model, which deals with the long-run incidence of CIT
is the general equilibrium model developed by Harberger in 1962.

1.6.2   The Harberger Model

Harberger, using a two-good, two sector comparative static gen-
eral equilibrium model, concludes that in the long-run the differen-
tial CIT is almost entirely borne by capital.

He assumes two factors of production, capital and labour, which
are supplied in fixed quantities. These factors are characterized by
perfect mobility. The implication of this assumption is the equali-
zation of net-of-tax rates of return for each factor. Both markets,
for factors of production and for products are perfectly competitive.
The production functions are linear and homogenrous; that is there
are no economies or diseconomies of scale. It is further assumed
that the government spends all the tax revenue in some combination
on the two sectors. The implication of this assumption is that there
is no need to study the effect of tax upon aggregate demand. Finally,
he assumes the same marginal propensities to consume good in all
classes of the population. This eliminates the impact of income redis-
tribution on the allocation of resources in the private sector. He
starts with a situation of Pareto optimum in the absence of taxation.

He assumes that the government imposes a corporation income tax
which is not shifted in the short-run. This produces disequilibrium
in the capital market. Since it has been assumed that in the short-
run capital does not leave the taxed sector to seek other employment

it is involved that the tax is borne by capital. This decreases
the net-rate of return of capital in the corporate sector, where-
as it leaves the net rate of return of capital unchanged in the un-
incorporated sector. The unequal rate of return on capital in the
two sectors produces an incentive for capital to seek employment in
the untaxed sector. Harberger, eventhough he recognises two mechan-
isms in the adjustment process, that is, the capital flow between
the two sectors and the reduction in new capital formation, argues
that the latter kind of adjustment is insignificant; however, he
confines the efficiency cost arising from the first kind of adjust-
ment.

The capital flow from the corporate sector to the unincorporated
sector produces a series of changes. Since capital leaves the cor-
porate sector this means that less capital is employed in that sec-
tor, which implies less production and higher prices for corporate
sector goods. The price increase raises the gross rate of return of
capital in the corporate sector. Therefore, a part of CIT is shif-
ted to consumers through higher prices. On the other hand the unin-
corporated sector has a larger amount of capital now and this leads
to higher output and lower prices. This decreases the net rate of
return on capital in the unincorporated sector. The flow of capital
from taxed sector to untaxed will cease when the net-of-tax rate of
return for both sectors are equal.

To save space we present the ultimate results obtained under the
various assumptions concerning the production functions in the two
sectors, in table 1.1.Some explanations are required to make clear
these results. In case 2, it is clear that whatever reduction in
output X may occur in industry X, the two factors of production will
be released to industry Y in equal amounts. This implies that there
will be no change of marginal products of either factor in physical
terms. The price of Y will have to fall, in order to create an in-
creased demand for it. Since the marginal physical productivities of
capital and labour are unchanged, this fall in price of Y will induce
a proportionate fall in the price of each factor. In case 3 the
taxed sector X releases labour in substantially larger amounts than
the untaxed sector Y can absorb at the pre-tax wage rate: The wage

TABLE 1.1

HARBERGER'S Results Under Various Assumptions Concerning
The Production Functions In The Two Sectors

CORPORATE SECTOR	NON-CORPORATE SECTOR	RESULT
1. $X = Kx^{\frac{1}{2}} Lx^{\frac{1}{2}}$	$Y = Ky^{\frac{1}{2}} Ly^{\frac{1}{2}}$	Capital bears the whole burden.
2. $X = \min(Kx, Lx)$	$Y = Ky^{\frac{1}{2}} Ly^{\frac{1}{2}}$	Both capital and labour bear the burden in proportion to their contribution to national income.
3. $X = \min\left[\frac{Lx}{2}, Kx\right]^{*}$	$Y = Ky^{\frac{1}{2}} Ly^{\frac{1}{2}}$	Labour bears more tax, relative to its share in the national income.
4. $X = \min\left[Lx, \frac{Kx}{2}\right]^{**}$	$Y = Ky^{\frac{1}{2}} Ly^{\frac{1}{2}}$	Capital bears more tax relative to its share in the national income.
5. $X = Kx^{\frac{1}{2}} Lx^{\frac{1}{2}}$	$Y = \min(Ky, Ly)$	Labour enjoys an absolute increase in its real income.
6. $X = Kx^{\frac{1}{2}} Lx^{\frac{1}{2}}$	$Y = \min\left[\frac{Ky}{2}, Ly\right]^{**}$	As in case (5) but the increase is even larger.
7. $X = Kx^{\frac{1}{2}} Lx^{\frac{1}{2}}$	$Y = \min\left[Ky, \frac{Ly}{2}\right]^{*}$	As in cases (5) and (6) but the increase is in between these two cases.

NOTES: 1. Lx and Ly represents the amount of labour used in product
X and Y and Kx and Ky the corresponding amounts of capital.

* Labour Intensive

** Capital intensive.

rate, therefore, has to fall before the untaxed sector can absorb
all the workers. Finally, in cases 5, 6, 7, the results are ex-
plained as follows: the nature of the production function in the
untaxed sector requires not only the flow of capital from the taxed
sector to the untaxed but the flow of labour as well. Since the a-
mount of national income spent on the taxed sector is given and since
the Cobb-Douglas production function determines that the share of
this fraction going to labour is fixed, it follows that the amount
of labour used in the taxed sector will carry with it rise in the
case of labour.

Harberger (1966) has also calculated the efficiency costs of
the CIT. This can be illustrated by using the following figure.
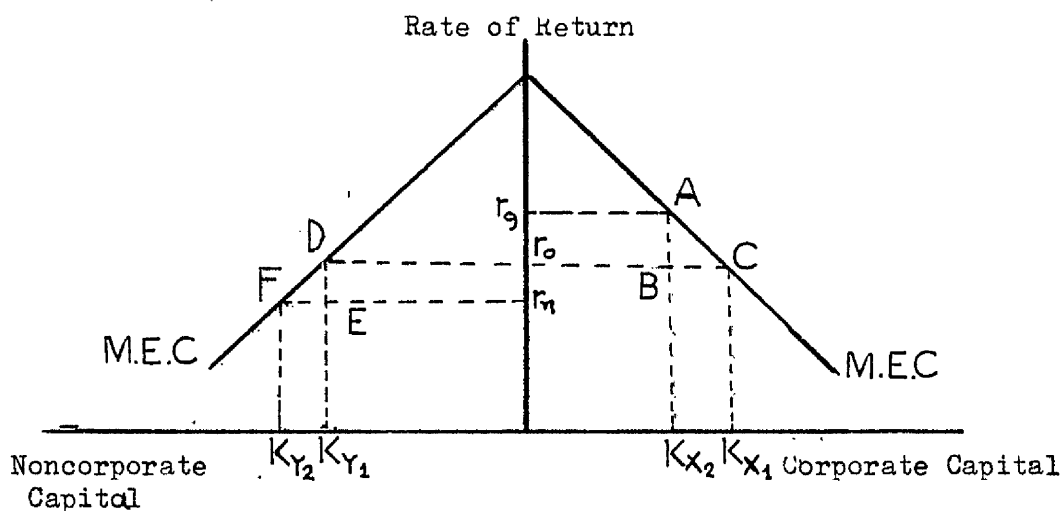
Fig. 1.1

The rate of return on capital is measured on the vertical axis,
the capital stock on the horizontal axis. Before the imposition of
the CIT, the capital market is in equilibrium and the common rate of
return to both sectors is equal to r_o. Quantities Kx_1 and Ky_1 of
capital are employed in the incorporated and unincorporated sector
respectively. Suppose that the government imposes the CIT. This will
cause a flow of capital from the corporated to the un-incorporated
sector; that is, the new capital stock in the corporate sector is Kx_2
and the gross rate of return is r_g. On the other hand, in the unin-
corporated sector the capital stock equals Ky_2 and the net and gross
rate of return is equal to r_n. In equilibrium, where there is no
capital flow between the two sectors, the gross rate of return minus

the tax in the incorporated sector should be equal to the (net) rate
of return in the unincorporated sector. The final consequence for
the economy as a whole is the appearance of a loss, the so-called
dead-weight loss which comes from raising revenue by taxing the
corporate income. The rationale of it is that the tax-induced cap-
ital flow moves capital from the higher productive sector to the
lower one. Harberger estimated this loss which is equal to

$$L = \frac{1}{2} (r_g - r_n) (Kx_1 - Kx_2)$$

or in diagrammatic form is equal to the sum of the two triangular, that
is, $L = ABC + DEF$. Concluding, Harberger argues, that in the long-
run the tax burden is spread between capital invested in both sectors,
however, in the long run there is a shift of CIT from the corporate
to the unincorporated sector.

1.6.2.1 Critique of the Harberger Model

During the last decade it has been widely accepted that the ap-
propriate method to deal with tax changes is the general equilibrium
one.[15] Despite its complexity, it is argued it enables us to study the
effects of a tax change upon the whole economy. Its disadvantage is
that it requires certain simplifying assumptions which do not reflect
the real world. The general equilibrium model developed by Harberger
did not avoid this trap and it has been critized on various grounds.
Several studies attempted to improve it through removal of some of
its restrictive assumptions.[16]

Harberger assumes fixed aggregate labour and capital supply.
This implies that there is no need to study the effects of CIT upon
the work-leisure choice and upon saving and investment. It is a com-
parative static analysis since we compare the before tax equilibrium
position of the economy with that after the imposition of the tax.
This analysis does not allow us to discuss any relationship between
the supply of labour and capital. However, in a growing economy these
two supplies are strongly related to each other. Therefore, a dynamic
incidence analysis is the apropriate method of studying the effects
of a tax change upon the level of saving and growth.[17]

Harberger assumes perfect factor mobility and ignores non-tax
considerations. However, tax considerations are not the only factors

which determine the legal form of operation. Non-tax factors have
a significant effect upon the decision to incorporate. The ex-
istence of barriers to free movement of capital and labour should be
taken into consideration. Finally, the existence of transaction costs
may render this movement unlikely.

The assumption of perfectly competitive markets is questionable
as well. We argued in the discussion of short-run incidence that
different assumptions concerning the type of the market lead to dif-
ferent answers to the question: who bears the CIT?

Harberger assumes that at the margin the debt-equity ratio is
limited and new investment programmes are financed by increasing
equity capital. This assumption rules out any response in corporate
financial policy to the tax change. We discussed in the previous
section how a firm responds to a tax change through financial policy.
King and Stiglitz have critiĉed this assumption. They introduce in
their discussion tax allowances, that is, interest payment deducta-
bility and depreciation, assuming, in contrast to Harberger, that
investment programmes are financed by debt. They conclude that the
CIT, from an efficiency point of view, is neutral, and does not cause
capital flow between the taxed and the untaxed sector.

Harberger accepts that the imposition of the CIT on profits
causes two kinds of adjustment. First, an altered flow of capital
between the two sectors and second, an altered level of saving,
which in turn affects the level of new capital formation. However,
he concentrates his study on the first impact and he assumes that the
second is nil. Krzyzaniak dealing with this model characterizes it
as a medium-run and argues that all groups in the economy share the
burden of the CIT because the economy moves away from the Pareto
frontier, assuming like Harberger that it was there before the imposi-
tion of the CIT.[19] He also argues that in the long-run the burden of
the CIT is larger and more spread among the different groups. The
reason for these results is the additional effect of the tax on new
capital formation. The difference between Harberger's and Krzyzaniak's
results lies in the different definitions of the tax burden.
Krzyzaniak defines it as any tax-induced loss of real income and he

includes in it any excess burden of a tax due to increased inefficiency. On the other hand, Harberger includes in his definition the burden which comes through resource reallocation only.

1.7 Summary and Conclusions

The above analysis showed the significance of CIT regarding the mobilization of resources, equity, stabilization and growth.

It is often argued that the CIT has a negative effect on aggregate investment expenditures in the economy. Regardless of the incidence of CIT, it is argued, it retards investment. It does so by affecting the desire and the ability to invest. An unshifted CIT reduces the rate of return on capital, and discourages investment. A shifted CIT leads to the same results through a reduction of consumer's disposable real income which leads to less aggregate demand. It also lessens the attractiveness of equity investment through the so-called double taxation of dividend income. The CIT weakens the ability to invest since fewer funds are available to the firm for investment after the imposition of CIT.

Despite these impacts no definite conclusions can be reached regarding the effect of CIT upon aggregate investment. Important provisions have been used as a means of reducing or neutralizing the retardation effect of the CIT on investment. The most popular forms of these provisions are investment reserve allowance and depreciation investment allowances. Both kinds of allowances reduce the nominal burden of taxation by excluding a portion of profits for tax purposes. In other words, the purpose of these allowances is to reduce the effective tax burden indirectly rather than by a reduction in tax rates.

In addition to the above effect of the CIT upon the level of investment it may affect the allocation of them as well. Since the CIT applies differentially to earnings from corporate and unincorporated sector this implies a capital flow from "discriminated" to "favoured" sector. Within the corporate sector it discriminates between internal and external finance. We saw that CIT influences

this choice in three ways. First, it reduces the level of profits
second, by influencing dividend policy and finally by influencing
the cost of capital through interest payment deductibility. A
lower tax on capital gains is used to offset the distortion against
equity financing.

On equity grounds no definite conclusion can be drawn. Under the
assumption that the CIT is not shifted, it is argued, that it produc-
es equity between the shareholding class as a whole and the rest
of the community by taxing undistributed profits. On the other hand,
it is argued, that the CIT produces inequity between rich and poor,
shareholders since it violates both vertical and horizontal princip-
les. However, both the theoretical treatment and the empirical evid-
ence of the shifting question provided evidence which is conflicting.
If the CIT is shifted then the above argument lo ses their validity and
CIT is similar to a differential sales tax. Therefore, its regressi-
vity remains an unsettled matter in the literature of tax incidence.

Finally, regarding its stabilization policy implications, we
found that CIT is a modest built-in stabilizer. An automatic stabi-
lizer is characterized by its immediate effect upon consumption and
investment. Empirical studies have shown that investment responds
to change of the CIT with a lag. This weakens its ability to be
used as a means of stabilizing the economy by influencing investment
decisions. On the other hand, the effect upon consumption is am-
biguous. It depends upon different considerations, including the
effect on the levels of dividends distributed to shareholders, the
structure of income tax rate, the relation between capital gains and
consumption.

With this background concerning the CIT we proceed to discuss the
various systems of CIT. The discussion will include both domestic
and international considerations. Our main interest in this discus-
sion concerns the imputation system and the dividend paid deduction
system. The latter is the existing system in Greece, whereas the
former, is likely, as we will see later on, to be its successor, when
Greece joins the E.E.C. At the same time we take the opportunity to
discuss some alternative CIT systems.

NOTES: CHAPTER ONE

1   For a discussion of the rationale of. CIT - see G. Break, (1969).

2   For a discussion of the conduit view see McLure (1975) and
    R. Musgrave and P. Musgrave (1973) p.291-301.

3   See for implications drawn from this model by M. Levy.

4   For a discussion see M. Krzaniak (1966).

5   For some conceptual problems arising in an econometric study of
    tax incidence - see H-J. Krupp (1969).

6   For a coverage of the practical aspects of dividend policy -
    see A Wood (1975).

7   Even though some authors have expressed some scepticism about
    this relationship.

8   For evidence on these matters see the following section.

9   See Eisner and Strontz (1963), S. Almon (1965 and R. Eisner (1967).

10   Our criticism on this model takes place in chapter four.

11   G. Fisher (1970), p.177.

12   This assumption will be relaxed later on.

13   The derivation of takes place in chapter four.

14   For a mathematical treatment of this subject see King (1974), (1977).

15   An important contribution by R. Musgrave in this area is concerned
    with the delination of three alternative concepts of tax incidence,
    specific, differential and balance-budget incidence -

16   See C. McLure (1975a) P. Mieskowiski (1967) and (1969) and Brown
    and Jackson (1978).

17   See M. Feldstein (1972) (1974), Dosser (1961).

18   See N. Krzysaniak (1967), (1968).

19   ...The problem of multicollinearity is particularly important in
    the case between the corporate tax rate itself and the government
    expenditures variables.   This leads to exaggeration of the tax
    coefficient by the effect of government expenditure.   Since this
    effect cannot be separated out the tax coefficient measures not
    only the absolute tax incidence but the budget incidence as well.
    In other words a change in corporate tax is accompanied by changes
    in other components of the budget.   It has been suggested that a
    solution to this problem is the substitution of budget surplus ,
    or deficit for the government expenditure and non-corporate tax
    variables.

19   (cont'd)

  As far as the case of Greece is concerned these considerations are not important at the present stage since revenue from corporate tax is very low. However, these considerations will become crucial when revenue from CIT becomes greater.

20   This inequality is based on the constraint that the tax system does not allow a company to distribute income to its shareholders on terms more favourable than would be the case for an unincorporated business, which implies that the tax burden on distributions must be no less than the shareholder's rate of tax. If a company earns an extra unit of taxable profits the amount that the shareholders can receive in dividends after payment of all taxes is $\theta (1 - tc)$.

CHAPTER TWO
A COMPARATIVE EVALUATION OF THE
ALTERNATIVE SYSTEMS OF BUSINESS TAXATION

2.1 INTRODUCTION

We mentioned in the previous chapter, that various systems are em-
ployed to tax corporate income. We proceed to discuss these systems
in detail from both the domestic and the international point of view.
We will do so at a theoretical level, that is, with reference to no
particular type of system. However, some exceptions to this rule will
appear where required. A comparison of the existing imputation systems
in the E.E.C. member states with that proposed by the E.E.C. commiss-
ion in 1975 will take place in chapter five. Therefore, the first
part of this chapter deals with the domestic consequences of the alter-
native systems of taxing corporate-source income whereas the second
focuses on the efficiency and equity criteria required from national
and international point of view.

Before proceeding to deal with these matters for the sake of bet-
ter understanding and convenience, we first draw the distinction bet-
ween economic double taxation and international double taxation and
second, we classify the existing corporation income tax systems accord-
ing to various criteria.

2.2 ECONOMIC AND INTERNATIONAL DOUBLE TAXATION

The imposition of two taxes, that is, the CIT and the personal in-
come tax, on corporate income creates the so-called phenomenon of
double taxation. If corporate income remains in the country of origin
it is taxed twice by the same domestic tax system. It is taxed first
under the corporate tax law in the hands of the corporation and, in
turn, the distributed part of corporate income is taxed under the per-
sonal income tax law in the hands of the recipient shareholders. There-
fore, the distributed part of corporate income is taxed twice. This
phenomenon is called economic double taxation to distinguish it from
international double taxation. The latter arises if the corporation
and the recipient shareholder do not live in the same country. In
that case the corporate income is taxed under the system both of the
origin and of the destination country.

The existence of double taxation may have undesirable effects upon
equity and efficiency from both the domestic and the international
points of view. However, as far as the economic double taxation is
concerned, the government taking into account other considerations as

well, chooses the tax system which either does not affect, alleviate
or eliminate economic double taxation. The subject of international
double taxation is dealt either by unilateral provisions by each govern-
ment separately or by bilateral provisions between two governments.
It is worth mentioning the current tendency which deals with the allev-
iation of the economic double taxation not by the domestic government
provisions only but by extension of the dividend tax credit by the
foreign government under the imputation system.

2.3 A NEW CLASSIFICATION OF THE CORPORATE TAX SYSTEMS

Various approaches have been used for classifying company tax sys-
tems. The most common which has been adopted by O.E.C.D. refers to the
treatment of distributed and undistributed profits (Q.E.C.D. 1973).
Other approaches classify them in terms of the treatment of corporate
and non-corporate profits, or in terms of horizontal equity between
domestic and foreign companies. In our classification we follow the
criterian adopted by the C.E.C.D. but we arrive at a different type of
classification from that which the O.E.C.D. adopted. This is so be-
cause our classification avoids the confusion between "degree of in-
tegration" and "degree of dividend relief".

Chaft   2.1 illustrates in a classified way the various existing
systems according to the degree of integration between the corporate
and personal income taxes. Reading the upper part of the chart   from
left to right we see three different degrees of integration. Under
the first approach, zero integration, there is no co-operation at all
between the two taxes levied on corporate income. This is the so-
called classical or separate system. In practice it appears in three
forms. Under the first no dividend relief at all is provided whereas
under the other two forms a dividend relief is provided either at the
shareholder level or at the company level. The U.S.A. and Canada,
when the latter used this system, for example, provided this relief.

At the other extreme, the full integration approach implies the
full integration of corporate and personal income taxes. This system
results in taxing the total corporate income, irrespective of whether
the latter is distributed or not, at the shareholders' marginal tax
rates. In other words, under this approach there is no real corpor-
ation income tax but it has been modified to a withholding tax.

Chart 2.1: A New Classification of Corporate Tax Systems

Degree of Integration

- Full Integration
  - Full

- Partial Integration
  - Imputation System
    - Full Imputation System
      - Full
  - Two-Rate System
    - Dividend Deduction System
      - Full

- Zero Integration
  - Classical System
    - No Dividend Relief
      - Zero
    - Relief[1] is given
      - Partial

Alleviation of Econ. Double Taxation
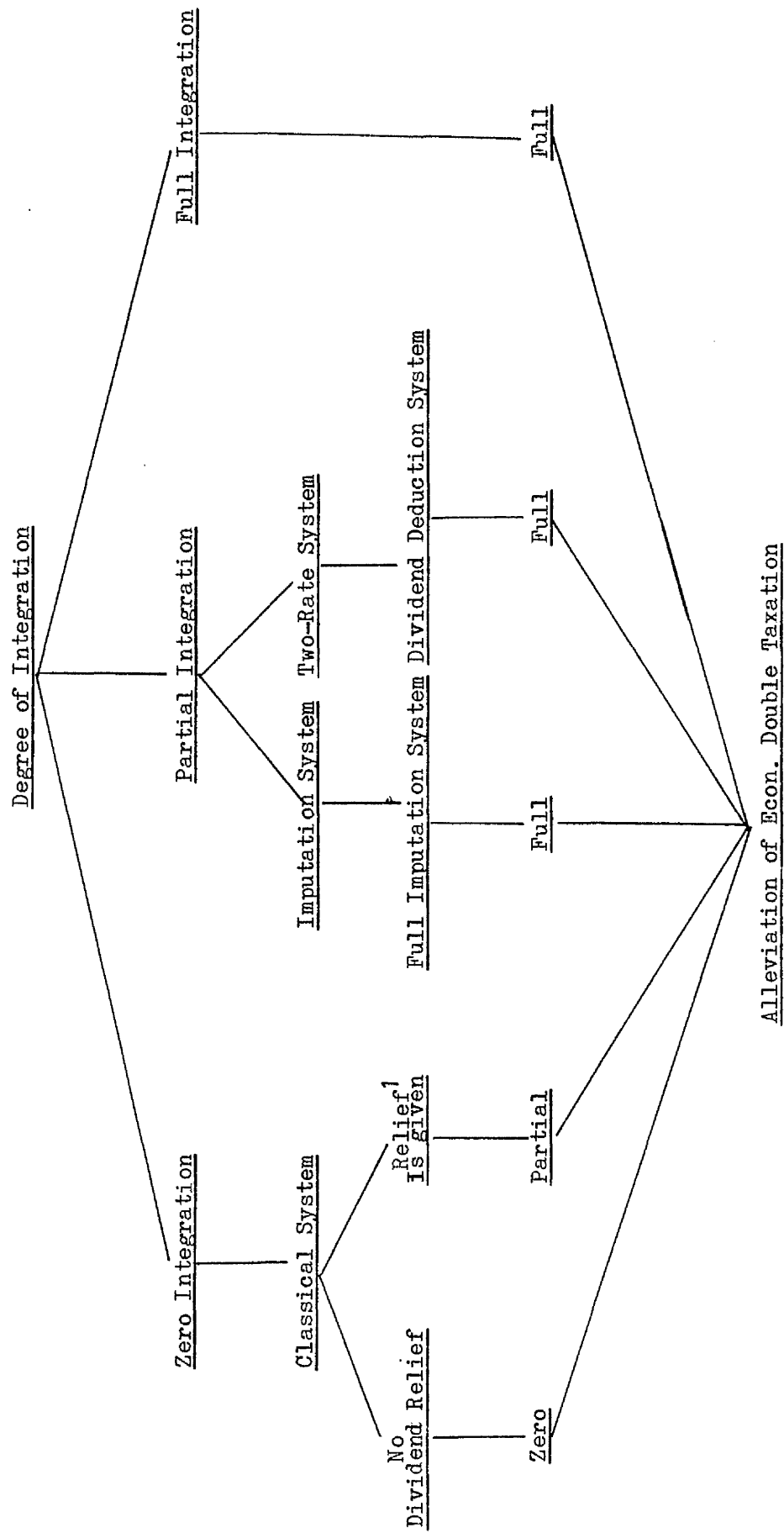
This approach was suggested by the Carter Commission in Canada in 1967 and it was discussed in Germany early in 1970 but no country has introduced it so far. The O.E.C.D. classification distinguishes two cases as far as the level at which the full integration takes place is concerned. Under the first, full integration takes place at the company level whereas under the second it takes place at the shareholder level. We agree with the second case but we disagree with the first case. The O.E.C.D classification under that case subsumes the dividend paid deduction system (it is discussed in section 2.3.4). In our opinion, this classification is wrong because we have full integration between corporate and personal income taxes but only for the distributed part of corporate income. In the theoretical case where all corporate income is distributed the O.E.C.D. classification is right otherwise, as we will see below, the dividend paid deduction system should be classified under the heading of partial integration.

The approach which lies in between these two extremes, partial integration, attempts to find a second best solution. Under that approach integration takes place only for the distributed part of corporate income. Two systems are employed to bring forward this goal: the imputation system, under which integration takes place at the shareholder level, and the two-rate system, under which integration takes place at the company level. These two systems have their logical extensions. The imputation system results in full imputation of the corporate income tax which corresponds to the distributed part of corporate income, whereas the logical extension of the two-rate system is the dividend paid deduction system where the rate of CIT on distributed profits is zero.

Reading now the low part of the diagram from left to right we can see the degree of alleviation of economic double taxation under each approach. We can distinguish three cases. Under the first, the strict version of classical system, the degree of alleviation is zero. Under the second, classical system with relief, imputation and two-rate systems we have partial alleviation; and finally, under the third, full imputation, dividend paid deduction and full integration, we have total alleviation of economic double taxation.

Before proceeding it is worth raising two points. The first is concerned with the distinction between full integration and full im-

putation. Both these systems seek the same result, i.e. alleviation of economic double taxation, but in different respects. The first approach deals with the integration of both distributed and undistributed profits whereas the second deals with the integration of the distributed part of profits only. The second point concerns a new approach of partial integration, which is a combination of both full imputation and split-rate systems. This approach has been recently introduced in Germany (this system is discussed in chapter five).

2.3.1 THE CLASSICAL SYSTEM

The classical or separate system owes its name first to the fact that it was the prevalent company tax system in W.Europe after the second World War and, second, to the legal interpretation of the corporate personality as a distinct separate entity from the shareholders. This interpretation is in contrast to the so called "conduit" theory according to which the corporation is nothing more than the aggregate of the shareholders.

It has been argued that this system of taxation is based on pragmatism rather than upon basic principles. That is, the preference for the system rests on the easy collection of a great amount of revenue (C.McLure, 1975). This seems to be true, at least, for some cases, for example, the governments of the Netherlands and Luxembourg hesitated in replacing their classical tax systems because this would involve a considerable drop in the national revenue (European Taxation, 1968). The pragmatic approach is enhanced if we take into account that some countries as U.S.A., Canada, Italy, and Denmark when they used this system allowed mitigation of economic double taxation providing some relief. The latter practice stands in contrast to the separate approach which is adopted by the supporters of this system.

In addition to the legal interpretation of the corporate entity the supporters of this system emphasize its simplicity in many respects. Its administrative simplicity lies on the fact that it consists of one flat rate on all profits of corporation and the distributed part of profits is taxed under the personal income tax without providing any relief. There is no need for the existence of withholding tax, but if it exists it is due to administrative considerations.

On the other hand, its opponents argue that this system involves inequity and more inefficiency in the economy than the other systems

do. They emphasize that the main disadvantage of this system is the economic double taxation of dividends, and they try to mitigate it through the partial integration approach.

2.3.2 THE IMPUTATION SYSTEM

Under the partial integration approach a relief is granted either at the shareholder level or at the corporate level. In the former case the system is called imputation and owes its name to the fact that part or all of the CIT paid by the corporation related to the distributed part of profits is ascribed or imputed to shareholders. If the relief is given at the corporate level, it is provided in the form of a lower or zero tax rate on the amount of profits which is distributed.

The main question which arises is: why adopt partial and not full integration, which results in partial, and not total, alleviation of economic double taxation? Several considerations may explain this approach. First, this system is used as a means of achieving specific objectives which it would be difficult or impossible to achieve by other methods. For example, France uses it as a means of promoting the functioning of the capital market, Canada also uses that as a means of making share ownership attractive. Finally, American economists see it as a crucial part of the conduit theory. Second, from a political point of view, this system constitutes a compromise between the two extreme views of integration. Third, full integration would result in a greater drop of government revenue[2] Finally, the partial elimination of economic double taxation may reflect uncertainty regarding the incidence and shifting of the CIT. At least, in the case of Canada, it is confessed that, in the words of the White Paper "we consider it likely that some level of CIT is shifted to consumers in the price which they charge for their goods and services" (White Paper, 1971). Therefore, this is one reason why the proposed tax credit is set at 50 per cent rather than 100 per cent.

2.3.2.1 The Gross-up and Credit Mechanism

Under the imputation system the corporation is taxed, as under the classical system, at a flat tax rate for the total amount of profits irrespective of whether they are retained or distributed. The gross-up and credit mechanism works at the shareholder level and it takes place in two stages. In the first, the shareholder includes in his income tax declaration not only the net amount of dividend which

he received but this amount plus the amount of credit received. At
the second stage the credit is set off against the final tax liabil-
ity of the shareholder. The result is that the shareholder is taxed
at the progressive personal income tax rate as far as the distributed
part of profits is concerned. In other words the credit provided, in
effect, refunds to shareholder a portion or all of the CIT associated
with corporate profits from which dividend was paid. Since the credit
acts like a withholding tax there is no need for introducing a with-
holding tax in the system.[3] The following examples show how the gross-
up and credit mechanism work in practice.

Suppose that a corporation has profits equal to 100 Drs and that the
corporation tax rate is equal to 50 per cent. It distributes all pro-
fits after corporate tax and the shareholder is given a credit equal
some percentage, say 50 per cent, of the net dividend[4] which he re-
ceived and he is taxed at 40 per cent personal income tax rate

Corporation

Taxable profits	100
CIT at 50 per cent	50
Distributed profits	50

Shareholder

Dividend received	50
Credit 50% of 50	25
Deemed dividend	75
Personal Income tax at 40%	30
Less Credit	25
Tax due	5

From now on we call this kind of credit "dividend   credit" to
distinguish it from the credit provided by the destination country for
taxes paid to the origin country as a means of alleviating the inter-
national double taxation.

2.3.2.2 Who is entitled to the Dividend Credit?

A necessary condition for any imputation system to work is that all
distributions to shareholders shall carry with them the dividend credit.
Unfortunately, this condition raises a number of questions concerning,
for example, the treatment of tax-exempt organisations, the treatment of
foreign shareholders, the treatment of resident shareholders who receive

income from abroad and finally the treatment of intercorporate dividends. This section deals with the treatment of tax-exempt organizations only, whereas the other cases will be dealt in the appropriate sections later on.

As far as the treatment of tax-exempt organizations is concerned, the question is whether distributions made by these organisations carry with them the dividend credit or not. Two approaches are followed in practice. Some countries like Canada, Belgium, Ireland and Italy, allow distributed untaxed profits to carry with them the dividend credit. The purpose of this approach is to provide an incentive for investing in equities[5]. The other approach is based on pragmatism. Since the main purpose of the dividend credit is to alleviate economic double taxation it should be provided only to dividends which are paid out of profits which have borne the CIT. Therefore, the provision of the dividend credit to dividends which are paid out of tax-free profits is unjustified. France, Germany and the U.K. have introduced measures to ensure that their Exchequers were not in a position of having to repay to shareholders, tax which they had in fact never received.

There are two ways to limit the benefit of dividend credit to those dividends, which are paid out of profits which have been taxed. Under the first way the corporation is asked to pay the CIT which corresponds to any distribution which takes place whereas under the second the tax authority denies the provision of dividend credit to dividends distributed by tax-exempt corporations. Since we have accepted as necessary condition for any imputation system to work the all distributed profits must carry with them the dividend credit, the first way is appropriate. France applies a compensatory tax,[6] the so-called precompte, at the level of the corporation when the latter distributes untaxed profits or taxed profits which were earned more than five years ago. On the other hand, the U.K. levies an advance corporation tax (ACT) at the level of corporation when the latter distributes profits irrespective of whether they have been taxed or not. The two methods differ from a technical point of view but they have the same aim. The different technique which is followed by each method makes them not always equivalent. Only if all income were tax-exempt would the French and the British systems be equivalent. The precompte is credited by the individual shareholder against his final personal tax liability

whereas the ACT is credited against the corporation's final CIT liability, and against shareholders' personal income tax.

2.3.3 THE TWO-RATE SYSTEM

This system owed its name to the fact that two different tax rates are applied to corporate profits. One, the higher, applies to the retained profits and the other, the lower, to the distributed profits. However, the mitigation of economic double taxation takes place at the corporate level, which constitutes the main difference from the imputation system where the mitigation takes place at the shareholder level. The two systems, under certain circumstances, are equivalent and in the words of Chown "we are not really being asked to discuss a choice between two systems, but between two names for the same system", (J.Chown, 1971).

This system was employed in Germany for a long period (1953-1976) and was recently replaced by a combined system of full imputation and two-rate systems. It was introduced in 1953 as a means of strengthening the capital market through a bias in favour of distribution and of obtaining a more equitable treatment between the various legal forms of doing business (European Taxation, 1968). On the other hand, the reasons why Germany replaced it are first, its desire to fully alleviate economic double taxation of dividend and second, to obtain a stronger bargaining power in its negotiations with other countries as far as international double taxation is concerned (European Taxation, 1976).

The existence of two different tax rates applied to corporate income creates the so-called "shadow effect". This implies that in the case in which all profits were distributed they would be taxed not at the nominal tax rate but at the effective tax rate, which is higher. This is so because the tax paid on the distributed profits is deemed to be paid from retained profits which bear a higher tax rate. For example, in Germany the nominal tax rate on the distributed profits was 15 per cent, whereas the effective rate was 23.44 per cent.[7]

Under this system there is need for a withholding tax since the relief is granted at the corporate level and therefore it cannot be used as withholding tax as in the case of the imputation system. If the shareholder's marginal tax rate is higher than the CIT rate on distributed profits, the shareholder has an incentive not to incorporate dividend income with his rest income. Therefore, the with-

holding tax may induce him to incorporate dividend income with his
rest income.

2.3.4 THE DIVIDEND PAID DEDUCTION SYSTEM

This system is considered as the logical extension of the two-
rate system. Its main characteristic is the total alleviation of eco-
nomic double taxation. This is done by allowing the corporation to
deduct dividend paid in computing taxable income; that is, the CIT
rate on distributed profits is zero. The recipient shareholder in-
cludes this income together with his income from other sources and
altogether is taxed at his marginal tax rate. Therefore, the corpor-
ate profits, whether retained or distributed, are taxed only at one
rate, the retained part at the CIT rate, the distributed at the
marginal personal tax rate. In the theoretical case where all prof-
its are distributed there is no CIT. This makes the introduction of
a withholding tax necessary as a means of avoiding tax evasion.[8]

This system enhances the advantages of the imputation and two-
rate systems on grounds of equity and supply of equities but its
main drawback is the revenue loss, particularly from non-resident
shareholders. It is currently applied in Greece.

2.3.5 THE FULL INTEGRATION SYSTEM

What has not been achieved by the two partial integration systems,
as far as the full integration of personal and corporate taxation is
concerned, is achieved by so-called "conduit" approach. This system,
like the full imputation and dividend paid deduction system, fully
alleviates the economic double taxation of dividends. This system
is considered as the dream of the idealists who see the corporation
as nothing more or less than its shareholders.

The mechanism of this system is the same as that of the imputation
system. The corporation is taxed at a flat rate for the total amount
of profits irrespective of whether they are distributed or retained.
The shareholder includes in his personal tax declaration an amount
which is equal to the sum of cash dividend received plus his share of
retained profits and this sum is grossed up by the amount of CIT
which has been paid on the total amount. Therefore, the shareholder
is taxed for his total share in profits, irrespective of whether the
latter are distributed or not, at the marginal personal tax rate and
he sets off against his final tax liability the amount of CIT paid
by the corporation for his shares. In other words, this system
transforms the CIT to a withholding tax.

The explanation for that transformation is that the real beneficiary of corporate income is the shareholder and the tax should be imposed at his personal rate structure.

This approach is defended by its proponents on grounds of equity and efficiency since it is neutral in many respects. On the other hand, administrative difficulties, absence of flexibility through the weakness of various economic tools such as investment tax credit, depreciation provisions etc. loss of revenue constitute the main drawbacks in the minds of its opponents. It is true that the introduction of this approach would require a considerable sophistication of the total structure of taxation. For example, the revenue loss[9] from the abolition of the CIT would require these revenue to be collected through an increase of other taxes or since this system taxes capital gains attributable to retention at full personal tax rate, equity considerations would require all capital gains to be taxed.

For the sake of better understanding of the operation of the alternative CIT systems described above we provide the following two tables which show how these systems operate under various assumptions. Table 2.1 makes a comparison of the alternative systems showing the tax rates for a given amount of revenue whereas Table 2.2, making a comparison of the same systems, shows the tax revenues for a given tax rate.

2.4 Principal Goals

The choice between the described system is a matter of the explicit goals which the government tries to achieve. Inevitably, other factors come in and they may affect this choice. These factors may represent the collateral goals of the government and the final choice is a compromise between the principal and the collateral goals. The latter may include administrative simplicity, tax evasion and avoidance, tax shifting, flexibility for the government for exercising its counter-cyclical policy and revenue policy. Unfortunately, these goals are not necessarily consistent nor do they follow compatible paths.

This section deals only with the principal goals of the government, which may be achieved by choosing the appropriate tax system. These goals are defined to be firm's distribution policy, corporate investment, equity and income redistribution and finally, allocative efficiency.

TABLE 2.1

COMPARISON OF THE ALTERNATIVE SYSTEMS CONCERNING TAX RATE FOR GIVEN AMOUNT OF REVENUE

	Separate System Rate 33.3%	Two-Rate System Rate 40/20%	Dividend Paid Deduct System Rate 50%	Imputation System Rate 42.8%	Full Imputat. System Rate 50%	Full Integration System Rate 50%
CORPORATION						
1. Corporate Profits	100	100	100	100	100	100
2. Dividend Paid Deduction	-	-	33.3	-	-	-
3. Taxable Profits	100	100	66.7	100	100	100
4. Tax	33.3	33.5a	33.4	42.8	50	50
5. After-Tax Profits	67.3	66.5	66.7	57.2	50	50
6. Dividend Paid	33.3	33.3	33.3	28.6	25	25
7. Net Cash Retained	33.4	33.2	33.3	28.6	25	25
SHAREHOLDER						
8. Dividend Cash	33.4	33.3	33.3	28.6	25	25
9. Plus Credit	-	-	-	14.3	25	-
10. Taxable Income	33.4	33.3	33.3	42.9	50	100 b
11. Personal Inc.Tx. @ 50%.	16.7	16.7	16.7	21.4	25	50
12. Less Tax Credit.	-	-	-	14.3	25	50
13. Tax Paid or (Refund).	16.7	16.7	16.7	7.1	-	-
14. Net Cash Dividend.	16.6	16.6	16.6	21.5	25	25
15. Total Gov't.Revenue.	50	50	50	50	50	50

ASSUMPTIONS.

1. 50% distributon of the profits after taxation.
2. 50% individual income tax.
3. Two-rate system is 40% on retained profits and 20% on distributed.
4. Imputation system tax at 50% of cash dividend credited to the shareholder.
5. Full imputation system. tax at 100% of cash dividend credited to the shareholder.

NOTES: a. Undistributed profits of 66.5 at 40% (equals 26.8) plus distributed profits of 33.5 at 20% (equals 6.7).
   b. Irrespective of the amount of distribution, shareholder is taxed for the total amount of profits and 100% of the CIT paid by the corporation is credited to shareholder.

TABLE 2.2

COMPARISON OF THE ALTERNATIVE SYSTEMS CONCERNING TAX REVENUE FOR GIVEN TAX RATE

	Separate System		Two-Rate System		Dividend Paid D/Duct.System		Imputation System		Full Imput. System		Full Integrat. System	
	Distribution		Distribution		Distribution		Distribution		Distribution		Distribution	
CORPORATION	40%	60%	40%	60%	40%	60%	40%	60%	40%	60%	40%	60%
1. Corporate Profits.	1.000	1.000	1.000	1.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2. Dividend Paid Deduction.	-	-	-	-	250	428.5	-	-	-	-	-	-
3. Taxable Profits.	1.000	1.000	1.000 [a]	1.000 [b]	750	571.5	1.000	1.000	1.000	1.000	1.000	1.000
4. Tax at 50%	500	500	431.8	390.26	375	285.7	500	500	500	500	500	500
5. After-tax Profits.	500	500	568.2	609.74	375	285.7	500	500	500	500	500	500
6. Dividend Paid.	200	300	227.2	365.80	250	428.5	200	300	200	300	200	300
7. Net Cash retained.	300	200	341.0	343.94	375	285.7	300	200	300	200	300	200
SHAREHOLDER												
8. Dividend Cash.	200	300	227.2	365.8	250	428.5	200	300	200	300	200	300
9. Plus Tax Credit.	-	-	-	-	250	-	100	150	200	300	800	700
10. Taxable Income.	200	300	227.2	365.8	250	428.5	300	450	400	600	1.000 [c]	1.000 [c]
11. Personal Inc.Tx. @ 40%	80	120	90.88	146.32	100	171.4	120	180	160	240	400	400
12. Less Tax Credit.	-	-	-	-	-	-	100	150	200	300	500	500
13. Tax paid or (Refund).	80	120	90.88	146.32	100.5	171.4	20	30	(40)	(60)	(100)	(100)
14. Net Cash Dividend.	120	180	136.22	219.48	150	257.1	180	270	240	360	300	400
15. Total Gov't. Revenue.	580	620	522.68	536.58	475	457.1	520	530	460	440	400	400
16. Personal Inc.Tx. @ 60%	120	180	136.32	219.48	150	257.1	180	270	240	360	400	600
17. Less Tax Credit.	-	-	-	-	-	-	100	150	200	300	500	500
18. Tax paid or (Refund)	120	180	136.32	219.48	150	257.1	80	120	40	60	100	100
19. Net Cash Dividend.	80	120	90.9	146.4	100	171.4	120	180	160	240	100	100
20. Total Gov't. Revenue.	620	680	568.1	609.74	525	542.8	580	620	540	560	600	600

Assumptions:
1. 50% corporation tax, 40% and 60% individual income tax.
2. Two-rate system is 50% on retained profits and 20% on distributed profits.
3. Dividend Paid deduction system, no corporation tax on distributed profits.
4. Imputation system, tax at 50% of cash dividend credited to the shareholder.
5. Full imputation system, tax at 100% of cash dividend credited to the shareholder.

a. Undistr. profits of 772.8 at 50%(equals 386.4)plus distr.profits of 227.2 at 20%(equals 45.4).
b. Undistr. profits of 634.20 at 50%(equals 317.10) plus distr.profits of 365.8 at 20%(equals 73.16).
c. Irrespective of the amount of distribution, shareholder is txd. for total amount of profits and 100% of CIT paid by the corporation is credited to the shareholders.

Notes:

2.4.1 Pay-out Ratio

If the various tax systems really affect the payout ratio in differ-
ent ways then the government has available one more means of achieving
various objectives, for example, to improve income distribution, by
introducing the appropriate tax system. Investment decisions may also
be affected in two ways by changing the taxation system. First, if the
system favours retention then more funds are available in the corpor-
ation for financing investment programmes. Second, economic double
taxation of dividends discourages investment in equities; therefore,
the various systems have a different effect upon such investment de-
pending on the degree of economic double taxation. In addition to
these effects, changes in the pay-out ratio have an effect on income
distribution. First, the higher the degree of economic double taxat-
ion the greater the progressivity[10] of the tax structure and second,
the higher the pay-out ratio the greater horizontal equity is achieved.

Table 2.3 provides us with various tools for judging the alter-
native CIT systems. Before proceeding to discuss this table we provide
a key to symbols used in this table:

T = total CIT paid by the corporation on retained and distributed
profits.

L = total tax on corporate income paid by the corporation (T)
plus that paid by the shareholders.

R = net retained profits after tax and dividends.

tr = effective rate of CIT on retention.

td = effective rate of CIT on dividend.

td/tr = the conventional measure of economic double taxation.[11]

$(\partial L/\partial D)$ = Additional tax burden by increasing dividends by one unit.
There is no capital gains tax.

$(\partial L/\partial D)*$ = As $\partial L/\partial D$ but there is a capital gains tax.

$\partial T/\partial D$ = Additional tax burden paid only by the corporation.

tc = tax rate applied to all profits uniformely.

P = profits.

tp = personal income tax rate.

Cu = CIT rate on undistributed profits under the two-rate system
and the dividend deduction system.

Cd = CIT rate on distributed profits under the two-rate system
(under the dividend deduction system is equal to zero).

D   = the amount of cash dividends under all systems except the
           imputation system.

G   = the amount of grossed-up dividend under the imputation
           system.

S   = the rate of dividend tax credit as a percentage of G .

Line 5 shows the range of td which lies between zero and tc, where
the latter represents the tax rate applied to all profits uniformly.
Under the full integration and the dividend paid deduction system the
effective tax rate of CIT on distributed profits, td, is zero. On the
other extreme the classical system applies the same rate to both dis-
tributed and retained profits.[12] Therefore, the classical system is
neutral in that respect. The two partial integration systems lie in
between these two extremes.

Line 6 shows the degree of economic double taxation of dividends.
The results are the same as in the previous line. The full integrat-
ion and the dividend paid deduction systems impose zero economic double
taxation on dividend, whereas the classical system results in full eco-
nomic double taxation. Therefore, the partial integration systems im-
pose a degree of economic double taxation which lies in between.

Line 7 shows the additional tax burden by increasing dividend under
the assumption that there is no capital gains tax and that the manage-
ment is concerned not only with the corporate tax liability but for the
latter plus the shareholder tax liability. The full integration tax
system retains its neutrality whereas the classical system constantly
involves an amount of additional tax burden equal to tp, the marginal
personal tax rate. The classical system would be neutral if tp was
equal to zero.for all shareholders. This may be the case for share-
holders who receive exemption such as charities and pension funds.
The other three systems involve a lesser amount of additional tax bur-
den than that implied by the classical system. These systems would be
equivalent if (Cu-Cd) $\times$ S = Cu, where Cu is the tax rate on undistri-
buted profits under the two-rate and dividend paid deduction systems,
Cd is the tax rate on distributed profits under the two-rate system
and S is the rate of dividend credit under the imputation system.
This equality says that the three systems would be equivalent if the
rate differential (Cu-Cd) under the two-rate system is equal to the
rate of dividend credit under the imputation system and the latter is

TABLE 2.3

Various Tools for Judging the Alternatiive Corporate Tax Systems

Line		Classical	Split-Rate	Imputation	Full Integration	Dividend Deduction
1	T	T_cP	$C_u(P-D)+C_dD$	T_cP	t_pP	$C_u(P-D)$
2	L	t_CP+t_pD	$C_u(P-D)+C_dD+t_pD$	$t_cP-sG+t_pG$	t_pP	$C_u(P-D)+t_pD$
3	R	$P-t_cP-D$	$P-c_u(P-D)-C_d-D$	$P-t_cP+sG-G$		$P-c_u(P-D)-D$
4	t_r	t_c	c_u	t_c	t_c	c_u
5	t_d	t_c	$C_d/1-C_u+C_d$	$t_c-s/1-s$	0	0
6	t_d/t_r	1	$C_d\,C_u/1-C_u+C_d$	$t_c(t_c-s)/1-s$	0	0
7	$\partial L/\partial D$	t_p	$t_p-(C_u-C_d)$	t_p-S	0	t_p-C_u
8	$\partial\lambda/\partial D^*$	0	$-(C_u-C_d)(1-t_p)$	$-S(1-t_p)$	0	$-C_u(1-t_p)$
9	$\partial T/\partial D$	0	C_d-C_u	0	0	$-C_u$

equal to the tax rate on undistributed profits under the dividend paid
deduction system. These systems would be equivalent to the full inte-
gration system, that is, would be neutral between retentions and divi-
dends if the following equalities held for the three systems corres-
pondingly:

$$tp = Cu - Cd \qquad (2.1)$$
$$tp = S \qquad (2.2)$$
$$tp = Cu \qquad (2.3)$$

Therefore, these systems provide the corporation with a possibility of
determining distribution according to the marginal personal tax rate
of the shareholder. For example, in the case of the dividend paid
deduction system, if the tp is greater than Cu then the greater the
distribution the greater the additional tax liability. Therefore, the
corporation has an incentive to reduce distribution in order to reduce
the total tax liability. On the other hand, if tp is less than Cu
then the corporation has an incentive now to increase distribution since
the partial derivative $\partial L/\partial D$ has a negative sign now, which means that
by increasing distribution we decrease the total tax liability.

We now introduce a capital gains tax on gains in the price of
shares, and assume that they are taxed as they accrue under the person-
al income tax.[13] Line 8 shows the additional tax liability by increas-
ing dividend. The full integration system still remains neutral but
now it is not the only neutral system, the classical system obtained
this property as well. The other three systems clearly now show their
preference for distribution since all their partial derivatives have
a negative sign.

Finally, line 9 shows the same derivatives under the assumption
that the management does not concern itself with the total tax liability
but only with the corporate tax liability. Three systems are now neu-
tral, the full integration, the classical and the imputation. The divi-
dend paid deduction system remains in favour of distribution whereas in
the case of two-rate system it depends on the sign of the difference
Cd-Cu. If Cd is greater than Cu, which is not the case in practice,
then the system is in favour of retention. If Cd=Cu the system is
neutral, but it actually is not a two-rate system and finally, if Cd
is less than Cu, which is the case in practice, the system favours
distribution.

In conclusion, in theory the full integration system constantly
remains neutral under the various circumstances, the classical system

discriminates against distribution in the absence of capital gains tax and becomes neutral when it is introduced. The other three systems leave a lot of room for maneouvre in order to arrange the final tax liability and they are clearly in favour of distribution when capital gains tax was introduced in the analysis.

2.4.2 <u>Corporate Financial Policy under the Alternative Tax-Systems.</u>

In the previous section we discussed one of the channels through which the tax system may affect investment decisions, namely, the availability of funds. The second channel constitutes the differentation of the cost of capital for the various financial media through the alternative systems of corporate taxation.

In chapter one, we established rules for optimal financial policy irrespective of the system of corporate taxation. In this section we will explore the implications of these results for the alternative tax systems. All the systems of corporate tax follow the same policy as far as interest deductibility is concerned whereas they differ as dividend payments is concerned. This difference is reflected in the value of tax discriminatory variable θ. Table 2.4 shows the value of θ under the alternative tax systems.

TABLE 2.4 Value of θ under the alternative tax system.[14]

System	θ
Classical	$1 - tg$
Imputation	$1 - tg/1 - S$
Two-Rate	$1 - tg/1 + Cd-Cu$
Dividend-paid-Deduction	$1 - tg/1 - Cu$
Full integration	1

Note: tp = personal income tax rate

tg = capital gain tax rate

Cd = CIT rate on distributed profits

Cu = CIT rate on undistributed profits

S = rate of dividend tax credit as a percentage of gross-up dividends.

We saw in chapter one that if the inequality

$$tg < 1-\theta \qquad (2.4)$$

holds then retentions are preferred to new share finance. Substituting the value of θ for each corporate system into the above in-

equality we obtain the conditions under which retentions are preferred to new shares finance for the alternative systems. Table 2.5 shows these conditions.

Table 2.5
Conditions under which Retentions are Preferred to New Share Issues.

System	Condition
Classical	$t_p > t_g$
Imputation	$t_p > t_g + S (1-t_g)$
Two-Rate	$t_p > t_g + (C_d-C_u) (t_g-1)$
Dividend-paid-deduction	$t_p > C_u + t_g (1-C_u)$

It is obvious from the above table that the method of finance depends on the marginal rate of income tax of the shareholder and there may be a conflict between the interest of the shareholders. This raises the question about the focus of corporate decision-making, that is, the firm as an economic institution. However, for the sake of convenience we assume that shareholders face the same marginal rate of income tax.

We have also seen that if the inequality
$$1 - t_p < (1 - t_g) (1 - t_c) \quad (2.5)$$
holds then retentions are preferred to debt finance. Therefore, using this inequality plus the above established conditions (table 2.5) we construct the following table, which shows under what conditions retentions are preferred both to new shares and debt finance.

Table 2.6
Conditions under which Retentions are the Preferable Method of Finance

System	Conditions
Classical	$t_p > t_g + t_c (1-t_g)$
Imputation	$t_p > t_c + t_g (1 - t_c)$
Two-Rate	$t_p > C_u + t_g (1 - C_u)$
Dividend-paid-deduction	$t_p > C_u + t_g (1 - C_u)$

Suppose now that the government wishes to have a neutral tax system regarding the choice of the method of financing irrespective of the name of the system. The necessary conditions are obtained if the

above inequalities (2.4) and 2.5) hold as equalities, that is,

$$tg + \Theta = 1 \qquad (2.6)$$
$$1 - tp = (1-tg)(1-tc) \qquad (2.7)$$

The different treatment between retentions and dividends, on the one hand, and the inclusion or exclusion of interest and dividend payments, on the other, create non-neutralities. The classical system will be neutral under the following two conditions:

$$tp = tg \qquad (2.8)$$
$$1 - tc = 1 \qquad (2.9)$$

The first condition requires capital gains, should be taxed as income, whereas no deductibility provision extended to interest payments. The imputation system becomes neutral in the case which the two conditions become,

$$1 - tp/1 - tg = 1 - S \qquad (2.10)$$
$$1 - tc = 1 - S \qquad (2.11)$$

The first equation says that the neutrality of the imputation system between retention and dividend depends on the values of tp and S. Unfortunately, as we saw earlier, the value of tp and tg differ from one shareholder to another, whereas the value of S is common for every shareholder. This makes the satisfaction of the above condition difficult if not impossible. The second condition requires payments to be deductible not against tc but against the rate of tax used to define the rate of imputation.

Under the two-rate system the above conditions became,

$$\frac{1 - tp}{1 + Cd-Cu} = 1 - tg \qquad (2.12)$$

$$(1 - tc) = 1 - (Cu - Cd) \qquad (2.13)$$

Again as in the case of imputation system the first condition is difficult to be satisfied. The second condition requires interest payments to be deductible not against Cu but against the rate differential.

Under the dividend-paid-deduction system the above conditions became,

$$\frac{1 - tp}{1 - Cu} = 1 - tg \qquad (2.14)$$

$$(1 - tc) = (1 - Cu) \qquad (2.15)$$

Once again, the first condition is difficult to satisfy. The

second condition says that interest deductibility should be remained
and be deductible against Cu.

Finally, under the full integration system these conditions be-
come,

$$tg = 0 \qquad (2.15)$$
$$1 - tp = 1 - tc \quad (2.16)$$

The first condition is satisfied if capital gains tax is not
charged on gains arising out of retained profits. This is so because
under this system capital gains resulting from retention have been al-
ready charged to income tax. The second condition requires interest
payments to be allowed as deduction for tax purposes.

2.4.3 <u>Equity and Income Distribution</u>

This section attempts a judgement of the alternative systems un-
der the horizontal and vertical equity principles. The first, re-
quires the "equals should be treated equally" whereas the second re-
quires the proper division of the tax share among individuals with
different economic capacity, as a means of contributing to a more
equitable distribution of income. Of course, the assumption about the
incidence and shifting of the CIT is crucial and the existence or not
of capital gains tax plays a significant role.

We have seen elsewhere that, under the assumption   that the
CIT is not shifted, it produces equity between the shareholding class
as a whole and the rest of the community by taxing undistributed
profits, on the one hand, and it produces inequity between rich and
poor shareholders, since it violates the vertical principle, on the
other hand. We begin with the classical system, for example, suppose
two shareholders , the first, with low marginal personal tax rate
tp^{L} and the second with high tp^{H}. Since the ability to pay of the
shareholder is reflected in the sum of dividends and retained profits,
the total final tax liability does not conform to the vertical equity
principle. Under the classical system the final tax rate applied to
both retained and distributed profits is for the poor shareholder
$t^{L} = tc + tp^{L} (1 - tc)$ and for the rich $t^{H} = tc + tp^{H} (1 - tc)$.
From these two relationships we see the corporate tax rate, tc, is the

same for both shareholders despite the fact that their economic capacity is different. In other words, we have the same treatment of unequals, namely, a violation of the vertical equity principle. From the above tax liability formulas we also see that the introduction of CIT imposes an extra tax rate which is proportionally greater for the low income shareholder than on the high income shareholder. This can be seen if we compare the combined corporate and individual tax now paid with the tax which would be paid if only the income tax were applied. These differences[15] are tc $(1 - t_p^L)$ and tc $(1 - t_p^H)$ for the low and high income shareholder respectively, and the former is greater than the latter. Therefore, the classical system violates the vertical equity principle.

In addition to that, in the absence of capital gains tax the classical system provides high income shareholders with an incentive to retain their profits at the corporation as a means of avoiding high marginal personal tax rate.

We saw earlier that the partial integration systems favour distribution relative to the classical system (for a given revenue), which involves that a higher amount of profit is taxed under the progressive personal tax scale. In that respect these systems are less regressive than the classical system, since they contribute to a fairer tax structure. As far as the retained amount of profits is concerned the same holds as in the classical system. Therefore these systems conform with vertical and horizontal equity but only for distributed profits. On the other hand, the provision of the dividend relief creates two kinds of inequity. First, if the owners of shares belong to high income classes the provision of the relief results in a special reduction in dividend taxation which may be considered undesirable from the point of view of equity. Second, since the relief discriminates against retention a conflict may arise between high income and low income shareholders because the latter prefer distribution to retention.

The full integration system improves equity from two points of view. First, all the corporate income of the shareholders will be taxed under the progressive personal income tax, like the income of other taxpayers. Therefore, there is no different treatment between shareholders and non-shareholders. Second, the inequities

which aróse under the previous tax systems either from different treatment between retention and dividend or between high and low income shareholders are eliminated. Under this system there is only one tax base for all kinds of income and only one tax with progressive rates is applied. Therefore, this system accords with horizontal and vertical equity principles.

Finally, the dividend-paid-deduction system provides parallel results with partial integration systems. It puts under the progressive personal tax rate only the distributed part of profits. It would achieve the same results as a full integration system if all profits were distributed and taxed under the personal income tax rate.

We assume now that the CIT is shifted and that the management, in making price decisions, takes into account the total tax liability, namely, taxes paid by both the corporation and the shareholders. Under the classical system these assumptions result in eliminating the economic double taxation of dividends. Under the partial integration systems neither the corporation nor the shareholders pay any taxes. Instead the shareholders receive a dividend tax credit for alleviating non-existent economic double taxation. Under the full integration approach the case is even worse, since the dividend tax credit given is higher. The question here is what amount of tax the management shifts, since the CIT paid by the firm is not a real CIT but a withholding tax which is completely set off against the personal income tax liability. Finally, under the dividend-paid-deduction system the shareholders would enjoy a tax-free income and would be in a better position than interest income tax payers.

Finally, it has been argued that, moving from the classical system to a partial or full integration system, the benefit of integration, in the case of shifting, accrues to consumers and workers through a reduction of prices and increases in the wage rate. The reasoning behind this argument is that under the sales maximization or target-rate-of return hypotheses the CIT is shifted in short-run. Therefore, the management will be able to continue achieving its targets of sale maximization and target-rate-of-return as he did before integration so that to be able to reduce prices or to increase wages. In Mieskowski's words "this version of the shifting process, as incomplete as it is, strongly suggests that a shifted tax will be un-

shifted upon the introduction of integration" (P.Mieskowski, 1972-73).

2.4.4 <u>Allocative Efficiency</u>

In a Paretian world the tax system should be neutral between reten-
tion and distribution, on the one hand, and between the corporate and
non-corporate sectors, on the other. The first kind of neutrality is
concerned with the competitiveness of the capital market whereas the
second is concerned with the allocation of capital within the econ-
omy. Therefore, our discussion of the effects of the various systems
will be distinguished in these two aspects.

The classical system in the absence of a capital gains tax pro-
vides an incentive for retention. This means that less money exists
in the market, which implies less competition between shareholders
to buy new shares. If retained earnings are profitably invested the
problem is not so severe, but if they are not and their purpose is to
avoid economic double taxation they result in depriving other firms
which have profitable opportunities for investment. Therefore, a
system of corporate taxation which would induce distribution seems
to enhance the competitivness of the capital market. The reasoning
behind this argument is that by encouraging distribution reinvestment
is placed under market control which facilitates a better allocation
of resources. The partial integration systems seem to fulfil this
purpose. On the other hand, it is argued, that more distribution leads
to less saving for the economy as a whole.

Finally, the full integration system leaves the operation of the
capital market untouched since it is neutral between retention and
distribution. Therefore, firms set all the investment opportunit-
ies either by themselves or by their shareholders under the same circum-
stances.

The discussion of the second effect is related to our familiar
Harberger long-run shifting hypothesis of CIT. The different taxat-
ion treatment between the corporate and non-corporate sectors affects
the rate of return in the two sectors. Since the equalization of rate
of return induces capital to move to the non-corporate sector this in-
volves an inefficient allocation of capital. The presumed solution
is to tax all capital income under the same tax system. This is
achieved only by the full integration system. Theoretically it

could be achieved under the dividend paid deduction system as well; that is, where all profits are distributed. The partial integration systems are preferable to the classical system since greater amount of corporate income and income from other sources are put on more equal footing, that is, is taxed under the personal income tax scale.

2.5 Conclusions

From our discussion so far it can be seen that no system of company taxation is superior to the rest in all respects. Therefore, the choice between the one or the other system is a difficult task. It should be based on which system closely approximates our principal objectives. Capital gains taxation and the incidence of the CIT are strongly associated with the choice of one or another system. It is not surprising to mention that in practice different systems have been used in an attempt to achieve the same goals. For example, in 1965 the U.K. introduced the classical system for encouraging investment. In the same year France abolished this system in order to introduce the imputation system for achieving the same goals. This may reflect the reaction of the economic units to various policy instruments to stimulate investment and the different circumstances in one economy from another. Clearly, there is no perfect system of company taxation appropriate for every country in any period.

The company taxation system of a country not only affects the domestic economy; it affects foreign economies as well. Therefore, the final choice should be based not only on domestic considerations but foreign considerations should be taken into account as well. We proceed to discuss these considerations in the next section.

2.6.   INTERNATIONAL CONSIDERATIONS
2.6.1 Introduction

Moving from a closed economy to an open one the problem of choice between the systems of company taxation becomes more complicated. In addition to domestic complexities which were described in the previous sections, other factors are added which should be taken into consideration. Systems, which would provide the same results under certain circumstances on a purely domestic level, fail to do so now. Such factors may concern questions regarding the size and the form of cap-

ital transactions between countries, the government share of such transactions, the effect upon trading location etc. All these effects depend upon the existence of different systems of company taxation in the countries in question and the associated principles followed by these countries.

In a domestic economy the goals of equity and efficiency were the primary objectives for each government; now these goals have been extended to cover international relationships. The concept of national efficiency is accompanied by the concept of world efficiency, whereas the concept of inter-individual equity is accompanied by the concept of internation equity. In addition to economic double taxation the phenomenon of the international double taxation appears. We saw in the previous sections how the government using various ways alleviates economic double taxation. In the international level the tax system per se is inadequate to solve the problem of international double taxation. Therefore, treaties between governments are called for achieving this objective.

The study of all these matters requires the discussion of the legal environment in international level, the definition of the new concepts involved, and finally the discussion of how the various systems of company taxation work within this legal environment.[16]

2.6.2 LEGAL ENVIROMENT

2.6.2.1 Residence and Source Principle

The fact that the capital owner and his capital's services do not always function in the same locality creates tax jurisdictional problems. In addition to that, the various types of investors, such as individuals or corporations, the latter either in the form of a branch or subsidiary or portfolio investors, make the problem more complicated. Each country faces two questions related to that problem. First, how should it tax the income which is earned in its territory by foreigners and second, how should it tax the income which is earned abroad by its residents?

In practice two principles are followed; the source and the residence. Under the first, each country taxes only income which is earned in its territory by both its residents and foreigners. That is, under that principle the tax is based not on the recipient of in-

come but on the income flow. It is a schedular type taxation and is inconsistent with the ability to pay principle. Its main advantage is that if all countries followed this principle then no international double taxation would exist. This principle is followed, for example, in France where companies are normally taxed on French income but may opt to pay tax on worldwide income.

Under the residence principle the country taxes income in a global sense, namely, the tax base is constituted by the worldwide income of the individual. Therefore, this approach is consistent with the ability to pay principle. The elimination of international double taxation under this principle is a difficult task and calls for supplementary actions. Another difficulty related to that principle is the definition of residence. As far as corporation is concerned two approaches are followed. Under the first, the place of incorporation test, a corporation is considered as resident only in the place of its incorporation. Under the second approach, the seat of management test, a corporation is considered as resident of that country where its headquarter has been established. The U.K., Germany and the Netherlands for example, follow the residence principle.

A subsidiary is considered as a legal entity separate from its parent. It is treated like a domestic corporation but not all the tax systems treat that similarly. For example, under the two-rate system the subsidiary enjoys the lower tax rate applied to distributed profits. On the other hand, under the imputation system the dividend credit is not available for parent companies abroad in respect of dividends paid by their subsidiaries. Irrespective of what tax system applies a subsidiary pays two kinds of taxes. It pays the origin country corporation income tax for its profits and second, when it distributes all or part of these to its parent it pays a withholding tax levied on the distributed amount. This type of withholding tax differs from that levied on domestic corporations and is set off against the final tax liability. The withholding tax is levied on a foreign subsidiary by the origin country is a final tax and it is not set off against subsidiary's final tax liability.

A branch is not considered as legal entity separate from its parent but "it is a part of a tree (one legal entity) which has its

roots (head-office) elsewhere". Both the two-rate and the imputation systems deny providing a branch with the dividend credit. Some countries levy no withholding tax on dividend distributed by branch to its parent.

2.6.2.2   Alleviation of International Double Taxation

In general, irrespective of what principles are followed by the source[17] and residence country, it is very likely that overseas income will bear tax in two countries. All these technical complexities make the problem of international double taxation too complicated. In the absence of relief against international double taxation four charges arise in a subsidiary-parent relationship. First, the subsidiary is liable to CIT in the origin state of its trading profits. Second, when the subsidiary pays dividend to its parent those dividends are liable to tax in the origin country. Third, the parent is liable to CIT in destination country on the dividend received by its subsidiary and fourth, the dividend paid by the parent out of this income is subject to destination country personal income tax in the hands of the recipient shareholders.

In practice three ways are used to alleviate international double taxation. First, each country by itself through unilateral provisions, irrespective of whether any reciprocal provisions are granted by any other country, attempts to reach this goal. Second, two countries come into an agreement to follow the same policy regarding this problem. Finally, international organizations like O.E.C.D. and E.E.C. through multilateral tax treaties attempt to relieve international double taxation.

The relief is provided in two forms, either in the way which the destination country treats income earned abroad, namely, it adopts the exemption, credit or deduction method or the origin country levies a low rate of withholding tax. It is worth mentioning that all international double taxation treaties reduce the rate of withholding tax rather than the rate of CIT. The tendency of our   nowadays has this purpose through the extension of the dividend credit to foreign shareholders.

Under the exemption method, income earned abroad is exempt from corporate taxation at home. However, three taxes are levied on that

Income, namely, the CIT and the withholding tax of the origin country and personal income tax of the destination country. It is obvious that this method does not fully alleviate international double taxation since, as we saw earlier, the withholding tax levied by the source country is a final tax. This method violates the ability to pay principle since it is based on a territorial basis and it is consistent neither with internation nor national equity. It is only consistent with capital-import neutrality, a concept which is discussed below.

Under the second method, the credit method, income is taxed on a worldwide basis but a credit is granted for taxes paid abroad. The rationale of this method is derived from the public finance principle of horizontal equity. To the contrary to the previous method it is consistent with the ability to pay approach and treats equally individuals under the circumstances on an international basis, namely, it achieves international equity. In addition to that the provision of the credit method secures equal treatment between investment at home and abroad, i.e. it achieves capital-export neutrality, a concept which is also explained below.

Finally, under the third approach, the deduction method, income is taxed on a worldwide basis but taxes paid abroad are considered as expenses and are deducted from the tax base as such. This method involves equal treatment of individuals in a domestic level, namely, it achieves national equity.

Summerizing, we see from the following diagram that the credit method may be considered as superior to the other two, particularly from international point of view, since it is more close in achieving equity and neutrality.

METHODS OF ALLEVIATING INTERNATIONAL DOUBLE TAXATION.

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                              GOALS
                             /     \
                            /       \
                           /         \
                        Equity      Neutrality
                        /    \        /      \
                       /      \      /        \
                      /        \    /          \
                 National  International  National    International
                                        (capital-import)  (capital-export)
                                         neutrality       neutrality
                    |        |             |              |
                    |        |             |              |
                 Deduction  Credit      Exemption       Credit
                      \       \           /            /
                       \       \         /           /
                        \       \       /          /
                         \       \     /         /
                          \       \   /        /
                            METHOD
```
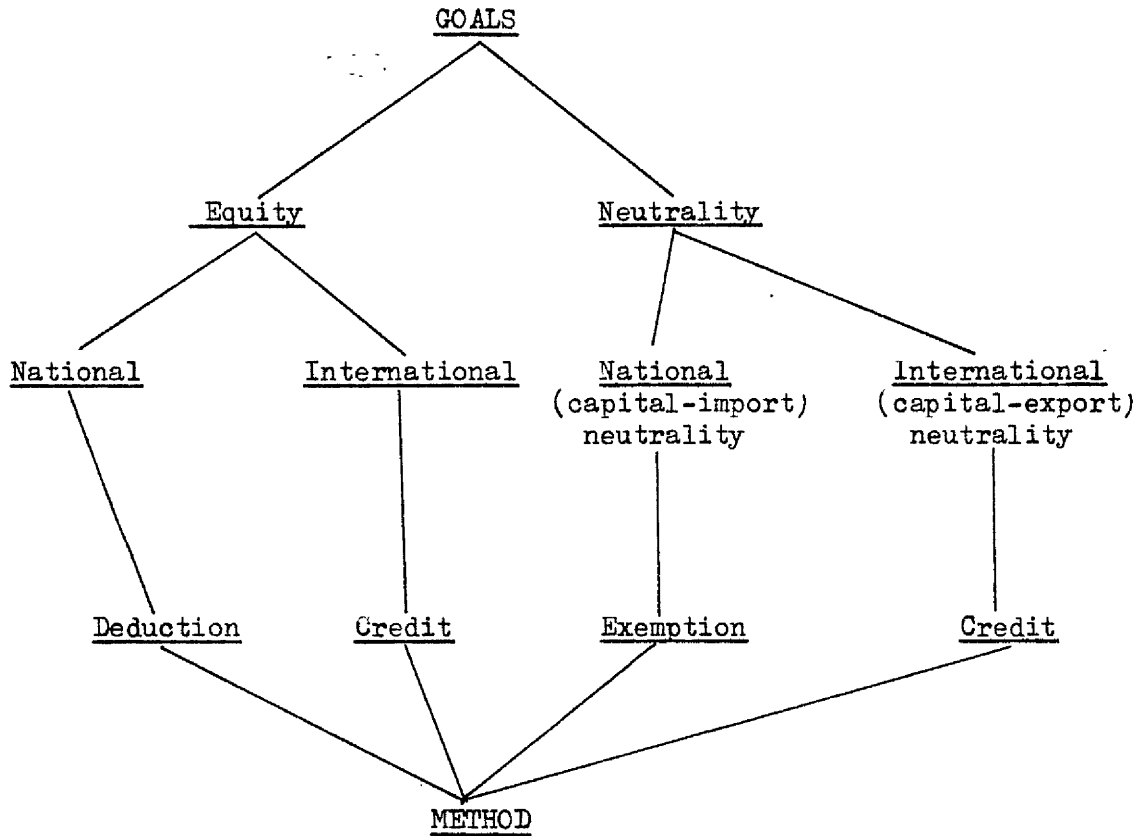
Unfortunately, the credit method does not achieve full neutrality since the relief for foreign taxes is limited to the taxes otherwise due in the residence country. This implies that income earned abroad is taxed at the higher tax rate which holds either in the residence or source country.

2.6.2.3 Tax Treaties

The above described methods are unilateraly applied by the residence country to provide a relief in the absence of a treaty. The latter treats the problem of international double taxation on a bilateral basis. The objectives of a tax treaty may be classified under various headings:

First, a treaty aims to achieve capital-export neutrality and internation equity. The former aim may be achieved by eliminating international double taxation, that is, by creating neutral conditions to facilitate the flow of capital between two or more countries. The withholding tax is used as a device of achieving this purpose. The aim of internation equity is achieved by defining the tax base as a means of avoiding discriminatory practices between the contracting countries. Second, a tax treaty may enhance the fight against tax evasion and avoidance by the contracting countries. The co-operation of these countries would restrict actions such as, for example, transfer prices which lead to tax evasion and avoidance. Finally, a tax treaty enforces the creditability of a country by reducing the risk involved in foreign investment. This is achieved first, by stabilizing the tax rules applicable to foreign investment and second, by reducing dispute between the contracting countries. For example, Greece, early in 1953, enacted such rules as a means of attracting foreign capital.

Unfortunately, since a tax treaty is based on a bilateral basis its contribution for achieving international equity and efficiency may be not considered as adequate. Moreover, the achievement of these goals calls for a multinational basis treaty. In other words, this requires the co-operation not only two countries but as many as possible. This is the subject of chapter five under the heading of tax harmonization within the E.E.C. We proceed now to define the economic concepts of equity and efficiency which the extension of tax jurisdiction beyond a country's borders involves.

2.6.3 Equity and Efficiency in an International Setting

International taxation involves the extension of our familiar concepts of equity and efficiency for a closed economy to apply in an international setting. Efficiency considerations now require this concept to apply not only in the domestic economy but in the world-

wide economy as well. Similarly, equity considerations demand not
only equity between individuals who are residents of the same country
but if they are residents of different countries as well. In addi-
tion to that equity considerations apply now between the nations
themselves. We proceed to discuss world efficiency first.

2.6.3.1 World Efficiency

Under the heading World Efficiency we have in mind the allocat-
ion aspects of international taxation. In a world with capital mov-
ing from one couhtry to another tax differential may introduce inef-
ficiency in resource allocation. These tax differentials may result
either from the existence and overlapping of different tax systems
applied in various countries, the existence of withholding taxes on
dividends, the availability of dividend credit given on distribution
and the relief provided for alleviating international double taxat-
ion.

In the wotds of the Carter Commission "to achieve complete inter
national tax neutrality, the tax systems of all nations would have to
be so harmonized that each individual would be indifferent, from a
tax point of view, about his citizenship, his country of residence,
the location of his property, the location of his business and the
location of his job" (Carter Report, 1967).

International tax neutrality may be distinguished in to the con-
cept of capital-export neutrality and that of capital-import neutral-
ity. lt has been argued that from the point of view of an efficient
allocation of revenue under competitive conditions, capital export
neutrality is the relevant concept whereas capital-import is not.
(R.Musgrave 1969).

Capital-export neutrality is defined as the situation where taxes
of the residence country's donot affect the investor's choice between
investing abroad or at home. In other words, the investor pays total
tax on his income irrespective of where his investment income comes
from. This involves that the net of tax rate of return at home and
abroad are the same as gross rate of return. This result can be obtain-
ed through two ways. The first, requires rate equalization whereas
the second requires the provision of full credit for foreign taxes.
However, the first aporoach seems to raise more complex questions than
the second where only the capital exporting country is required to take
action. Since this kind of tax neutrality is concerned only with the
total tax burden of taxpayer, irrespective of how the countries share

the tax revenue, it is involved that it is consistent with inter-
individual equity. Therefore, the credit method is the appropriate
instrument for achieving world efficiency, under the assumption that
full refund takes place.

The second concept of neutrality, capital-import neutrality, re-
quires the capital-importing country to avoid any kind of discriminat-
ion between investors with different nationalities. Two methods may
be used for achieving this goal: either through an equalization of
tax rates or because the capital-importing country avoids any dis-
criminatory policy, whereas the capital-exporting country applies the
exemption method to alleviate international double taxation.

Concluding we can say that only the tax rate equalization app-
roach is consistent with both capital-export and capital-import neut-
rality. Unfortunately, the price of this approach is very high since
it leaves no room to the governments for manipulations as a means of
expressing their philosophies in that area. Therefore, a number of
students of international taxation have questioned the desirability of
achieving international tax neutrality. Particularly, the Carter Com-
mision report wonders if this tax neutrality is desirable "while
other international economic barriers exist (such as tariffs, imi-
gration laws, foreign investment guidelines and foreign exchange
controls)". It continues that all these artificial barriers may be
more "harmful than the tax system is" (Carter Report, 1967). In our
opinion, the existence of such barriers is not a justification for
avoiding alleviating them, in other words, since a first best solut-
ion is difficult to be obtained we should make any necessary steps
for achieving a second best solution.

From table 2.7 we see the tax burden borne by an individual share-
holder in each of the other countries, if a corporation in a given coun-
try has an income 100. Numbers shown in each box along the N.W.-S.E
diagonal show comparative taxes when the investment is made at home.
Comparison of each box on the diagonal with other boxes in the same
row shows the tax incentives and disincentives to foreign invest-
ment facing investors of each country to which the diagonal box applies.
Comparison of each diagonal box with the other boxes in the same col-
umn shows the tax treatment of domestic investors as compared with
investors from each of the other countries.

TABLE 2.7

Tax Burden Borne by Individual Foreign Shareholder, by Country

Residence Country

Source Country	Belgium	Denmark	France	Germany	Greece	Ireland	Italy	Luxemb.	Nether.	Portugal	Spain	U.K.
Belgium	24.1	48.0	48.0	48.0	48.0	0	48.0	48.0	48.0	48.0	48.0	48.0
Denmark	38.5	27.5	37.0	37.0	37.0	0	46.5	37.0	37.0	37.0	37.0	37.0
France	26.7	50.0	25.0	25.0	50.0	0	57.5	25.0	25.0	50.0	25.0	25.0
Germany	60.0	41.0	59.0	36.0	59.0	29.0	69.3	59.0	65.2	69.3	59.0	59.0
Greece	13.7	0	18.4	0	0	38.0	25.0	0	38.0	38.0	0	0
Ireland	36.7	45.0	45.0	35.0	45.0	21.0	45.0	36.7	45.0	45.0	45.0	21.0
Italy	37.8	36.3	36.3	36.3	36.3	0	15.0	36.3	55.4	55.4	36.3	36.3
Luxemb.	58.0	57.0	57.0	57.0	57.0	26.0	63.5	57.0	57.0	63.5	57.0	57.0
Nether.	49.2	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	61.0	48.0	48.0
Portugal	39.2	37.0	37.0	37.0	37.0	47.2	47.2	33.0	47.2	47.2	37.0	37.0
Spain	34.2	33.0	33.0	33.0	33.0	43.1	43.1	33.0	33.0	33.0	23.0	33.0
U.K.	44.8	31.4	31.4	52.0	52.0	31.1	52.0	42.0	31.4	52.0	31.4	31.4

Source: Compiled by the author using original data from various sources of "European Taxation"

2.6.3.2 Intercountry Equity

Irrespective of the country's desire regarding world or national efficiency its share of total tax revenue collected between the countries involved is a matter of critical importance. Moreover, the intefcountry equity concept is concerned with the sharing of the "tax pie" from foreign investment between the capital-exporting and the capital-importing countries. Two factors make the solution of the problem complex: first, the complicated nature of the CIT; and, second, inadequate knowledge of the non-tax considerations associated with foreign investment (Sato and Bird, 1975).

As in the case of domestic taxation we face here the same question regarding the application of the benefit or the ability to pay principle. If the latter principle is the appropriate one how should we apply the horizontal and vertical principles between the nations? In an ideal world where all countries had similar levels of per capita income, they provided similar levels and types of services and finally no country was a capital-importing intensive or capital-exporting intensive then the answer to the above questions would be easier (Sato and Bird, 1975). If the benefit principle of corporate taxation attracts a small number of supporters at the domestic level it seems to have more supporters at the international level. Moreover,both benefit and non-benefit considerations should be taken into account when we discuss the concept of intercountry equity.

Traditionally two principles have been used to govern the problem of intercountry equity, whereas two new criteria were proposed by the Musgraves (R.Musgrave and P.Musgrave, 1972). The former are concerned with the non-discrimination and reciprocity principles whereas the latter are concerned with national rental and the redistribution criteria (OECD, 1963). However, since the benefit principle may be undesirable at the domestic level it may be difficult to be applied on the international level because of the different levels and types of services provided by a government to a corporation.

The non-discrimination rule implies that the source country should not discriminate against foreign investors. Discrimination in this area generally comes from different withholding rates or, in the case of integrated systems, from denying the dividend credit to foreign investors according to the country where the parent is incorporated.

However, since the capital-importing country is the main claimant the non-discrimination rule aims to prevent the losses of the exporting country being excessive. The second rule, reciprocity, supplements the first. Since the most important treaty restrictions are limitations on withholding taxes, this rule requires an equal reciprocal withholding tax rate between the contracting countries. However, this criterion looks only at the amount of withholding tax which the origin country extracts from dividend paid to foreign shareholders. This implies that whatever the system of the origin country is this criterion is satisfied. If the country is interested in its loss not only coming from withholding taxes but from the CIT as well then this criterion is inadequate to secure intercountry equity.

A new criterion, the effective reciprocity, criterion, was recently suggested by Sato and Bird (1975). The purpose of this criterion is to equalize the effective tax burden on foreign investment between two contracting countries. The rationale of this criterion is that the governments design their tax structure primarily in the light of domestic considerations and not by international non-discrimination considerations as the van de Tempel report (1970) assumes. Since this criterion requires considering the entire (corporate and withholding) tax burden then if the contracting countries employ the same system and more or less the same tax rate automatic reciprocity is achieved. If this is not so and the country of source employs an integrated system the satisfaction of this criterion requires manipulating the integration benefit (dividend   credit). The sceptical point of this theory is the knowledge of the effective CIT rate in each country.

The national rental criterion looks to economic rent which accrues to foreign investors from investing in the country in question. The foreign investor should pay a rental or royalty for these benefits. This criterion is in line with the benefit principle but it is questioned on grounds that the capital-importing country benefits in some respects from foreign investment and also on practical grounds. On the other hand, the redistribution criterion, is in line with the ability to pay principle, particularly, with vertical equity. Inevitably the latter principle applies not between developed countries, which more or less have smaller disparties (similar economic capacity)

but between developed and underdeveloped countries. The vertical equity principle requires a larger share from the "pie" for poor countries than the rich countries.

2.7   INTERNATIONAL IMPLICATIONS OF ALTERNATIVE SYSTEMS OF TAXING CORPORATE-SOURCE INCOME

2.7.1   Introduction

With this background we proceed to discuss the international implications of the alternative corporate tax systems. Unfortunately, our discussion will not be exhaustive since such a discussion could require another study itself. The five existing systems, paired with each other, create twenty five different cases. In addition to that these twenty five cases should be discussed under the four different types of investment[18] Therefore, we will briefly discuss these cases under the criteria of capital-export neutrality and intercountry equity.

The existence of different systems between two countries in particular, and in the world, in general, creates distortions and difficulties at the international level. Suppose, for example, country A employs partially or fully integrated system whereas country B has a classical system. Various types of discrimination and distortions arise if no actions are taken to harmonize these two systems. The resident of country A who invests in country B has a disadvantage because he received no relief from economic double taxation. On the other hand, if a resident of country B invests in country A and the latter provides him with a relief he receives an advantage from investment abroad; he has an incentive to invest abroad rather than in his own country. If country A does not provide him with the credit then it discriminates between resident and non-resident shareholders. Similar considerations arise regarding the establishment of a subsidiary in the same country or abroad. We proceed now to discuss the alternative systems under the capital-export criterion. The latter involves the same treatment between residents who invest at home and those who invest abroad.

2.7.2   Classical System: Capital-Export Neutrality.

Suppose the resident country employs the classical system, then, the source country may employ the classical or one of the other four

systems. In the case of direct investment in the form of subsidiary, the capital-exporting country should follow the same policy irrespective of whether the cource country employs a classical, imputation or full integration system. This policy consists of two steps. First, the capital-exporting country taxes foreign profits but it provides full credit for foreign CIT and withholding taxes. This is so because the dividend credit provided under the imputation and full integration systems is not given to a subsidiary[19] which implies that the latter is treated similarly by the source country irrespective of the CIT system. If the source country employs a two-rate or divided paid deduction system the case is not so easy. The operation of these two systems is complicated by the question of relating distribution relief to profits earned, since dividends paid in one accounting period are not necessarily paid out of profits of that period. However, the final burden of the foreign CIT is not determined before distribution takes place. The capital-exporting country then, should make an approximation for the foreign CIT and the credit provided by it, first, and adjust these magnitudes to the actual ones when the amount of final distribution is known.

If foreign investment takes the form of a branch, again the policy is the same for the three systems, classical, imputation and full integration. The difference from the previous case is that the capital exporting country provides a full credit only for the foreign CIT since, branches are not usually taxed with withholding taxes[20] If the source country employs a two-rate system or a dividend-paid deduction system, no adjustment is required by the capital-exporting country. This is so because branches under the two-rate system do not enjoy the lower tax rate on distributions whereas under the dividend paid deduction system, they are taxed on their total profits under CIT irrespective of whether these are distributed or not.

Suppose now that foreign investment takes the form of corporate portfolio investment. If the source country employs a two-rate system or divided paid deduction system then the capital-exporting country follows the same policy as in the subsidiary case. However, if the source country employs the imputation or the full integration system the policy applied by the capital-exporting country depends on the

extension of dividend credit or not. If it is extended then the capital-exporting country should impose an additional tax to recoup it in order to equalize the domestic and the foreign tax burden.

Finally, if foreign investment takes the form of individual portfolio investment, the policy required to achieve capital-export neutrality, is different if the two countries employ the classical system. First, the capital-exporting country applies the domestic CIT on individual's pro rata share of corporate profits and grants a full credit for the foreign CIT paid. Through this way the capital-exporting country eliminates any tax differential between the two countries. Second, the withholding tax paid abroad is set off against shareholder's personal income tax. If the country of source employs the two-rate or the dividend paid deduction systems the same process is followed but in addition to that the adjustment mentioned above is required. Finally, if the source country employs one of the other systems, it is a question of the extension of dividend credit or not. If it is not extended to foreign shareholders, the capital-exporting country follows the same policy as in the case of corporate portfolio investment whereas if it is extended there is no need for an additional tax since the CIT absorbs it.

In summary, if the trading countries employ the classical system then less actions are required for capital-export neutrality to be achieved. The other systems require additional actions. We restrict these additional actions if, in the case of two-rate system or the dividend paid deduction system, the benefit of the lower rate on distributed profits is limited to distributions out of current profits, and in the case of imputation or full integration systems, the dividend credit is not extended to foreign investors by the source country, which means that these systems work like the classical system regarding foreign investment.

2.7.3 Imputation System: Capital-Export Neutrality

The difference between the classical system and the imputation system lies in the presence, in the latter system, of two important elements, i.e. the provision of the dividend credit and the imposition of a compensatory tax (ACT, Precompte), in some cases, where

the provision of the dividend credit is undesirable. However, capital-export neutrality requires the same treatment of resident individuals who invest at home and those who invest abroad. The achievement of that goal requires that the capital-exporting country should follow the following general policy.

> First, to tax foreign profits under the domestic tax law, providing full credit for foreign corporate and withholding taxes.

> Second, to avoid imposing the compensatory tax when the parent corporation redistributes profits received from abroad to its shareholders.

> Third, resident shareholders be granted the full domestic dividend credit from income received from abroad.

If foreign investment takes the form of a subsidiary the above described policy should be followed by the capital-exporting country irrespective of what system is employed by the source country. However, in the case of a two-rate system or dividend paid deduction system in addition to the above steps subsequent adjustment is necessary in relation to foreign taxes actually paid as we explained in the previous section.

If foreign investment takes the form of a branch then we have the same policy, as in the case of a subsidiary except that credit for foreign taxes includes corporate tax only.

If the foreign investment takes the form of a corporate portfolio investment we have the same policy as in the case of a subsidiary except if the source country employs an imputation system and it extends the dividend credit to foreign shareholders. In that case a forth action is required in addition to the three described above, i.e. a special tax must be applied to recoup the extended dividend credit.

Finally, an individual invests abroad, the capital exporting country should tax him for his income from abroad as follows:

> First, his pro rata share of profits should be taxed under the domestic CIT with a full credit for foreign CIT.

> Second, the domestic personal income tax applies to that in-

come with a full gross-up and credit for foreign
withholding tax and,

Third,   the shareholder is provided with the full domestic
dividend credit.

The above described policy should be followed by the capital-ex-
porting country irrespective of the tax system employed by the source
country.

2.7.4   Two-Rate and Dividend Paid Deduction Systems:Capital Export Neutrality.

If the capital-exporting country employs either the two-rate or
the dividend paid deduction system, it should follow the same policy
for achieving capital-export neutrality as in the case if it would em-
ploy a classical system.   However, two points deserve special atten-
tion.   First, in the case of individual portfolio investors as to
what effective tax rate on domestic investment is for credit purposes,
since that rate depends on the payout ratio of each corporation (Sato
and Bird, 1975).   Second, if the domestic CIT rate is less than the.
foreign CIT rate then the full credit for the latter would involve a
refund.

2.7.5   Full Integration: Capital-Export Neutrality

If the capital-exporting country employs a full integration system
it faces the same problems as in the case of the imputation system.
The full elimination of economic double taxation involves a greater
loss for the capital-exporting country if the source country employs
a high CIT rate.   The abolition of the CIT under this system compli-
cates the problem of equalising the personal tax burdens between dom-
estic and foreign investment, unless all corporate investors distrib-
ute or allocate all foreign profits to their shareholders.

2.7.6   Intercountry Equity Under the Alternative Tax Systems

We saw earlier that three principles are related to the concept of
intercountry equity i.e., nondiscrimination, reciprocity and effective
reciprocity.   The nondiscrimination principle requires the source
country to treat resident and non-resident shareholders equally.   If
a country applies the classical system then the non-resident share-

holder automatically receives equal treatment with the resident
shareholder. However, this is not the case if the source country
applies a partially or fully integrated system. This is due to the
fact that these systems provide a relief for economic double taxat-
ion which means that it is to the discretionory policy of the govern-
ment to provide the non-resident shareholder with the relief which the
resident shareholder enjoys. For example, the imputation system dis-
criminates against non-resident shareholders if the dividend credit
is granted only to resident shareholders.

According to the O.E.C.D. model treaty, the additional requirement
for achieving intercountry equity, is concerned with an equal recip-
rocal withholding tax in the contracting countries (O.E.C.D., 1963).
If the countries in question apply the classical system and they
have more or less the same tax rate then the goal of intercountry
equity is achieved under the two criteria. To the contrary, if the
other country applies one of the other tax systems then the non-dis-
crimination principle holds only if the source country applies the
same rules of taxing non-resident shareholders. Moreover, if the
countries in question apply an integrated system then intercountry
equity is achieved by manipulating the integration benefit. The
recently suggested criterion of effective reciprocity requires the
equalization of the effective tax burden on foreign investment between
the contracting countries.

Suppose, for example, that country A applies the two-rate system
and country B has a classical system, then subsidiaries of country B
operating in country A have an incentive to distribute as much prof-
its as they can to their parent companies in country B so as to mini-
mize their tax liability in country A. This has far-reaching effects
upon the division of the "tax-pie" between country A and B. There-
fore intercountry equity considerations require the country with the
two-rate system to increase its taxes on investment income accruing
to foreign investors. There are two ways to reconcile this system
with international needs; either the country which applies this
system can reduce the rate differential between distributed and re-
tained profits, or, it can increase the applied withholding tax rate.
Germany, for example, when it used this system, applied a high rate
of withholding tax. However, U.S.A. has objected to Germany's im-

position of a non-reciprocal withholding tax as an accompaniment of its two-rate system appealing to the standard non-discrimination rule that withholding tax rates should be the same in the two contracting countries.

Similar considerations hold if the source country applies the dividend paid deduction system. Since the rate differential between distributed and undistributed profits is higher under that system than under the two-rate system, the loss for the source country is greater. Moreover, intercountry equity considerations require the sourse country either to apply the CIT on both distributed and undistributed profits or to impose a very high withholding tax rate. Greece, for example, follows the second way.

On the other hand, if the source country applies the imputation or the full integration system then it is easier for it to manage the situation by extending or not the dividend credit to foreign shareholders.

Concluding, the non-discrimination and reciprocity principles imply intercountry equity under the assumption that all countries have the classical system. These principles are inadequate to deal with the problem if different systems are applied in the contracting countries. However, the effective reciprocity principle seems to achieve this goal by manipulating the integration benefit and the withholding tax rate. The proponents of this principle argue that it has the significant advantage of providing the countries with freedom to apply their preferred tax systems, from a domestic point of view, without interfering with international considerations. They also argue that this principle, despite the fact that it is inherently bilateral, can be extended to be used on an international basis by introducing a standard rate schedule which is inherently related to the CIT rate. On the other hand, as we stated elsewhere, the doubtful point regarding this principle is the knowledge of the effective CIT rate in each country.

2.8 GENERAL CONCLUSIONS

In this chapter we saw:
a) how the government uses one or other of the tax systems for achieving various objectives from a domestic point of view.

The main consideration in that choice was the integration of personal income tax and corporate income tax. With no surprise we saw that various governments used different systems for achieving the same goals.

b) how at an international level unilateral and bilateral provisions are used for achieving efficiency and equity. Unfortunately, despite these provisions these goals are far away.

c) how the recent tendency for the foreign government to alleviate economic double taxation, a task which previously belonged to the domestic government, facilitates the achievement of reaching the above stated goals in the international level.

Whereas the dispute over the merits and demerits of the alternative corporate tax systems from a domestic point of view in terms of equity, investment, allocation of capital etc. remains unsettled the classical system seems to gain a superiority on international considerations. This superiority comes from the fact that the classical system requires less actions to be taken i.e. is the simplest, as a means of achieving efficiency and equity internationally.

The question which arises is whether differences in the structures of the CIT are more important than differences in the systems. The plethora of co-existing taxes parallel with the CIT may support the view that the former differences are more important than the latter. After all, as we saw, the two-rate system can be translated into the imputation and the latter into the classical system, which means that we do not have many systems but only one which appears in various forms. However, simplicity is not the only consideration, other factors should be taken into account in choosing a system of corporate taxation. Finally, if we want to be realistic, we should realise that there is no one system, with only advantages and no disadvantages, which would achieve our objectives, which some times conflict each other. In this chapter we dealt with the dividend-paid-deduction system on a theoretical level. We proceed to discuss how this system is applied in Greece.

1. One could put the classical system with dividend relief under
    the partial integration heading. We prefer our classification
    because the relief given is not related to the corporate income
    tax as it is under the other systems. That is to say, under the
    two-rate system the CIT rate on distributed profits is reduced,
    whereas under the imputation system the relief is a proport-
    ional amount of CIT paid. The determination of the relief
    irrespective of the rate of CIT may reflect the purpose of its
    provision. That is, the relief is not given as a means of
    alleviating economic double taxation but as a means of making
    shareholding more attractive.

2. At least in comparison with the classical systems. See table
    2.2, page (53).

3. This assumes that the grossing-up means a higher tax rate than
    the classical system. See table 2.1, page (54).

4. The dividend tax credit may be granted in three forms. First,
    as a percentage of cash dividends, second, as a percentage of
    grossed up dividend and third, as a percentage of CIT which is
    imposed on that part of the pre-tax corporate profits from
    which dividend was paid.

5. However, it discriminates in favour of tax-exempt organisations.

6. This term has been introduced by the E.E.C. see the last proposal
    for company tax harmonization in the E.E.C.(1975). The corresp-
    onding terms in France and the U.K. are "precompte mobilier" and
    advance corporation income tax (ACT).

7. Denote T the total corporation tax, D dividends net of CIT and
    gross of PIT, $Cu = .51$, the CIT rate on undistributed profits and
    $td = .15$ the CIT rate on distributed profits. Then, $T = .15D +
    .51 (1-D) = .51 - ,36D$ (1) since $T + D = 1$ and $T + 1 - D$ (2)
    from (1) and (2) we obtain: $1 - D = .51 - 36D$ which implies
    $D = .7656$ (3). Substituting (3) into (1) we get: $7 = .234$.
    Therefore, the final tax rate on distributed profits is 23.4
    per cent and not 15 per cent. This is because the tax amount

which corresponds to distributed profits is taxed as undistributed profits under the corresponding tax rate.

8. For similar reasons as in the case of two-rate system.

9. At least in comparison with the classical system. See table 2.2 page (54).

10. Under the assumption that dividend income is highly concentrated Goode 1953 has demonstrated that the u.S. tax structure is more progressive with CIT than without it, whereas Wagner (1973) reject this view.

11. B. Bracewell-Milnes (European Taxation, 1974) wonders if this ratio is a satisfactory measure for this purpose and he suggests that the economic double taxation of dividend is correctly measured by the difference tp - (tr - td).

12. We ignore the existence of personal income tax.

13. The capital gains tax liability is calculated as the product of the personal income tax rate and the residual amount of profits after cash distributions and taxes.

14. For the calculation of θ for the dividend deduction system see our calculations in chapter three. For the other system see King, 1977.

15. Total tax liability without CIT.

$$* \ t^{L} = tp^{L} \quad (1)$$

$$* \ L^{H} = tp^{H} \quad (2)$$

Total tax liability with CIT.

$$t^{L} = tc + tp^{L} \ (\ 1 - tc) \quad (3)$$

$$t^{H} = tc + tp^{H} \ (1 - tc) \quad (4)$$

Subtracting (1) from (3) and (2) from (4) we have

$$t^{L} - {}^{*}t^{L} = tc \ (1 - tp^{L}) \quad (5)$$

$$t^{H} - {}^{*}t^{H} = tc \ (1 - tp^{H}) \quad (6)$$

Since $tp^{H} \quad tp^{L}$ implies $t^{L} - {}^{*}t^{L} \quad t^{H} - {}^{*}t^{H}$

16. For an excellent discussion all these matters see Sato and Bird, 1975.

17. The source or capital-importing country is that where the capital is invested, whereas the residence or capital-exporting country is that where the capital comes from.

18. That is, subsidiary, branches, corporate portfolio and individual portfolio.

19. A subsidiary enjoys the lower tax rate applied to distributed profits under the two-rate system but the dividend credit is not available for parent companies abroad in respect of dividends paid by the subsidiaries, under the imputation system.

20. Both the two-rate system and the imputation system deny providing a branch with the divided credit.

CHAPTER THREE

THE GREEK CORPORATION INCOME TAX SYSTEM

3.1 Introduction

In this chapter we turn to consideration of CIT as it operates
in Greek economy. We first outline characteristics of the Greek tax
structure in general, explaining the reasons why the tax structure
has the present form. Then we turn to consideration of CIT. Three
main aspects we want to consider, namely, tax splitting, tax incen-
tives and corporate financing techniques. The discussion of tax
splitting requires the establishment of a tax discriminatory variable
which measures the degree of discrimination between dividend and re-
tention. The difficulty in calculating this variable lies on the
fact that shareholders face different marginal rates of income tax.
We overcome this difficulty by using a weighted average of the mar-
ginal tax rates. Then we discuss financial policy of the Greek firms,
the role of the banking system, of public financial institutions and
of the capital market are discussed. The Greek CIT system is neut-
ral between debt and equity finance. However, the whole tax struc-
ture discriminates in favour of equity finance due to the lack of
capital gains tax. Then, we proceed to estimate the present value of
tax saving from depreciation and investment allowances. We see that
Greek manufacturing firms enjoy a considerable amount of tax saving.
In assessing these incentives we give a brief overview of the role of
investment in Greece using statistical information to judge their
effectiveness regarding the allocation and the quality of investment.
In chapter four, an attempt is made to test, from econometric point
of view, the effectiveness of tax discriminatory policy between divi-
dend and retention and to establish a quantitave estimate between
tax savings and the volume of investment.

3.2 The Main Characteristics of the Greek Taxation

3.2.1 Introduction

In general, fiscal policy can be used as a means of improving
income distribution, stabilizing the economy, promoting growth and

achieving regional objectives. Fiscal policy has played a significant role in Greece since 1953. Both taxation and government expenditures have been extensively used to achieve certain policy objectives. Fiscal policy was used incidentally as a means of improving the distribution of income whereas stabilization policy was a subsidiary of growth policy. Therefore, the principal aim of fiscal policy was to promote economic growth by increasing the productive capacity and productivity of the country through investment. The second main objective of fiscal policy was to reduce regional disparities. Firms established in certain regions enjoyed larger tax exemptions. In addition, the government undertook a number of investment projects and provided subsidies as a means of increasing the income of these regions.

3.2.2 The Greek Tax Structure

"The one simple generalization which can be made about Greek taxation is that it is extremely complicated" (G.Break and R.Turvey, 1964).

In general, each taxation system depends on the historical, sociopolitical and economic enviroment of the country but the system to be effective must be tailored carefully to the preculiar circumstances and objectives of that country. Taxation as the principal instrument of fiscal policy had various economic and social objectives in Greece. Under the former, taxation had to produce enough revenue for financing investment programmes and to achieve an efficient resource allocation by promoting desirable types of investment and discouraging misdirection of funds. Under the second objective, taxation had to eliminate income inequalities through a progressive personal tax structure.

The present tax structure was established in 1955. Once the means and methods of taxation were established, however, it can generally be said that taxation became primarily a question of periodically increasing or decreasing the burden rather than modifying the basic structure. The main elements of the Greek tax structure are, the predominance of indirect taxes, the absence of a capital gains tax, the minor contribution of taxes on wealth and finally the corporation

income tax combined with the use of tax incentives.

The most significant characteristic of the Greek tax structure is the degree of relience placed on indirect taxes to provide revenue. Table 3.1 (next page) shows that the share of indirect taxes in total government tax revenue remained almost constant and very close to 60 per cent. This share had the smallest contribution during the current decade. It took the minimum value (52 per cent), in 1974. This is due to the fact that in 1974 the government imposed an extra income tax to cover military expenditures because of the Cyprus war.

Various explanations may be given to this striking characteristic of the Greek tax structure. First, the structure of the Greek economy. It consists of a large number of small economic units which would render the cost of collecting taxes high, in comparison with the tax revenue. In addition, income from agriculture is tax free for various historical, social and political reasons. Most importantly the government uses this incentive as a means of attracting the population to remain in the provinces. Moreover, the assessment, collection etc. of such a large number of small individual's income would involve a high cost for the government. It is believed that the gradual increase of industrial income will enable the government to increase the share of direct taxes in the future.

The large extent of tax evasion and tax avoidance is the second reason for the high share of indirect taxes. A recent study made for the Centre of Planning and Economic Research recognizes that an amount only around one third of income is taxed, whereas the rest escapes taxation (KEPE, 1976). This is due to the psychology of the Greek tax payer, the predominance of small units and the inefficient organization and function of the tax mechanism. Unfortunately, tax evasion and avoidance not only lead to a high share of indirect taxes but they also have undesirable effects on the distribution of income. Since more tax evasion means less revenue from direct taxes this induces the government to increase indirect taxes with the antisocial result of preventing the government of reducing taxes levied on low-income classes. During the whole period under review the Greek authorities made serious efforts to reduce tax evasion unsuccessful. As the main sources of tax evasion may be con-

T A B L E   3.1

| Composition of Tax Revenue in Greece (in millions drs.) | | | |
Year (1)	Total Tax Revenue. (2)	Direct Taxes (3)	Indirect Taxes (4)	Ratio (4) : (2)
1950	4,860	1,611	3,249	0.66
51	6,040	2,531	3,509	0.58
55	12,430	5,234	7,196	0.58
60	20,008	7,926	12,082	0.60
65	39,197	15,392	23,805	0.60
1970	74,511	31,105	43,406	0.58
71	82,877	36,044	46,833	0.56
72	94,029	41,503	52,526	0.56
73	114,216	49,390	64,826	0.57
74	136,935	65,373	71,562	0.52
75	167,265	72,027	95,238	0.57
76	222,217	102,963	119,254	0.54
77	266,080	118,480	147,600	0.55

Source: National Accounts of Greece, Table 4.

sidered income from profits and from professional earnings such as physicians and solicitors.

Finally, the tax structure has been badly eroded by outright exclusions and partial tax exemptions. These include part of the net income of journalists, actors and artists, interest earned on bank deposits and government bonds etc. It has been argued that most of these provisions do not serve any economic purpose, in contrast, some of these have undesirable effects, for example, the fact that dividends are taxed whereas interest is tax-free distorts the capital structure of the firms. Concluding, we should notice that whereas the per capita income in Greece follows an upward trend which lies between 5 and 10 per cent annually the balance between direct and indirect taxes over the period has remained almost unchanged.

A second characteristic of the Greek taxation is the absence of a capital gains tax. Whereas most countries consider capital gains as taxable income, the Greek definition of income excludes them. Only capital gains generated from the sale of goodwill or patents subject to capital gains tax. A tax on transfers of real property plays the role of a partial substitute of a capital gains tax. However, Professor Dracos argues that this is not a good reason for the absence of a capital gains tax, for a number of reasons (G.Dracos, 1976). Firstly, this tax is concerned only with the taxation of real property and it is not levied upon all the kinds of capital gains. Second, although this tax is levied on the seller it is paid by the buyer. Third, as tax base is considered the value of the immovable property and not the capital gains, that is, the difference between the price of acquisition and sale price. The absence of a capital gains tax contributes to higher tax evasion, particularly, from gains generated from immovable property and stock shares. Second, the exclusion of income generated from capital gains from the tax base and since it is believed that the recipients of these belong to high income classes, renders the income tax structure less fair.

Taxes on wealth in Greece are also relatively unimportant, raising under 2 per cent of total tax yield. Inheritance, gift and dowery duties are the main form of wealth taxation. The tax rate varies according to the relationship between the decendent and the

recipient, the closer the relationship between them the lower the tax rate. However, these taxes can be avoided by a number of legal (or illegal) devices, particularly when the valuation of assets is involved. There is no annual tax on wealth in Greece.

The personal income tax system is said to be progressive, that is, the higher the income received the greater the proportion of that income paid in tax. In 1976, the range of marginal tax rates extends from 3 to 60 per cent. However, all the factors mentioned above make the desirable progressivity very vulnerable. It has been argued that the effective income tax rates are less than the nominal income tax rates, as a result of tax evasion combined with the lack of capital gains tax and wealth taxes. This has been used as an arguement in favour of reducing the nominal income tax rate which may lead to less tax evasion.

On over all the Greek tax system is complex but relatively primitive. Its main characteristic is the predominance of indirect taxes. The limited role of direct taxes and the tax evasion make it not equitable.

3.3 THE GREEK CORPORATION INCOME TAX

3.3.1 Introduction

Greece treats corporate profits with a method different to every other country. The CIT is levied only on retained profits whereas dividends are taxed under the personal income tax rules. In addition, Greece, early in 1950, started using tax incentives as a means of achieving and promoting economic growth.

A tax on corporate income was levied for first time in Greece in 1877. The present corporation income tax system was introduced in 1958. Revenue from CIT in Greece is shown in table 3.2. Corporate tax revenue expressed as a percentage of gross domestic product was never higher than one per cent during the period 1958-1975. Its contribution to the total tax revenue ranged from 1.9 to 5.1 per cent during the same period. First reason for this is the existence of tax exemptions, tax evasion and small corporate sector. In a developing economy, like the Greek, where corporate income is likely to become

T A B L E 3.2

Corporate Tax Revenue in Greece				
Year	Total Amount	As a % of total Tax Revenue	As a % of Direct Taxes.	As a % of GDP.
1958	313.45	2.5	11.3	0.37
59	246.1	2.0	9.7	0.28
60	250.6	1.9	9.5	0.27
61	328.4	2.1	10.1	0.31
62	368.5	2.1	10.2	0.33
63	379.9	2.0	10.5	0.30
64	478.3	2.2	10.7	0.34
65	565.6	2.2	12.5	0.35
66	637.0	2.0	11.2	0.36
67	738.0	2.1	10.2	0.39
68	740.3	1.8	8.5	0.36
69	720.2	1.5	7.5	0.31
70	983.4	1.9	9.0	0.38
71	1,178.9	2.0	8.9	0.41
72	3,005.7	4.5	19.2	0.91
73	2,679.3	3.3	14.2	0.62
74	4,943.0	5.1	17.3	0.96
75	4,690.8	3.8	15.8	0.78

Source: Ministry of Finance, General Book-keeper's office.

of greater relative significance in national income, the importance of CIT as revenue source may be expected to increase substantially in absolute terms and particularly in the Greek case where administrative problems have retarted the development of the personal income tax, probably in relative terms as part of direct tax revenue.

More importantly than raising revenue, in Greece, corporation income tax fulfils a vital role in the objective of promoting growth. Since the Greek authorities put as first priority to promote growth during the last twenty five years they used corporate taxation as the main device to achieve this target. The Greek authorities used corporate taxes, either for inducing domestic firms to increase capital formation or for attracting foreigners to contribute to this effect. Greece achieved a very satisfactory rate of growth during the period under consideration. Moreover, we could preliminary say that the contribution of corporate taxation to Greek economic growth was satisfactory as well.

Before discussing the main structural features of the Greek corporate taxation we find useful to discuss the legal environment within an enterprise, domestic or foreign, makes business in Greece. Emphasis is given to the tax treatment of the various legal forms of enterprises.

3.3.2 The Legal Environment

The legal forms under which business may be operated in Greece range from the individual enterprises to one of the several forms of companies recognised by law. Business operations can mainly take four legal forms, corporation, limited liability company, general (or common) partership and limited partnership.

The organization and operation of a corporation in Greece is based on the provisions of law 2190/1920, as amended and supplemented by law decree 4237/1962. Two or more persons, Greek or alien, may form a corporation. The minimum amount of capital required is 5,000,000 Drs fully paid-in at the time of establishment of the corporation. The capital is divided into shares which may be either transferable or registered. Preferred shares may be issued under

certain conditions as well. Shares and bonds of Greek corporations may be listed on the Athens Stock Exchange (A.S.E) if certain conditions are satisfied. The corporation is considered by the law as a legal entity distinct apart from its shareholders. The latter are subject to limited liability in an amount equal to their contribution capital.

The organization and operation of a limited liability company is based on law 3190/1955 as amended and supplemented subsequently. Two or more persons, Greek or alien, may form a limited liability company. The minimum amount of capital required is 200,000 Drs., payable at the time of establishment of the company. The transfer of shares is permissible only if it is allowed by the charter and is made only by a notarial act. Finally, each partner is liable to the extent of his contribution to the capital.

The other two legal forms of enterprises, general or limited partership are governed by both the commercial law and the civil law. Two or more persons, Greek or alien, may form a general or limited partership. The main characteristic of these is the different liability of the persons who constitute them. The general partner is unlimitedly liable to the full extent of his (her) personal property for the dealings of the partnership whereas the limited partner is liable only to the extent of his (her) participation in its capital. There is no minimum capital requirement.

From taxation point of view the net profits of limited liability companies and partnerships are taxable as personal income of the partners. If these profits are reinvested in the business and fulfil certain conditions they are tax-free. However, corporate income is liable to the CIT whose main structural characteristics are discussed in the next section.

3.3.3 Characteristics of the C.I.T.

3.3.3.1 The Tax Base

The Greek CIT falls only on retention, namely, it is our familiar dividend paid deduction system, described in the previous chapter. The taxable base for a corporation, as for an individual,

is the sum of its income under seven categories - from buildings, land, movable capital, commercial and industrial activities, agriculture, employment and liberal professions - after the deductions of the expenses which were incurred in creating that income, and after the various arrangements for special capital allowances. Among the deductible expenses are wages, rent, interest paid, the expense for the maintenance and repair of machinery and of business installations, the value of raw materials, bad debts, the depreciation for wear and tear of assets and machinery, certain gifts etc. Dividends paid to shareholders, remuneration and allowances of members of board of directors and extra payments and allowances to company directors and managers are deductible as expenses. Therefore, resident corporations are subject to CIT on that part of profits which is not distributed or included in tax-free reserves.

At the same time a number of significant provisions are granted. Net operating losses may be set off against profits realized by the corporation during the subsequent five years for industrial and mining corporations and two years for commercial and agricultural ones. On the other hand, capital gains realized or not on assets held are not taxed. Interest from deposits (sight or savings) placed with Greek banks or branches of foreign banks, or/and interest from government loans or from loans issued by public enterprises (public power corporation or Greek telephone organization) is exempt. Intercompany dividends are taxable income for the recipient corporation since there is a withholding tax withheld by the payer corporation. Greece, for the first time in 1972, introduced incentives for scientific research. Expenses for research and development are deducted but the amount should not be higher than 10 per cent of net profits in a given administrative period during which such expenses took place.

Most importantly, generous provisions are made for capital in the form of incentives and liberal depreciation methods are used. It is worth drawing a distinction between normal depreciation and accelarated depreciation. Under the former the allowance cannot exeed the original cost of the capital asset and it is designed primarily not to provide an incentive but to some extent to provide

a realistic measure of taxable income.   The last decades accela-
rated depreciation has been used as a fiscal device either to stimu-
late investment in general or to channel funds to specific types of
investment. This allows the tax write-off for wearing out of a capi-
tal asset in a period shorter than the actual physical wearing out or
absolence of the asset. It is a very strong device in the hands of
the government in the sence that it is likely to stimulate investment
in two ways. First, it allows companies to postpone payment of tax.
This provides companies with two benefits, either they have the chance
to use these funds for other purposes in the interim time or to bene-
fit in time of inflation since the eventual payment is smaller than
if no accelarated depreciation would exist. Second, accelarated de-
preciation may increase the attractiveness of risky assets since the
investor is able to receive his money back soon.[1]

In Greece, both types of depreciation have been used. In the
period 1919-1958 companies were allowed to chose their preferred rates
of depreciation. In 1959, the Greek authorities, introduced ceelings
of depreciation. Finally, in 1971, annual depreciation became compul-
sory and in 1973, new higher depreciation rates were introduced.

Under the current system, these are calculated on the historic
cost of assets and the method of straight line depreciation is appli-
cable. Since firms are forced to use high depreciation rates it is
very common to have balance sheets with large depreciation deductions
and small or negative profits. In other words, we have an unrealis-
tic "taxable income" as we mentioned earlier. In addition to that the
introduction of compulsory high depreciation rates may lead to incen-
tive lost unless if the high compulsory depreciation rates are accom-
panied by no sufficient generous loss carry-overs provisions to off-
set, the above mentioned, created profits in other years. A number of
tax incentives - schemes is discussed in the appendix of this chap-
ter.

3.3.3.2 Tax Rates

It is a common practice for corporate income to be taxed at a
flat rate on the grounds that corporations have no "ability to pay",
in the same sence as individuals do. The Greek CIT conforms to this
general practice, in that rate is the same for both large and small

corporations, and for large and small levels of corporate income.

The rate structure of the CIT consists of a normal tax on the taxable income and a surtax is levied in favour of the farmer's social insurance fund, which is itself deducted as an expense in the year of income. The tax rate is 40 per cent for corporations whose shares are not listed on the A.S.E and 35 per cent for those whose shares are listed on the A.S.E. The surtax rate is 15 per cent of the above mentioned rates so that the final tax rates are 43.40 and 38.24 per cent correspondingly.[2] The differential treatment between corporations whose shares are listed on the A.S.E and those whose shares are not is given as an incentive to attract the family concern corporations to the A.S.E as a source of funds.

The tax is paid in six equal instalments, the first to be paid upon submission of the income declaration. A discount 10 per cent of tax is provided if the total amount of tax is paid within the period the first instalment is due. The benefit from this tax discount is tax-free. An advance payment for the tax applies to all legal persons and is figured on the basis of 50 per cent of the CIT paid and the tax withheld on dividend in the previous year. In the case of overpayment a refund is made.

A business tax is levied on wages and salaries paid by firms operating in the district of Attica with an annual payroll of over 180,000 Drs. There is no net wealth tax levied on corporations. A real estate tax was introduced by Law 11/1975 applicable to land and building but it was abolished next year.

3.3.3.3 Dividend Taxation

As described above distributed profits are not subject to CIT but the company withholds the corresponding individual income tax and gives that to the government. Therefore, the only link between the corporation and personal income tax is the requirement on a corporation to act as a withholding agent for individual income tax due on dividend and interest income paid the corporation. This withholding tax is used, as we explained in the previous chapter, as a means of fighting tax evasion. The shareholder counts the withheld

amount as a credit against his final tax liability. According to the law 542/1977 the tax payer is entitled to a per company exemption of 15,000 Drs. and an overall exemption of 60,000 Drs. These exemptions are provided to dividend income generated from shares listed on the A.S.E., as a means of inducing investors to invest on stock shares listed on A.S.E.

The corporation withholds 38 per cent for registered shares and 41 per cent for bearer shares both quoted with the A.S.E whereas these rates are correspondingly 43 and 47 per cent for dividends from shares not quoted with the A.S.E. For dividends from bearer shares not quoted with the A.S.E. the 47 per cent tax rate is the final tax rate levied on them whereas for dividends from the other types of shares the taxpayer has the option to incorporate or not these with his rest income to be taxed under the progressive personal income tax scale.

The appropriation of net profits by the enterprise is regulated by the law 2190/1929, article 45. The general procedure is as follows: first, 5 per cent of net profits are put aside for normal reserves, second, an amount of profits equal, at least, to 6 per cent of the paid-in capital, if there are enough profits or 30 per cent of the total profits if they are larger than 6 per cent of capital stock. Third, an amount determined by the general meeting of the shareholders is held for extra reserves, fourth, an amount for remuneration of the board of directors and finally, a new amount is disposed as a second dividend. The purpose of this legislation is to protect the minority of the shareholders and second to promote the institution of the corporation.

In 1974, the Greek government introduced a law by which firms were not allowed to distribute a higher percentage of their profits than that specified by the law. This measure was a part of the antiflation plan to reduce the circulation of money in the market. A few months later the new government abolished this law.

3.4   AN APPRAISAL OF THE C.I.T.

3.4.1   Introduction

CIT is important to corporation in Greece in regard to two
decisions, namely, financial and investment decisions. Under the for-
mer we will discuss the impact of the CIT upon tax splitting and cor-
poration financing techniques whereas under the latter the influence
of tax incentives upon investment will be dealt with. The government
may affect investment through the availability of funds and second,
through the cost of capital. The first may be achieved by a tax dis-
criminatory policy between distributed and undistributed profits
whereas the second by providing various tax concessions related to in-
vestment expenditures.

3.4.2   Discriminatory Taxation of Distributed Profits

We saw in a previous section how the Greek legislation tries to
affect the appropriation of profits. Moreover, it has been argued
(G.Dracos, 1976, D.Psilos, 1964) that the Greek CIT system favours re-
tentions and that this serves to increase investment. On first point
to date there has been no enpirical study of the determinants of divi-
dend behaviour in Greece. One of the purposes of this study is to
cover this gap, that is, to test the above argument and to show wheth-
er the CIT favours retentions.

The government may affect the appropriation of profits either
through the tax structure per se or through the various provisions.
The former case deals with the tax differential between retention
and distribution, the absence of capital gains tax whereas the latter
deals with tax exemptions for covering future losses, depreciation
allowances tax-free reserves etc. for new investment. This section
deals with the first case e.g. the tax discriminatory policy between
dividend and retention. If retentions lead to capital gains then it
is likely the shareholder will prefer lower dividends payments since
the capital gains income is tax-free. In addition to that share-
holders with high marginal tax rates appears to think of retention
as a tax shelter. The impact of these considerations seems to be

stronger in the case of the Greek firms where the majority of these are closely held corporations. The effect of the various provisions mentioned above will be discussed in the next section.

We assume that the Greek firm is allowed to put aside 20 per cent of net profits as tax-free reserves. The remaining 80 per cent should be allocated between retention and distribution. The question which arises is how the tax system affects this allocation. In other words, under the assumption that the CIT is not shifted how is the tax allocated between retention and dividends?

We define as discriminatory variable θ the opportunity cost of retained profits, in terms of net dividends foregone. If a corporation distributes 1 Drs. then θ is the amount received by the shareholder and $1 - \theta$ is the amount which goes to tax. The discriminatory variable might take three sets of values: θ equal to one means that the tax system is neutral between retention and distribution, that is, profits can be retained either by the firm or by the shareholder without attracting additional taxation; if θ is greater than one this means that the tax system favours distribution and finally, θ less than one means that the tax system favours retentions. The additional tax liability per unit of net dividends is equal to $\frac{1-\theta}{\theta}$.

To establish the formula for estimating θ we denote by T the total tax liability, tc is the CIT rate, P is the amount of profits, G is the amount of dividend before the deduction of personal income tax and D the amount of dividend after payment all taxes, both corporate and personal. The total tax liability T, in general, is equal to the tax on total profits plus any additional tax levied on dividends. That is,

$$T = tcP + \frac{1 - \theta}{\theta} D \qquad (3.1)$$

Since gross and net dividends are related to with the relationship $D = (1 - tp) G$ where tp is the rate of personal income tax of the shareholder, equation (3.1) can be written as,

$$T = tcP + \frac{(1 - \theta)(1 - tp)}{\theta} G \qquad (3.2)$$

We saw that the Greek tax system taxes dividend only by the personal income tax rate. Moreover, the total tax liability is equal to,

$$T = tc \ (P - G) + tp \ G$$

or,
$$T = tcP + (tp - tc) \ G \qquad (3.3)$$

Both definitions (3.2) and (3.3) of total tax liabilities were introduced under the assumption that there is no capital gains tax as applies in Greece.

From equations (3.2) and 3.3) we obtain:

$$tp - tc = (1 - \theta) \ (1 - tp)$$

or,
$$\theta = \frac{1 - tp}{1 - tc} \qquad (3.4)$$

Equation (3.4) provides us with the tax discriminatory variable between retentions and dividends. This depends negatively on rate of personal income tax and positively on rate of corporate income tax. We have θ equal to one when the personal income tax rate is equal to corporate tax rate, whereas θ is greater than one when the latter is greater than the former.

The main difficulty as far as its calculation is concerned is the knowledge of personal tax rate, tp. It is very difficult, if not impossible, to know its value for every shareholder. A study for the U.K. assumes that tp is equal to the "basic rate" of income (M.Feldstein, 1970). A better approximation can be provided if a weighted average of the marginal tax rates is used.

The National Statistics Service of Greece publishes data with the number of taxpayers declared family income from each source and per range of income. From this table we receive data for income from movable values which includes all the kind of distributed profits of corporations plus interest. Since, the latter on deposits and bonds is tax-free it is reasonable to assume that a very small percentage of the amount of movable assets represents income from interest. This assumption was verified in personal conversation with Greek

officials. From the table mentioned above we construct the weights
of each range which is the proportion of each share to the total in-
come from movable values. Each weight was multiplied by the corres-
ponding income range and the addition of all these products give us
the weighted average marginal tax rate.

Table (3.3) reports the calculation of tax discriminatory vari-
able θ for the period 1959-76. Column 1 provides the weighted aver-
age of the marginal tax rates and column 2 the modal of these mar-
ginal tax rates. Column 3 provides the CIT rate, which has remained
stable over a long period; only recently have the Greek authorities
increased this rate from 35 per cent to 40 per cent. Finally, uti-
lizing the appropriate form of θ , $\theta = \dfrac{1 - tp}{1 - tc}$, we construct col-

umns 4 and 5. From column 4 we see, in general, that the value of θ
was very close to one, which means that the system was almost neutral
between retention and distribution. Particularly, in 10 years out of
18 the system was in favour of retention where in 8 years was in fav-
our of distribution. The sample average for the whole period was
equal to 0.980. The movement from a value less than one to a higher
than one for the period 1968-1974 can be explained as a result of the
introduction of Law 148/1967 which gave some provisions as far as divi-
dend is concerned. The purpose of these provisions, as we saw earlier,
 was to support the development of the Greek Capital Market. A closer
comparison between the values of θ above and below one allows us to
conclude that the system, in general, was neutral between dividend
and retention. Therefore, the balance between retention and dividend
was sufficiently firm that no emphasis was given neither on dividend
nor on retention.

3.4.1.1 Critique of Taxation of Dividends

The Greek system of dividend taxation can be criticised in
three respects for lack of equity or efficiency. First, the differ-
ent treatment between retained and distributed profits, as we have
just seen, has been virtually neutral between dividends and retained
profits, but the lack of capital gains tax favours retention, which

T A B L E 3.3

	Tax Discriminatory Variable θ				
YEAR	Marginal Tax Rates on Dividend		Corporate Tax Rate	Tax Discriminatory variable θ	
	Mean	Modal		Mean	Modal
	(1)	(2)	(3)	(4)	(5)
1959	38.5	39.0	35.0	0.9461	0.938
60	40.0	39.0	35.0	0.9230	0.938
61	38.0	39.0	35.0	0.9538	0.938
62	39.0	39.0	35.0	0.9384	0.938
63	39.5	39.0	35.0	0.9307	0.938
64	39.0	39.0	35.0	0.9384	0.938
65	34.0	32.0	35.0	1.0153	1.046
66	36.0	32.0	35.0	0.9846	1.046
67	37.0	32.0	35.0	0.9692	1.046
68	32.6	28.0	35.0	1.0369	1.1076
69	34.0	28.0	35.0	1.0153	1.1076
70	34.0	28.0	35.0	1.0153	1.1076
71	33.0	28.0	35.0	1.0307	1.1076
72	32.2	25.0	35.0	1.0430	1.1538
73	32.0	25.0	35.0	1.0461	1.1518
74	34.0	25.0	35.0	1.0123	1.1538
75	45.5	39.0	35.0	0.8384	0.938
76	40.8	27.0	40.0	0.9866	1.216

Source: Column (1), (2), (4) and (5) our calculations.

Column (3) : Ministry of Finance.

can be used as a tax shelter. At best if corporate savings are rat-
ionally invested then there is a compensation for the undesirable ef-
fects, which the absence of capital gains tax creates. This discrimi-
nation produces two undesirable effects: first, it provides the
shareholders with a tax shelter, which is undesirable, particularly
in Greece where, as it is believed, income from movable capital is
concentrated in high income classes, and second, this discrimination
interferes in the good functioning of the capital market. Two provi-
sions are made to encourage the development of the capital market.
The first is the exemption of 15,000 Drs. per firm and 60,000 Drs. in
total. This provision can be criticised on various grounds. We saw
that there is no economic double taxation of dividends in Greece.
Therefore, there is no reason to alleviate the tax burden on dividend
since comparing that with other countries is not high. Our argu-
ment becomes stronger if we take into consideration that the recip-
ients of these dividends belong to the higher income classes. How-
ever, from equity point of view these provisions are not justified.
In addition to that, these provisions are given only to dividend
from shares quoted with A.S.E., however, they discriminate against
shares not quoted with A.S.E. The rationale of these provisions is
that they support the development of the capital market. Two points
are worth mentioning here. First, long time ago many experts of the
Capital Market in Greece pointed out that the weak side of this mar-
ket is not the demand for shares but the supply of shares. The
Greek public has shown its willingness, as it has been officially
verified, to invest its savings on stock shares as long as no undesi-
rable games are played in the A.S.E., therefore, the side which needs
to be stimulated is the supply of stock share and not the demand for
these shares. Second, the only justification which we can see for
these provisions is that they alleviate the disadvantage of stock
shares in comparison with bank deposits and government securities
whose their income is tax-free. If this is the case then the provi-
sions should be extended to dividends from shares not listed on the
A.S.E.

The second provision for the sake of the development of the
capital market is concerned with the different tax coefficients

applying on dividends from shares quoted or not and registered or
bearer. This classification provides us with the third character-
istic of the taxation of dividend. There is a discrimination against
shareholders who hold bearer shares unquoted with A.S.E. They are
not allowed to include their income from these shares within the in-
come from other sources, but the withholding tax is the final tax
levied on this income. If the income from other sources is beyond
an amount then they are taxed heavier than if they were allowed to
include all income together to be taxed with the personal income tax
scale. The purpose of this measure is to beat tax evasion at the
source since the shareholders in question would avoid taxation through
a fictitious dispersion of their bearer shares to relatives or friends.
This discrimination can be avoided only if all tax shares become regi-
stered, but there is fear that this would have an undesirable effect
upon the functioning of the capital market due to psychology of the
Greek taxpayer. This measure (registration of all shares) was in-
troduced in 1951, and in fact, had this impact and in turn it was
abolished later on in 1955.

3.4.3 FINANCING INVESTMENT PROGRAMMES

In this section we deal with sources of investment finance.
It is important that special attention be drawn to the two main
characteristics namely, the small size and family concern of Greek
enterprises. It has been recognized that in corporations with a large
dispersion of their shares, the idea that corporation is a distinct
legal entity from shareholders and each of them is one of a large
group plays a significant role in making financial decisions, but
this is not the case for a closely controlled corporation where the
management who in the most cases coincides with the owner conceives
of the corporation affairs as an extension of his individual's busin-
ess activities.

Opposing views have been expressed concerning the obstacle to the
acceleration in the growth of capital formation in Greece. Some auth-
ors believe that finance was the main constraint (G. Coutsoumaris,1976
G.Yannopoulos, 1978), whereas others believe that profitibility was
the restraining factor (N. Tsagridis, 1975, J. Papantoniou, 1979).
Finally, in the words of the Governor of Bank of Greece " the result

of the efforts which have been made for the provision of investment finance has not been entirely satisfactory, not because the funds which have been disposed were insufficient, but because of the limited demand for productive investment" (X. Zolotas, 1964).

The ploughing back method of financing is particularly important for developing countries where capital market is not well organised and the level of saving is very low. This source of finance is however not adequate to cover all the necessary amount of funds for financing investment projects.

It was a major aim of the Greek government policy to provide ample finance on easy terms for fixed investment in manufacturing. In 1958, commercial banks were allowed, for the first time, to give credit to the private sector at subsidised interest rates. Since then commercial banks have played an essential role in the financing of the Greek enterprises, and the latter have relied increasingly on the banking system. The enormous increase in saving allowed banks to become the middleman between firms and public. The banking system provided Greek firms not only with short-term loans but with long-term as well. Greek commercial banks have in practice allowed some firms to renew short-term loans repeatedly.

Table 3.4 shows that 50 per cent of investment made by manufacturing firms were financed by ploughing back profits. The participation of depreciation was significant during this period and it shows the effectiveness of accelarated depreciation policies followed by the Greek authorities. According to Psilos the explanation of the relience on retained earnings in Greece may lie on three reasons, namely, first, on restrictions on dividend (see our section on dividend taxation) second, the tax company profits and finally, the business psychology which was developed in the post-war inflationary period, when family enterprises preferred to increase capital value of their investment rather than to increase their income from it (D. Psilos, 1964). It has been recently recognised that taxation policy was particularly helpful in that respect (P. Kiriakopoulos, 1975, Th.Stratos, 1976). Specifically, law 3213/1955 (reserves for new installations), law 4002/1959 (New productive investment), law 147/1967 (provisions for new fixed assets) and law 1078/1971 (tax measures in support of regional development) provided with an incentive

T A B L E 3.4

YEAR	GROSS INVESTMENT	SOURCES OF SELF FINANCING			RATIO (4):(1)	RATIO (3):(4)
		PROFITS	DEPRECIATION	TOTAL		
	(1)	(2)	(3)	(4)	(5)	(6)
1963	3,271	599	800	1,399	42.7	57.1
64	5,724	638	1, 024	1,662	29.0	61.6
65	8,954	760	1, 191	1,951	21.7	61.0
66	5,355	940	1, 490	2,430	45.5	61.3
67	4,895	911	1, 762	2,673	54.6	65.9
68	5,417	1,329	2, 059	3,388	62.5	60.7
69	6,662	2,161	3, 001	5,162	77.4	58.1
1970	11,570	3,578	2, 923	6,501	56.1	44.9
71	14,396	3,333	3, 148	6,481	45.0	48.4
72	19,630	4,819	3, 701	8,520	43.4	43.4
73	21,934	7,055	8, 959	16,614	75.7	53.9
74	37,642	6,597	11, 583	18,180	48.2	63.7
75	35,400	5,110	13, 029	18,202	51.4	71.9
76	58,726	6,746	22,948	29,694	50.5	77.2
1963-76					50.2	59.2

CAPITAL INVESTMENT, SELF-FINANCING
(in millionsdrs)

to finance investment programmes by internal funds.

External financing constituted the other half of the used funds
for financing investment. Outside sources of financing, in Greece,
are the existing various financial institutions such as commercial
banks, the economic development financing organization, the central
bank and the open capital market. The appearance of these institut-
ions contributed to the importance of debt capital in relation to
equity financing.

Table 3.5 shows that one third of total funds available to firms
represents the own capital, whereas the remaining two-thirds were bor-
rowed funds. It is important to mention that despite the fact that
the total capital increased, the relationship between own and borrow-
ed funds remained constant over the whole period under review.

Table 3.6 provides us with an idea about the level of financing
expenses as a percentage either to general expenses or to total bor-
rowed capital. Such expenses represent the interest cost, various fees
and brokarage charges involved. We see that financing expenses cons-
tituted 18 per cent of the total expenses during the period 1964-1976
whereas they constituted a 4 per cent of the borrowed capital during
the same period.

As far as the choice between debt and equity financing is con-
cerned the deductibility of interest payment from corporate tax in
contrast to the taxation of dividend under this tax favours debt rath-
er than equity financing. However, under the Greek corporation tax
where both interest and dividend payments are deductible there is no
such discrimination. In that respect the Greek corporation income
tax is neutral between the two sources of financing, but this neut-
rality is destroyed by the absence of a capital gains tax on share
prices and the presence of the provision of off-setting capital los-
ses. However, since the Greek CIT is in favour of equity financing
the question arises why firms prefer debt than equity. Various
reasons may explain the heavy relience of the Greek firms on debt
finance.

First, the lack of financial expertise makes firms slow to
take advantage of the tax incentives. As it was emphasized to us

T A B L E 3.5

	COMPOSITION OF EMPLOYED CAPITAL (in millions drs)					
YEAR	OWN FUNDS	BORROWED FUNDS	TOTAL	RATIO OF OWN FUNDS TO BORROWED	TO TOTAL	RATIO OF OWN TO BORROWED FUNDS
1957	3,428	6,622	10,050	51.7	34.1	1:1.93
58	3,555	7,773	11,328	45.7	31.3	1:2.18
59	3,710	8,008	11,718	46.3	31.7	1:2.15
60	4,403	10,038	14,718	43.8	30.5	1:2.27
61	4,962	11,708	16,670	42.3	29.8	1:2.35
62	7,054	14,853	21,907	47.9	32.2	1:2.10
63	8,630	17,887	26,517	48.2	32.6	1:2.07
64	11,016	22,657	33,673	48.6	32.7	1:2.05
65	14,364	29,739	44,103	48.3	32.6	1:2.07
66	16,628	35,925	52,553	46.3	31.6	1:2.16
67	18,099	41,911	60,010	43.2	30.2	1:2.31
68	20,270	47,086	67,356	43.0	30.1	1:2.32
69	23,748	51,997	75,745	45.7	31.4	1:2.19
70	29,842	62,684	92,526	47.6	32.3	1:2.10
71	35,108	75,709	110,917	46.4	31.7	1:2.16
72	45,162	96,383	141,545	46.9	31.9	1:2.13
73	59,503	116,578	176,081	51.0	33.8	1:1.96
74	81,165	153,693	234,858	52.8	34.6	1:1.89
75	92,441	195,931	288,372	47.2	32.1	1:2.12
76 77	120,481	250,287	370,768	48.1	32.5	1:2.08

Source: Federation of Greek industries, the State of Greek industry, annual series.

T A B L E 3.6 (in million drs)

FINANCING EXPENSES TO TOTAL GENERAL EXPENSES AND TO TOTAL BORROWED CAPITAL.			
Total financing		Financing Expenses	
YEAR	EXPENSES	TO TOTAL EXPENSES	TO BORROWED CAP.
1964	923	18.6	4.0
65	963	15.6	3.2
66	1,285	16.6	3.5
67	1,751	20.1	4.1
68	2,021	21.1	4.2
69	2,191	18.1	4.2
70	2,641	18.1	4.2
71	3,103	19.2	4.0
72	3,643	18.2	3.7
73	5,209	17.1	4.4
74	7,401	18.4	4.8
75	10,494	20.9	5.4
76	12,865	17.9	5.1
Average 1964-76		18.4	4.2

Source: Federation of Greek Industries, the State of Greek
Industry, annual Series.

the Greek firms do not considerably take into account the cost of
finance because if they would do so they would finance their project
by shares instead of by debt. Second, high rate of inflation have
recently made debt finance particularly attractive. Third, the new
equity issues are always uncommon, the growth of debt may reflect
only the failure of gross retained profits to keep pace with desi-
red investment financing. The amount of the increase in the supply
of equities, between other factors, also depends on first, the
availability of alternative sources of financing and second, the
attitudes of those who control firms toward the dilution of equity
and possible effect on control. This leads us to discuss the third
source of funds for the Greek firms, the capital market.

The establishment of a well organized capital market is one
of the most difficult tasks of any developing country. The develo-
pment of a capital market depends upon both the aggregate volume of
savings and a transmitting mechanism to channel the available funds
to an efficient allocation. Greece, in contrast to what happens in
other developing countries, enjoys a large amount of savings. Un-
fortunately, the trasmitting mechanism does not work efficiently.
In a well organized capital market the stock exchange constitutes
the long-run financing source whereas banks the short-run. In
Greece, because the A.S.E. has an unimportant contribution to financ-
ing productive investment the role of financing both long-term and
short-term belongs to the banks. In other words, the link between
public savings and productive investment is the banking system and
not the A.S.E. This is due, mainly, to the recent development of
the large-scale industry, to the family concern feature of the Greek
enterprises, and to the existing structure of the capital market.
This method of financing has as a main consequence, in addition to
the resource misallocation, the excess cost of financing since banks
lend money to the firms on a short-term base which in turn is re-
newed. The final bill includes interest, various commission ex-
penses, delays etc. and results to be very high. This fact makes the
argument that equity capital is more expensive than debt capital in-
valid since the above mentioned bill for debt capital is higher
than the flotation cost of new shares. However, judging the per-
formance of the Greek capital market we could say that it is not
satisfactory since both criteria operating efficiency and allo-

cational efficiency established by Duesenberry for a good performance
of a capital market are violated. Therefore, it is an irony, for
Greece the underdevelopment of the A.S.E. A well functioning stock
exchange would first, attract public saving second, would guarantee
a rational distribution of the available resources between the de-
sired sectors of the economy and finally, would lead to rational
capital structure of the enterprises since the latter would avoid
paying a constant interest irrespective on their profits and the
cost of capital would be lower.

We go on now to discuss the reasons why the A.S.E does not
play the desired role in Greece. This requires the discussion of
both sides of it, demand and supply. We mentioned that the supply of
funds in the economy as a whole was very satisfactory during the
period under review. Competitive forces try to attract these funds
such as bank deposits, government bonds, investment in shares of
enterprises and investment in immovable property and buildings.

Income from firm's shares has to compete with income from
government bonds and banks deposits on an unequal basis since in-
come from the latter two sources is tax-free, whereas from the first
is taxed. Despite this fact, as it has been officially realised,
the Greek public has shown its willingness to invest in shares of
healthy enterprises. However, the demand side of the A.S.E has a
small responsibility for its inefficient funtioning. In contrast,
the supply side has been accused as responsible for this situation.

Table 3.7 shows the new issues of shares and bonds and the
capital raised through the A.S.E by industrial and commercial com-
panies. It has been argued that even these shares have been ab-
sorbed by existing shareholders and institutions having some affi-
liation with issuing corporation (D. Psilos, 1964). This argument
is justified looking at the table where it is shown that the larger
amount raised from capital paid by the existing shareholders. The
main reason for issuing shares is either the revaluation of fixed
assets or the capitalization of reserves and these shares are offer-
ed to the existing shareholders and in the most cases free.

From the above discussion we can conclude that both sides,

T A B L E 3.7

NEW ISSUES OF SHARES AND BONDS-CAPITAL RAISED THROUGH A S E (in thousandsBrs)

YEAR	SHARES	BONDS	TOTAL	INCREASE OF SHARE CAPITAL	CAPITAL RAISED FROM THE PUBLIC	TOTAL RAISED CAPITAL.
1965	193,345	802,476	995,821			
66	90,855	2,213,056	2,303,912			
67	31,059	2,520,000	2,551,059			
68	186,286	3,059,272	3,245,558	131,723	44,000	175,723
69	117,000	2,001,578	2,118,578	18,000	13,300	31,300
70	378,483	2,200,000	2,578,483	256,466	56,255	312,721
71	411,930	3,850,000	4,261,930	16,130	7,000	23,130
72	3,747,616	4,800,000	8,547,616	555,401	61,800	617,201
73	1,533,741	2,950,000	4,483,741	1,465,341	803,150	2,268,491
74	502,694	-	502,694	498,694	84,215	582,909
75	655,576	368,641	1,024,218	573,492	60,299	633,791
76	6,484,001	2,891,575	9,375,582	527,641	180,950	708,591
77	1,469,489	6,818,520	8,288,018	643,621	31,980	675,601
78	907,905	3,998,145	4,906,050	292,913	41,000	333,913

Source: Athens Stock Exchange, bulletin 1978.

demand and supply, of the A.S.E. need to be improved. In the demand side should be established equal conditions which exist for bank deposits and government bonds, this may have a bad side effect on bank deposits and government bonds, that is, these kinds of investment to stop being attractive and the savers to prefer to keep their savings instead of investing them in bank deposits and government bonds. Many countries follow this policy and since it it believed that these savers belong to low income classes this provision may be considered as plausible. On the other hand, investment in stock shares enjoys a tax free capital gains. Therefore, the real problem on the demand side of the A.S.E. is not the unequal circumstances from taxation point of view which exist but the hesitation of the Greek saver to go to the A.S.E coming from a suspicion that undesirable games are played in the A.E.E. The tax measures introduced by the Greek authorities had as purpose to improve the demand side of the A.S.E. They had no significant contribution because the demand side of A.S.E. suffers from a psychological sickness and these measures are not appropriate enough to cure it. In addition to that since the majority of the new shares is addressed to the existing shareholders these tax provisions provide them with a relief without attracting new savers. This enforces our argument made earlier that the tax provisions to income from shares listed on the A.S.E is unjustified. However, the supply side of the A.S.E needs more attention. The Greek authorities should realise that the tax provisions have small contribution, at that stage, to the change either of demand or supply side. The whole matter is an institutional one. The whole structure of the capital market needs to be reconsidered.

3.4.4 CIT: AN INSTRUMENT FOR ECONOMIC DEVELOPMENT

In chapter one, we mentioned that one of the arguments in favour of a separate tax on corporate income was the use of CIT as a tool for economic policy. Since revenue from CIT in Greece was very low, during the period under consideration, it is plausible to exclude the possibility that CIT was used to significant degree as a means of stabilizing the Greek economy or of affecting income distri-

bution. Greece virtually exclusively used the CIT as a means of affecting the size and the allocation of investment. The underlying rationale of this policy was that investment is one of the keys to economic development.

In a developing country business activities are not very intensive and the government may use taxation to encourage these activities, either through support of new firms by providing tax exemptions or by assisting existing firms to increase capital formation. In addition the government introduces import duties to protect these firms from foreign competition. Of the above three ways, the second has been the main instrument in affecting business activities in Greece. First, Greece has widely used the system of capital allowances to encourage investment by temporarily or permanently reducing tax for business which purchase capital equipment. Both normal and supplementary depreciation rates are provided by the tax legislation. In addition to that Greek tax law provides a comprehensive series of exemptions and allowances for expansion. These provisions helped firms to financing their investment programmes by their own money. Second, the Greek authorities introduced provision for tax exemptions for income earned on bank deposits as a means of creating available funds for financing investment projects. Third, the Greek authorities attempted to reduce redundant and luxurious consumption and channelled the available funds to investment expenditures. Finally, special tax incentives were introduced in 1953 (law 2863/1953) to encourage the inflow of foreign direct investment. These incentives include a stable tax regime on net profits for a maximum period of ten years, duty free imports of machinery and exemptions from local government taxes and various fees.

We now proceed to consider the effect of CIT on investment. On theoretical grounds the effect of CIT upon investment is exceedingly difficult to analyse, however, empirical evidence are not so strong for two reasons. First, it is very difficult to isolate the effect of an incentive scheme upon investment decisions and second, these schemes are changed repeatedly and therefore the time analysis of a particular scheme is too short. Therefore, on the one side, the business world expresses complaints arguing that the CIT re-

duces both the ability and the willingness to invest. On the other
side, it is argued, that there are important provisions, which tend
to offset or to reduce the retardation effects of CIT upon invest-
ment. We proceed now to estimate the magnitude of the tax savings that
firms have enjoyed as a result of capital allowances either in the form
of depreciation or in the form of initial and annual capital allowan-
ces. It is worth mentioning that investment grants are not widely
used in Greece.

3.4.4.1 Tax Savings from Depreciation Allowances.

As Meyer and Kuh have pointed out differences in investment
behaviour associated with fluctuations in the depreciation variable
are significant because the existence or non-existence of a casual
relationship between these two variables is crucially associated
with the grant of accelerated amortization as a means of promoting
economic growth and stability. (J. Meyer and E. Kuh, 1959).

The correct assessment of tax savings from depreciation re-
quires the use of the discounted cash flow technique. The tax sav-
ings are equal to the present value of the savings of finance costs
which will result from the deferment of settlement of tax liability.
The present value of the tax saving per drachmae of capital expendi-
ture from these concessions may be approximated as follows:

$$PV = \frac{tc\beta}{1 + r} + \frac{tc\beta(1 - \beta)}{(1 + r)^2} + \frac{tc\beta(1 - \beta)^2}{(1 + r)^3} + \ldots (3.5)$$

where tc stands for the CIT rate, β for the proportion of the value of
assets which can be written down per year and r the discount rate.
This method implicitly assumes either that profits are sufficient to
absorb the full depreciation allowances in the earlier years or that
carry-over of losses is permitted; then it is in the interest of the
firm to adopt the highest possible depreciation rates. Formula (3.5)
is based on the declining balance method of depreciation, whereas the
method formally applicable in Greece is the straight line. However,
since accelerated depreciation provisions are granted to the Greek
firms the declining balance method provides a better approximation on
the assumption that Greek firms take advantage of the highest deprec-

iation rates that they are permitted to use in the earlier years.

Allowable depreciation rates varied for the different regions
and at different times. Charts 3.1, 3.2 and 3.3 set out the effective
depreciation rates for industrial buildings and machinery for the main
sub-division of period 1959-1982. For example, we see that whereas
the normal depreciation rate for machinery for the period 1973-82
is 15 per cent the maximum permitted depreciation rate (region C) is
45 per cent (chart 3.3). Where profits are insufficient to take up
these rates in full the carry-over of losses for up to 5 years is
allowed.

For given values of tc, and r and assuming that the tax bene-
fits are deemed to accrue at the end of the year in which the expen-
diture is incurred we re-write equation (3.5) as:

$$PV = \frac{tc\,\beta}{r + \beta}$$

which in turn, for convenience may be written as,

$$PV = \frac{tc}{1 + \dfrac{r}{\beta}} \qquad (3.6).$$

DEPRECIATION ALLOWANCE CHARTS

CHART 3.1 :   PERIOD 1959 - 67

	Normal Depr.Rate	Addit.Dept. Rate	Total Rate
Ind. Buildings	5%	17.5%	22.5%
Machinery	8%	34%	42%

CHART 3.2 :   PERIOD 1968 - 1972

	Normal Depr.Rate	Addit.Dept.Rate			Total Rate.		
		Reg. A	Reg.B	Reg C	Reg.A	Reg.B	Reg.C
Ind.Buildings	5%	6.25%	10%	17.5%	11.25%	15%	22.5%
Machinery	8%	13%	20%	34%	21%	28%	42%

CHART 3.3 :   PERIOD 1973 - 1982

	Normal Depr.Rate	Addit.Dept. Rate			Total Rate		
		Reg.A	Reg.B	Reg.C	Reg.A	Reg.B	Reg.C
Ind. Buildings	8%	4%	6%	16%	12%	14%	24%
Machinery	15%	7.5%	11.25%	30%	22.5%	26.25%	45%

References

Chart 3.1	Chart 3.2	Chart 3.3
R.D Jan.10/1959	R.D. Jan 10/1959	L.D 1078/1971
L.D 2901/1954	L.D 2901/1954	P.D. 88/1973.
L.D 2176/1952	Lae 147/1967	
L.D 3765/1957 Art.11		

. . . .

From equation (3.6) we see that an increase in tc or/and in β increases the value of tax savings, whereas an increase in r decreases the tax savings. The present value of tax savings is independent of the number of years of the projects' life because the time profile of the declining balance method of depreciation is infinite although in practice given the high rates of depreciation shown in the charts most of the value of the assets is written down in the first few years.

Utilizing the information given in the depreciation allowance charts and formula (3.6) we obtain the present value of the tax savings for different values of r . From table 3.8 we see that at a rate of discount of 10 per cent, for example, the present value of depreciation allowance is estimated to be 19 or 24 per cent drachmae of capital expenditure on buildings and machinery correspondingly for the period 1973 - 82.

T A B L E   3.8

Present Value Of The Tax Savings Per Drachmae Of Capital
Expenditure From Depreciation Allowance

Table 3.8 a :   1958 - 67

	Industrial Buildings	Machinery
	β = .225	β = .42
r = .10	.24	.28
r = .15	.21	.26
r = .20	.19	.24

Table 3.8 b : 1968 - 72

	Industrial Buildings			Machinery		
	Region A	Region B	Region C	Region A	Region B	Region C
	β =.112	β = .15	β =.225	β =.21	β = .28	β = .42
r = .10	.18	.21	.24	.24	.26	.28
r = .15	.15	.18	.21	.20	.23	.26
r = .20	.13	.15	.19	.18	.20	.24

Table 3.8 c :   1973 - 82

	Industrial Buildings			Machinery		
	Region A	Region B	Region C	Region A	Region B	Region C
	β =.12	β =.14	β =.24	β =.225	β =.26	β =.45
r = .10	.19	.20	.25	.24	.25	.29
r = .15	.16	.17	.22	.21	.22	.26
r = .20	.13	.14	.19	.19	.20	.24

3.4.4.2 Tax Savings From Investment Allowances

In addition to depreciation allowances a variety of invest-
ment allowances are given to the Greek Manufacturing firms. The
right to set off capital expenditure against chargeable income
through investment allowances in addition to depreciation allowance,
just discussed, means that for permitted capital expenditure writ-
ing-off is in excess of 100 per cent. Charts 3.4 and 3.5 set out
the effective investment allowance rates for manufacturing firms,
effective at various dates. For example, according to Law 289/1976
of 1976 enterprise existing or being established or moving into reg-
ion E and realizing new investment are entitled to deduct from their
net profits an amount equal to 150 per cent of the value of capital
expenditure (chart 3.5).

The implications of these incentives for aggregate untaxed
profits are shown in table 3.9. Laws 2176/1952 and 3213/1955 con-
cern reserves against future losses and new installations whereas
the other Laws concern investment allowance incentive schemes. The
total amount of untaxed profits expressed as a percentage of the tax-
able profits was 12 per cent in 1959, reached its highest value,
187.7 per cent, in 1972 and it was higher than 100 per cent recently.

To determine the present value of the tax saving that manufac-
turing firms enjoyed as a result of these incentives, we assume, as
we did for depreciation, that the tax benefits are deemed to accrue
at the end of the year of the expenditure is incurred. Suppose that
the firms for each drachmae of capital expenditure is entitled to
deduct from its profits an amount b. The present value of the tax
saving per drachmae of capital expenditure is given by the equation
(3.7):

$$PV = tcb \ (\ 1 + r \ )^{-1} \quad (3.7)$$

Table 3.10 provides the tax saving for different values of r.

Investment Allowance Charts

Chart 3.4: Investment Allowance Applied To All Firms

Area	Law 4002/1959	Law 147/1967	Law 331/1974
Attica	50%	100%	40%
Provinces	60%	100%	40%
Islands	90%	100%	40%

Chart 3.5: Investment Allowance Applied To Firms Est. In Provinces

Region	Law 1078/1971	Law 1312/1972	Law 289/1976
A	-	-	-
B	50%	-	-
C	100%	-	-
D	-	100%	-
E	-	-	150%

T A B L E 3.9

Untaxed Profits Under the Various Incentives Schemes

(in millions drs)

Year	L.2176/1952 (1)	L.3213/1955 (2)	L.4002/1959 (3)	L.147/1967 (4)	L.1078/1971 (5)	L.1313/1972 (6)	L.331/1974 (7)	Total (8)	Taxable Profits (9)	Ratio (8):(9)
1959	15.3	26.8	-	-	-	-	-	42.1	360.5	11.6
60	33.7	27.8	4.0	-	-	-	-	65.5	420.9	15.5
61	21.4	26.3	65.0	-	-	-	-	112.7	517.1	21.7
62	33.2	42.6	91.0	-	-	-	-	166.8	599.5	27.8
63	32.9	52.8	121.3	-	-	-	-	207.0	618.4	33.4
64	36.7	55.8	161.8	-	-	-	-	254.3	815.4	31.1
65	48.2	69.4	201.3	-	-	-	-	318.9	1,021.0	31.2
66	62.4	74.5	217.3	-	-	-	-	354.2	1,153.5	30.7
67	76.0	89.1	321.4	94.5	-	-	-	477.5	1,317.0	36.2
68	78.8	81.3	319.4	419.1	-	-	-	574.0	1,149.3	49.9
69	105.3	74.7	329.0	942.0	-	-	-	928.1	1,134.0	81.8
1970	187.5	137.3	431.2	1,759.0	-	-	-	1,698.0	1,429.0	118.8
71	416.4	160.2	688.7	3,315.0	-	-	-	3,024.3	1,823.6	165.8
72	-	-	519.0	3,542.4	-	-	-	3,834.0	2,042.2	187.7
73	-	-	615.2	3,163.6	-	-	-	4,157.6	3,782.5	109.9
74	-	-	1,284.7	2,894.0	884.1	44.8	-	5,377.2	9,466.3	56.8
75	-	-	1,093.6	1,146.7	1,570.9	34.0	760.2	6,352.7	5,484.5	115.8
76	-	-	581.7	-	1,676.1	151.4	992.7	-	-	-

Source: National Statistics Service of Greece, declared corporate income and its taxations, annual series.

T A B L E 3.10

Present Value Of The Tax Savings From Investment Allowances
Per Drachmae Of Capital Expenditure

Table 3.10 a

Discount Rate	Law 4002/1959			Law 147/1967	Law331/1974
	Attica	Provinces	Islands		
.10	.16	.19	.29	.32	.15
.15	.15	.18	.28	.30	.14
.20	.14	.17	.28	.29	.13

Table 3.10 b

Discount Rate	Law 1078/1971		Law 1312/1972	Law 289/1976
	Region B	Region C	Region D	Region E
.10	.16	.32	.32	.55
.15	.15	.30	.30	.52
.20	.14	.29	.29	.50

Because the rate of investment allowance differs according to the region of Greece where the investment takes place, the equation (3.7) takes the following form:

$$Pr = tc \left[b_1 \, d_1 + b_2 \, d_2 + \dots \right] (1 + r)^{-1} \quad (3.8)$$

where,

bi = the investment allowance rate applicable in region i

di = the proportional participation of each region's investment to the total.

Utilizing the information given to us by the Ministry of Finance regarding the participation of each region's investment in the total, and formula (3.8) we have constructed table 3.11 showing the present value of tax saving from investment allowances that manufacturing enjoyed from these provisions, on an annual basis over the period since 1966.

T A B L E 3.11

Present Value of The Tax Savings Per Drachmae of Capital Expenditure From Investment Allowances.			
Year	r =.10	r = .15	r = .20
1966	.16	.16	.16
67	.17	.17	.16
68	.18	.17	.15
69	.25	.24	.24
1970	.29	.28	.28
71	.28	.27	.27
72	.31	.30	.30
73	.31	.30	.30
74	.26	.25	.26
75	.22	.21	.21
76	.24	.23	.23
77	.28	.27	.27
78	.29	.28	.28

From the above constructed table we cannot conclusively compare tax saving from depreciation and investment allowances exactly, because of differing bases. However, for the period 1968-72 and for discount

rate equal to .10 we can say that the tax saving was almost half of capital outlay.

3.5 The Effectiveness of Incentives

The tax provisions, just discussed, involve both a benefit and a cost for the economy, a benefit in that investment gives rise to increased income in the future but a cost to the government in the form of lower tax revenues. In addition to that they involve some redistribution of income within the economy to the units assisted and at the short-term expense of other units. However, there are some economic and political constraints in the provision of these incentives and they are justified if they really provide a stimulus to private investment and second if the private sector makes good use of them. The evaluation of these provisions, as we pointed out earlier, is a difficult task. Particularly, for the case of Greece, this evaluation becomes more difficult for two additional reasons. First, the great extent of tax evasion leads to irrational distribution of incentives between the various sectors of the economy and secondly, there are a large number of incentives which tend to contradict each other (KEPE, 1976). It has been argued that "the system of incentives in Greece has been constantly adjusted and expanded... and they are mainly based on a policy which may be considered as being founded on the principle of 'tatonement' " (A. Peacock and G. Hanser, 1964). The underlying rationale of such a policy of frequent changes, as was mentioned to us by Greek officials, is that if incentives have a long life they loose their property to act as such and they become an institution. Of cource, the disadvantage of such a policy is that it makes difficult for firms to plan in long-term.

Investment, along with the growth of the labour force and the advancement of technical knowledge has been considered as the main determinants of the rate of growth of a nation. Both human and physical capital raises the aggregate productive potential and promotes the industrialization of a country. However, it would not be realistic to state categorically that a higher level of investment in one country necessarily leads to a higher rate of growth. The allocation of investment between sectors and regions of the economy and

the quality of it are also important. Therefore, we proceed now to judge tax incentives under these criteria, namely, the extent, the allocation and the quality of investment.

3.5.1 The Level and Allocation of Investment

The evidence of a recent econometric study seems to support the view that the rate of growth of the Greek economy is related to the extent of investment (N. Baltas, 1975). Therefore, if this is true the role of the CIT as a means of stimulating investment becomes important.

The question which arises is to what extent this level of investment was due to the provision of the various incentives provided by the Greek authorities. In the next chapter we use econometric techniques to test the effectiveness of these incentives upon the rate of investment. Before doing so, however, we will give a brief survey of the role of investment in the Greek economy, its level and its distribution among the various sectors and regions.

Table 3.12 shows the amount of investment achieved during the period under consideration. The total amount of investment at constant 1970 prices was 25.560 million Drs. in 1958 and became 95,000 million Drs. in 1977, that is, it increased more than fourfold during this period. These investments represented a high percentage, 27, of gross national product at the same period. Over this period the Greek economy recorded a high rate of growth compared with other European countries (6.5 per cent for the period 1953-62 and 5.6 per cent for the period 1963-1972).

As regards the sectoral allocation of investment, the Greek authorities have attempted both by creating the appropriate institutional environment and by establishing various incentives schemes first, to channel investment to the manufacturing sector of the economy and second, to provide incentives to firms which are established in the provinces as a means of a more balance regional growth.

Table 3.13 shows the distribution of investment among the different sectors of the Greek economy during the period 1950 - 78.

T A B L E 3.12

GROSS FIXED ASSET FORMATION AT 1970 PRICES (in milliards)			
YEAR (1)	INVESTMENT (2)	G N P (3)	RATIO (2) : (3)
1958	25,506	121,995	20.9
59	23,619	126,897	18.6
1960	28,307	131,272	21.5
61	34,584	146,200	23.6
62	34,897	147,468	23.6
63	39,350	162,485	24.2
64	50,548	174,825	28.9
65	57,840	190,871	30.3
66	53,182	201,118	26.4
67	54,342	210,760	25.7
68	60,154	223,172	26.9
69	75,395	243,478	30.9
1970	84,009	263,503	31.8
71	89,273	286,076	31.2
72	99,264	312,228	31.7
73	126,603	339,025	37.3
74	96,155	332,085	28.9
75	87,912	347,471	25.3
76	89,755 *	367,520 *	24.4 *
77	95,300 **	380,350 *	25.0 *
1958-77			26.8

*   Provisional data

** Estimates

Source: National Accounts of Greece.

TABLE 3.13

(percentage)

Distribution of Investment Among the Various Sectors of the Economy									
Year	Agri-culture	Mining and Quarry	Manufac-turing	Electri-city.	Trans-port & Commun.	Dwell-ing.	Pub. Admin.	Other Serv.
1950	11.0	1.0	23.0	3.0	17.0	30.0	6.0	9.0
55	8.0	1.0	12.0	10.0	9.0	44.0	2.0	14.0
1960	17.0	0.5	10.0	8.0	19.0	29.0	5.0	15.0
65	12.0	1.0	14.0	10.0	17.0	32.0	1.5	13.5
1970	11.0	2.0	14.0	7.0	21.0	28.0	0.5	16.0
75	10.0	2.0	18.5	8.0	19.0	27.0	1.0	14.5
78	9.5	2.5	14.0	6.0	2.0	31.0	1.0	16.0
1950/ 78	11.0	2.0	14.0	9.0	16.0	33.0	2.0	13.0

Source: National Accounts of Greece.

Greece is unique in that the dwelling sector absorbs the greater
percentage of total investment than any other sector does. Both econo-
mic and social-psychological reasons have led to this. It has been ar-
gued that there is room for large profits from investing in building,
because of the absence of capital gains tax and the limited role of
wealth tax. Investment in manufacturing accounted for a more or less
stable share which equals to 14 per cent.

Unfortunately and the second target as far as the allocation of
investment is concerned was not achieved. The attempt for decentrali-
zation was unsuccessful. It is widely accepted that the City of Athens
and the surrounding area constitute the most important pole of attrac-
tion both points of view, demographic (migration) and economic activi-

ty, '(D. Germidis, M. Delivani (1975). In addition administrative centralization has encouraged both migration and economic activity.

Table 3.14 shows the geographic distribution of industrial establishment by industry amont various parts of Greece for two years, 1958 and 1969.

T A B L E 3.14

Geographic Distribution of Industrial Establishment by Industry.												
	Athens				Salonica				Other Ind.Centres			
	1958		1969		1958		1969		1958		1969	
Industry	% TIC	% NT	% TIC	% NT	% TIC	% NT	% TIC	% NT	% TIC	% NT	% TIC	% NT
Tot.Manufacturing.	64.07	23.54	67.63	32.86	15.86	5.83	17.92	8.71	20.07	7.37	14.45	7.02
Consumer gds.	65.76	23.15	66.50	30.31	17.02	5.98	18.62	8.48	17.22	6.06	14.88	6.78
Intermediate goods.	79.71	14.89	79.95	63.15	10.73	2.00	12.16	9.61	9.56	1.79	7.89	6.23
Capital gds.	67.35	33.36	68.87	39.76	15.52	7.69	16.65	9.61	17.13	8.49	14.48	8.36

Key : % TIC * percentage of total of industrial centres (8 towns)
       % NT = percentage of national total.

Note: For 1958, the industrial centre of Ioannina is not included except for "total manufacturing industries".

Sources:

Industrial cencuses 1958, 1963, 1969, National Statistics Service of Greece.

3.5.2 The quality of Investment

The contribution of investment to economic growth depends crucially on its quality. To test the quality of investment in the various sectors of the economy two criteria will be adopted. First, the incremental"capital-output ratio" and second, the size of the Greek firms will be discussed. We consider the second aspect because in a developing economy dominated by small family firms it is essential for

the efficiency of the growth process that firms take the optimum
size from technological and economic point of view, which will allow
them to specialize which in turn, will allow them to enjoy economies
of scale. It has been repeatedly emphasized that the basic weakness
of the Greek economy is that development is being mainly done by widen-
ing the productive basis without making the necessary structural change
and qualitative improvements (X. Zolatas, 1976).

3.5.2.1   The "Incremental Capital-Output Ratio" ICOR

An incremental capital-output ratio is the ratio of the increase
in fixed capital to the increase in sectoral product over the same
period. It is the reciprocal of the concept of marginal productivity,
a high ICOR implying a low marginal productivity of capital and vice
versa.

Table 3.15 shows these ratios for the Greek economy during the
period 1951 - 75. From this table we see that the manufacturing sec-
tor was, without doubt, the most productive. The average value of
the ratio was 2.41 for the whole period. Despite the large volume of
investment which took place during the decade 1961-70 this ratio
showed a significant downward trend.

Despite the operational attractiveness of ICOR, it involves a
number of serious limitations to use that for decisions on allocating
investment. First, it excludes the cost of all inputs other than that
of capital which may differ widely between sections. Second, by meas-
uring the increase in output over the same period as the change of cap-
ital stock, it neglects the time-phasing of benefits and costs of the
project. Indeed investments requiring large ICORs are often those
with greater durability than those with smaller ICORs. Similarly,
investments with low ICORs may require long maturation periods before
they become productive, while those with high ICORs may mature quick-
ly. Third, measurement of ICORs can often be misleading, in the sense
that they hide changes in the utilization of resources. For these
reasons they should be treated as only very rough indicators of the
efficiency of investment.

T A B L E   3.15

	THE INCREMENTAL CAPITAL-OUTPUT RATIO (ICOR)					
Period	Total		Agri-culture.	Manufac-turing.	Electricity Gas etc.	Housing
	Net	Gross				
1951-55	2.68	1.78	1.07	2.44	20.77	13.61
1956-60	2.98	2.24	2.07	2.60	14.23	16.27
1961-65	3.64	2.99	4.60	2.31	10.37	16.18
1966-70	3.71	3.09	6.80	1.60	9.93	15.18
1971-75	5.56	4.62	5.76	3.14	10.87	15.18
Average 1951-75	3.71	2.94	4.06	2.41	13.23	15.28

Notes: 1. A five year period may be considered satisfactory for the completion of and return on any kind of investment.

2. An interval of one year was allowed for between the investment and the increase in output, so that for investment made during 1951-55 increases in output during 1952-1956 were taken into consideration.

3. The overall ratios were calculated on the basis of net and gross investment, whilst ratios for the various branches and sectors were calculated solely on the basis of gross investment.

4. Aggregate were calculated at 1970 prices. Total investment does not include the value of ships bought under Greek Flag.

Source: National Accounts of Greece, 1958-75 Athens 1976.

3.5.3.2 The Size of the Greek Firms

Investment which is efficient with respect to development in-
volves qualitative dimension in transforming the structure of the ec-
onomy. Two important features characterizing the Greek firm in gen-
eral and the industrial sector in particular are the small-scale and
the family organisation of many enterprises. Unfortunately, during
the period under review no substantial trend took place for the im-
provement either to larger-scale operation or to a wider than family
concern. It has been argued that these features are related to each
other and the family concern is considered to a large extent as the
cause of the small-scale feature.

We introduce two criteria to judge the size of the Greek firm.
The first, a quantitative criterion, is the number of employees,
whereas the second, a qualitative criterion is the independent manage-
ment or the owner-supplied capital. For the purpose of our analysis
of the impact of taxation on small business, qualitative considera-
tions are more appropriate. Taxes, for example, may bear more heav-
ily, on a firm because it is largely dependent upon internal sources
of capital to finance its investment programmes.

The Greek official statistics classify the industrial firms in
to "small scale" and "large scale" industry. Under the former head-
ing are put firms with a number of employees under 10, whereas under
the latter firms with a number of employees above 10 persons. Table
3.16 shows that 95 per cent of industrial establishments employed
less than 10 persons in 1958 and this percentage remained constant
during the period 1958-69, according to the industrial censuses of
1958, 1963 and 1969. From the same table we see that small-scale
industry contributed 28.3 per cent of the total share of industrial
sector to the G.D.P in 1963, whereas the larger-scale industry 71.1
per cent. These percentages became 22.6 and 76.4 in 1969 corres-
pondingly. Finally, we see that the larger-scale industry was 2.4
and 3.6 times more productive than the small-scale industry in the
years 1963 and 1969 correspondingly.

As far as the second criterion is concerned, that is, the
number of shareholders there are no data available but an impress-

T A B L E   3.16

Industrial Establishments, Value Added and Average Productivity in Manufacturing Industry

Size of establishment according to number of persons employed	Industrial Establishments						Value Added (Drs. thousand)					Average Productivity (Dr. thousand/person)			
	1958		1963		1969		1958	1963		1969		1963		1969	
	Number	%	Number	%	Number	%		Number	%	Number	%	Number	I/II	Number	I/II
I 0 - 9	103,569	94.8	116,398	95.1	118,437	95.0	N.A.	5,385,534	28.3	4,402,857	23.6	22.5		36.3	
II 10 - 19	3,434	3.1	3,354	2.7	3,438	2.8		13,615,325	71.7	4,433,683	11.1				
20 and over	2,233	2.1	2,580	2.2	2,176	2.2				26,080,262	65.3	53.5	1.24	130.1	1.36
Total	109,236	100.0	122,332	100.0	124,651	100.0		19,000,859	100.0	39,916,802	100.0	38.5		81.1	

Sources: 1. Industrial Censuses of 1958, 1963

2. Statistical Yearbook of Greece, 1971

ion may be obtained looking at the yearbook of Athens Stock Exchange.
It has been argued that Greek corporations keep their family concern
even when they have their shares quoted on the A.S.E. (G. Dracos,
1975). In 1951, 1000 corporations out of 1369 had less than 9 share-
holders (G. Coutsoumaris, 1964, G Dracos, 1975). From the 1974
yearbook of the A.S.E we see that 24 corporations out of 98 had a
number of shareholders greater than 1000, 68 greater than 100 and
8 corporations had less than 10 shareholders whereas for the year
1977 these figures were 13, 35 and 17 correspondingly. Since one
qualification for the entrance of a corporation to the A.S.E is the
degree of dispersion of its shares, it is reasonable to conclude that
the number of the shareholders in corporations with shares not quoted
with A.S.E is much amaller than the above mentioned numbers.

During the period under review the Greek authorities introdu-
ced tax incentives for the promotion of large-scale investment prog-
rammes (Law 1071/1961) and for the facilitation of mergers (Law 1297/
1972 and 231/1975), however, without substantial results.

These characteristics have significant impact upon the per-
formance of the Greek Firms. Small size tends to bring low produc-
tivity by depriving firms of economies of scale and enchanced com-
petitiveness through a reduction of the cost of production by using
new techniques, in production and management. Finally, another con-
sequence of these characteristics is related to the methods of finan-
cing investment programmes by the Greek firms as we discussed in a
previous section.

It is very important for the continuation of the high rate of
economic growth achieved by the Greek economy during the period under
review these two characteristics to be eliminated. Particularly, in
view, of the full membership of Greece with the E.E.C this fact be-
comes a matter of survival for the Greek Firms, since the state aid
will be lessened.

It would be a mistake to state that small business should stop
existing. They have a tradition in the Greek Economic history and
there are fields where they are more successful than large enter-

prises. Large-scale enterprises should be developed where economies of scale are possible. The development of real corporations with a large dispersion of their shares not only would make Greek economy more productive and competitive but more equitable as well as since the large dispersion of shares would allow to larger percentage of Greek population to participate in the earnings of these corporations. In other words, this would lead to economic growth with equity.

3.7 Summary and Conclusions

Analysis of the Greek tax structure showed that its main characteristics are the heavy reliance on indirect taxes, the absence of capital gains tax, the relative unimportance of taxes on wealth and the presence of tax incentives. The absence of capital gains tax, in addition to other considerations, had an effect upon the appropriation of profits through a discrimination in favour of retention, and upon the method of financing discriminating in favour of equity finance.

The CIT was used as the main device to affect the behaviour of the private sector. In other words, the CIT was used as a means of stimulating investment for promoting growth. The revenue contribution of CIT within the tax system was unimportant. This is due, mainly, to the allowances provided, to the low level of corporate income and finally, to tax evasion. The Greek corporate tax converts the CIT into one on retained profits and it constitutes the simplest method of dealing with the double taxation of dividends.

The Greek CIT was in favour of retained profits. This bias came through three sources:

1. The absence of capital gains tax.
2. The discrimination against distribution.
3. The provision of tax incentives.

The CIT was used with no significant results, as a means of improving the functioning of the Greek capital market by discriminating between retained profits of firms with shares in the Athens Stock Ex-

change and those whose are not. The banking system was the main source of external funds during the period under consideration.

Finally, capital allowances either in the form of depreciation allowance or of investment allowance were widely used as a means of stimulating investment and of channellihg these into desirable sectors in the Greek economy or for achieving regional balance growth. The extent of investment was satisfactory during the period under review and it is believed, that it was the main reason for the achieved high rate of growth. However, the distribution and the quality of investment were not satisfactory. Both, institutional environment and the private sector are responsible for the unsuccessful structual development of the Greek economy. It is worth mentioning that among other factors, the lack of financial expertise makes Greek firms to be slow to take advantage of the tax incentives. This is particularly true for the small firms and firms established in the provinces. This fact creates an inequity between firms which enjoy the available tax incentives and those which do not. However, to what extent did corporate taxation affect the achieved level of investment? Did this tax affect investment decisions or other factors were more important? This important question, from policy implication point of view, together with the effectiveness of the tax discriminatory policy between dividend and retention are tested econometrically in the next chapter to which we proceed.

NOTES: CHAPTER THREE

1.   Not from cost point of view but from psychological
      point of view.

2.   Suppose the nominal tax rate is equal to 35 per cent
      and the surcharge is 15 per cent, then the effective
      rate is 38.18. The proof has as follows:

      Let x the amount of surcharge which is deductible from
      the year's profits. Then we have,

$$(1 - x) (.35) (.15) = x$$

      which implies x = .0490. We subtract it from 100 and
      we obtain 95.1. We tax that ar rate .35 which is equal
      to 33.28. Therefore 33.28 plus 4.90 equal to 38.18.

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APPENDIX TO CHAPTER THREE

TAX INCENTIVES

Since 1950 the Greek Government has enacted a series of incentives to stimulate productive investment as a step towards encouraging the creation of competitive-sized manufacturing facilities and supporting regional development. These incentives took the form either of tax exemptions or financial provisions such as exemptions from import duty, subsidized interest rates etc.

This appendix deals with tax incentives, particularly with these for which available data exist. These can be classified into two categories. The first, (Law 4002/59, Law 147/67 and Law 331/74) refers to firms irrespective of the place of establishment and has as target to stimulate new productive investment, aquisition of new fixed assets and finally to aid industrial production. The second (Law 1078/71 as was amended and supplemented by Laws Degree 1312/72, Law Degree 1337/73 and Law 289/76) refers to enterprises established in provinces and islands.

/LAW 4002/1959/ "Tax incentives for new productive investment"

Industrial enterprises may, until the end of 1970 (originally by 1964 but it was extended by Law Degree 607/68) deduct from their annual profits any expenses incurred for new investments. The deductible amount for each accounting period has as follows: -

Enterprises established in the district of Attica are allowed to deduct 50% from the undistributed profits, for provisional enterprises this amount is equal to 60% of the undistributed profits whereas in the case of enterprises established in the islands the amount reaches 90% of the undistributed profits.

The above deductions are permitted as long as financial statements of the enterprise is judged as being in accordance with the facts.

These deductions cannot, in any year, exceed a sum corresponding to 50% of undistributed profits of the corporation.

/LAW 147/1967/   "Tax incentives for the aquisition of
                   new fixed assets"

Enterprises may, until the end of 1972, be exempt from in-
come tax and any other concommitant tax or duty incidental thereto,
the total annual net profits, provided that this amount of profits
is allocated for the acquisition of new fixed assets.

The tax-free allowance is granted as long as the enterprise
invest its net profits for the aquisition of new installations.
The advantage starts with the accounting period when such expen-
diture took place for new installations. As aquisition date is
considered as follows:

For land the date of the final contract is taken, for
buildings the date when the construction permit is issued by the
Architectural Planning Office is taken and finally for machinery
the date when the invoice is issued is taken; in the case which
the machinery is imported the date when the invoice which is de-
posited with the intervening bank has been certified by the re-
levant Chamber of Commerce.

/LAW 331/74/   "Tax incentives to aid industrial production"

Enterprises may until the end of 1975 deduct from their
annual profits 40% of the expenses incurred for the purchase of
new machinery.

This deduction is granted provided that;
   (a) The machinery should be put in use within six
        months of the date it is purchased.
   (b) The deductable tax free amount must not exceed
        50% of the net profits annually and only up un-
        til 31.12.77 and,
   (c) The tax allowance is effective for machinery
        purchased from 5.3.74 until 31.12.75.

/LAW 1078/71/   "Tax and other measures in support of
                   Regional Development"

As was mentioned above this law was amended and supplemen-
ted by the laws 1312/72, 1337/73 and 289/76. The latter places
particular emphasis on the development of border areas (region E)
whereas the other have divided the country in four (A,B,C,D) regions.

Law 1078/71 cont;

Enterprises established in region B may, until 31.12.82, deduct 50% of the value of the expenses from their annual profits. Enterprise established in region C may, until the end of 1987, deduct 100% of the value of the expenses from their annual profits. Enterpfise established in region A and making investment in region B or C may also deduct 50% or 100% correspondingly, of their expenses from their annual profits. Finally, enterprises existing or being established or moving in region E and realizing new investment are entitled to deduct from their new profits an amount equal to 150% of the value of the expenses.

The above deductions are allowed provided that;

(a)   They are made on net profits after deducting provisions for ordinary reserves, compulsory distribution of dividends to shareholders.

(b)   They are made on profits of the accounting year during which the investment was made.

(c)   They are shown in separate accounts in the books of the enterprise.

These deductions are made from profits of the accounting years during which the investment was made. If no profits are realised during that year or if these realized are insufficient, the deductions are made effected during the immediately following successive years until the said percentage of the investment value are covered, but not later than 1982(region B) and 1987(region C).

CHAPTER FOUR

AN ECONOMETRIC INVESTIGATION OF DIVIDEND

AND INVESTMENT BEHAVIOUR

4.1 Introduction

Policy-makers are not only concerned with the directional in-
fluence of one variable upon another but also want to quantify the
strength of this influence. For example, although the tax discrimin-
atory policy theory between retention and dividend may correctly state
that discrimination against dividends gives inducement to firms to re-
tain more profits, policy-makers really want to know if such a policy
is effective or not. In addition, if this policy is effective they
also want to know if these retained profits are re-invested or not
since the rationale of this policy is that these profits are rein-
vested. Similarly, governments also use investment allowances to
stimulate investment and an assessment of their effectiveness is im-
portant.

The purpose of this chapter is to test the effectiveness of
these two kinds of incentives in Greece, since as we saw in the prev-
ious chapter, the tax discriminatory variable in Greece had a value
varied around unity, sometimes above and sometimes below while high
levels of investment allowances were granted to the Greek firms. We
will do so by testing various models of dividend and investment be-
haviour, specifically incorporating the tax discriminatory variable
θ and the value of the investment incentives. These models consist
of equations which are dynamic, because the past history of the de-
pendent variables either dividend or investment are relevant to their
current values. They differ from the usual static equations and their
main characteristic is the presence of a lagged, either independent
or dependent variable in their right hand side. In particular, we
will use both single equation and simultaneous equation models to
test for interdependence in the dividend and investment decisions.
As a by-product of the above objectives, a simplified attempt will take
place to test the shifting hypothesis of the CIT in Greece.

4.2 DIVIDEND POLICY IN GREECE

4.2.1 Introduction

A number of countries have followed a discriminatory policy between disgtributed and undistributed profits. This policy is based on the inference, which has been suggested by both theory and evidence, that there exists a relationship between retained profits and investment (M. Feldstein, 1970). However, the effectiveness of this discriminatory policy has been a very controversial issue. Despite the importance of this question little attention has been paid to assessing tax impact by developing a theoretical model to explain the dividend behaviour of the firm (M. Feldstein, 1970 and M. King, 1971). The majority of the empirical models which have been tested, fail to include taxation. Only in a few recent cases has taxation been introduced among the determinants of dividend behaviour. Most of the empirical studies which deal with this subject use data from U.S.A and U.K. To our knowledge there are no empirical studies which have used data for developing countries incorporating explicitly taxation amongst the explanatory variables.

The objective of this section is to test econometrically the significance of various factors, which influence dividend policy in the Greek corporate sector. We found in the previous chapter that the value of the tax discriminatory variable θ was different than unity in Greece. The existence of the incentive, however, is not sufficient to establish the response to it by firms. Our main concern, therefore, is to examine whether the differential policy influenced the appropriation of profits between retained profits and dividends - and if it did, to what extent. In addition, as a by-product of our main objective, we attempt, in a simplified way, to test the shifting question of the Greek CIT, by using the dividend model.

4.2.2 Specification of the Dividend Model

Two main features of firm's dividend decision are that firstly, for a given set of economic circumstances for the firm we can de-

fine the optimum level of dividend and secondly, that firms seek year to-year stability in the dividend payout. A two-part model is, therefore, appropriate firstly to determine the optimum value of dividends, denoted by D^* , and secondly, establishing the adjustment mechanism relating the actual value of dividends, D, and its optimum value D^*.

We saw in the previous chapter that the size of the Greek corporation is small and that owners, managers, and entrepreneurs are typically one man or a small group of men. This small group furnishes the corporation with equity capital (owners), manages the day-to-dayoperation of the enterprise (managers) and finally, is the organizing and notivating force of the enterprise (entrepreneurs). In other words, in addition to risk-taking this group performs managerial and entrepreneurial functions. The corporation is identified with and run for the benefit of owner-operators. They have control over dividend and investment decisions involving themselves directly as owners, managers and recipients of corporate income. The choice of a payout ratio in such corporation is closely bound up with personal propensities to consume and aave.

To pose the problem more formally, we assume that the Greek management has to decide to appropriate profits in such a manner as to maximize its utility subject to a budget constraint. Since dividends, D, make resources available for current consumption while retentions, R, through re-investment, create resources for future consumption, the management's utility function specifying his preference between retention and dividend can be represented in the standard Fisherian framework, as in Figure 4.1.
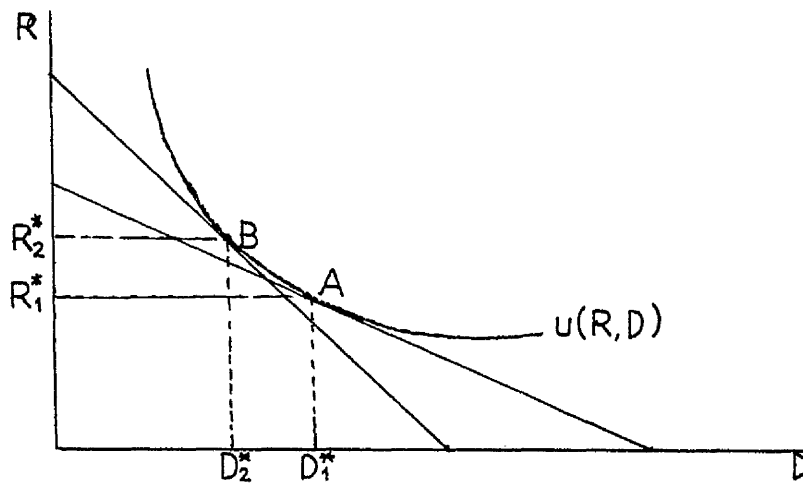
Suppose that the management decides to retain all profits, then, the available profits for retention are equal to P + DEP which is the intercept of R. On the other hand, if he decides to distribute all profits, he will receive as a shareholder an amount equal to P + DEP minus the amount of taxes which are levied on dividend; that is, $\frac{1-\theta}{\theta}$ D. The budget constraint for the firm is as shown on the figure. For simplicity, we show the constraint as linear, although the provision of tax-exempted dividends (section 3.3.3.3) would imply a constraint with kinks. However, the flat rate of tax is consistent with a linear constraint.

For equilibrium the necessary condition is,

$$-\frac{dD}{dR} = \frac{P + DEP}{P + DEP - \frac{1-\theta}{\theta} D}$$

From the above equilibrium condition we see that the optimum value of dividends, D^*, is a function of net profits, of depreciation and of the value of tax discriminatory variable θ. that is,

$$D^* = f (P, DEP, \theta) \qquad (4.1)$$

Suppose that the government reduces the rate of CIT, tc. This has two effects: first, for a given amount of gross profits the amount of net profits is raised and second, the reduction of tc affects the value of tax discriminatory θ (recall $\theta = \frac{1-tp}{1-tc}$) which affects the cost of retained earnings. The first effect is the conventional income effect which shifts the budget constraint parallel. The substitution effect between R and D is illustrated on the figure by the move from A to B: a reduction of tc leads to a reduction in θ which

leads to the substitution of retention for dividend along the indifference curve U. The reason for this is that the lower the value of θ the larger the discrimination against dividend. Therefore, the shareholder has an incentive to prefer less dividend and more retention.

Linearising, we derive the following expression for the optimum value of dividends:

$$D_t^* = \alpha_0 + \alpha_1 P_t + \alpha_2 DEP_t + \alpha_3 \theta_t + U_t \quad (4.2)$$

The constant term of the equation is generally assumed to be positive because of the presumption that all else being equal, corporations would be greater reluctant to reduce rather than to raise dividends.

The most studies of dividend behaviour include profits among the determinants of the dividend policy. In our formulation they enter (positively) as a determinant of the position of budget constraint. Moreover our interviews with Greek financial management confirmed that profits are important for determining the level of dividends. They indicate the capacity to pay dividends and are termed as the "starting point" for determination of dividends. It is also plausible that an increase in profits does not result in an equivalent increase in dividend at all levels of profits. Hence equation (4.3) represents an alternative dividend model.

$$D_t^* = \beta_0 + \beta_1 P_t + \beta_2 P_t^2 + \beta_3 DEP_t + \beta_4 \theta_t + \omega_t \quad (4.3)$$

We expect β_1 to be positive whereas β_2 to be negative. To our knowledge all the previous models relate dividends to profits through a linear relationship. We believe that higher degree relationship should exist between these two variables. The rationale of this argument is that as profits increase then a smaller percentage is distributed to the shareholders. For the sake of simplicity we introduce a quadratic relationship between profits and dividends.

Depreciation is the second component of our model. Since it
is a common belief that depreciation does not accurately measure the
using up of capital, its introduction in the dividend equation would
serve to portray more accurately the resources available to the firm
for investment and dividend outlays. Brittain includes in his model
depreciation along with earnings (i.e earnings net of tax plus de-
preciation) known as cashflow. Our interpretation has one more ele-
ment than Brittain's interpretation. We include depreciation as a
separate variable in addition to net earnings. We do so because
profits and depreciation not necessarily have identical impact on
optimum dividends, D^*. Further, we introduce this variable in our
model without any prediction as far as its sign is concerned. A
positive sign would mean that firms use as profits basis the cash
flow as Brittain argues and as our formulation of budget constraint
implies. However, an alternative possibility may appear, that is, a
negative sign of depreciation coefficient would mean that higher de-
preciation provisions may give the firm the opportunity to use these
as a tax shelter. This, of course, assumes that firms are free to
manage depreciation allowances.

Any corporation in general and the Greek corporation in partic-
ular needs a dividend policy because of tax considerations. When
retained earnings or capital gains are taxed at a lower rate than
dividends, the dividend decision may affect the total tax liability,
that is, that of the corporation and of the shareholder. The tax
variable included in our models reflects the discrimination between
dividends and retention. Lintner in his pioneering work does not
explicitly include any tax variable in his model even though he
realizes the importance of taxes in determining dividend policy. In
his words "the results of our statistical work indicate that allow-
ance for tax considerations affecting dividend policy is properly and
adequately made simply by our use of profits after taxes as a key
variable in the equation" (p.113). However, corporate taxation has
a dual effect upon dividend decisions. First, it reduces the avail-
able amount of profits and second it changes the relative cost of
distribution and retention. Lintner, therefore, confines himself

only, on the first effect. Feldstein covers this gap including in his model the tax discriminatory variable θ. Despite our objection concerning his assumption for constructing θ (as we have already seen), we believe that Feldstein made a great improvement of the Lintner model which according to Tarshis criticism has no ability to explain dividend behaviour, because of its oversimplicity. We expect θ to take a positive coefficient, that is, the higher the θ, the lower discrimination against dividends, the higher the level of dividends. The underlying rationale of this expectation is that since θ is determined by both corporate and personal income tax, the discrimination against dividends provides shareholders with a tax shelter. If we take into consideration the family concern of the Greek corporation and the absence of capital gains tax in Greece, this tax shelter becomes stronger.

Two attractive characteristics of an econometric model is simplicity and easy of interpretation. Two functional forms are the most common in econometric studies, the linear and the log-linear. The choice between various functional forms it is a matter of economic theory and observed data. Feldstein, for example, uses a log-linear form. The latter is very popular to econometricians because the slope coefficient may be interpreted as the elasticity of dependent variable with respect to the independent variable. Despite this simplicity the double-log transformation imposes a priori constraint, namely, it assumes that the above mentioned elasticity is constant. Therefore, our definition of optimum dividend relaxes this restrictive assumption by taking a linear form.

The above considerations allow us to argue that our model (4.3) is in several respects a generalization of previous models.

Previous studies (Lintner, Kuh, Brittain, Feldstein, Fisher) have found evidence that firms adjust the actual dividend payments to the optimum level of dividends with a lag. This lag is due to several reasons. First, technical or institutional rigidities may prevent the Greek manager from immediately elininating the entire difference between D_t^* and D_t-1. As we saw the Greek business law affects to some extent the appropriation of profits. Second, behavioural inertia may make firms reluctant to change the level of

dividend. Third, the need of funds for financing investment prog-
rammes may be another reason. Finally, the rising cost of rapid
change may be an obstacle to eliminate the difference between D_t^* and
D_{t-1}. This delayed response will be approximated by the partial ad-
justment model:

$$D_t - D_{t-1} = \lambda \left[D_t^* - D_{t-1} \right] \quad (4.4)$$

where D_t stands for dividends of the current period, D_t-1 for the
previous period and λ is the adjustment coefficient which lies in
the interval $0 \leqslant \lambda \leqslant 1$. For λ equal to zero we have $D_t = D_{t-1}$ which
means that the partial adjustment mechanism is invalid whereas for λ
equal to one we have $D_t^* = D_{t-1}$ which means that the gap between
D_t^* and D_{t-1} is covered in one period.

We substitute equation (4.4) into equation (4.2) and (4.3) and
we obtain the reduced form equation to be estimated. From (4.2) and
(4.4) we get:

$$D_t - D_{t-1} = \lambda\alpha_o + \lambda\alpha_1 P_t + \lambda\alpha_2 DEP_t + \lambda\alpha_3\theta_t - \lambda D_{t-1} + \lambda u_t \quad (4.5)$$
or
$$D_t = \lambda\alpha_o + \lambda\alpha_1 P_t + \lambda\alpha_2 DEP_t + \lambda\alpha_3\theta_t + (1-\lambda)D_{t-1} + \lambda u_t \quad (4.6)$$

and from (4.3) and (4.4) we get:

$$D_t - D_{t-1} = \lambda\beta_o + \lambda\beta_1 P_t + \lambda\beta_2 P_t^2 + \lambda\beta_3 DEP_t + \lambda\beta_4\theta_t - \lambda D_{t-1}$$
$$+ \lambda w_t \quad (4.7)$$
or
$$D_t = \lambda\beta_o + \lambda\beta_1 P_t + \lambda\beta_2 P_t^2 + \lambda\beta_3 DEP_t + \lambda\beta_4\theta_t + (1-\lambda)D_{t-1} + \lambda w_t \quad (4.$$

We can estimate either equations (4.5) and (4.7) or equations
(4.6) and (4.8). Equations (4.5) and (4.7) comparing to (4.6) and
(4.8) lead to the same coefficients but they differ in the value of
R^2. We usually use for this study equations (4.6) and (4.8). All
coefficients are exactly identified.

Finally, to our knowledge no previous study of dividend policy
has incorporated in its analysis various hypotheses as far as the in-
cidence and shifting of the CIT is concerned. All these studies have

assumed zero shifting. In chapter one we discussed how important it is for a policy maker to know who bears the burden of the CIT whereas in chapter two we developed the reverse shifting hypothesis regarding the alternative corporate tax systems. Therefore, we adopt three hypotheses concerning the incidence and shifting of the Greek CIT. First, we assume that there is no shifting, second, that there is a 30 per cent shifting and finally, a 70 per cent shifting. We introduce these considerations through the tax discriminatory variable θ . That is, the latter is given by the formula:

$$\theta = \frac{1 - tp}{1 - (1 - b)tc} \qquad (4.9)$$

where, tp = personal income tax rate

tc = corporate income tax rate

b = degree of shifting.

4.2.3. Data

It is not an exageration to say that the most difficult part of this dissertation was the collection of data. The availability and the reliability of data are two problems for a researcher who deals with a developing country. We spend considerable time in our effort to collect as much as possible and at the same time reliable data. We resorted to various sources to achieve our purpose. In fact, we collected from various sources, we contrasted them and finally we tried to use as much data as possible from the same source in order to achieve homogeneity of these. Our main source is the National Statistics Service of Greece. We use annual data for corporations for the period 1959-1975. Annual data were used for two reasons. First, because dividends are determined on an annual basis although interim dividends are paid, their amount is very small and second, it would be very difficult if it is not impossible, to collect quarterly data. We split our sample in two subsamples, that is, the first for the manufacturing sector and the second with the rest corporate sector of the Greek Economy. We did so for two reasons: first, because these two samples are not homogeneous since different factors are

taken into consideration making dividend decisions and second because we need the manufacturing sector separately for future purposes.

Some problems arise as far as the measurement of profits are concerned. Various definitions have been suggested in the literature, such as gross profits before tax and depreciation, gross profits after tax plus depreciation etc. We use two different definitions of profits. According to the first, we define profits as gross profits before tax but excluding depreciation and investment allowances, whereas according to the second, we define these as profits after tax, depreciations and investment allowances. We adopt these definitions of profits because our purpose is to examine how taxes affect the appropriation of profits between retention and dividend, that is, how the tax burden is spread upon dividend and retention. However, despite the fact that other definitions of profits may provide a better picture of the corporate ability to pay dividend our definitions are more close to what we are looking for. Because the results from using these definitions are slightly different we report only the result using the second definition.

We got dividend payments from the same source. They include dividend paid to shareholders, remuneration and allowances of members of board of directors and extra payment and allowances to company directors and managements. We adopted this definition of dividend because as we have seen elsewhere the Greek corporation are family-owned and family-runhèd business, therefore, the assumption that all the distributed amount of profits goes to the same persons is considered plausible.

Depreciation figures were taken from the annual report of the state of Greek industry published by the Federation of Greek industrialists. These figures concern not only the corporations but limited liability companies in the Greek industry as well. As it was officially verified to us, at least, 97 per cent of these numbers concern the corporations in this sector, it seems reasonable to accept these figures.

4.2.4 Estimation Procedures

The estimation of the reduced form of dividend models was made using the Econometric Software package (ESP) and the ICL 2976 computer available in the University of Glasgow. Four different methods were used to estimate these models. The ordinary least square (OLS), the Cochrane-Orcutt(CORC), the Prais-Winsten generalized least squares (GLS) and the Instrumental variable technique (IV).

The presence of the lagged dependent variable D_{t-1} among the explanatory variables raises estimation problems which are discussed in the appendix of this chapter. The use of the OLS produces parameter estimates which are both biased and inconsistent if the disturbances are autorrelated. The D-W test is asymprotically biased to 2 and serial correlation is evidenced by the h test (for large samples). The presence of additional exogenous variables tends to reduce this bias whereas OLS may be used if there is evidence of no serial correlation in the disturbances, since it then regains efficiency.

The CORC method uses an (internal) OLS regression to form an initial guess of p, the first order serial correlation coefficient. All data are transformed by p and the regression re-run on the transformed data, to yield a new estimate of p in an iterative sequence. That is, our estimated equations are:

$$D_t^* - pD_{t-1}^* = \lambda\alpha_0(1-p) + \lambda\alpha_1(p_t - p_{t-1}) + \lambda\alpha_2(p_t^2 - pp_{t-2}^2)$$
$$+ \lambda\alpha_3(\theta_t - p\theta_{t-2}) + \lambda\alpha_4(DEP_t - pDEP_{t-1}) + \lambda\alpha_5(D_{t-1} - pD_{t-2})$$
$$+ \varepsilon_t \tag{A}$$

and,

$$D_t^* - pD_{t-1}^* = \lambda\beta_0(1-p) + \lambda\beta_1(P_t - pP_{t-1}) + \lambda\beta_2(\theta_t - p\theta_{t-1})$$
$$\lambda\beta_3(DEP_t - pDEP_{t-1}) + \lambda\beta_4(D_{t-1} - pD_{t-2}) + \varepsilon_t \tag{B}$$

This method gives consistent estimates by using the transformation matrix to produce serially independent disturbances. The parameter estimates are more efficient than those produced by OLS (J. Johnston, 1972, p.264). However, the presence of the lagged dependent variable makes this method yield test statistics which are not even asymptotically valid (in favour of rejecting the nul hypo-

thesis of zero coefficient, Cooper, JP.1972). To correct this bias we revised the variance-coveriance matrix. The new output is the same with that before the revision but the t - statistics are different.

The Prais-Wisten generalized least squares is almost similar to the previous method except that the transformation matrix contains one more row with the first element equal to $\sqrt{1 - p^2}$. That is the first values of the transformed variables take the form $\sqrt{1-p^2}Y_1$, $\sqrt{1 - p^2}X_1$ whereas the remaining values $t = 2...T$ take the form indicated by (A) and (B). Then the OLS estimation of the parameters α_i and β_i is equivalent to the GLS estimator of these parameters. This method as the previous one produces consistent estimators and there ought to be a possible gain of efficiency.

Finally, the instrumental variable technique is based on the Liviatan suggestion to regress first the lagged dependent variable on the other explanatory variables and then to use its estimate $\hat{D}_{t-1}$ as regressor in the reduced equation estimated by OLS. That is,

$$D^*_t = \lambda\alpha_o + \lambda\alpha_1 P^2_t + \lambda\alpha_2 P^2_t + \lambda\alpha_3\theta_t + \lambda\alpha_4 DEP_t + \lambda\alpha_5\hat{D}_{t-1} + u_t$$

and,

$$D^*_t = \lambda\beta_o + \lambda\beta_1 P_t + \lambda\beta_2\theta_t + \lambda\beta_3 DEP_t + \lambda\beta_4\hat{D}_{t-1} + u_t$$

This method does not involve the attempt to correct the disturbance directly as the previous two methods did. Its notivation is to obtain consistency using an exogenous variable. Therefore, this method does not lead to unbiased estimators and it leads to a loss of efficiency.

4.2.5 Results

Table 4.1 presents the coefficients of equation (4.6) estimated by OLS, CORC, GLS and IV techniques. The numbers in parentheses indicate the t-statistics and a star(*)on these indicates that they are statistically significant at 10 per cent level of confidence, other-

T A B L E   4.1

Basic Dividend Model.

$$Eq.4.6: D_t = \lambda\alpha_o + \lambda\alpha_1 P_t + \lambda\alpha_2 DEP_t + \lambda\alpha_3\theta_t + (1-\lambda)D_{t-1} + \lambda u_t$$

Estimation Method	OLS	CORC	GLS	IV
Estimated Co-efficient.				
λa_o	1,278.34	995.27	1,277.97	1,169.56
	(2.47)	(2.75)	(2.34)	(2.45)
$\lambda\alpha_1$	0.30	0.34	0.30	0.30
	(3.84)	(5.16)	(3.84)	(4.59)
$\lambda\alpha_2$	0.21	0.11	0.21	0.11
	(3.92)	(2.73)	(3.92)	(2.75)
$\lambda\alpha_3$	0.01	0.01	0.01	0.01
	(2.74)	(3.04)	(2.62)	(1.48)*
$1 - \lambda$	0.20	0.47	0.20	0.55
	(1.39)*	(3.04)	(1.40)*	(1.76)*
(λ)	0.80	0.53	0.80	0.45
Structural Co-efficients.				
α_o	1,597.92	1,877.86	1,597.46	2,597.77
α_1	0.37	0.64	0.37	0.66
α_2	0.26	0.20	0.26	0.24
α_3	0.01	0.01	0.01	0.01
R^2	0.99	0.99	0.99	0.99
D.W	2.82	2.14	2.82	2.73

Note: The numbers in partheses are t-statistics.   Without a star on these numbers the co-efficients are significant at 5 per cent level of significance.   If there is a star on them these coefficients are significant at 10 per cent level of significance.

wise, the coefficiats are significantly different from zero at 5 per cent confidence level.

From this table a number of conclusions can be drawn from both econometric and economic point of view. The coefficient of determination R^2 tests whether the regression as a whole "explains" the dependent variable satisfactory. In our case the R^2 is very high "explaining" 99% of the total variance of D_t. Looking at the t-ratios given in parentheses below each coefficient estimate, we can see that in the most cases these estimates are significant either at 5 or 10 per cent level. The Durbin-Watson statistic used for testing hypothesis about autocorrelation in residuals from a regression equation, seems to be high (apart in the CORC method) which means that we have a positive serial correlation in the errors.

From table 4.1 it seems that the CORC method provides more reliable results. This is concluded from the fact that this method, on average, provides higher t - statistics values and the better value for D-W statistics. Therefore, we discuss the results obtained by this method.

The upper part of table 4.1 shows the estimated coefficients, $\lambda\alpha_i$, whereas the low part shows the structural coefficients, α_i. We see that the signs of the coefficients are "correct" i.e. agree with prior expectations. In particular, profits are the main determinant of dividend policy. They have a positive structural coefficient equal to 64 per cent, which indicates that a unit increase in profits results in 64 per cent increase in dividend. Depreciation allowances have a positive sign equal to 20 per cent, which seems to verify the Brittain suggestion that firms take into consideration cash flow in order to determine the level of dividend to be distributed. However, some reservations exist concerning this interpretation because this correlation may be spurious. The econometric test seems to support the statistical evidence that the tax discriminatory variable has a negligible effect upon dividend decisions. This conforms with our expectation since as we argued in the previous chapter a closer look at its values shows that these are not significant different than one, during the whole period under consideration. It is true that Greek authorities did not use this incentive

to affect the availability of funds. The changes in the tax discrim-
inatory variable were caused only by the changes of personal tax
rates since during the last twenty years the corporate tax rate was
stable for seventeen consecutive years. Finally, if there is actu-
ally a relationship between depreciation allowances and dividend pay-
ments then corporate taxation indirectly influences dividend decisions.
However, as we have seen the absence of a capital gains tax favours
retention of profits. Therefore, which incentive is stronger it is
an empirical question.

The constant term is positive reflecting the reluctance of the
Greek management to suspend dividend rather to raise them.

The adjustment coefficient λ , has a medium size .45 which
means that firms cover almost half of the gap between optimum and
actual level of dividend in the first year.

Table 4.2 indicates the results obtained from the alternative
dividend model, that is, equation (4.8). As we see these results
verified our previous conclusions. The coefficient of P^2 is small
and negative. The small size may be explained by the fact that we
deal with aggregate data rather, with firm's data. The negative sign
explains our feeling that a non-linear relationship exists between di-
vidend and profits. In our case, the equation which relates dividend
and profits takes the form,

$$D_t = 2,172.46 + 0.79P_t - 0.0008P_t^2$$

which has a maximum and its shape appears in the figure 4.2. It is
obvious that a tendency to non-linearity exists.

Fig. 4.2
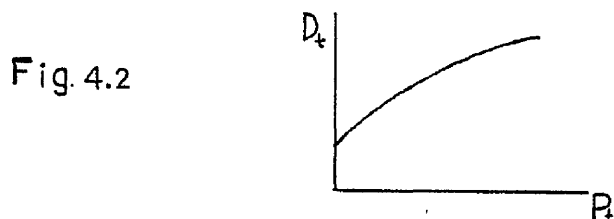
We have treated so far the tax discriminatory variable as ob-
servable assuming that there is no shifting of CIT in Greece. Since
θ is not observable it is plausible to make various assumptions about
the degree of shifting of the CIT. Therefore, we assume zero, thirty
per cent and seventy per cent shifting and we construct three notion-

T A B L E   4.2

An Alternative Dividend Model			
Eq. 4.8: $D_t = \lambda\beta_0 + \lambda\beta_1 P_t + \lambda\beta_2 P_t^2 + \lambda\beta_3 DEP_t + \lambda\beta_4\theta_t + (1-\lambda)D_{t-1} + \lambda U_t$			
Estimation Method	OLS	CORC	GLS
Estimated Co-efficients.			
$\lambda\beta_0$	2,712.46	2,182.89	2,698.17
	(3.25)	(2.59)	(3.24)
$\lambda\beta_1$	0.79	0.65	0.80
	(3.21)	(2.84)	(3.23)
$\lambda\beta_2$	-0.00008	-0.00005	-0.00008
	(-205)	(1.46)	(2.07)
$\lambda\beta_3$	0.18	0.13	0.18
	(3.36)	(3.21)	(3.62)
$\lambda\beta_4$	0.03	0.02	0.03
	(3.31)	(2.62)	(3.32)
$1 - \lambda$	0.10	0.31	0.11
	(1.40)	(1.79)	(1.42)
λ	0.90	0.59	0.89
Structural Co-efficients.			
β_0	3,013.84	3,699 ,81	3,031.65
β_1	0.87	1.10	0.89
β_2	-0.00008	-0.00005	-0.00008
β_3	0.20	0.22	0.20
β_4	0.03	0.03	0.03
R^2	0.99	0.99	0.99
D.W	2.83	2.17	2.85

al values for θ and we test these using the same data. Table 4.3 shows the results obtained from testing these three assumptions. From this table we see that under the three different hypotheses our results are the same with these obtained assuming zero shifting. These striking results verify our previous finding that the tax discriminatory variable was not important in making dividend decisions so that to be unable to reveal if the Greek CIT is shifted or not.

Finally, we proceed to discuss dividend policy in the non-manufacturing sector in Greece. Two alternative models were tested. The first, similar to equation (4.6)

$$D_t = \lambda\alpha_o + \lambda\alpha_1 P_t + \lambda\alpha_2 \theta_t + (1-\lambda)D_{t-1} + \lambda u_t \qquad (4.10)$$

and the second,

$$D_t = \beta_o + \beta_1 P_t + \beta_2 \theta_t + \beta_3 CPI_t + u_t \qquad (4.11)$$

The second model excludes dividend of the previous years but includes the consumer price index (CPI). The underlying rationale in that replacement is that firms take into consideration the cost of living making dividend decisions as we argued elsewhere. We excluded from this model depreciation allowances since the latter are not so important in the non-manufacturing sectors.

From table 4.4 we can see that both models fit quite well. As in the models for the manufacturing sector, profits have a great influence upon dividend decisions, but the introduction of CPI reduces this influence and this variable is more significant than profits.

4.2.6 Conclusions

From the above discussion we can say that dividend determination depends upon a number of factors, many of which are interlinked as they are governed by domestic authorities and capital market. However, it can be said that previous year's dividend and current profits have a great influence upon these decisions and there is a trend

T A B L E 4.3

Basic Dividend Model: A test for the Shifting of the CIT

	Degree of Shifting		
	0%	30%	70%
Estimated Coefficients.			
$\lambda\alpha_0$	995.27	995.14	993.70
	(2.75)	(2.75)	(2.75)
$\lambda\alpha_1$	0.34	0.34	0.34
	(5.16)	(5.18)	(5.20)
$\lambda\alpha_2$	0.11	0.11	0.11
	(2.73)	(2.77)	(2.76)
$\lambda\alpha_3$	0.01	0.01	0.01
	(3.04)	(3.04)	(3.000
$(1 - \lambda)$	0.47	0.47	0.47
	(3.04)	(3.15)	(3.16)
λ	0.53	0.53	0.53
Structural Coefficients			
α_0	1,877.86	1,877.62	1,874.90
α_1	0.64	0.64	0.64
α_2	0.20	0.20	0.20
α_3	0.01	0.01	0.01
R^2	0.99	0.99	0.99
D. W.	2.14	2.14	2.14

T A B L E   4.4

Dividend Policy in the Non-Manufacturing Sector			
Eq. 410: $D_t = \lambda\alpha_o + \lambda\alpha_1 P_t + \lambda\alpha_2 \theta_t + (1-\lambda)D_{t-1} + \lambda u_t$			
Eq. 411: $D_t = \beta_o + \beta_1 P_t + \beta_2 \theta_t + \beta_3 DPI_t + u_t$			
Impact Coefficients			
$\lambda\alpha_o$	-801,40	β_o	-4,380.19
	(-1.55)		(-3.64)
$\lambda\alpha_1$	0.41	β_1	0.14
	(10.98)		(2.97)
$\lambda\alpha_2$	0.007	β_2	0.001
	(1.56)		(2.32)
$(1-\lambda)$	0.26	β_3	0.52
	(3.35)		(4.55)
λ	0.74		
Equilibrium Coefficients			
α_o	1,082.92		
α_1	0.55		
α_2	0. 009		
R^2	0.99		0.95
D.W	1.94		2.10

which follows the same direction in dividend payment and depreciation. The discriminatory variable θ has a very small effect upon dividend decisions. This may be due to the fact that its values during the period under consideration were not significant different than one. However, our findings do not necessarily imply that the Greek discriminatory policy is ineffective. It may be effective if the tax discriminatory variable takes values significantly different than one. However, it is very difficult to quantify the influence on dividends and retentions without taking into consideration such forces as authorities or capital market. So, in the next section we extend our analysis to include financial and investment considerations.

4.3   INTERDEPENDENCE BETWEEN DIVIDEND POLICY
        & INVESTMENT FINANCING

4.3.1 Introduction

        Our findings in the previous section indicated that the tax
discriminatory policy in Greece was not significant in effect on divi-
dends. The next question concerns whether the retained profits are used
for investment financing or they are kept within the firm as a means of re-
ducing Shareholders' tax liability or as a source of creating capital
gains in the absence of a capital gains tax. The answer to that ques-
tion has important policy implications for the Greek authorities as
far as discriminatory policy is concerned. That is, if there is actu-
ally a relationship between retained earnings and investment financ-
ing then the Greek authorities may review their policy regarding taxa-
tion of retained and distributed profits.

        To examine this question we should first, respecify our divi-
dend equation to include investment considerations and second, to in-
troduce an investment model to test the interdependence of these deci-
sions. We will respecify the dividend model to include investment and
external financing. The determination of investment model requires
more explanation.

        Theories of investment behaviour offer a bewildering variety
of hypotheses; both with respect to the real factors and the financ-
ial policy, for explaining the structure of capital. One model is im-
possible to include all these factors which may affect this structure.
In Meyer and Kuh words "the investment problem is complex and requires
treatment of many magnitudes, each with a variety of dimension. Bec-
ause the problem is intrinsically so difficult, the literature on the
subject reports a number of different analytical approaches many of
them complementary but not a few contradictory. The basis problems
arise primarily from different interpretations of entrerprenerial mot-
ives and a different emphasis given to alternative constraints".

        An important criticism against investment studies is their
frequent neglect of the problem of simultaneity, particularly, the
financial side is ignored. It has been argued that the scarcity of

funds may prevent the desirable level of capital stock from being a-chieved.

The firm has a choice either to distribute the internally gener-ated funds as dividends to the shareholders or to use these for financ-ing investment programmes. This raises the question whether dividend and investment decisions are interdependent. If dividend policy is de-termined by factors not directly relevant to investment then there is not such interdependence between these policies, otherwise, these dec-isions should be considered simultaneously.

Both single-equation methods (E. Kuh, 1961) and simultaneous equation techniques have been used to deal with this question. Dhry-mes and Kurz argue that the latter method is the appropriate for test-ing the simultaneity and interdependence of investment and dividend decisions. They argue that any other view "overlooks the simple in-stitutional fact that the modern corporation is a complex organization with a considerable degree of decentralization. The decisions made by one department have an impact on those made by another". (P.Dhrymes and M.Kurz, 1967).

We will employ both single equations and system equation methods to examine the interdependence between dividend and investment deci-sions. The first,method, single equation, is useful in the view that it helps us to select the variables which should be included in equa-tions and estimated. This method in estimating each equation uses only the information about the restrictions on the coefficients of that particular equation. Therefore, this method is unable to explore the interdependence between dividend and investment decisions. Moreover, simultaneous equations methods are necessary to consider the inter-action of our variables.

In this section we establish an investment model taking into account financial considerations. Then we go on to test the inter-dependence between dividend and investment decisions.

4.3.2 A Joint Profits-Accelarator Investment Model

The investment model, in contrast to the dividend model, consists of three components. The additional component is the replacement investment function. This is due to the fact that in the dividend model we dealt with only a flow variable i.e. dividend, whereas in the investment model we deal with both a flow variable, investment expenditures, and a stock variable, the capital stock. Fortunately, as far as the latter variable is concerned there is an agreement between the researchers of investment policy despite the doubts raised by some authors (M. Felstein & M. Rothschild, 1974).

The flexible accelerator theory has achieved strong empirical support from the results of Kuh, Eisner, and Hickman (D. Jorgenson & C. Siebert, 1968). This theory emphasizes that the optimum level of capital stock is proportional to output. On the other hand, it has been also critigized for its simplicity which deprives factor prices especially the cost of capital to determine investment policy. Another factor which is neglected by the accelarator principle is the availability of funds. Since abundance of funds either internal or external is not the case financial considerations may play a considerable role on investment decisions. Liquidity and profits theories have found evidence that these factors are important determinants of investment decisions. These are more crucial when we deal with small firms and imperfections dominate the capital market. Therefore, a combination of all these theories would provide us with a better theoretical device to explain investment expenditures. Previous studies (Dhrymes and Kurz, Lund and Holden) have found evidence that a joint profits-accelarator principle explains a large part of aggregate investment. In this study the approach is to combine various elements of the main line of thought, keeping in view special characteristics of the Greek situation. Investment decisions are analysed in the context of the accelarator model whereas the role of financial variables is also investigated.

We assume that the optimum level of capital stock, denoted K*, depends on the level of output and the availability of funds, that is,

$$K^*_t = \alpha_o + \alpha_1 Y_t + \alpha_2 RE_t + u_t \qquad (4.12)$$

where, Y is the level of output and RE is the level of retained earnings. Among the financial variables which are considered in explaining investment the most important are profits, liquidity and external finance. We introduce profits in our analysis via retained earnings because of market imperfections. As we argued elsewhere retained earnings play an important role in financing investment programmes because the risk associated with external financing, either in the form of debt or in the form of equity. In Particular, the latter form is more important on account of fear of loosing control and dilution of return on equity. Money and capital market in Greece have a narrow base and are imperfect. Enterprises, as we saw in the previous chapter, are family controlled and there may fear of loss of control through equity financing. In addition, retained profits rather than profits are important for this analysis. As we saw, retained profits have been a significant source of financing investment. New security issue has financed a very small amount of investment.

The response of investment to changes in the market conditions is not instantaneous. Technological, expectational and institutional lags are involved in the adjustment of capital stock to changes in demand. The adjustment process is gradual and time consuming process. Therefore, current investment expenditures have partly resulted from a very rapid response to changes in conditions in the immediate past and partly from a delayed responce to more distance changes. To illustrate this adjustment process we discuss the following example. Suppose that there is a change in demand for consumer goods. A time elapses between this change and the firm's knowledge about the change. The management of the firm collects the required information and he drafts a plan for the proposed capital project. If, finally, the firm decides to proceed to make this plan effective it can do so either by an outright purchase or by placing an order. If the firm can immediately get it otherwise it has to wait for a period. Suppose that the firm gets this capital good, then the final lag is between the time which the firm receives this capital good and the time which the first product will be produced. This example clearly showed how the adjustment process takes place. Therefore the second component of our investment model consists of a stock adjustment mechanism which attempts to cover the gap between the desired level of capital stock and the actual. This mechanism is rep-

resented by equation:

$$K_t - K_{t-1} \quad = \quad \gamma (K_t^* - K_{t-1}) \qquad (4.13)$$

In addition to equation (4.12) and (4.13) we need one more component to complete our investment model. It is traditionally accepted that the level of capital stock at the end of period t is equal to the level of investment made in that period plus the capital stock of the previous period minus the depreciable capital stock in the previous period, that is,

$$K_t = I_t + (1 - \delta) K_{t-1} \qquad (4.14)$$

where I_t is gross investment and δ is the rate of depreciation.

From equation (4.12), (4.13) and (4.14) we obtain the final equation to be estimated: we substitute equation (4.12) into equation (4.13).

$$K_t - K_{t-1} \quad = \quad \gamma \left[\alpha_0 + \alpha_1 Y_t + \alpha_2 RE_t + u_t - K_{t-1} \right]$$

or

$$K_t - K_{t-1} = \gamma \alpha_0 + \gamma \alpha_1 Y_t + \gamma \alpha_2 RE_t - \gamma K_{t-1} + \gamma u_t$$

from the last equation and equations (4.13) we obtain:

$$I_t + (1-\delta) K_{t-1} - K_{t-1} = \gamma \alpha_0 + \gamma \alpha_1 Y_t + \gamma \alpha_2 RE_t - \gamma K_{t-1}$$
$$+ \gamma u_t$$

or

$$I_t = \gamma \alpha_0 + \gamma \alpha_1 Y_t + \gamma \alpha_2 RE_t - (\gamma - \delta) K_{t-1} + \gamma u_t \qquad (4.15)$$

The coefficients of this equation is not identified but we need an exogenous estimate of δ to identify them.

The Greek economy was characterized during the period under review by a rapid demand expansion and financial considerations played a significant role. However, this model including output captures the first characteristic of the economy, whereas the second provides a stabilization device. Therefore, it captures both short-run and long-run considerations. In addition, this model is both demand and supply

oriented, that is, the introduction of output captures demand consider-
ations whereas the retained earnings present the supply constraint in
capital.

Debt finance together with internal funds were the main sources
of finance. We did not introduce in the above model debt finance for
two reasons. First, as we saw in the previous chapter, there was no
quantative restrictions on the availability of funds in part of the
banking system and public financial intimations. Second, debt finance
has a limited objective in this dissertation. However, an alternative
model including debt will be tested. All the other are the same as in
the previous model exempt from the optimum level of capital stock
which becomes,

$$K_t^* = \beta_0 + \beta_1 Y_t + \beta_2 RE_t + \beta_3 DEB_t + u_t$$

where DEB_t is the sum of short and long-term funds borrowed by the manu-
facturing sector.

The final equation to be estimated is,

$$I_t = \gamma\beta_0 + \gamma\beta_1 Y_t + \gamma\beta_2 RE_t + \gamma\beta_3 DEB_t - (\gamma - \delta)K_{t-1} + u_t \quad (4.16)$$

4.3.3 Data

Our main source of data remains the National Statistics Service
of Greece. Gross investment figures were obtained from the annual in-
dustrial surveys for the period 1959 to 1975. The data are provided at
current prices and were deflated by the price index of capital goods,
with 1970 prices equal to unity, to obtain estimates of gross invest-
ment at constant prices. The price index of capital goods is the in-
vestment deflator used in the National Accounts of Greece.

The construction of capital stock series is always a problem for
the researchers of the investment behaviour. Since it is usual, only
gross investment figures to be published, the capital stock series are
obtained from the recursive relationship,

$$K_t = I_t + (1 - \delta) K_{t-1}$$

where K_t, K_{t-1} are the current and last period capital stock, I_t gross investment and δ the rate of depreciation. The above recursive relationship requires first, the adoption of a benchmark value for K_{t-1} and second, a value for the rate of depreciation . As far as the initial value of K_{t-1} we adopt the one constructed by Kintis (1977). The value of δ is obtained by using the recursive relationship and the investment series to interpolate between two capital stock benchmark figures. (K. Wallis 1973). We adopt the value of equal to 0.041 (Kintis) which implies using the relationship $\varepsilon=1/\delta$ where ε is the life time of the investment goods that ε is equal to 24 years which seems reasonable for the case of Greece.

Retained earnings series were derived from the annual statistics of corporate income published by National Statistics Service of Greece. These series were deflated by the index of capital goods with 1970 prices equal to unity, to obtain estimates of retained earnings at constant prices.

The output (Y) series were derived from the annual industrial surveys. These series were also deflated.

4.3.4 Estimation - Results

We used OLS, CORC and GLS to estimate the model which excludes debt considerations whereas the CORC method to estimate that which includes debt. Since the results obtained are almost the same and for reasons of comparison of the two models we discuss the results obtained by the CORC method.

From table 4.5 we see that the joint profits-accelarator model fits quite well. It explains .87 per cent of the variations of investment expenditures. The t - statistics are statistically significant at 5 per cent level of confidence exempt from the coefficient of K_{t-1} which is significance at 10 per cent level of confidence. The value of D-W statistics indicates absence of first-order autocorrelation in the error terms. From economic point of view all the coefficients have the expected sign. The coefficient of retained earnings is positive and high which implies that the retained earnings had a significant contribution to the increase of investment expenditures. The output variable is also significant whereas the K_{t-1} coefficient provides us with an adjustment coefficient equal to .15 which implies that flactuations in capital stock do not have much influence on investment expenditures. This value of the adjustment coefficient seems to us as very low and it may be explained by the fact that we deal with aggregate data.

From the same table we see that the introduction of the debt variable slightly improved the performance of our model. Both R^2 and D - W statistics were improved. There is no significant difference in the values of the coefficients except from that of K_{t-1} which provides an adjustment coefficient equal to .58. The coefficient of debt variable is small .12 and it is significant at 10 per cent level of significance.

In Summary, the results of investment analysis lend some support to the accelarator - profits hypothesis. Both output and retained earnings have proved to be of importance.

4.3.5 The Simultaneity Hypothesis

We established two models, one for dividend decisions and the

T A B L E   4.5

A Joint Profits - Accelarator Investment Model					

Eq.4.15 $I_t = \gamma\alpha_o + \gamma\alpha_1 Y_t + \gamma\alpha_2 RE_t - (\gamma - \delta) K_{t-1} + \gamma u_t$

Eq.4.16 $I_t = \gamma\beta_o + \gamma\beta_1 Y_t + \gamma\beta_2 RE_t + \gamma\beta_3 DER_t - (\gamma - \delta) K_{t-1} + \gamma u_t$

Estimation Method	Equation 4.15		Equation 4.16		
	OLS	CORC	GLS		CORC
Coefficients					
$\gamma\alpha_o$	-4,820.90	-4,561.90	-4,843.61	$\gamma\beta_o$	-4,795.45
	(-2.38)	(-2.22)	(2.37)		(2.24)
$\gamma\alpha_1$	0.34	0.35	0.34	$\gamma\beta_1$	0.41
	(3.29)	(3.10	(3.29)		(3.54)
$\gamma\alpha_2$	0.68	0.70	0.68	$\gamma\beta_2$	0.80
	(2.09)	(1.94)	(2.09)		(2.26)
$(\gamma - \delta)$	-0.18	00.19	-0.18	$\gamma\beta_3$	0.12
	(-1.60)	(1.53)	(-1.62)		(1.43)
γ	0.14	0.15	0.14	$\gamma - \delta$	-0.42
					(-2.10)
				γ	0.58
α_o	3,443,50	3,041.2	3,459.72	β_o	8,268.01
α_1	2.42	2.33	2.42	β_1	0.70
α_2	4.85	4.66	4.85	β_2	1.37
				β_3	0.20
R^2	0.88	0.87	0.88		0.89
D.W	2.16	1.94	2.16		1.98

other for investment decisions. Their results are clear. The former model indicates that the tax discriminatory policy in Greece was not significant, whereas the latter that retained earnings had a significant effect upon investment decisions. We tested these hypotheses using single equations models. For the reasons mentioned in the introduction of this section we proceed to test the same hypothesis by using a simultaneous equation model.

Three hypotheses can be true in a discussion about dividend and investment decisions. The first hypothesis is that investment and dividend decisions are independent whereas the second concerns two ways of interdependence. If investment and dividend decisions are interdependent the question arises whether dividend decisions affect investment decisions or vice-versa. The Modigliani-Miller theory accepts that these decisions are independent or investment decisions affect dividend decisions, whereas it rules out the case which dividend decisions affect investment decisions. Suppose now, that, in fact, these decisions are interdependent. Two possibilities exist, to be related negatively or positively. A negative relationship is more complicated than the positive one. Unfortunately, this relationship does not lead us to any conclusion concerning the direction of the effect, that is, if dividend policy affects negatively the investment policy or vice-versa. To the contrary, a positive relationship is an indication that managements foresee a prosperous future, however, they increase both dividend payments and investment expenditures. The question which arises as far as this relationship is concerned is how does the firm manage to increase both? Does it resort to the capital market or these expenses are small so that the internal funds are adequate? If the former is the case then the Modigliani-Miller theorem is valid, if the latter, then idle funds are kept within the firm for future purposes, but anyway, this situation seems to be more similar to the independent case.

4.3.6 Test-Basic Results

We assume that firms follow a dividend policy which is described by our generalized Lintner's partial adjument model which is extended to include investment considerations. At the same time firms

follow an investment policy which is described by a joint capital stock adjustment and profit model which has been also extended to include dividend considerations.

Dealing with investment model we established two alternative models, the one left our debt considerations whereas the other includes these. However, we test two different simultaneous equation models, that is,

Model 1

$$D_t = \alpha_0 + \alpha_1 P_t + \alpha_2 \theta_t + \alpha_3 DEP_t + \alpha_4 D_{t-1} + \alpha_5 \hat{I}_t + u_t$$

$$I_t = \beta_0 - \beta_1 K_{t-1} + \beta_2 RE_t + \beta_3 Y_t + \beta_4 \hat{D}_t + u_t$$

and,

Model 2

$$D_t = \alpha_0 + \alpha_1 P_t + \alpha_2 \theta_t + \alpha_3 DEP_t + \alpha_4 D_{t-1} + \alpha_5 \hat{I}_t + u_t$$

$$I_t = \beta_0 - \beta_1 K_{t-1} + \beta_2 RE_t + \beta_3 DEB_t + \beta_4 Y_t + \beta_5 \hat{D}_t + u_t$$

Since all the above equations are over-identified, the case in our model is that of over-identified, and indeed the general rule in realistic econometric models is heavy over-identified (KLEIN). Therefore, the appropriate method for estimating these is the two-stage least squares procedure.

Tables (4.6) and (4.7) represent the results obtained from these models. From table (4.6) we see that the Lintner model with investment and without investment fits quite well. The t-statistics and the D - W statistics in both, show that the coefficients are significantly different than zero and the absence of autocorrelation in the error terms. The investment coefficient is positive and very small. This is in accord with our previous explanation that in prosperous years the managements increase both dividend payments and investment expenditures. In addition, this finding is in accord with the Modigliani-Miller theorem. From the second part of the same table we see that the introduction of the dividend variable did not change the performance of the model but the dividend coefficient is negative and very small. However, the t-statistics is very small and this dictat-

T A B L E   4.6

Interdependence Between Investment and Dividend Decisions.

$$D_t = \alpha_o + \alpha_1 P_t + \alpha_2 \theta + \alpha_3 DEP_t + \alpha_4 D_{t-1} + \alpha_5 \hat{I}_t + u_t$$

$$I_t = \beta_o - \beta_1 K_{t-1} + \beta_2 RE_t + \beta_3 Y_t + \beta_4 \hat{D}_t + u_t$$

	Dividend Model		Investment Model	
	Without $\hat{I}$	With $\hat{I}$	Without $\hat{D}$	With $\hat{D}$
Coefficients				
α_o	995.27	2,643,26	β_o -4,561.90	-6,791,39
	(2.75)	(3.00)	(-2.22)	(2.25)
α_1	0.34	0.38	β_1 -0.19	-0.27
	(5.16)	(5.83)	(-1.53)	(1.75)
α_2	0.01	0.02	β_2 0.70	0.99
	(3.04)	(3.08)	(1.94)	(2.03)
α_3	0.11	0.20	β_3 0.35	0.44
	(2.73)	(5.42)	(3.10)	(2.87)
α_4	0.47	0.30	β_4 -	-0.07
	(3.04)	(2.70)	-	(-0.88)
α_5	-	0.02		
		(2.08)		
R^2	0.99	0.90	0.87	0.87
D.W	2.14	2.20	1.94	1.98

es us to accept the hypothesis that this coefficient is equal to zero, that is, that dividend policy does not affect investment policy. Therefore, the results obtained from model 1 say that there is a very weak relationship between investment and dividend decisions, which has the direction from investment to dividend and this allows us to conclude that dividend and investment decisions are almost independent. We proceed now to see the second model.

From the first part of table 4.7 we see that the introduction of investment variable in our dividend model made the t-statistics for the lagged dividend variable and the investment variable very small which implies that this model without the investment variable performs better rather than with it. At the same time the introduction of dividend variable in the investment model make the performance of this model unsatisfactory. That is, the DEB coefficient lost its significance and the dividend coefficient is not significant different than zero.

From the above tables we see that the inclusion of the investment and dividend variables into the previous well established generalized Linter partial adjustment model and the use of 2 SLS technique doesnot provide us with a better explanation of dividend and investment decisions than the single-equations models.

These results suggest that there is no interdependence between dividend and investment decisions. This may be due to the fact that the Greek banking system plus the public financial institutions function well enough for external funds to be a perfect or nearly perfect substitute for internal funds. This, of course, does not imply that investment and dividend decisions are not taken together by the Greek management. We should emphasize that simultaneity does not necessarily imply interdependence. If the firms are able to borrow the necessary amount of funds to supplement their internal funds for financing investment programmes and distributing the desired amount of dividends then the two decisions are independent. Our results differ from these obtained by Dhrymes and Kurz. At least two reasons may explain this difference. First, the different financial circumstances between the two countries (Greece and U.S.A) and second, they argue that their results apply to a modern corporation which is a complex

TABLE 4.7

Interdependence Between Investment and Dividend Decisions				

Model 2

$$D_t = \alpha_o + \alpha_1 P_t + \alpha_2 \theta + \alpha_3 DEP_t + \alpha_4 D_{t-1} + \alpha_5 \hat{I}_t + u_t$$

$$I_t = \beta_o - \beta_1 K_{t-1} + \beta_2 RE_t + \beta_3 DEB_t + \beta_4 Y_t + \beta_5 \hat{D}_t + u_t$$

	Dividend Model		Investment Model	
	Without $\hat{I}$	With $\hat{I}$	Without $\hat{D}$	With $\hat{D}$
Coefficients				
α_o	995.27	2,036.75	β_o -4,795.45	-5,170.71
	(2.75)	(2.28)	(-2.24)	(-1.82)
α_1	0.34	0.29	β_1 -0.42	-0.42
	(5.16)	(3.67)	(-2.10)	(-2.11)
α_2	0.01	0.02	β_2 0.80	0.86
	(3.04)	(2.36)	(2.26)	(1.95)
α_3	0.11	0.22	β_3 0.12	0.11
	(2.73)	(4.05)	(1.43)	(1.16)
α_4	0.47	0.16	β_4 0.41	0.43
	(3.04)	(0.70)	(3.54)	(1.95)
α_5	-	0.01	β_5 -	-0.23
		(1.04)		(0.26)
R^2	0.99	0.99	0.89	0.90
D.W	2.14	2.90	1.98	2.24

organization with a considerable degree of decentralization, where-
as we deal with a corporation whose ^the main characteristic is the strong
relationship between ownership and control.

4.4 INVESTMENT ALLOWANCES INCENTIVES

4.4.1 Introduction

So far we have examined the effect of taxation on investment
through the availability of funds. Now we proceed to test the effect
of taxation on investment expenditures through the cost of capital.
Taxation reducing the cost of capital increases the profitability of
investment projects, therefore, it makes these more attractive. This
makes a government which follows such a policy to expect to stimulate
investment expenditures.

In the previous chapter we saw that Greek authorities used
generous depreciation and investment provisions as a means of stimu-
lating investment. In fact, as we saw there, investment expenditures
were satisfactory during the period under consideration. The question
arises whether these investment has as stimulant taxation provisions
and if so to what extent-or other factors were more significant in
making investment decisions than tax provisions. To discuss this ques-
tion we need to relate our policy instrument, which in question is
tax saving, to the desired level of capital stock. That is, we should
examine how a change in the cost of capital, coming from tax provi-
sions, affects the level of desired capital stock. Jorgenson's invest-
ment model provides us with a convenient devise to study investment
behaviour taking into consideration the cost of capital, tax provisions
and the price of capital goods. This model relates investment behav-
iour to profit maximizing considerations whereas the other investment
models have a more or less intuitive justification or they do not pay
much attention on the factors mentioned above. In addition, as we
mentioned earlier, the objective of the Greek firm is to maximize pro-
fits.

4.4.2 The Desired Capital Stock

Each investment theory provides us with a different specification of the desired capital stock. This is due to the fact that each researcher puts in the mind of the management a different motive which implies that the various factors which may affect investment decisions have a different weight.

The neoclassical theory of investment behaviour developed by Jorgenson assumes that the desired level of capital stock is proportional to the value of current output deflated by the price index of capital good, that is,

$$K_t^* = \mu^\sigma \left[\frac{P_t}{C_t}\right]^\sigma Q + u_t \qquad (4.17)$$

where, K_t^* is the desired capital stock, σ is the elasticity of substitution between labour and capital, C_t is the user cost of capital, P_t is the price of produce, Q_t is output and μ is the coefficient of capital in the production function. Jorgenson assumes a Cobb-Douglas production function which implies that σ is equal to one and μ is the production function elasticity of output with respect to capital.

The user cost of capital depends on the price of the capital good q, the rate of depreciation δ, the rate of interest r and the various tax and depreciation allowances related to capital goods. In the absence of taxation, the user cost of capital is equal to $C = r q + \delta q = q (r + \delta)$. We introduce now taxation in the picture. This enables government changing tax parameter to affect the cost of capital and through that investment decisions. If tc is the rate of corporate tax and tcA is the present value of saving allowed for tax purpose the standard neoclassical formula of the cost of capital is modified to,

$$C = \frac{q(r + \sigma)(1 - tcA)}{(1 - tc)} \qquad (4.18)$$

The assumptions of Cobb-Douglas technology, capital malleability and a perfect capital market have been critized in the literature (Arrow, Tobin, Eisner and Nadiri, Feldstein and Flemming). Particularly, it has been said, that the optimal investment decision without the capital malleability and perfect capital market assumptions

is no longer myopic. The relaxation of these assumptions would allow the future value of output, of tax and depreciation rates, of capital and product and of interest rate to be taken into consideration making investment decisions.

We modify the definition of the user cost to be less restrictive, permitting any element of user cost to have a different weight upon that. However, we assume that the user cost is defined as follows:

$$\frac{C}{P} = \left[\frac{q}{p}\right]^{\beta_1} (r + \delta)^{\beta_2} (1 - t_c A)^{\beta_3} (1 - t_c)^{\beta_4} \tag{4.19}$$

This general formation allows $\beta's$ to differ from unity which implies that the user cost responds differently to any of its components.

To complete our investment model we need the other two familiar components, that is, the stock adjustment mechanism and the replacement investment function. We also assume that a partial stock adjustment mechanism as we did in the previous section, that is,

$$K_t - K_{t-1} = \gamma(K^*_t - K_{t-1}) \tag{4.20}$$

and the replacement investment function,

$$K_t = I_t + (1 - \delta) K_{t-1} \tag{4.21}$$

From equations (4.17), (4.19), (4.20) and (4.21) we obtain the final equation to be estimated:

$$\frac{I_t + (\gamma - \delta) K_{t-1}}{Q} = \gamma \mu^\sigma \left(\frac{q_t}{p_t}\right)^{-\sigma \beta_1} (r+\delta)^{-\sigma \beta_2} \tag{4.22}$$

or in the log form:

$$(1-tcA)^{-\sigma \beta_3} (1-tc)^{\sigma \beta_4} V_t$$

$$Log \frac{I_t + (\gamma - \delta) Kt - 1}{Q} = log\sigma\gamma\mu - \sigma\beta_1 log\left(\frac{q_t}{p_t}\right) - \sigma\beta_2 log(r+\delta)$$

$$- \sigma\beta_3 (1-tcA) + \sigma\beta_4 log(1-tc) + logV_t \tag{4.23}$$

4.4.3 Data

The new variables which are included in equation (4.22) are gross investment, the wholesale price index p_t and the interest

rate r. The other variables have been discussed in the previous sections. Gross investment corresponds to these investment which made after the introduction of investment incentives discussed in the previous chapter, that is, they include both qualifying and non-qualifying investment. These figures are not published but they were provided to us by the Greek Ministry of Finance.

The wholesale price index is the one constructed by the National Statistics Service of Greece. The interest rate is the weighted average of the long-term debt interest rate and that for working capital. This accords to our previous view that Greek firms use short-term borrowing for financing investment programmes and they renew every 4-7 months. The data wete received from the monthly bulletin published by the bank of Greece.

4.4.4 Estimation - Results

We estimated equation (4.23) adopting two different values for $(\gamma - \delta)$ i.e. we put it equal to .20 and .50 and three methods were used, the OLS, CORC and GLS. The results appear in table 4.8.

From this table it seems that our model fits the data satisfactorily. The R^2 is high although we did not expect higher since cost and output considerations are not the only factors which are taken into consideration, making investment decisions as we saw in the previous section. The t-statistics are in the most cases significant. The value of D - W statistics lies in the "indecisive" range and so we cannot say much about the presence or absence of positive serial correlation in the errors. The model with $(\gamma - \delta)$ equal to .50 seems to fit better since R^2 and t-statistics are better than the corresponding with $(\gamma - \delta)$ equal to .20. We will discuss then the results obtained from the former model.

Our main interest lies on the coefficient of tax factors, that is, (1 - tcA) and (1 - tc). The first, provides the effect of tax provisions upon investment expenditures whereas the latter the effect of tax rate upon these expenditures. Since our final equation in log-linear these coefficients are explained as the elasticities of investment expenditures with respect to these factors. The elasticity with

T A B L E   4.8

Investment Allowances Tax Incentives.						

$$\text{Eq.4.23: } \log\frac{I_t + (\gamma-\delta)K_{t-1}}{Q} = \log\gamma\sigma\mu - \sigma\beta_1\log\left(\frac{q_t}{P_t}\right) - \sigma\beta_2\log(r+\delta) - \sigma\beta_3(1-tcA) + \sigma\beta_4\log(1-tc) + \log v_t$$

Coefficients	Model 1: $(\gamma - \delta) = .20$			Model 2: $(\gamma - \delta) = .50$		
	OLS	CORC	GLS	OLS	CORC	GLS
$\log\gamma\sigma\mu$	6.34	5.58	6.44	7.97	8.96	8.21
	(1.68)	(1.38)	(1.59)	(2.54)	(2.72)	(2.52)
$\sigma\beta_1$	0.72	0.94	0.72	1.32	1.60	1.37
	(1.17)	(1.75)	(1.17)	(1.67)	(2.14)	(1.74)
$\sigma\beta_2$	2.30	2.03	2.33	2.84	3.09	2.95
	(2.17)	(1.77)	(2.04)	(3.30)	(3.40)	(3.36)
$\sigma\beta_3$	0.80	1.00	0.79	1.49	1.76	1.41
	(1.27)	(1.83)	(1.26)	(1.80)	(2.22)	(1.77)
$\sigma\beta_4$	5.05	4.52	5.14	4.42	5.35	4.57
	(1.49)	(1.50)	(1.42)	(1.50)	(1.75)	(1.58)
R^2	0.69	0.70	0.73	0.82	0.83	0.82
DW	2.61	1.76	2.66	2.38	2.17	2.72

	1.32	1.97	1.32	1.97	1.32	1.97
β_1	1.00	0.67	1.21	0.81	1.03	0.69
β_2	2.15	1.44	2.34	1.56	2.23	1.49
β_3	1.12	0.75	1.33	0.89	1.06	0.71
β_4	3.34	2.24	4.05	2.71	3.46	2.31

respect to tax saving receives values in the range between - 1.41 and
-1.76. These numbers are the product of $\sigma\beta_3$. If σ is equal to one,
the neoclassical case, the value of β_3 remains in the range - 1.41
and - 1.76, that is, they remain high. If σ is higher than one, then
the value of β_3 is lower. The latter case seems more plausible and
conforms with Lianos' findings that the elasticity of substitution in
the Greek manufacturing ranges between 1.32 and 1.97. The low part of
table 8 shows the values of β_1 s for these values of σ. However, some
additional reasons may explain these high values. First, because in
our definition of gross investment we did not only incorporate quali-
fied investment but realized investment under the tax incentive schemes.
Second, the small number of observations, twelve, may cause the value
of the elasticities to be so high. Concluding, we could argue that
despite all these considerations it is reasonable to say that invest-
ment incentives had a significant effect upon investment expenditures.
We could also add to these conclusions that the relaxation of the
assumption that the various components of the desired capital stock
affect it differently, gave us different coefficients for these fac-
tors which may reflect suboptimal behaviour by firms (M. Feldstein and
J. Flemming, 1971).

The neoclassical model presumes perfect rationality on the part of
firms. However, the possibility of suboptimal behaviour of the Greek
firms due to the lack of financial expertise in the family owned and
managed firms induces us to test further whether in making investment
decisions the Greek corporations appear to act in a fully rational way
in considerations of the incidence of CIT. We test the rationality
of the investment decision in this regard by introducing three measures
of cost of capital to the firm on the assumptions that 100 per cent, 70
and 30 per cent respectively of the true incidence of CIT are incor-
porated into the firm's calculations. We introduce these considerations
in our analysis through the variables (1 - tcA) and (1 - tc). If b
represents the fraction the CIT which the firm incorporates into its
calculations then these forms are modified to $1 - btcA$ and $1 - btc$
correspondingly. As b is reduced below unity the values of btcA and
btc are reduced which means that tax savings are underestimated by the
firms.

T A B L E 4.9

Investment Allowances Tax Incentives Under Various Degrees of Rationality

Eq. 423:

$$\log \frac{I_t + (\gamma-\delta)K_{t-1}}{Q} = \log\sigma\gamma\mu - \sigma\beta_1\log(\frac{q}{P}) - \sigma\beta_2\log(r+\delta) - \sigma\beta_3(1-tcA)$$

$$+ \sigma\beta_4\log(1-tc) + \log v_t$$

	Degree of Rationality		
	Unity	70 per cent	30 per cent
Coefficients			
$\log \gamma\sigma\mu$	8.96	2.09	5.22
	(2.72)	(1.79)	(1.59)
$\sigma\beta_1$	1.60	0.24	0.51
	(2.14)	(0.67)	(0.72)
$\sigma\beta_2$	3.09	1.23	2.22
	(3.40)	(3.73)	(2.19)
$\sigma\beta_3$	1.76	0.59	1.05
	(2.22)	(0.96)	(6.70)
$\sigma\beta_4$	5.35	0.91	5.31
	(1.75)	(0.41)	(0.58)
R^2	0.83	.80	0.77
DW	2.17	2.25	1.77

Table 4.9 shows the results obtained under these three hypotheses.
We see that statistically the best fit measure of the cost of capital
for the explanation of investment is given by the case where b = 1
i.e. where the firm makes full allowance for the savings from CIT.
Therefore, we may conclude that since the provision of the tax incen-
tives stimulates investment expenditures and is not weakened by inadequate
rationality in the estimation of the cost of capital of the firm the
Greek authorities may follow a tax incentive policy for stimulating
investment expenditures.

4.5 CONCLUSIONS

An empirical test of tax discriminatory policy between retention
and dividend showed that such a policy is non existent in Greece.
The small margin of the tax discriminatory variable from one had a
negligible effect upon the appropriation of profits.   Therefore, the
question whether such a policy would be effective or not in Greece
remains open.   This allows the Greek authorities, if they wish it, to
experiment with this kind of policy as a policy instrument.   Retained
profits seem to have a positive effect upon investment decisions.
Dealing with the question of dividend and investment decisions we
found that single equation models perform better than simultaneous equa-
ion model which support the hypothesis that there is no interdependence
between dividend and investment decisions.

Having in mind all the reservations as far as the test of the
effectiveness of tax incentives are concerned, our findings allow us
to accept that they have a positive contribution upon investment
decisions.

Finally, we used two ways to test the incidence and shifting
hypothesis of the CIT in Greece.   The dividend equation did not lead
us to any conclusion.   This may be explained by the form of corporate
tax system in Greece, that is, the tax is levied only on retained
profits and the insignificant effect of tax discriminatory variable
upon dividend behaviour.

So far, we have discussed the Greek CIT system both from theo-
retical and empirical points of view.   We proceed now to discuss the
need to harmonize corporate taxes within an integrated area such as
the European Community.

APPENDIX TO CHAPTER FOUR

AN ECONOMETRIC FRAMEWORK OF DYNAMIC EQUATIONS

It is very common in Economics the presence of distributed lagged or autoregressive models. The former take the form:

$$Y_t = \alpha_o + \alpha_1 X_t + \alpha_2 X_{t-1} + \ldots + u_t \tag{1}$$

whereas the latter,

$$Y_t = \beta_o + \beta_1 X_t + \beta_2 Y_{t-1} + u_t \tag{2}$$

Economic theory is not very helpful in constructing these models. However, there is no unique prior specification of these models. This induces the researcher in an ad hoc specification of a dynamic model. The researcher needs to know two things before constructing a dynamic model. First; what determines the optimum value of the dependent variable and second, how does the economy or the firm or the individual adjusts from the actual value of the dependent variable to its optimum value.

Specification of a Dynamic Model

The behaviour of the economic units determine what factors should be taken into account in order to determine the optimum value $Y*$. The various lags structures which are investigated should have strong priori backing and should be considered and compared by R^2 statistics (Griliches). Unfortunately, we cannot really expect any precise and firm indication from the theory of the type of lag to be incorporated rather the researcher hopes to determine the lag from the data by first fitting a fairly long lag and using as its guide the significant of the coefficients of lagged vallues of the explanatory variables (Johnston, p.293).

A distributed lag model such as the one presented in equation(1) creates three types of problems. First; the great number of explanatory variables reduces the degree of freedom, second, there is a high degree of multicollinearity between the explanatory variables which lead to inaccurate estimates of the a's and finally, we should estimate too many parameters.

The Koyck method assuming a rigid relationship among the coefficient of the explanatory variables was the first step in alleviating these difficulties. This method through a number of calculation transforms equation (1) into equation (2). That is, we move from a distributed lagged model to an autoregressive one. However, the rigid assumption of the Koyck transformation made econometricians to look for a more flexible model. These efforts resulted in two developments of the Koyck transformation. The partial-adjustment and the adaptive-expectation models were introduced as a means of improving this model adopting different behavioural assumptions.

The partial-adjustment model assumes that the actual change of the dependent variable is only a fraction of the desired change, this will lead to a final equation which has the form:

$$Y_t = \lambda \gamma_o + \lambda \gamma_1 X_t + (1-\lambda) Y_{t-1} + \lambda u_t \qquad (3)$$

where   is the adjustment coefficient.

The second development of the Koyck model is related to the adaptive expectations model. The latter is based on the familiar way of formating expectations for the future based on the past behaviour of the variables. The expectations are revised based on the most recent error. These assumptions lead to a final equation almost similar to that of partial adjustment model. The difference between them lies in the different interpretation of the coefficient and the error term:

$$Y_t = \lambda \delta_o + \lambda \delta_1 X_t + (1-\lambda) Y_{t-1} + \{u_t - (1-\lambda) U_t\} \qquad (4)$$

Both these methods resulted in an autoregressive model whose estimation problems will be discussed in the next section.

Estimation of the Autoregressive Models

Suppose that an autoregressive model takes the form of equation (2). It has been argued that classical least squares may not be directly applicable to this model for two reasons. First, because the presence of the stochastic explanatory variable Y_{t-1} and second because the possibility of serial correlation. For these two reasons the appli-

cation of ordinary least squares provides bias and inconsistent estimators of the coefficients of the explanatory variables.

One of the basic assumptions of a regression model is that the explanatory variables to be non-stochastic variables. In our case one of the explanatory variables (D_{t-1}) is dependent lagged variable, which cannot be considered as nonstochastic variable. Therefore, the presence of the logged dependent variable violates one basic assumption of the regression model. If we assume that there is no serial correlation in the disturbance term then there is no correlation between u_t and Y_{t-1} either since u_t is independent on previous values of u and Y_{t-1} is also independent on previous values of u they are independent between them. This guarantees that our estimates of β_2 are consistent. If the latter are unbiased as well as it is a matter of the size of the sample. If it is large then our estimators are also unbiased but if it is small then the estimators are biased. This bias may be also reduced as more exogenous variables are included in the model.

Suppose now that the disturbance term is serially correlated. Since u_t is correlated with u_{t-1} and u_{t-1} is correlated to Y_{t-1} then the latter and the u_t are correlated. This violates another basic assumption of the regression model which requires that the explanatory variables and the error term should not be correlated. The application then of the ordinary least squares leads to inconsistent estimators.

Griliches has shown that in these models the D - W test is invalid and the estimated autocorrelation coefficient is substantially biased towards to 2. Durbin has developed a test for autocorrelated disturbances which is applicable to this kind of model. Unfortunately, this test holds only for large samples. The relevant test statistics is,

$$h = \hat{\rho}\sqrt{\frac{N}{1-N\hat{v}(\beta_2)}}$$

where $\hat{\rho}$ is an estimate of the parameter ρ in the first order scheme $u_t = \rho u_{t-1} + \epsilon_i$, N is the number of observations $\hat{v}(\hat{\beta_2})$ is an estimate of the sampling variance of $\hat{\beta_2}$, the OLS estimate of the coefficient Y_{t-1} .

Finally, the various approaches which have been suggested to removing autocorrelated disturbances are dismissed in the main body of the thesis.

CHAPTER FIVE

CORPORATE TAX HARMONIZATION WITHIN THE E.E.C.

5.1 INTRODUCTION

Each tax structure, mainly, reflects domestic policy issues.
This structure is a product of national history and national
idiosyncrasy. The morphology of the economy, the level of econ-
omic development, the political climate and social aspects de-
termine the structure of the tax system. Divergencies on these
matters cause the pattern of taxation to differ from country to
country.

But during the last decades the interest on taxation has been
extended in an international level. The reason why such an in-
terest has appeared is the gradually increasing economic inter-
dependence between nations. This interdependence resulted from
a variety of circumstances such as the increasing movement of
goods and services, and the increasing movement of factors of
production, mainly, capital through direct investment abroad,
which made national economies more open to each other. The
more open the national economy becomes the less effective national
instruments of economic policy become, since policy adopted for
domestic purposes may have a direct and significant effect on
other countries. Therefore, given this economic interdependence,
government activities based only on domestic considerations
may result in inefficiencies and inequities in an international
level. Then, the presumed recipe for curing this situation is
co-ordination of national policies between the nations. The
aim of such co-ordination is to reduce differences in policies
between nations.

The task of such co-ordination is not simple. In such a
second best world where the national and the international in-
terest may contradict each other it is very difficult to estab-
lish simple and definite rules. The need of a supernational

government or organisation is obvious, to undertake the respon-
sibility of determining common rules regarding economic policy
issues, which should be followed by each national government.
Chapter two showed that unilateral or even bilateral actions
are inadequate for alleviating distortions coming from inter-
national taxation. This raises the problem of co-ordination
on a multilateral basis. This task has been undertaken by the
O.E.C.D. and the E.E.C. The former organisation suggested a
treaty model in 1963 which has been recently reviewed (O.E.C.D.
1976). This model has been used as a prototype in establishing
some treaties between countries . At the same time the E.E.C
attempts to achieve the same goal by harmonizing the national
taxation systems of its member states.

5.2 TAX HARMONIZATION

The co-ordination of national policies may take two forms,
either the form of harmonization or the extreme case of equal-
ization. The latter form of co-ordination involves a complete
amalgamation, for example in the case of taxation, of the
different tax systems in one. This approach not only is im-
practical, at least as a first attempt, due to the great diver-
gencies in tax policies between the nations but it may be consid-
ered as undesirable as well. Despite the fact that this approach
is theoretically superior to the harmonization approach, prac-
tically in the Musgrave's words "the baby is lost with the bath
water" (R.Musgrave, 1969). On the other hand, the concept of
harmonization aims not to make all the tax systems identical
rather to bring them in harmony. However, the harmonization
approach, that is, the consolidation of different tax structures,
seems to be a more challenging view.

Harmonization in general and tax harmonization in partic-
ular can be distinguished in two kinds, the vertical and the
horizontal. Under the concept of vertical tax harmonization we
mean the harmonization of tax systems of government which be-
long to different levels. For example, this is the case in a
federal system where the purpose of tax harmonization is to

bring in harmony the taxation systems of federal, state and local governments. On the other hand, under the concept of horizontal harmonisation we put in harmony tax systems of various governments which belong to the same level, that is, of various nations. The latter concept of harmonization is relative to our study. However some basic problems are common in both kinds of harmonization, which means that some gains may be obtained from the experience of the federal system in that area.

Concluding, we would argue that tax harmonization involves a comprehensive systematic adjustment of the tax of the national governments in an integrated area with a view to achieving certain well defined objectives, such as minimization of distortions in resource allocation, stabilization of price level and reduction of interregional inequalities of income.

5.3 ECONOMIC INTEGRATION AND TAX HARMONIZATION

Different views as to the exact meaning of economic integration have appeared in the literature. Integration, in the Rome Treaty's words, means "establishing a common market and progressively approximating the economic policies of member states" (E.E.C. 1958article 2).In our words, integration means the state that allows different economic units (governments) to alleviate economic distortions originated through their economic interdependence described in the introduction of this chapter. Therefore, tax harmonization is one of the intruments which may be used to achieve this goal. In particular, the aim of tax harmonization is twofold; First, of ensuring the free movement of factors of production and second, of ensuring undistorted competition within the integrated community.

In a process of economic integration four stages may be distinguished. The establishment of a free-trade area between several nations constitutes the first state or the simplest form of economic integration.

There are no tariffs barriers between these countries on the movement of goods. If the countries in question agree to follow a common external tariff policy on goods from outside

the free trade area countries they constitute a custom union.
That is, a custom union has the additional characteristic that
it goes one step further than the free-trade area.

The next stage in the process ensures the free movement of
factors of production. At that stage the countries in question
constitute a common market. According to article 3 of the Treaty
of Rome, common market means the free movement of goods and ser-
vices, persons and capital, a common external tariff and undis-
torted competition within the community. The aspiration of the
Rome Treaty's writers did not stop here. They went beyond through
article 3 to explain that approximation of economic policies means
a common commercial policy, a common agricultural policy, a com-
mon transport policy and co-ordination of the remaining aspects
of economic policy in the member states. This expresses their
desire to create an economic union. Therefore, tax harmonization
is considered as a vital instrument in achieving this objective.
It is particularly necessary in the context of a common indus-
trial, stabilization and regional policy. Tax policy has to
play a role in all these contexts, through two channels;
either by avoiding tax obstacles, double taxation etc. or by
taking positive actions to implement one of the other common
policies (H. Simonet, 1975).

5.4 TAX HARMONIZATION WITHIN THE E.E.C.

5.4.1 OBJECTIVES

Two of the objectives of the E.E.C. treaty are first, the
removal of barriers to the free movement of goods and services
and factors of production and second, the achievement of the
same conditions for competition between the member states as far
as fiscal considerations are concerned. Therefore, the interest
in tax harmonization stems from these considerations. The treaty
itself does not provide guidance regarding policy formulation
in the field of taxation. This task was left to be done by
committees. Particularly, as far as the various kinds of tax-
ation concerned the treaty puts different emphasis.

It explicitly calls for harmonization of the indirect taxes
whereas it does so only implicitly for the direct taxes through
the general call for approximation of laws. This point has been
criticized in the literature. In our opinion this treatment of
taxation is consistent from two points of view. First, it is
apparent that it is not necessary to harmonize all the taxes to
the same degree and second, tax harmonization, as we defined it,
does not require the creation of identical tax systems in all
member countries.

The interest in indirect taxation was indicated at a very
early stage in the Tinbergen report. Article 99 of the treaty
explicitly expresses the E.E.C.'s intention for indirect tax
harmonization. It is accepted by the community that this kind
of tax directly enters in the price of goods which involves
that national differences in these taxes distort competition and
the choice of industry location within the community. There-
fore the desire to promote the free movement of goods and
services requires the harmonization of indirect taxes. But, if
we take into account the increasing belief that at least part of the
corporate taxation is shifted forward through higher prices we have
similar effects on international trade as in the case of indirect
taxes. The supporters of this view ask for reconsideration of the
GATT rules to allow the kinds of rebates for CIT that are allowed for
indirect taxes. On the other hand, those who oppose this view argue
that the CIT is not shifted since international competition limits
the ability of the firm to shift the CIT (P. Musgrave, 1969, D Dosser,
1975). This argument draws attention to the fact that most of the
well known studies of corporate tax incidence implicitly assume closed
economy conditions. The reason for this may be that they tend to be
carried out by authors in the U.S., where foreign trade is less
important than in European countries. However, if international con-
siderations such as foreign trade, the distinction between tradable and
non-tradable goods and the form of the exchange rate regime are taken
into account the situation changes. Suppose that we have a fixed
exchange rate regime. The CIT may be passed forwards on the price of
non-tradable goods. However, in the case of tradable goods the CIT

cannot be shifted forwards. So either it is borne by the firm or it is shifted backwards via a cut in the real wage rate or the real return to shareholders. Under a flexible exchange rate regime again in the case of non-tradable goods the CIT may be shifted forwards. In the case of tradable goods, if export prices are raised the balance of trade deteriorates and the exchange rate depreciates, which results in a rise in import prices. Trade unions may then try to restore their standards of living and to the extent that they succeed profits will eventually bear the burden of the CIT. A nominal shifting of the tax may actually result, after a time lag, in the real incidence being borne by the firm. The above considerations will have important implications for Greece when the latter joins the E.E.C. Since, though the European Monetary System at present in operation permits limited fluctuations in exchange rates, the ultimate goal of Economic and Monetary Union, if achieved, would be one of fixed exchange rates. It is not, however, our purpose to investigate in detail the inter-national ramifications of tax shifting in the present study. In addition to that they point out the administrative difficulties that would be involved if border adjustments were made. Irrespective of these views the community has not indicated intention to deal with this matter so far.

On the other hand, articles 100-102 give an implicit or by implication appeal of the community for direct tax harmonization. The harmonization of direct taxes is necessary for two reasons. First, as the harmonization of indirect taxes aimed to ensure

the free movement of goods and services so the harmonization of
direct taxes is necessary to ensure the free movement of factors
of production. Second, the harmonization of indirect taxes may
involve reconsideration of the relationship between direct
taxes and indirect taxes. Within the field of direct taxes more
emphasis is given on taxes on capital. The free movement of
capital has two aspects. First, capital should flow free with-
out any tax obstacles to generate profits and second, dividend
paid out of these profits to flow without any tax impediment.
We have seen that the co-existence of CIT and personal income
tax creates some problems.Therefore, the goal of free dividend
flow indirectly calls for harmonization of personal income tax
as a means of facilitating the achievement of free capital move-
ment.

Finally, article 220 calls for elimination of international
double taxation whereas article 51 calls for a common social
insurance contribution policy.

5.4.2 THE ACHIEVEMENTS OF THE COMMUNITY

In modern history, the first imposition of a supernational
tax by a supernational body took place by the High Authority of
the European Coal and Steel Community, in 1952. Within the
E.E.C. the first step towards true international tax law is the
adoption of the two E.E.C directives concerning harmonization
of turnover tax legislation in 1967 (E.E.C. 1969).

We will judge the achievements of the community within the
spirit of given definition of integration as the state which
allows the alleviation of distortions generated through the
economic interdependence between the nations. The community is
in a process of alleviating distortions following a predetermined
procedure according to the weights given in different fields.
The community seems to give priority on distortions generated
by trade and tariffs impediments, indirect taxes and finally
direct taxes. This does not mean that the community does not
work in different fields at the same time. It started with the
introduction of a common tariff policy, a process which was

completed in 1967. The reduction of tariffs on trade through
various agreements revealed the significance of non-tariffs
distortions of international competition. Among these a
prominant position is held by distortions caused by taxation.
These distortions appear in the form of introducing various mea-
sures for domestic policy considerations such as import barriers
or incentives given to various industries.

The harmonization of indirect taxes is the second in the
list of priorities. This preference may be explained by two
reasons. First, commodity flow is more extensive than factors
of production flow between countries and second, it would serve
little purpose to remove tariffs barriers to trade if the tax
obstacles presented by the indirect taxes were to remain.

A process of indirect taxes harmonization consists of three
stages. First, the introduction, of a common form of indirect
taxation, second, the establishment of a common basis upon which
the tax is levied and finally, the rate or rates which should be
applied on this basis. The community by the two directives in
1967, mentioned earlier, required the member states to substi-
tute a value added tax for the existing general sales taxes by
January 1st 1970. This process was finally completed in 1973,
and now the community has as a common sales tax the V.A.T.
Recently, the sixth directive was adopted by the member states
which concerns a uniform basis of assessment for V.A.T. (R.Burke,
1979). The purpose of this directive was twofold. First, it
constitutes a further step in the process of V.A.T. harmonization
and second, to provide a basis for the financing of the community
budget. What remains to be done in this area is concerned with the
harmonization of the V.A.T. rate. The commission has commenced
work on this area and the main thinking is to decide if there
will be one or more rates and which items will come within each
rate band (Burke, 1979).

We discussed in the previous section the two reasons which
call for harmonization of direct taxes. The progress which has
been done in that field so far is even less significant than

that achieved in the area of indirect taxes harmonization. One explanation for this is the greater difficulties in harmonizing this kind of tax. It is widely accepted within the community that this task is left to be done by a covergence process rather than via directives from the Commission. This process involves the national reforms of the tax systems which tend towards a European norm. This process is called autonomous or induced harmonization (D.Dosser, 1975).

Within the field of direct taxes the interest of the community has concentrated on business taxes. It is not the ambition of the community to harmonize personal income taxation in general at that early stage of integration and prefers to leave it in the hands of the national government as an instrument of national policy. Personal income taxation reflects at a greater degree the national history and national idiosyncrasy which we accepted earlier as the main determinants of a tax structure. However, a proposal concerning a directive in personal income taxation is expected early in 1980 (Intertax 1980). The purpose of this proposal is to identify some obstacles or hindrances which come from taxation of individuals who live in one country and work in another. Particularly, it will deal with tax rates and deductions concerning these individuals. Various considerations call for a priority to be given by the community on business taxes. First, these taxes are levied on a factor of production, capital, which is more mobile than labour. Second, despite the fact that business taxation is not mainly used by the member states as a source of collecting revenue rather as an instrument of acomplishing their industrial, stabilization and regional policies, some experts of taxation would consider this kind of taxes as a source for financing the community budget after the use of V.A.T. for the same purpose. Finally, the uncertainty regarding the shifting and incidence question makes some tax experts wonder if the CIT should be used as a border tax adjustment.

The achievements of the community in the area of direct tax are not very considerable. No activity took place regarding personal income tax and social security contribution. Only ..

one directive concerning direct taxation has been adopted by the council, in December 1978 (European Taxation, 1979). This directive calls for increased co-operation, in particular in the exchange of information, between the tax authority of the member states. In 1966, a committee chaired by Professor Segre examined the obstacles preventing the development of a European Capital Market (E.E.C. 1966). The outcome of this study was the two directives which are concerned with the parent-subsidiary and merger type relationships. As far as the systems of corporate taxation concerned three different proposals were made. The first, early in 1963, by a fiscal and financial committee, the Neumark Committee, proposed the two-rate system as the Common corporate tax system for the member states of the community (Neumark Report, 1963). In 1970, the Van Den Tempel report suggested the classical system (Van den Tempel Report, 1970). Finally, in 1975, "the commission came out in favour of a common imputation system partly releiving the economic double taxation of dividends in spite of the technical problems which the operation of such a system gives rise to an international transactions" (E.E.C. 1975). None of the above mentioned systems has been made the community system yet. The various suggestions in different time periods verify the view that the process of harmonization constitutes an "almost continnual process of rethinking" (C. Sandford, 1978). We proceed now to briefly discuss the above proposals. However, an exception is made regarding the latter proposal concerning the imputation system. We will discuss this proposal in detail because it is our feeling that one variant of that will be the community system. One justification for this feeling is that seven out of the nine member states have already introduced the imputation system.

5.4.3 THE FIRST ACTUAL STEP TOWARDS DIRECT TAX HARMONIZATION

The first actual step towards direct tax harmonization took place on 16th January 1969, when the commission submitted to the council of ministers two draft directives concerning (a) the common system of taxation applicable to mergers, divisions and contributions of assets taking place between corporations of different member states and (b) the common system of taxations applicable to parent corporations and subsidiaries of different member states. Both the directives were intended to remove taxation obstacles to the promotion of rationalization of industry and of development of larger enterprise within the Community. This desire was expressed by the Council in its first programme of short-term economic policy for the community (E.E.C. 1967).

The first directive concerning the taxation treatment of cross frontier mergers seeks to remove tax obstacles involving from transactions between these mergers. When a company within the community absorbs another company within the community but established in another member state, a cost is involved. This cost is the tax liability which results from the difference between the book value of assets of the absorbed company and its market value. The question which arises here is whether these capital gains should be considered as realized at the moment of operation or not. However, an obstacle to such transactions is created because there is no common policy regarding this matter within the member states. It is almost a rule that all the countries treat capital gains preferentially but the commission rejected the idea of extending this preferential treatment to the community level. Instead, it concluded that only a common system applied by all member states would constitute a satisfactory solution. However, the community decided that, in principle, a merger-type transaction should not, as such, give rise to any imposition of tax and only on actual realization would the merged company's assets become taxable by the member state in question.

We discussed in chapter two the problem of inter/

national double taxation created by taxing the income of a sub-
sidiary by the foreign and domestic corporate tax and by levying
a withholding tax on dividend paid by the subsidiary to its parent.
We also discussed how each country unilaterally or through bi-
lateral agreement alleviates international double taxation.
The commission concluded that a common system of taxation of
parent-subsidiary relationships applied in all the member
states is the only satisfactory solution.Therefore, the commis-
sion called for a certain degree of legislature harmonization
making three suggestions. First, it suggested the exemption
from CIT of profits which a parent corporation receives from
its subsidiary, second, the exemption of dividend paid by the
subsidiary to its parent from withholding taxes at the subsid-
iary level. The aim of these proposals was the alleviation of
international double taxation. The third proposal provides the
parent corporation with the possibility to opt for the system of
consolidated profits. The essence of this system is that the par-
ent corporation is entitled to include in its profits and los-
ses those of its subsidiary in proportion to the capital held
by it. It is taken into consideration that subsidiary's profits
have already been taxed at the subsidiary level.

Concluding, the above described directives intended to remove
taxation barriers to the creation of business on a Community
level. The main criticism against these concentrated on the
fact that we're not broad enough to enable consideration of
other aspects of corporate taxation. Neither of these direct-
ives has been approved by the Council of Ministers yet. How-
ever, it is expected that the council will adopt the merger prop-
osal in the current year (1980) (Intertax, 1980). As far as
the parent-subsidiary proposal is concerned it has been included
in the last proposal concerning the harmonization of systems of
company taxations and of withholding taxes on dividends.

5.4.4 HARMONIZATION OF SYSTEMS OF COMPANY TAXATION

5.4.4.1 THE NEUMARK REPORT

In April 1960, the E.E.C. Commission set up a fiscal and

financial committee. The task of the committee was twofold.
First, the discovery of those differences in the national tax
systems of the member states which create economic conditions
in conflict with the proper functioning of the common market.
Second, to propose solutions for eliminating these differencies
which would be in line with the spirit of the treaty of Rome.

The working groups $\overline{IV}$ and $\overline{V}$ of the committee were con-
cerned with direct taxes. Three suggestions were made regard-
ing this kind of taxes. First, all member states should have
a similar corporate income tax structure. As such the committee
suggested the two-rate system. Second, the tax rates should be
equal within the member states. As far as the tax rate on un-
distributed profits is concerned, a basic rate of 50 per cent
was suggested. This rate should not be too different from the
maximum rate of personal tax as a means of preventing business
for which the legal form of a limited liability company would
be the most appropriate choosing another form solely for tax
reasons. Finally, the committee suggested a uniform withhold-
ing tax on individual shareholders with the range of 15 and
25 per cent. The attention of the committee was concentrated
on domestic implications of the proposal whereas international im-
plications appear to have been given little attention.

5.4.4.2 THE VAN DEN TEMPEL REPORT

Some years later the E.E.C Commission published the
van den Temple report in 1970. To the contrary to the Neumark
report this report focuses on international implications of the
alternative systems of company taxation. It provides "a sugges-
tive and pioneering analysis of the international aspects of
alternative systems". The main objective of the report is the
achievement of "equal fiscal treatment", between domestic and for-
eign investors. The test of equal fiscal treatment implies two
aspects. First, capital-export neutrality, that is, the tax
system should be neutral in respect of the investment by resid-
ents in their country or abroad. Second, internation equity,
that is, the tax system does not discriminate between resident
and non-resident investors. Despite the fact that the test of
equal fiscal treatment involves two aspects van den Tempel puts

emphasis only in the second, namely, intercountry equity, by arguing for example, that the integrated systems by providing the dividend relief distort the equality of treatment between resident and non-resident investors. He concludes that the classical system is preferable since the latter has two important properties. First, the achievement of intercountry equity requires less acfions to be achieved under the classical system than the other. Second, the classical system is simple from both domestic and international points of view. The report has been criticized, at least, on two grounds. The large difference between the corporate tax rate and the maximum personal tax rate as suggested by van den Tenpel creates a discrimination against incorporated business, at least, as far as retained earnings are concerned. Second, as we have seen in Chapter two the classical system is blamed that prevents the widening of the stock market.

5.4.4.3. THE LAST PROPOSAL: THE IMPUTATION SYSTEM

In July 1975 the Commission of the European Communities published a proposal for a directive of the Council of Ministers on the harmonisation of the systems of corporate taxation. The Commission suggested an imputation system which in essence is similar to the imputation systems currently employed by most member states of the community but it differs from them on various technical aspects. The purpose of this directive was twofold. First, to provide a standarized system as a guide to the member states to their imputation systems to that and second, to induce the other member states which employ other than imputation systems to introduce the imputation system as a step towards company tax harmonization. We proceed to describe and analyze the provisions of the proposal and finally to compare these with current leglislation and practice in member countries.

5.4.4.4. ARTICLE 1: A CALL FOR A COMMON IMPUTATION SYSTEM

Article 1 calls for a common imputation system. The commission in its explanatory memorandum states that two systems

merit consideration, the classical and the imputation system.
It finally chose the latter in spite of its awareness of the
technical problems which the operation of such a system gives rise
to in international transactions. The choice of the Commission
may be explained by two reasons. First, the Commission favours
the imputation system mainly for domestic reasons and second,
the technical complications in international relations which this
system involves are satisfactorily solved by the proposal. The
Commission states five reasons justifying why come out in fav-
our of this system:

1. neutrality with regard to various forms of
   company financing.

2. neutrality with regard to various legal forms
   of undertaking.

3. fairness of taxation.

4. tax avoidance by persons with large tax lia-
   bilities.

5. Development of the share market.

We do not consider it necessary to develope these arguments
since we have more or less discussed them in Chapter two. How-
ever, the main reasons for the preference of the Commission for
the imputation system is neutrality concerning the methods of
financing and the legal forms of undertaking business and equity
in taxation achieved by alleviating economic double taxation,
by taxing under the progressive personal tax rate a larger amount
of corporate income and by reducing tax avoidance.

Table 5.1 shows in a summary way the main characteristics of
of the tax systems employed by the E.E.C countries. Seven of the
nine member states have already introduced as their national com-
pany tax system the imputation. Only the Netherlands and Luxem-
bourg have the classical system . Budgetary reasons and the ex-
pectancy of a future E.E.C. solution to the tax harmonization
problem have induced these countries to postpone any reform in
their corporate tax systems until the E.E.C has found a uniform
solution. The Netherlands, in particular, started discussing

that reform twenty years ago, when the government proposed to introduce a split rate system.

It is worth mentioning that the German corporate tax system introduced in January, 1977, is not a "pure" imputation system but it combines a split-rate structure with a full credit on distribution for corporate tax paid (European Taxation, 1976b 1976c). However, the introduction of that system by Germany has been characterized as an action not in line with the call of article 1 of the proposal for an imputation system.

TABLE 5.1

TAX SYSTEMS AND RATES IN

THE E.E.C.

COUNTRY	SYSTEM	RATE (S)
Belgium	Imputation	48[1]
Denmark	Imputation	37
France	Imputation	50
Germany	Split-rate Imputation.	56 on retained prof. 36 on distributed.
Ireland	Imputation	45[2]
Italy	Imputation	36.25[3]
Luxembourg	Classical	40[4]
Netherlands	Classical	48[5]
U.K.	Imputation	52[6]

Notes:

1. It applies on income which is higher than 15,000 Bfr.

2. If profits are less than £35,000 the rate varies between 35% - 45%.

3. Local income tax 15% plus CIT 25% of remaining 85% of income.

4. If profits are less than Lfr.1,312,000 the rate varies between 20% - 40%.

5. Up to 40,000 Dfl the rate is equal to 45% from 40,001 to 50,000 is 60%.

6. If income is less than £50,000 lower rates apply.

5.4.4.5 ARTICLE 3: A SINGLE RATE OF CORPORATE INCOME TAX

Article 3 proceeds to determine the characteristics of the imputation system. It requires that each member state should apply a single rate of CIT, called normal rate, to profits irrespective of whether they are distributed or not. This normal rate should not be lower than 45 per cent or higher than 55 per cent. The member states are provided with the possibility of applying a different rate than the normal for a limited period in particular cases and for well defined reasons of economic, regional or social policy.

The proposal, however, does not require specific tax rate but instead, provides a range within which the normal tax rate should lie. The range is considered as very wide. Three reasons may explain why this range is so wide. First, it it consistent with the spirit of tax harmonization whose purpose is not to create identical systems but to bring them in harmony. Second, we have explained the close relationship between the CIT and the personal income tax. A strict approach concerning the range of the CIT rate would involve some necessary changes for the personal income tax, but this would be contrary to the ambition of the community to leave personal income taxation to the discretion of the member states as we saw earlier. Finally, we should take into account that this is the first actual step towards tax rate harmonization. Therefore, as smooth as possible this process is so greater the possibility for achieving its goal.

The establishment of a single normal rate prohibits a progressive CIT rate structure, as some E.E.C. countries currently apply. Looking at the table 5.1 three comments can be made as far as the tax rate is concerned. First, all the E.E.C. countries, except Germany, have one single tax rate which applies to both distributed and undistributed profits. Therefore, all the countries except Germany are in line with this article. Germany employs two tax rates, a higher, 56 per cent, to undistributed profits and a lower, 36 per cent, to distributed profits. Second, Belgium, France, Ireland. and the U.K. have introduced tax rates which are within the range defined by article 3. To the contrary, Denmark and Italy use rates far lower than the suggested range. The Danish ..

Tax rate is 37 per cent whereas the Italian is only 25 per cent which-becomes 36.25 if we take into account the 15 per cent local tax rate imposed on corporate income. One explanation for these low tax rates in both countries may be the recent switch of them from a classical system to the imputation system. The German tax rate to undistributed profits is just over the permissible range, namely, 56 per cent. Finally, except Denmark, Germany and Italy all the other member states use lower tax rates than those appear in the table if the taxable income is lower than a certain amount. Two reasons may justify the introduction a progressive CIT rate. First, a progressive tax rate is used as a means of achieving vertical equity, but as we have argued elsewhere the ability to pay approach cannot be applied for the CIT as it is applied for the personal income tax. This is so because the corporation has no ability to pay in the same sense as individuals do and the final taxpayer is the shareholder. In addition to that it cannot be argued that progressive taxation of firms is a means to progressive taxation of shareholders (R.Musgrave and P.Musgrave, 1973). This is so because there is no always positive relationship between the size of the corporation and the net income of owners. Second, an alternative explanation for the existing progressive rates, and this seems to be the case in the E.E.C. countries, is the desire to support small and new firms. This is particularly the case with France, where the tax rate becomes zero for the one third of profits of newly created and industrial companies during the first five years of their operation.

5.4.4.6 ARTICLES 4-13: THE CREDIT PROVISIONS

In describing the imputation system in Chapter two we emphasized that the core of this system is the credit provision either from the domestic or from the international point of view. This is the reason why the commission devoted the greater part of the directive on that subject, namely, articles 4-13 deal with the credit provisions whereas articles 18 and 19 are shared by the credit and withholding tax provisions.

ARTICLE 8: THE SIZE OF THE CREDIT

Article 8 requires each member state to fix a single rate of tax credit. This rate should be neither less than 45 per cent nor higher than 55 per cent of the amount of CIT at the normal rate on a sum representing the distributed dividend increased by such tax. There is no

explanation in the explanatory memorandum why the credit is partial
and not full. In chapter two we discussed some reasons which may
explain the preference of a partial than a full credit. Four years
after the directive, in 1979, R.Burke, commissioner for taxation,
E.E.C. Commission, explained why the commission didn't go right over
to full imputation (R. Burke, 1979). A full imputation system would
involve substantial budgetary losses in three cases, that is, count-
ries that at present have the classical system or they have a mild
degree of imputation or finally for countries which are not exporters
of dividends because the dividend credit would reduce a great deal
the CIT. It is argued that to the contrary to the tax rate the in-
troduction of a range for the credit rather than a single rate may
reduce differences in the effective burden on dividends although
it never will increase such differences (European taxation, 1976).

Looking at the table 5.2 we see that only France lie within the
suggested rate by the proposal. Belgium only lies above this range
where the rest of the countries have introduced a lower tax credit.
The Danish tax credit is far below this range. This may be ex-
plained by the fact that the corporate tax rate itself is low,
however, a greater tax credit would reduce the corporate tax bur-
den to a very low rate. The German legislation allows a full credit
at the shareholder level for income taxes paid by the corporation.
This is the most remarkable feature of the new German system.
The Italian imputation system also provides a full dividend credit
but only for the corporate income tax paid by the distributing
company (European Taxation 1978). No credit is provided for the
local income tax levied on corporate income.

TABLE 5.2

DIVIDEND TAX CREDIT IN THE E.E.C.

COUNTRY	RESIDENT SHAREHOLDER	NON RESIDENT SHAREHOLDER	COMPENSATORY TAX
Belgium	57.5[1]	No	No
Denmark	15 -	No	No
France	50	Under a treaty provision.	Yes
Germany	56.25[2]	Partial	Yes
Ireland	42.85	Under a treaty provision.	No
Italy	33.3	No	No
Luxembourg	-	-	-
Netherlands	-	-	-
U.K.	42.85	Under a treaty provision.	Yes

NOTE:

1: Per cent of net dividend.

2: 36% of the gross dividend.

SOURCE: Compiled by the author with data collected from International Bureau of Fiscal Documentation, Guides to European Taxation, Vol.1, II III.

5.4.4.8 ARTICLE 9: A COMPENSATORY TAX

Article 9 provides the member states with two alternative means of avoiding a dividend tax credit being given when no corporate tax has in fact yet been charged. However, if a corporation distributes dividends derived from profits in respect on which it has not yet borne CIT or if they have but which have been placed to reserve far more than five years, the member states may use our familiar techniques, namely, the precompte or the ACT, to limit the benefit of credit to these profits.

From table 5.2 we see that only France, the U.K. and Germany follow this policy.

Germany levies a tax rate equal to 36 per cent if a distribution takes place out of profits which have not borne taxes or if they have been taxed at a lower tax rate. On the other hand, Belgium, Ireland, and Italy do not provide for a compensatory tax on dividend distributed by tax-exempt corporations. The purpose of this provision is to stimulate investment in corporate shares.

Unfortunately, the limitation of the benefit from the tax credit to those who receive dividends from taxed profits only is achieved at the expense of the following two drawbacks (European Taxation, 1976). The first, the real drawback, is concerned with the foreign shareholders who are not entitled to the tax credit. The application of the compensatory tax results in an amount of dividends less than in the absence of the compensatory tax. Therefore, in that respect the compensatory tax constitutes an additional tax. The second, the psychological drawback, is concerned the resident shareholders, who are entitled to the credit. If the corporation decides to distribute an amount of profits equal to A and the corresponding compensatory tax is equal to B, the corporation finally distributes to shareholders a net amount equal to (A-B), under the assumption that B is not paid out of retained profits, but since the shareholder receives not only (A-B) but that plus the credit which equal to B he really receives an amount of dividend equal to A (A-B+B=A). Some shareholders may think that the total amount of dividends received is (A-B) and not A, however, the corporation, for capital market reasons, distributes a net amount of dividend equal to A at the expense of its retained profits.

The proposal suggests a solution to that problem by establishing special dividend derivations rules in article 13. These rules do not lead to full elimination of the above described consequences but they try to confine these in a relatively small number of cases. In Addition to article 13 an alternative solution is concerned with the payment of dividend not in cash but in the form of bonus shares since the latter are excluded from the definition of the term dividend (article 2). Since bonus shares do not carry with them a tax credit there is no need for a compensatory tax. However, the absence of a public market for corporate share for a corporation is an obstacle to this solution.

5.4.4.9 ARTICLE 4: THE HEART OF THE PROPOSAL

Article 4 may be considered as the most crucial in that directive. It puts the cornerstone for a harmonization process by eliminating any tax barrier to the free movement of capital within the E.E.C. The credit should be available to all residents of member states. This credit is granted under the conditions that the resident person is subject to income or profits tax on the full amount of the dividend plus the CIT in his own tax jurisdiction.

A country with an imputation system faces the problem of integrating the domestic personal tax with the foreign corporate tax. The directive by requiring the extension of the credit facilitates the integration of these two taxes. However, the taxation of corporate income up to a larger extent now is based on the residence principle than to the origin one. This allows the country of resident to use this kind of taxation as a redistribute tax.

The extension of the credit may be done in two ways. Either the origin country pays the credit to the resident country and the latter allows resident shareholders to credit the foreign tax credit against their income tax liability, or the origin country makes a cash payment to the shareholder's which represent the amount of the shareholders tax credit. The first way, which is followed only by the French-German treaty, seems to be preferable than the second since it facilitates the fight against international tax avoidance and evasion.

From table 5.2 we see that Belgium, Denmark and Italy confine the provision of tax credit only to resident shareholders whereas France, Ireland and the U.K. extend the credit but only under a treaty provision. The German tax system provides the foreign shareholders with a

"half-way" tax credit. This is so because the total elimination of
economic double taxation takes place in two stages. At the first stage
the effective burden of German CIT, which amounts to 56 per cent of
taxable profits, is reduced at distribution to 36 per cent of the dis-
tributed amount before tax. Both resident and non-resident share-
holders enjoy this reduction since it takes place at the corporate
level. At the second stage the resident shareholder only enjoys as
credit the CIT imposed on distribution against its final tax liability.
Therefore, foreign shareholders do not participate at the second stage of
the elimination of the economic double taxation.

Two points may be raised regarding this article. First, there is
no mention if domestic shareholders who invest abroad are entitled to
the tax credit. As far as domestic shareholders who receive dividend
from corporations established in another member state article 21 im-
plicitly asks for the provision of credit under the call for the same
treatment between domestic individuals who invest in resident corpor-
ation or abroad. However, the question remains regarding domestic share-
holders who invest in third countries. Within the E.E.C. countries only
Belgium grants a credit to these shareholders, and this is lower than
that provided for Belgian-source dividends. Second, the directive does
not deal with the consequences of the extension of the tax credit if the
CIT is shifted forward to consumer's prices. As in the domestic case the
tax credit becomes an unwarranted subsidy to foreign shareholders and
should be not provided.

5.4.4.10 ARTICLE 14-17:A COMMON WITHHOLDING TAX

The other part of the proposal deals with the introduction of a
common system of withholding tax on dividend in the member states.
Article 14 calls for a 25 per cent withholding tax on dividend distri-
buted by corporations no matter who is the recipient of those dividends.
However, paragraphs 2 and 3 of this article provide some exemptions of
the rule. First, no withholding tax on dividend distributed by a sub-
sidiary to its parent if both are residents of the same country and
second, no withholding tax on dividend distributed to persons who are
identified. Article 16 provides that tax withheld under article 14 is
set off against the recipient final tax liability. If the latter is
less than the tax withheld a refund is given. Unless such repayment

is incompatible with the principle of tax neutrality. Article 17 goes
on requiring the state which collected the withholding tax to refund it
to the country which the recipient of dividend is resident. But these
countries have the possibility to agree to share the cost of the with-
holding tax as long as this agreement does not affect the rights of the
recipient of dividend.

The purpose of the withholding tax is to combat international tax
evasion. The community does not consider adequate the tax credit which is
equivalent to a withholding tax because it believes that "many share-
holders have an appreciably higher personal tax rate". However, both
the tax credit and the withholding tax should be used as a means of
fighting international tax evasion. Unfortunately, the presumed "fair-
ness of taxation" achieved through the imposition of these taxes at the
expense of a cost. The combined effect of the credit and of the with-
holding tax results in a higher tax burden for foreign investors who
are not E.E.C. nationals. This burden is between approximately 58 and
66 per cent[1].

The community hopes that administrative ways will be found which
will allow that the shareholder who is entitled to the credit or re-
fund of the withholding tax gets it as soon as possible.

An alternative solution could be the whole imposition of the with-
holding tax to be put on an optional basis, that is, as a member state
is provided with the possibility to decide to impose or not a with-
holding tax on its residents the same policy to be introduced for all
identified community-residents. This would require additional actions
by the interested countries, that is, these countries have to exchange
information for shareholders who ask for an exemption of the with-
holding tax on their dividends. But as we saw, the first and only
achievement in the area of direct taxation so far is the directive on
mutual assistance providing for increased co-operation, in particular
in the exchange of information, between the tax authorities of the mem-
ber states.

An omission of these articles is the definition of the taxable base
on which the withholding tax should be levied. Two alternatives can
be considered. The first, defines the tax base as the amount of profits
which is distributed whereas the second, defines it as the distributed
amount of profits ..   ../

plus the tax credit granted. In the latter case, the withholding tax can be calculated by applying the formula $E = \frac{25}{100+r}$ when E is such tax and r is the credit rate expressed as a percentage of the dividend.[2] The second definition seems to be more plausible since the first involves a discriminatory treatment between persons who are entitled to the credit and those who are not.

The withholding tax practices vary to different extent from the provisions of article 14. From table 5.3 we see that the most common practice within the community is the imposition of a withholding tax on both resident and non-resident individuals. France, Ireland and the U.K. do not levy this kind of tax on their residents shareholders. Ireland and the U.K. follow the same policy for non-resident shareholders as well as whereas France imposes a withholding tax on foreign shareholders. The rest E.E.C. countries levy a withholding tax on both resident and non-resident shareholders. The main characteristic is that the withholding tax rate is the same irrespective of the nationality of the recipient. Denmark only, imposes a higher than 25 per cent rate, namely, 30 per cent whereas France, Germany and the Netherlands a 25 per cent rate, Belgium 20 per cent, and Luxembourg 15 per cent. Finally, Italy imposes a 30 per cent rate but it can be reduced up to 10 per cent under certain circumstances.

TABLE 5.3
WITHHOLDING TAX RATES IN THE E.E.C.

COUNTRY	DIVIDEND PAID TO DOMESTIC INVESTOR	DIVIDEND PAID TO FOREIGN INVESTOR
Belgium	20	20
Denmark	30	30
France	No	25
Ireland	No	No
Italy	10	30[1]
Luxembourg	15	15
Netherlands	25	25
U.K.	No	No
Germany	25	25

NOTE:
    1: effective, at least 10%

SOURCE: Compiled by the author with data collected from
         International Fiscal Documentation.

5.4.4.11 EVALUATION OF THE PROPOSAL

The proposal has attracted comments on both its suggestions and
on what it left out. As far as the first kind of comments is concer-
ned the criticism varies. Some consider the proposal as sensible,
logical, workable and as a welcome sign that the commission now re-
cognizes that harmonization does not necessarily mean rigid uniform-
ity (J.Chown 1976). Others have questioned the achievement of the
primary and collateral goals which have been developed in the explanat-
ory memorandum of the proposal by introducing the imputation system
(Kay and King 1978). The main question is whether the proposal is
sufficient to solve the tax harmonization problem. The critism on
that question has been concentrated on what the proposal has left
out. For example, it is argued, that the proposal does not provide any
guidelines as far as the determination of the tax base is concerned,
it says nothing for the co-existence of other tax in parallel with the
CIT, or it says nothing for the less attractive areas within the
community.

To understand the logic of the proposal we must look at the inter-
national problem raised by tax harmonization. In Pool's words, a mem-
ber of the staff of the Commission of the European Committee, the
proposal "is more concerned with the problems and needs of ordinary
investors than with those of companies themselves.
Its aim is to eliminate as far as possible the tax barriers that at pres-
ent discourage a resident in one member state from investing in the
shares of a company resident in another member state and to create con-
ditions which allow such cross-frontier investment to take place in
circumstances of the greatest possible taxation neutrality"(W.Pool 1976. There-
fore the proposal does not try at once to solve the problem of tax harmoniz-
ation and those people are right to argue that the proposal is entirely
directed at taxation of distributed profits (Kay and King, 1978).
On the other hand, we do not share their view that tax harmonization is
an all-or-nothing business. We do not share that view because it neg-
lects the budgetary consequences involved by an all-or-nothing busin-
ess and it also neglects that economic and social policies are deli-
cate and realistic future of national tax systems. In addition to
that to take such an attitude is to suggest that nothing should ever
be done unless perfection can immediately be achieved which results in
blocking all progress.

The treaty of Rome has not only as aim neutrality in the flow of capital between member states but it also aims to achieve undistorted competitive conditions within the Community. Therefore, the second step of business tax harmonization is concerned with the harmonization of the tax base. It is worth mentioning that the harmonization of tax base is not an alternative way of achieving tax harmonization but it is the supplement to the harmonization of the systems of corporate taxation. Each part of this process is concerned with the corresponding goal mentioned above. The second step is considered as a long-term objective of the E.E.C. This is so because this part of corporate taxation, the tax base, as we argued elsewhere for the personal income tax, reflects the national history and national idiocyncrasy regarding this type of taxation. The main point is to decide how, to what extent and to what stage this long-term objective can be achieved. To our knowledge there is no similar proposal with the harmonization of the corporate tax systems, for the harmonization of the tax base. We proceed to the next section to discuss the existing differences regarding the definition of tax base between the member states and second to express some thoughts for their harmonization.

5.5   TECHNICAL ASPECTS OF CORPORATE TAX
HARMONIZATION

5.5.1 INTRODUCTION

The complex nature of the corporation income tax and the great
divergencies between the nations with respect to this kind of taxa-
tion make the task of harmonization difficult. But even if the exist-
ing corporate tax systems would have the same form, the problem would be
not much less severe, since differences between tax rates and tax base
plus other co-existent taxes in parallel with the CIT differentiate
the tax burden.

The process of corporate tax harmonization is more controversial than
that of indirect taxes. It can be also distinguished in three stages,
that is, harmonization of the forms, the tax base and the rate, but
the order may be different. Assuming that the process of harmonization
is not once and for all business, for the reasons mentioned earlier, the
question is where should we start from harmonizing this kind of taxa-
tion. From the form or from the tax base? The answer seems to depend
on the stated goals of harmonization. If the goal is neutrality in the
condition of competition then, a uniform tax base and a single tax
rate should consist the first stage of harmonization. On the other
hand, if the goal is the achievement of free movement of capital then
the harmonization of the form of company taxation and dividend should
be the first stage.

Before proceeding to discuss the causes of the divergencies bet-
ween the taxable basis of the E.E.C. member states and the various
views about tax rate harmonization we should raise a point. Every
effort for corporate tax harmonization should start from the separation
of this tax from the other taxes, namely, the personal income tax, the
wealth tax etc. Until recently a number of countries within the E.E.C
had a corporate income tax not distinct and separate from the personal
income tax. The co-existence of other taxes together with CIT on com-
pany profits differentiates the tax burden and reduces the transparency
of the tax system. For this a general tax on profits is required.
Once this general tax has been established then less obstacles remain
for harmonizing the tax base. We proceed first to discuss what other
taxes are levied upon corporate income and second, to discuss the main
factors which create divergencies in the tax bases between the E.E.C.
countries.

5.5.2 OTHER DIRECT TAXES ON CORPORATE INCOME

Several member states of the European Community levy other taxes
in addition to the corporate income tax on business enterprises. These
taxes despite the fact that they may be deducted from the tax base for
corporation tax purposes constitute an additional burden on corporation.
Table 5.4 shows that the majority of the E.E.C. countries do not impose
any significant tax other than CIT on business enterprises. In the
exemption of this rule belong France, Germany, Italy and Luxembourg.
France, imposes a business tax on all enterprises doing business in
France. A similar business tax is imposed by Germany and Luxembourg.
The latter two countries impose a net worth tax on companies as well.
The imposition of these taxes, for example, in Germany, results to
raise the normal rate of 56 per cent.on indistributed taxes to 59 per
cent. Finally, Italy imposes a local income tax on companies whose
range lies between 8.9 per cent and 14.2 per cent. This tax is levied
on behalf of several local communities.It is worth mentioning, the
combined rate of CIT and local tax in Italy is only 36.2 per cent,
much lower than the corporate tax rate of the other E.E.C. countries.

However, the directive is concerned only with one kind of tax i.e.
the corporate income tax and does not cover the other taxes such as
business or local taxes. One may wonder if this omission is crucial
for comparison of the tax burden imposed

TABLE 5.4

COUNTRIES	NET WORTH	LOCAL TAX	BUSINESS TAX	PAYROLL TAX
Belgium	-	-	-	-
Denmark	-	-	-	-
France	-	-	Yes	-
Germany	0.7%	-	5%	0.2%
Ireland	-	-	-	-
Italy	-	8.9%-14.2%	-	-
Luxembourg	0.5%	-	15-20%	-
Netherlands	-	-	-	-
U.K.	-	-	-	-

SOURCE: International Fiscal Documentation.

upon a business enterprise and if they may continue to exist des-
pite the efforts of corporate tax system harmonization. Of course, the
discrepancies are not so great to cause a worry but the incorporation
of all these taxes into the CIT would facilitate the process towards
to more transparent tax systems.

5.5.3 THE TAX BASE

The tax base is related to the profits figures shown in conventional
accounts. There are a number of important differences in the calcul-
ation of those profits between the countries. These differences have
an important impact upon the effective rate of taxes on corporate
profits. However, not only the nominal rates but also the tax bases
should be compared if we want to approximate the tax burden on profits.
A number of elements may cause discrepancies in the calculation of the
tax base. The most important are the definition of profits per se ,
depreciation allowances, intercorporate dividends, inventory valuation,
tax-free reserves, directors' fees and deductibility of business ex-
penses.

However, no proposals for harmonizing such rules have been submit-
ted by the E.E.C. Commission so far. We proceed to briefly discuss the
rules applied by each E.E.C. country on these matters with the purpose
to estimate the discrepancies generated by these rules and to suggest
ways to reduce these discrepancies which would facilitate the process
of harmonization. We start with the definition of profits.

5.5.3.1 THE DEFINITION OF PROFITS

Two definitions of profits are employed in practice. The first
relates profits to the concept of net worth whereas the second con-
fines profits on trading profits only.

In all E.E.C. countries, the net asset method of computing taxable
profits has been introduced. This method involves that taxable profits
include both general profits from business activities (trading profits)
and special profits from sale of specified types of fixed assets. It
is calculated by subtracting the net worth at the beginning from the
net worth at the end of the accounting year adjusted for additional
contributions to capital and distributions to the owners of the
business.

The essence of that method is that gains or losses resulted from any change in assets and liabilities are taken into account. However, only Ireland excludes gains disposal of fixed assets from computing profits for tax purposes. All other E.E.C. countries follow the general scheme:

Trading Profits + Taxable Capital Gains

less   Deductible expenses and losses and exempted income.

equal   Net taxable income.

Unfortunately, the general scheme may be the same for every E.E.C country but the treatment of each element of that scheme differs between these countries. We proceed to discuss these differences and we start first with the treatment of capital gains and losses. A detail discussion of these materials takes place in the appendix of this chapter.

5.5.3.2 CAPITAL GAINS AND LOSSES TAXATION

Exempt for the Netherlands, where capital gains afe subject to tax as they accrue the national tax systems of the E.E.C. countries stipulate that capital gains are taxable only upon realization. Two reasons explain this policy, either the difficulty in revaluing assets or this policy is used as a means of providing an alleviation to full taxation of capital gains upon realization. Belgium, Italy and Luxembourg, under certain circumstances, exempt capital gains from taxation. Ireland has recently introduced an indexation relief to take account of inflation during the period of ownership. Finally, the U.K. applies an effective tax rate equal to 30 per cent where the normal CIT rate is 52 per cent.

As far as capital losses are concerned all the E.E.C. countries allow their deductability. Table 5.5 shows the carry forward or backward period allowed in the E.E.C. countries.

TABLE 5.5

TREATMENT OF OPERATING LOSSES

COUNTRY	CARRY-FORWARD	CARRY-BACK
Belgium	5 years	not permitted
Denmark	5 "	not permitted
France	5 "	not permitted
Germany	No time limit	1 year
Ireland	5 yeârs	3 years
Italy	5 "	not permitted
Luxembourg	5 "	" "
Netherlands	6 "	1 year
U.K.	No time limit	3 years.

SOURCE: International Fiscal Documentation.

5.5.3.3 PROVISIONS FOR TAX-FREE RESERVES

In all E.E.C. countries provisions for tax-free reserves are gran-
ted. The purpose and the imposed limitations differ from one country
to another. There are essentially three types of reserves:

(a) Surplus reserves for covering losses from undepreciable
assets such as claims, financial assets, stock etc.,

(b) Reserves which are used as a means of spreading liabil-
ity over time and,

(c) Reserve allowed as a pure tax-free revenue which amounts
to an undefinite postponment of taxation.

These provisions allow the firm to reduce its long-term tax lia-
bility which involves a greater amount of internal funds available for
financing investment programmes.

Belgium, Ireland, Luxembourg, Netherlands and the U.K. have the
most restricted provisions for tax-free reserves. However, all the
E.E.C. countries allow a part of profits to be set up on reserves,
their definitions on these provisions are more or less similar but they
differ in the degree of tightness of control. Therefore, this part of
taxable base does not create particularly difficult problems for har-
monization, however, some guidelines provided by the E.E. C. would lead
to a smaller degree of divergencies.

5.5.3.4. TAXATION OF DIRECTORS' FEES

It is a common policy, within the E.E.C. countries, the cost of
fixed annual remunaration to officers of the companies for services
rendered to be deductible from the taxable base. However, any other
payments in excess of that are fully taxable as profits or as divi-
dends to recipients. moreover, the E.E.C. tax laws impose some res-
trictions as a means of avoiding excessive remunaration. For example,
the French tax law particularly scrutinizes remunarations paid to direc-
tors, shareholders and related persons whereas in the U.K. the close
company leglislation provides a restricted definition of the term
Director. On the contrary, the Irish tax law does not impose special
restrictions on directors' remunaration. Finally, the Luxembourg law
does not in general allow a company to deduct from the taxable base
any forms of compensation paid to members of its board of directors,
its supervisors or company officer in similar position. However, some
exemptions of this rule occur.

5.5.3.5. TAXATION OF INTEREST

All nine E.E.C. countries treat interest revenue as ordinary in-
come and interest payments as deductible expenses. The treatment of
interest payments is particularly important since as we have seen,
affects the cost of capital and through that the method of financing
intestment projects. However, a distinction should be made between
interest payments paid to third parties and those paid to shareholders
and affiliated firms. The latter attract more scrutinity by the tax
law as a means of preventing hidden profits distributions. Various
restrictions have been introduced by the member states for achieving
this goal. Therefore, all the E.E.C. member states agree that interest
payments should be excluded from the taxable base as long as they are
not excessive and are not hidden profits distributions. We would
suggest two measures for facilitating the fight against tax avoid-
ance in the form of interest payments. First, all the E.E.C. member
states should follow the Belgian policy in that area. That is, to con-
sider as normal interest rate that or a little higher than that adopted
by their national banks. This, in the long-run, would lead to more or
less identical interest rates when the Community will have achieved the
goal of monetary union and these rates will be determined by the Com-
munity. However, the use of a common interest rate may be justified

in the light of the unified capital market toward which the European Communities are moving. The second measure is concerned with greater co-operation between the member countries to prevent tax evasion through transfer of profits for one country to another as interest payments.

5.5.3.6. TAXATION OF INTERCORPORATE DIVIDENDS

Various methods have appeared in practice dealing with inter-corporate dividends. Almost all the countries have introduced measures to integrate the double taxation of corporate profits generated by the flow of the latter from one company to another. These measures can be classified under three headings:

FIRST , an exemption from CIT is provided to the recipient company on profits received from another company, without any condition to be satisfied,

SECOND , the tax relief is a function of the degree of participation of recipient company in paying company and,

THIRD , the tax relief is a function of the time period which the recipient company held shares of the paying company.

The introduction through the imputation system the dividend tax credit and the compensatory tax has created some problems. However, the question of the recipient corporation redistributes or not the received profits to its shareholders is a significant question for the treatment of these profits.

We can classify the E.E.C. member states in three categories. First, the U.K., Irish, German and Italian tax laws provide full exemption from corporate tax on recipient of all dividend received without any special condition to be satisfied. Second, in Denmark, France, Luxembourg and the Netherlands exemption applies if the receiving corporation owns a specified percentage of the shares of the paying corporation. Finally, Belgium is the only country between the E.E.C. countries which applies the "permanent participation" criterion in taxing inter-company dividends. According to that criterion the relevant shares should be held by the recipient corporation for the entire financial year.

Table 5.9 shows the taxation of intercorporate dividend in the E.E.C. member states. Line 18 gives the additional tax load which

TABLE 5.9

Taxation of Intercorporate Dividend

percentage

	BELGIUM		DENMARK		FRANCE		GERMANY		IRELAND		ITALY		LUXEM-BOURG		NETHER-LANDS		UK	
	a	b	a	b	a	b	a	b	-	b	-	b	a	b	a	b	-	b
1 Subsidiary's Income	100	100	100	100	100	100	100	100		100		100	100	100	100	100		100
2 CIT paid by subsidiary	48	48	37	37	50	50	36	36		45		36.25	40	40	48	48		52
3 Gross dividend	52	52	63	63	50	50	64	64		55		63.75	60	60	52	52		48
4 Less withholding tax	10.40	10.40	18.90	18.90	-	-	16	16		24		6.38	9	-	13	-		20.60
5 Net dividend received by parent	41.60	41.60	44.10	44.10	50	50	48	48		55		57.37	51	60	39	52		48.0
6 Plus tax credit	23.92	-	6.60	-	25	-	36	36		24		21.25	-	-	-	-		20.60
7 Plus withholding tax	10.40	10.40	18.90	18.90	-	-	16	16		-		6.38	9	-	13	-		-
8 Profits before CIT	75.92	52	69.60	63.00	75	50	100	100		79		85.00	60	60	52	52		68.00
9 Exempt Profits	-	49.40	-	63.00	-	47.50	-	-		79		-	-	-	-	-		
10 Taxable Profits	75.92	2.60	69.60	NIL	75	2.50	100	100		-		85.00	60		52			
11 CIT	36.44	1.24	25.75	-	37.5	1.25	56	36		-		21.25	24		24.96			
12 Credit to be taken(witholding tax & tax credits)	34.32	10.40	25.50	18.90	2.50	-	52	52		-		27.63						
13 CIT due	2.12	-	0.25	-	12.5	1.25	4	-		-		-	9		13.00			
14 Refund	-	9.16	-	18.90	-	-	-	16		-		6.38	15		11.96			
15 Profits available for distribution																		
15a case (a)	39.48		43.85		37.5					-		-	36		27.04			
15b case (b)		50.76		63.00		48.75				79		63.75				52		68.40
16 Gross distr. dividend	57.64	74.11	50.60	72.90	56.25	73.12		64		79		85.00	36	60	27.04	52		68.60
17 Gross dividend distri. directly by Sub. to Shareholder	75.90	75.90	72.90	72.90	75.00	75.00		64		79		85.00	60	60	52.00	52		68.60
18 Addit. tax due to dividend passing through the parent	18.26	1.79	22.30	0	18.75	1.88		0		0		0	24	0	24.96	0		0

Notes: 1. Column (a) refers to case where the parent corporation has only minor ownership in subsidiary corporation.

2. Column (b) refers to case where the parent corporation has substantial ownership in subsidiary corporation.

results from the dividends passing through an intermediate corporation in cases where the parent corporation owns a substantial part of the share capital of the subsidiary corporation and where it merely holds a small interest in the subsidiary. In Germany, Italy, Ireland and the U.K. intercorporate dividend pass through the parent corporation without bearing any additional tax amount irrespective of the degree of ownership by the parent. This is also the case in Denmark, Luxembourg and the Netherlands but the parent should own a substantial part of the share capital of the subsidiary. Belgium and France slightly penalize intercorporate dividend if the parent has a substantial ownership in subsidiary. Finally, Belgium, Denmark, France, Luxembourg and the Netherlands heavily penalize intercorporate dividends if the corporate relationship is not one of substantial interest.

In conclusion, we would suggest that the introduction of the degree of ownership test by all the E.E.C. countries and the adoption a common policy regarding the two cases, it seems to us, that it would reduce the existing differences.

5.5.3.7 DEPRECIATION ALLOWANCES

Several elements may account for discrepancies in the computation
of the amount which is allowed to be deducted from the tax base as de-
preciation. The most important are the basis of depreciation, the
method of depreciation which combined with the cost recovery period
is the crucial point in the fiscal treatment of depreciation, invest-
ment allowances and the asset structure of the firm.

5.5.3.7.1 BASIS OF DEPRECIATION

All the E.E.C. countries use original cost as the basis of de-
preciation. This original cost includes the purchase price of the
assets plus other related expenses such as transportation and instal-
lation cost etc. Before the introduction of V.A.T. as a common tax
within the Community, indirect taxes levied were included in the
depreciable base whereas V.A.T. is excluded from that.

In a period of stable prices the sum of these tax-free allowances
will be sufficient to replace the asset at the end of its useful life.
However, in a period of accelerated inflation, the sum of the depre-
ciation allowances cannot provide sufficient funds to replace the
worn out asset. There are two possible ways of dealing with this
problem. The first is the widening of the deprecable base through
revaluation of the asset. The second method allows a firm to write
off their capital expenditure over a much shorter period than the es-
timated real economic life of the asset i.e. accelarated depreciation.
Both methods have been used within the Community, the former mainly
on a temporary basis whereas the latter is mainly used as a means of
stimulating investment rather to cope with the above described problem.

5.5.3.7.2 METHODS OF DEPRECIATION

Before the second World War the most common practice was to charge a
constant sum each year as depreciation. However, after the war a grow-
ing awareness appeared on the part of economists and government policy-
makers that depreciation may be a useful device for achieving various
policy objectives (J.Meij, 1961). The use of tax-deductable deprecia-
tion charges as a means of stabilization policy, coping with inflation

and stimulating growth became a common consideration. This caused
a definite shift in the most countries from straight-line depresia-
tion to a form of declining - balance depreciation.

From table 5.10 we see that all E.E.C. countries exempt Italy emp-
loys both straight-line and declining-balance methods. Italy, permits
only the use of straight-line depreciation method. The use of one
method or the other is not always to the discretion of the taxpayer,
but it is determined by governmental rules. However, the straight-line
method is almost in all countries mandatory for buildings whereas the
declining-balance method is used for plant and machinery.

Table 5.10 shows the typical depreciation treatments for new manu-
facturing investments applied in a national base. In practice, firms
are provided with special exemptions as a means of stimulating invest-
ment. The most common provision is accelerated depreciation.

BELGIUM grants accelerated depreciation under the form of doubling
of the normal depreciation allowances for the first three years, for
certain classes of assets, i.e. machinery and industrial buildings in
special development regions.

In DENMARK, an advance depreciation allowance is allowed which
applies to industrial buildings, machinery and equipment. This provi-
sion applies only to that part of the total contracted cost which ex-
eeds D Kr 700,000. 30 per cent of the excess over D Kr 700,00 may be
written off during the first four years following the award of the con-
tract, subject to a maximum 15 per cent in any one year.

FRANCE applies accelerated depreciation if a case can be made out
for special circumstances. Particularly, accelarated depreciation are
available for building in two specific cases. First, as a means of pro-
moting regional development, a first year 25 per cent allowance is gran-
ted for buildings constructed in certain development areas. Second, for
buildings acquired for scientific and technical research, a first year
allowance of 50 per cent may be claimed and the balance of expenditure
is written off by the normal method.

GERMANY uses accelerated depreciation for both regional and coun-
tercyclical pufposes. In general, the rate of 30 per cent of the cost of
immovable assets and 50 per cent of the cost of movable assets, deduc-
tible over the first five years.

In ITALY accelarated depreciation may be claimed for new invest-
ment as up to 45 per cent of cost spread over the first three years of
operating subject to a maximum of 15 per cent in any one year.

TABLE 5.10

METHODS OF DEPRECIATION

BELGIUM	S-L:	The normal method
	D-B:	The optional method
DENMARK	S-L:	Commercial buildings
	D-B:	Plant and machinery
FRANCE	S-L:	Mainly for ind.buildings, assets having a life less than 3 year.
	D-B:	Machinery and equipment.
GERMANY	S-L:	All fixed assets mandatory for immovable fxd assets other than bldngs. The only permissible for writing off intangible assets.
	D-B:	Movable fxd.assets of a tangible nature.
IRELAND	S-L:	Buildings
	D-B:	Plants
ITALY	Only the straight line method is permitted.	
LUXEMBOURG	S-L:	Mandatory for buildings and intangible assets
	D-B:	Other assets.
NETHERLANDS	S-L:	Mandatory for buildings
	D-B:	All business assets exempt buildings
U.K.	S-L:	Industrial buildings and hotels.
	D-B:-	Plant and machinery.

NOTE:

S - L = Straight-line

D - B = Declining-balance.

SOURCE: Compiled by the author with information received from International Fiscal Documentation.

The NETHERLANDS use accelarator depreciation as a means of reg-
ional policies and only in certain areas outside the Randstand Holland.
The provision concerns/

only buildings and it amounts of 16 and 1/3 per cent in the first
two years.

Both the UNITED KINGDOM and IRELAND grant accelerated depreci-
ation allowances in the form of first year allowances. The rates are
determined annually in the budget. In some cases this reaches 100 per
cent.

Summarizing, we could argue that it is not the normal depreciat-
ion which creates the discrepancies between the E.E.C. countries since
they are more or less in accord, as far as the application of the
straight-line or the declining-balance methods for buildings and plant
and machinery are concerned. However, the accelerated depreciation
provisions can be considered as the source of their discrepancies.

5.5.3.7.3 RATES OF DEPRECIATION

Two tendencies exist among the E.E.C. countries. Under the
first, the government such as the German, Italian, and Luxembourg, pub-
lishes tables with the official depreciation rates. On the other hand,
the other countries leave to the discretion of taxpayers to manipulate
the cost recovery period.

From table 5.11 we wee that different rates are applied within
the E.E.C. countries on buildings and plant and machinery. These rates

TABLE 5.11

DEPRECIATION RATES APPLIED IN THE E.E.C.

	Industrial Building		Machinery	
Belgium	5%		10%	
Denmark	6%		30%	
France	5%		10 - 20%	
Germany	2%-4%		10%	
Ireland I.A: up to 5%	A.A: up to 50%	IA: up to 100%. AA:10% 12½, and 25%.		
Italy	3%		10%	
Luxembourg	3%		8 - 12%	
Netherlands	1%-3%		10%	
U.K. I.A: 50%	A.A: 4%	I.A: 100% or 25%		

Note:

I.A: = Initial allowance

A.A: = Annual allowance.

Source: Compiled by the author with information received from Inter-
national fiscal Documentation.

provide a cost recovery
period which ranges from 17 years in Denmark to 66 years in the Nether-
lands. However, the main source of disparities as far as depreciation
is concerned comes from two cources. The additional to the normal de-
preciation i.e. accelerated depreciation and the different applied tax
rates.

5.5.3.7.4 TWO PROPOSALS

From the above discussion two conclusions can be drawn. First,
as far as the normal depreciation is concerned there are no large
differences between the E.E.C. countries. The presence of accelerated
depreciation, as a means of providing incentive to the firm, makes the
total picture completely different. In addition to that the various
tax rates applied both to the normal and accelerated depreciation make
these differences even larger. However, a first step towards depreci-
ation allowances harmonization would require the distinction between
normal or actual depreciation and allowable or incentive depreciation.

If this distinction has been made the incentive depreciation
should be incorporated within the whole incentive scheme determined
by the Community. Particularly, accelerated depreciation aiming to pro-
mote regional development should be incorporated within the correspond-
ing programme whereas accelerated depreciation for stabilization pol-
icy would be an aim of the community as a whole.

As far as normal or actual depreciation is concerned, we could
suggest two proposals. The first is concerned with the method of de-
preciation whereas the second is concerned with the cost recovery period.
Harmonization of the depreciation method would require to use cash flow
as tax base instead of profits. This is the case of immediate or free
depreciation in which the firm writes off its investment expenditure
as fast as it wishes. This method is workable if any one of the
following alternative assumptions holds. First, there are always ade-
quate profits against which tax allowances set off. Second, the tax
system provides for a "complete loss offset" which implies that if
allowances exeed profits the firm receives a refund and third, the
firm is allowed to carry losses forward. The advantage of this meth-
od is that the corporate tax system become neutral between different

investment as Brown and Musgrave have pointed out (C.Brown, 1948, R.Musgrave, 1959). However, the corporate tax system would be non-discriminatory between investment projects if interest payments are not deductible for tax purposes. Then, the introduction of the free depreciation method not only would shorten the discrepancies between the E.E.C. member states but it would solve the problem of interest payments harmonization as well. The U.K. and Ireland, as we saw, apply this method either in the form of 100 per cent initial allowance on plant and machinery or in the form of a combination of initial and annual allowance taken in the first year of up to 100 per cent on Hotels.

An alternative solution would be, the harmonization of the cost recovery period. This would be possible by introducing a system similar to the U.S. "reserve ratio test". The purpose of this test is to permit firms to gear depreciation allowances to actual experience in replacing facilities (N. Ture, 1963). The reserve ratio[3] is the ratio of depreciation actually taken to the cost of the asset or group of assets in a depreciation account. Firms which replace assets more frequently than is implied by the guidlines would find that their reserve ratios are lower than the ratio computed by the government. In such cases, firms are allowed to shorten the service lives of their assets. On the other hand, firms which use assets for longer periods than those implied by the guidline lives would be required to lengthen service lives.

5.5.3.8. TAX INCENTIVES

In all E.E.C. countries both tax and financial incentives have been actively used as instruments of economic intervention. These incentives are designed to achieve one or more of the following objectives:

1. To stimulate economic activity in certain regions by creating new or expanding business, as part of the national regional policies.

2. To affect the timing of investment, as part of the national stabilization policies and,

3. To encourage the acquisition of certain capital equipment, or to lead investment in special sectors of the economy as part of the national industrial policy.

The tax incentives may be offered in a variety of types. The most common types are the following:

1. Total or partial exemption from corporate income tax, personal income tax or local income taxes. For example, Belgium, France and Italy have such provisions.

2. Accelerated depreciation. We saw that almost all the countries use this kind of incentive for various purposes.

3. Tax Credit. Denmark, Luxembourg and the Netherlands use tax credit provision.

4. Investment allowances.

5. Total or partial exemption of capital gains from taxation if they are reinvested in certain areas and for a specified period.

The impact of these provisions is a reduction of the effective tax rate either directly or indirectly.

Two questions arise concerning tax incentives within the Community. The first is concerned with the effectiveness of these investment incentives to achieve stated objectives and the second is concerned with the consistency of these incentives with neutrality. For example, some countries as Denmark and Germany provide these incentives on a non-discriminatory basis whereas other countries do not provide incentives equally to domestic and foreign firms (O.E.C.D, 1978). This calls for co-ordination at the E.E.C. level, otherwise it would serve little purpose for international competition to remove tariffs barriers and indirect taxes if the obstacles presented by the incentives were to remain. The E.E.C. is particularly interested in tendecy towards "auctioning process" in the field of incentives. Such a policy not only have serious effects for the Community as a whole but also for each member state since tax competition may result in less than efficient levels of output of state public sector.

5.5.4 CONCLUSION

In addition to the discrepancies which exist between the E.E.C. countries, mentioned comparing the last proposal with the existing systems, the discussion of the tax base pointed out that the discrepancies are even more. Therefore the comparison of tax burden in the E.E.C. countries is more complicated and the need for transparency becomes more obvious.

First of all there would be greater clarity if each E.E.C. country

would have only one tax on corporate profits. The co-existence of other taxes in addition to CIT makes the comparison of the tax burden between the E.E.C. countries less valid.

Second, we saw that the E.E.C. countries use the same framework for assessing the tax base but they differ in the treatment of the elements which should be included in that. Unfortunately, all these discrepancies due to the different treatment of these elements cannot be quantitatively assessed.

As far as the treatment of capital gains and losses, the tax-free reserve provisions, the taxation of directors' fees and the taxation of interest payments is concerned, creates differences which cannot be quantitatively assessed. We suggested as interest rate to be considered as normal rate that or a little higher than that adopted by the national bank of each member state.

Depreciation allowances and investment incentives constitute the most important exclusion from the tax base. Fortunately, these exclusions can be quantitatively assessed by calculating the present value of these provisions. Therefore, transparency in this field can be obtained by following a common set of guidelines. We suggested two alternatives. Either the introduction of free depreciation method or the introduction of the reserve ratio test.

Finally, as far as intercorporate dividend taxation is concerned adoption of a common set with guidelines would be helpfull. We suggested that all the E.E.C. countries should introduce the degree of ownership test as a guide to tax intercorporate dividend.

5.5.5 THE TAX RATE

5.5.5.1 INTRODUCTION

In the case of indirect tax harmonization the common form was settled without great difficulty whereas the tax rate has been a more debatable issue. The contrary happens with the company tax harmonization. The form is the most difficult part to be settled whereas the rate is a less disputable topic. This is so because in the case of business taxes the tax rate is not so valid if the tax base leave room for manoeuvres. However, a harmonized tax base provides the comparison of the tax rates with greater validity.

Before discussing the various views concerning tax rate harmonization we consider helpful to discuss some other points related to tax rate. We can classify the tax rate under three different grounds. First, we may distinguish the case of having one single or two-rates for corporate income, second, we may have a proportional or progressive tax rate and finally, we should make a distinction between nominal, effective and incidence tax rate.[4] We have already discussed the first two cases, however, we proceed to discuss the third.

5.5.5.2. NOMINAL, EFFECTIVE AND INCIDENCE TAX RATE

Although the legislation determines one tax rate, the nominal or statutory, in practice three tax rates may exist.[5] The first, the nominal, is what the company law sets forth. Unfortunately, this rate cannot itself provide an accurate picture of the real tax burden on corporate profits. It is severely influenced by the various provisions which are given the firms. These provisions make the firm to bear not the nominal tax rate but another one, more crucial and, of course, low-er than the nominal, the effective tax rate. Therefore, the latter is a function of the nominal tax rate and the various provisions provided the firm.

The effective tax rate is defined as the percentage reduction in value of assets due to tax. This can be shown as follows: We assume that a firm buys, for example, a machine whose the value is equal to C. This machine provides the firm with an annually income stream whose present value is equal to R. In the absence of taxation the firm would buy the machine if its price C would be equal to the present value of the income stream R, but it is not the case in real life. A firm pays taxes levied on its income. If the nominal tax rate is equal to t then the present value of taxes paid by the firm is equal to tR. In addition to that, firms are allowed some tax provisions which aim to reduce the amount of taxes which are paid by the firm. These provisions may be given in the form of exclusion from the tax base an amount of profits which is equal to a fraction of the value of the machine, that is, suppose p is the present value of the stream of tax provisions on one currency unit of investment. Then, the final tax liability of the firm is equal to

$$T = t (R - pC) \qquad (5.1)$$

where T is the present value of tax actually paid by the firm.

The tax provisions have an effect equivalent to a reduction in the price of the machine. However, the price of machine is equal to

$$C = R - tR + tpC$$

or $$C = \frac{R(1 - t)}{(1 - tp)} \qquad (5.2)$$

From equation (5.2) two conclusions can be drawn. First, the presence of taxation reduces the price of machine and second the provision of tax allowances mitigates the tax burden and brings the price of the machine closer to its pre-tax level.

The firm would buy the machine if the following relationship held:

$$R = C + teR \qquad (5.3)$$

where te is the effective rate of CIT and the product teR is the actual tax paid, that is, T. In other words, the firm would invest if the present value of income stream generated by the project would be equal to the price of the machine plus tax paid. Equation (5.3) can be re-written as follows:

$$te = \frac{R - C}{R} \qquad (5.4)$$

which says that the effective CIT rate is equal to the percentage reduction in the value of the machine.

From equations (5.2) and (5.4) we obtain:

$$te = t \frac{(1 - p)}{(1 - tp)} \qquad (5.5)$$

Equation (5.5) says that the system of various tax provisions has a significant effect on the effective tax rate.

So far, we have implicitly assumed one of the following two assumptions. Either the CIT is not shifted forward or backward or in the case of shifting there is no inter-country differential profits tax incidence. The testing of the symmetrical tax shifting hypothesis in the E.E.C. has important implications for business tax harmonization and E.E.C. capital market. A simplified attempt has been made to test this hypothesis which argues that there is strong indication that tax shifting asymmetry is the case (G. Agapitos, 1974). Therefore, if this is so, the incidence tax rate should be taken into account.

Continuing our example, we assume that the CIT is shifted by a

degree equal to b per cent of t. To find the new effective tax rate
(the incidence tax rate) we follow the same process as before.
Equations (5.1) (5.2) and (5.4) now are written as correspondingly:

$$T = (1 - b) \ t \ (R - pC) \qquad (5.1')$$

$$C = R\big/ 1 - (1-b)t \big/ \qquad (5.2')$$
$$\overline{1 - (1-b)tp}$$

$$t_e = \frac{R - C}{R} \qquad (5.4')$$

where te is the new effective tax rate.

From equations (5.2') and (5.4') we obtain:

$$t_e = \frac{(1-b)t \ (1-p)}{1 - (1-b)tp} \qquad (5.5')$$

Comparing (5.5) and (5.5') we see that te' is smaller than te
(since a smaller number, (1-b) t (1-p), is divided by a greater number
1 - (1-b)tp, since b is a positive number smaller than one).

Assuming now that a harmonization process has led to similar tax
bases and similar conditions of incidence and shifting of the CIT, the
question is how the nominal tax rates should be harmonized? Three
schools have developed three approaches regarding this issue.[6]

5.5.5.3 THREE APPROACHES FOR TAX RATE HARMONIZATION

The question of whether divergent rates of taxes upon the same fac-
tor or production within an economy or within an economic union are
compatible with an optimum allocation of that factor has been debated
for a long time. Particularly, the different tax rates applied on in-
come from the corporate sector and that from the noncorporate sector,
it has been argued, creates a flow of capital from the former sector
to the latter (Harbeger type flow) or different rates of corporate
taxes between integrated countries may create a capital flow from one
country to another. Moreover, from optimum allocation point of view
how should these rates be harmonized? In the theory of tax harmoni-
zation three approaches have been developed regarding this matter.
The equalization, the standards and the differential approach.

The equalization approach identifies tax harmonization with equal-
izing tax rates of the integrated countries, thereby limiting its

scope to only taxation policy (this approach is similar to the presumed
solution for the Harberger type flow discussed earlier, that is, equa-
lization of corporate tax rate and non-corporate tax rate). Its pur-
pose is to establish, within the integrated area, conditions analogous
to these of an internal market. In Dosser's interpretation this means
that any factor of production should be subject to the same tax sche-
dule irrespective of the location of production (D.Dosser, 1966).
This approach has been suggested by the Neumark Committee as a means
of avoiding allocative distortions within the E.E.C. However, some
others, for example, Tinbergen,Meade and Soup have taken the opposite
view (M. Kraus, 1968). This approach has been critized as an "empty
formula developed solely for administrative considerations"(M.Kraus,
1968). On the other hand, the proponents of this approach argue that
the equalization of tax rate first, will enhance competition and se-
cond, it constitutes a step towards political union. To our know-
ledge, nobody has pointed out the merit of this approach concerning
the achievement of capital export neutrality as we saw in Chapter two.
Unfortunately, this can be achieved at the expense of economic manage-
ment and flexibility of the national tax systems. The validity of that
method depends on the degree of harmonization of the tax base. It is
meaningless if tax bases are characterized by great discrepancies.

The Standards approach refers to the setting up of certain ideal
standards and the purpose of harmonization is the gearing of the tax
structures of the member states to achieve these standards. Such
standards may be general principles of taxation such as the introduc-
tion of taxes without "excess burden", the equal treatment of equal etc.

Finally, the differential approach refers to a harmonious move-
ment of tax structures of member states from unsystematic differences
to systematic differences with a view to achieving certain defined
objectives of the integrated area. Under this approach the tax sys-
tem plays a more active role as a means of tax policy through the differ-
ential impact upon the private sector. This approach is in line with
the interpretation of harmonization described earlier. As it has
officially been expressed by the E.E.C., tax harmonization should not
limit the provision of instruments for common and/or national economic
management. There is, indeed a positive need for differentials in tax
rates for both structural and conjunctural policies.

Summarizing, in Dosser's words the differential approach is the

"important" the "fundamental" approach. It is true that is the gener-
ally accepted method. Its greatest advantage is the flexibility in
regard to the required modifications to suit any particular situation
within the integrated area. It is accepted because is realistic and
practicable despite the fact that is sub-optimal or second-best.
The other two methods may be considered as special cases of this
approach. In our opinion there is no difference between the equaliz-
ation and the standards approach. If this is so then the equalization
approach is a partial case of the differentials approach where the
rate differentials are equal to zero.

5.6 SUMMARY AND CONCLUSIONS

In that chapter we tried to answer in the following three questions:

1 To what extent is corporate tax harmonization necessary
   to make capital flows instrumental in achieving the aims
   of Treaty of Rome,

2 To what extent actions which have been taken by the E.E.C.
   toward to this goals are sufficient and

3 What additional actions are required to supplement those
   which have been taken.

We found first, that corporate taxes in the E.E.C. countries vary
not only in systems and rates but also in calculating the tax base.
Seven of the nine E.E.C. countries have an imputation system but each
of these differs from the others on various technical points. The tax
rates vary from 36 per cent to 56 per cent, whereas diverging provisions
affecting the tax bases make it very difficult to compare in a meaning-
ful way the effective tax burden on investment income.

Second, in addition to that inefficiencies and inequities arise
at an international level due to various kinds of non-neuralities.

To remedy these two aspects of the present situation, a strategy
of harmonization of corporate taxes in the E.E.C. could move simultane-
ously along the following lines:

First, it is very important for the strategy of harmonization to
make the corporate tax system comparable. We have seen that this goal
would involve various steps such as the elimination of the co-existing
taxes with the CIT on corporate income and the harmonization of the var-
ious elements of the tax base.

To make progress in this field, the community has made three
proposals as the systems of company taxation. On the other hand, there
is no proposal for the harmonization of the tax base. In addition to
that the E.E.C. countries themselves have done very little in the past
to co-ordinate their activities in these matters.

Second, as we saw in Chapter two, capital export neutrality and in-
ter country equity criteria may eliminate inefficiencies and inequities
in the E.E.C. These criteria involve neutrality with two respects.
First, between resident and non-resident investors and second, between

investment at home and investment abroad.

To make progress in this field the community has produced three directives. The first is concerned with parent-subsidiary relationships the second with merger-type transactions and the third, with corporate tax systems. The first two directives plus articles 4, 10 and 11 of the third aim to achieve neutrality between resident and non-resident shareholders whereas article 3 and 8 of the third directive aim to achieve neutrality between investment at home and investment abroad.

Since the latter proposal has been rejected by the Council of Ministers because "deals with only half of the problem" the commission should extend that to cover the other half of the problem, that is, the tax base (Intertax, 1979/10). In addition to that all the proposals, concerning the systems of corporate taxation, suggest one common system for all the member states. It would not be unrealistic to say that if the commission faces difficulties in introducing a common system, an alternative solution could be to try to obtain neutrality through the rules which we established in chapter two.

So far we have been accumulating the necessary information for discussing the second and the third aims of this dissertation. We have contrasted from a theoretical point of view, the imputation and the dividend paid deduction system. In addition to that we have discussed how the latter applies to Greece. The E.E.C. proposal provides the technical form of the imputation system. Therefore we proceed to discuss the replacement of the existing Greek system with the imputation system and to consider the effect of this replacement upon some areas of the Greek economy.

NOTES: CHAPTER FIVE

1. $.45 + (.25 \times .55)$ = $.45 + 13.75$ = 58.75.

    $-55 + (.25 \times .45)$ = $.55 + 11.25$ = 66.25.

2.   Amount of withheld tax: $w = nd$ (1) where the amount of
such tax and w is the nominal withholding tax rate and
d is the amount of dividend. Alternatively, $w = r (d+cd)$
(2) where r is the effective withholding tax rate and c
is the credit rate. From (1) and (2) we get $w = nd =$
(d+cd) or $r = n /(1 + c)$ and since $= 0.25$ we get $r = 25/1+c$.
See for this proof in E.T. 1976 p. 129.

3.   See for the derivation of this ratio in N.T. Ture (1964).

4.   See section 5.4.4.5.

5.   See for à discussion D.Dosser, 1975.

6.   See for a discussion D. Dosser, 1966.

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APPENDIX TO CHAPTER FIVE

CAPITAL GAINS TAXATION

In BELGIUM realized capital gains are those, which accrue to a company from the disposal of its assets. They are considered profits and therefore subject to taxation. However, some exemptions are provided if certain conditions are fulfilled. Realized capital gains owing to damages, expropriations or similar events which are related to tangible and intangible assets are exempt from taxation. They are also exempt if they are reinvested in development areas within a specified period.

The above exemptions to both realized and non-realized capital gains are provided if the following two conditions are fulfilled. First, they are (and remain) included in one or more separate accounts on the liabilities' side and second, they are not used for the creation or increase of the legal reserve or for any kind of reward or bonus.

Under the DANISH tax law realized capital gains are included in the taxable income of the company. As capital gains from the sale of securities are considered those which were held for two years and not due to the ordinary course of business. They are calculated on the difference between the purchase and sale price.

In FRANCE, the tax law distinguishes the capital gain between short-term and long-term. Both short-term and long-term capital gains could be netted from short-term and long-term capital losses at the end of the year. An exemption is made for long-term capital gains attributable to buildings. In the case of short-term capital gains and losses if the balance is net gain it is taxable at the full CIT rate. If it is a loss it is deducted from the current's year's taxable income. On the other hand, if they are net long-term capital gains may first be used to absorb operating losses of the firm. The balance over the losses is taxed at reduced tax rates 25% on capital gains resulted from the sales of buildings, sites, and 15 per cent on those resulted from other assets.

The GERMAN tax law considers all tax gains from sale or other disposition of business property as normal business income and taxes them at normal rates.

In IRELAND capital gains resulting from the disposal of assets are considered as profits of the company and they are taxed at a special

rate of 30 per cent. In addition to that the capital gains tax act 1978, introduced an indexation relief, to take account of inflation during the period of ownership of assets.

The ITALIAN tax law considers the sale of capital assets as a normal business activity, therefore, gains resulted from these activities constitute a part of the business profits.

There is not any disctinction between gains resulted from sale of capital assets and those resulted from the sale of non-capital assets under the LUXEMBOURG tax law. If certain conditions are fulfilled the taxation of capital gains may be postponed or not taxed at all.

In the NETHERLANDS, capital gains are considered as ordinary income, as they accrue, and are taxed at normal rates.

The UNITED KINGDOM tax law considers capital gains as part of the company's total profits but it taxes them at a lower tax rate. Under certain conditions the taxation of capital gains may be deferred.

CAPITAL LOSSES

In BELGUIM, capital losses are set off against capital gains and the latter are taxed at a reduced rate only for that part which exeeds capital losses. If they are no capital gains then these losses are set off against other income of the 5 following taxable periods. "Carry-back" is not permitted in Belgium.

In FRANCE, as we saw both short-term and long-term capital gains and losses should be netted at the end of the year. If the balance is short-term capital losses, it is deductible from current year's taxable income.

In GERMANY capital losses are fully dedictible. One year carry back is allowed and the amount is limited to 5.000.000 DN. This carry back is compulsory. If there is any excess of losses then a carry forward is called for the 5 following years.

In IRELAND capital losses are fully deducfible and the balance if it is a gain, is taxable. If it is a loss is allowed to be carried forward without time limit against future income.

In ITALY a loss for any tax period can be carried forward to re-
duce income of the following 5 years. No carry back of losses is per-
mitted neither for corporate income tax nor for local income tax pur-
poses.

In LUXEMBOURG, a company is entitled to deduct as expenses, capi-
tal losses in one of the following 5 years under certain conditions.
These conditions imply that if the company fails to deduct losses which
are carried forward in the earliest possible year it loses its right
to do so in subdequent years.

In the NETHERLANDS a company is allowed to carry back losses in
one year or to carry forward them in the following 6 years.

In the UNITED KINGDOM the tax treatment of losses varies accord-
ing to the category of income which the loss related. They may be
carried forward without time limit but they may be carried backward
for the 3 preceeding years.

PROVISIONS FOR TAX-FREE RESERVES

BELGIAN tax law does not permit the general creation and use of
tax-free reserves; the Belgian tax law or the administrative law de-
cribe certain conditions which must be fulfilled in order for a firm
to be entitled to put aside tax-free reserves.

The IRISH tax law does not allow reserves set aside against an-
ticipated future expenditures, uninsured risks or replacement reserves
to be deducted. On the other hand, insurance premiums paid to protect
the company against associated with its business are deductible.

The LUXEMBOURG law permits any kind of reserve and a company
may create various Funds to which portions of its profits are allocated
but the general rule is that these allocations are not deductible from
business income for tax purposes.

The DUTCH tax law allows reserves to be carried tax-free for fut-
ure expenditures e.g. pension payments, provided these expenditures
are in accordance with "sound business practice". On the other hand,
tax-free reserves are not allowed to be created for general purposes.
However, some exemptions of this rule appear.

The UNITED KINGDOM tax law does not generally allow reserves and provisions to be deductible. Tax deductibility depends primarily first, on whether a reasonably accurate estimate of the future expenses can be made, second, on its degree of the contingency and finally, on the absence of any statutory prohibition.

The FRENCH tax law allows more liberal provisions and it provides the most precise definition of provisions. Provisions may set up for any purpose but for profits to be deductible as tax-free reserves three requirements should be satisfied: first, they should be made in anticipation of expenses or losses which are themselves deductible; second, they have to be concerned the current fiscal year and third, they should be related to the expenses or losses that are both sufficiently determined and made probable by current events.

The DANISH tax law allows a reserve 30 percent of the inventory on hand at the final day of the accounting year to be deductible from taxable income.

The GERMAN tax law distinguishes two types of reserves. Those which are formed out of profits after taxes (surplus reserves) and those formed out of profits before taxation but on which taxation is deferred (tax allowed reserves and to a certain extent secret reserves). The purpose of surplus reserves is to cover future losses, dividends or other claims. The tax-allowed reserves intend to provide firms with an incentive for certain types of investment. Finally, the secret reserves are defined as the amount by which the book value of an asset is less than the actual value realizable should that asset be sold.

TAXATION OF DIRECTORS' FEES

The BELGIAN tax law distinguishes between "active" and "inactive" directors and fees granted to directors actively engaged in the management of the company are deductible only to the extent they exeed the remunaration of the highest paid inactive directors.

The DANISH tax law allows the deductibility of directors' fees if they are in line with fees paid to directors of comparable companies.

The FRENCH tax law particularly scrutinizes remunarations paid to directors, shareholders and related persons. Fees paid to directors and officers are only deductible if they perform special assignment on behalf of the company and if certain conditions are satisfied.

Directors' attendance fees are deductible from taxable base but their bonuses are not. Excessive remunarations are not also deductable. The test for "excessive" remunaration is made by comparing that of Directors of similar companies, then, the excessive part is taxed as dividend.

Under the new GERMAN law one-half of any compensation paid to members of the supervisory board or other individuals for services rendered in connection with supervision of the company's management, is deductible. A non-shareholding director's other compensation is a fully deductible expense for CIT purposes.

The Irish tax law does not impose special restrictions on directors' remunaration, but a deduction for the full amount charged in the company's account could be challenged in certain circumstances.

The ITALIAN tax laws distinguishes four forms of compensation payable to directors. Fees, profits participation, attendance allowance and fixed travelling allowances. Director's fees are deductible up to the extent that they are deemed to be reasonable.

The LUXEMBOURG law does not in general allow a company to deduct from the taxable base any forms of compensation paid to members of its board of directors, its supervisors or company officer in similar position, but an exemption of this rule occurs if the remunaration is paid in respect of the exercise of managerial functions, such remunaration is then deductible. The general employment conditions will determine the amount of the appropriate salary.

The NETHERLANDS tax law allows a company to deduct for corporate income tax purposes any compensation paid to its supervisory board, other individuals for services rendered in connection with the supervision of corporate management or compensation paid to general managers for services rendered. But if he is also a shareholder, excessive compensation may be deemed as a hidden profits distribution and not be deductible. The test for excessive payment is basically made by comparing that with that paid to non-shareholding persons for similar services.

Finally, the UNITED KINGDOM law allows companies to deduct as

expenses both fees and salaries paid to its directors, irrespective
of whether the latter are also shareholders. However, in the case of
a close company the legislation defines the term director first, as
any person who actually holdes the position of a director, whatever
he is called, second, any manager employed by the company who with
his associates ownes or controlls 20 per cent or more of the ordinary
share and finally any person in accordance with whose instructions the
directors are accustomed with.

TAXATION OF INTEREST

The BELGIAN tax law considers as excessive interest charge and there-
fore not deductible, the part of the interest exceeding the interest
rate of the Belgian National Bank increased by 3 points or exceeds 9
per cent if the National Bank rate is under 6 per cent.

The DANISH tax law excludes from the taxable base interest payments
paid on a long-term and short-term business debts but if paid to share-
holders they may be considered as hidden profits distribution, espec-
ially where the interest rate is higher than normal.

The FRENCH tax law allows the deductibility of interest payments
paid to third parties if the debt is incurred in the interest of and
for business purposes of the company. A presumption exists that loans
or advances directly or indirectly made to shareholders are constructive
(hidden) dividends, however, the excess interest is added back to tax-
able income and is treated as dividend distributions to the sharehold-
ers.

The GERMAN and the LUXEMBOURG tax law follow the same policy. In
general, they allow deductibility of interest payments paid to third
parties for business purposes but excessively high rates paid to
shareholders or affiliated companies may be deemed "hidden" profits
distribution.

The IRISH tax law imposes more severe restrictions on interest
payments. The Finance Act 1974 introduced provisions intended to re-
strict tax relief to interest not exeeding £2,000 in a tax year. The
restrictions don't apply if the firm can show that the interest is a
business expense.

The UNITED KINGDOM tax law allows the deductibility of "short"

interest, that is, interest in a flactuating current account such as a bank overdraft, as opposed to interest on a term loan by a trading company in computing trading income.

TAXATION OF INTERCORPORATE DIVIDENDS

The U.K. and the Irish tax laws provide full tax exemption from corporate tax on recipient company of all dividend received without any special condition to be satisfied. In Ireland, under the following two conditions these profits are also exempt from income tax withheld by the distributing company: first, both the parent and the subsidiary company to be resident in Ireland, and second, the parent company to own at least 75 per cent of the issued share capital of the subsidiary company. Under the U.K. imputation system inter company dividend are subject to the advance payment of corporation tax when are initially distributed by the subsidiary company to the parent. The former deducts this payment from its final tax liability whereas the latter is not required to pay a new advance corporation tax when it re-distributes these to its shareholders. However, the initial advance corporation tax payment and the benefit of credit are passed on to the ultimate shareholder.

Under the new GERMAN system intercooporate dividend are exempt from corporate taxes but through a different process than that described above. Distributions to the parent from a subsidiary carry a credit 36 per cent of the tax paid by the subsidiary. In addition to that a 25 per cent withholding tax is levied. The recipient corporation may set against its final tax liability both the imputed dividend tax credit and the withholding tax paid by the distributing company.

The ITALIAN tax law also results in an exemption of domestic intercorporate dividend from the CIT. This is so because under the imputation system introduced in one third of dividends received from resident companies may be credited against the company income tax due on the aggregate of the dividend and the attached tax credit. The recipient company may also credit the tax withheld against its company income tax assessment.

The DANISH tax law allows for a consolidated balance sheet, that is, for joint taxation of parent's and subsidiarys' profits under the condition that the parent owns 100 per cent of the subsidiary's shares.

Otherwise two cases may be distinguished. First, if the parent company owns at least 25 per cent of the shares of the subsidiary, then income received by the former is exempt from taxation in its hands. Second, if a parent owns less than 25 per cent of the paid-in capital of the subsidiary the parent included 115 per cent of the dividend declared in its income but it is entitled to a tax credit of 15 per cent of the dividend declared.

Under the FRENCH tax law companies may elect to be subject to CIT on their consolitated income. If a parent company owns at least 10 per cent of the shares of the subsidiary, is exempt from CIT on 95 per cent of the gross amount of dividend received from the subsidiary. The 5 per cent portion is a lump-sum deduction which represents deemed expenses related to the collection of the dividend received. This income is also exempt from withholding tax. If the parent company re-distributed this exempt dividend to its shareholders as advance corporate tax is due only if the avoir fiscal applies. If the parent corporation owns less than 10 per cent of the share of the subsidiary, dividend received by the parent are subject to full corporate income tax but a partial double taxation relief is given for the dividend-received-tax credit (avoir fiscal) equal to 50 per cent of the dividend received.

In LUXEMBOURG, the parent company is exempt from corporate taxes in dividend received from its subsidiary if the former owns at least 25 per cent of the shares of the latter, provided that it held them . from the beginning of the financial year and at least during the twelve months preceeding the end of the financial year. These dividend distributed to companies which do not fulfil these conditions a 15 per cent withholding tax is imposed on dividends which may be credited against the company tax payable by the parent corporation.

In the NETHERLANDS dividends received by a parent company are exempt, if the recipient owns at least 5 per cent of the paid-in capital of the distributing company. If the parent company has no substantial participation in the paid-in capital of the subsidiary, that is, owns less than 5 per cent, dividends received by her are taxed as ordinary business income. In addition to that a withholding tax equal to 25 per cent is levied upon these dividend which is

credited against the final income tax of the recipient.

In BELGIUM, if a parent corporation is considered as qualified under "permant participation" criterior is exempt for 95 per cent of the dividend received from its subsidiary. These dividends don't carry with them any tax credit. If the parent company fails to satis- fy the above mentioned condition then it is taxed on the dividend re- ceived from its subsidiary but a special credit of 57.5 per cent of the net dividends received is given. In addition to that a withhold- ing tax of 20 per cent is levied which is generally credited against the company income tax.

ACCELERATED DEPRECIATION

Belgium grants accelerated depreciation under the form of doub- ling of the normal depreciation allowances for the first three years, for certain classes of assets, i.e. machinery and industrial buildings in special development regions.

In DENMARK, an advance depreciation allowance is allowed which applies to industrial buildings, machinery and equipment. This provis- ion applies only to that part of the total contracted cost which ex- eeds DKr. 700,000. 30 per cent of the excess over DKr 700,000 may be written off during the first four years following the award of the contract subject to a maximum 15 per cent in any one year.

FRANCE applies accelerated depreciation if a case can be made out for special circumstances. Particularly, accelerated depreciation are available for buildings in two specific uses. First, as a means to promote regional development, a first year 25 per cent allowance is granted for buildings constructed in certain development areas. Sec- ond, for buildings acquired for scientific and technical research, a first year allowance of 50 per cent may be claimed and the balance of expenditure is written off by the normal methods.

GERMANY uses accelerated depreciation for both regional and counter cyclical policy purposes. Exemptional accelerated depreciation allowance is applicable for investment in certain regions. In gen- eral, the rate of 30 per cent of the cost of immovable assets and 50 per cent of the cost of movable assets is deducted over the first five years.. Recently a 40 per cent accelerated depreciation was introduced

for new ships or aircraft registered in Germany.

In ITALY, despite the fact that only the straight-line method of depreciation is allowed, accelerated depreciation may be claimed for new investment on up to 45 per cent of cost spread over the first three years of operation subject to a maximum of 15 per cent in any one year.

The NETHERLANDS use accelerated depreciation only as a means for regional policies and only in certain areas outside the Randstad Holland. The provision is concerned only with buildings and it amounts of 16 and 1/3 per cent in the first two years.

Both the U.K. and IRELAND grant accelerated depreciation in the form of first year allowances. The rates are determined annually in the budget. In some cases these rates reach 100 per cent.

RATES OF DEPRECIATION

The GERMAN and LUXEMBOURG governments publish tax rate applied to straight-line method whereas the rate of declining-balance method must not exceed 20 per cent of the book value of the assets or twice the whichever is lower.

The ITALIAN government has a long history in using official tables for regulating the cost recovery period. Depreciation may not be calculated for fiscal purposes if the rates exceed those which have been approved by the Ministry of Finance.

Under the BELGIAN tax law the rates are usually agreed between the taxpayer and the tax authorities.

The FRENCH government does not lay down fixed rates of depreciation. However, the firm proposes for each depreciable a given cost recovery period, and it corrects it if it is too liberal. The same line is followed by the;

NETHERLANDS government, there are no official guidelines and the rates of depreciation are agreed between the tax authorities and the taxpayer. Depreciation may be calculated on any basis which is consistent with sound commercial practice.

The DANISH system provides rates for depreciation of building. Whereas depreciation in respect of plant and machinery the taxpayer has the option to determine the deductible amount subject to an annual

ceiling of 30 per cent of the total opening written down value.

The UNITED KINGDOM and IRELAND have different systems of deprec-
iation than the other E.E.C. countries. It is consisted of initial or
first year and annual allowances. The rates of the initial allowances
are more or less fixed whereas the rates of an annual allowance is de-
termined from time to time in the budget.

CHAPTER SIX

IMPLICATIONS FOR THE GREEK CORPORATE TAX SYSTEM

6.1 Introduction

   The purpose of this chapter is to outline the main changes which
membership of the E.E.C. is likely to involve in the Greek corpor-
ate tax system, evaluating their likely effects upon the Greek econ-
omy in terms of equity, efficiency and growth.

   Greece applied for association with the E.E.C. in July, 1959 and
became an associate member by the Athens Agreement of July, 1961.
In 1975, Greece requested full community membership. After a marathon
of negotiations Greece and the E.E.C. signed the Treaty of Accession
in 1979. Thus, Greece will become the 10th member of the E.E.C. on
January, 1st 1981.

   In the previous chapter we discussed the need to harmonize the
taxation systems within an integrated area. It seems reasonable for
Greece to make some changes in its tax system towards the Common
Market's standarized one. The last proposal of the E.E.C. concerning
business tax harmonization calls for a common imputation system with-
in the Community. Despite the variations and disparities just des-
cribed, it seems reasonable to conclude that imputation systems for
corporate taxation are going to be the general rule in Europe, at
least within the E.E.C. for some time to come. Seven of the nine
member countries of the Community have already introduced this system,
despite the fact that the Council of Ministers have rejected the dir-
ective as dealing with only half of the problem. If this is so the
changes required for conformity of the Greek business tax system to
that of the E.E.C. constitute a straight forward exercise. Thus,
the burden of our efforts will be concentrated on the impact of these
changes upon the Greek economy.

6.2 What Has Been Done During the Association Period

   Under the Athens Agreement, Greece and E.E.C. undertook the respon-
sibility for taking steps in the direction of harmonization. A tran-
sitional period of twenty-two years was designated to prepare Greece

for full membership. The Agreement emphasized the commitment of both parties to pursue co-ordinated economic policies aimed at balance of payments equilibrium, balance growth and price stability.

Since July 1st. 1968, Greek industrial products have entered the Community without any quantitative restrictions and since November, 1st, 1968, without any tariffs. Most Greek agricultural products have entered the Community free of tariffs and quantitative restrictions since January 1st, 1970. On the other hand, Greece has abolished tariffs for two thirds of products imported from the E.E.C., while for the remaining one third they have been lessened by sixty per cent. It is expected that this process will have finished by 1984 when the transitional period expires.

In the field of taxation, Greece is in the preparatory stage. It has been recently reported that the Greek government has prepared a draft Bill for introducting a value added tax, accordingly to the E.E.C. provisions. The introduction of V.A.T. which will replace a maze of indirect taxes, will simplify tax administration and will put Greek indirect taxation in accord with E.E.C. provisions. In the field of direct taxation nothing significant has been done to put this kind of taxation in harmony with the E.E.C. provisions. However, the system of incentives including tax incentives is under review.

Under the Act of Accession a general five year transitional period was provided within which the bulk of the adjustments would be completed. Greece will be able to defer until 31st December, 1985 the liberalization of direct investment and until 31st December, 1983, the libelization of transfers of the proceeds of direct investment in Greece made before 12th January, 1975, by persons resident in the Community. In the field of taxation a preliminary examination made by the Community revealed a series of questions which will have to be studied further before it can be established whether and to what extent the application to Greece of Community rules will create problems (E.E.C 1976a). Therefore, Greece has been granted a three year grace period for full implementation of the sixth Directive relating to the common system of V.A.T.

6.3 Company Tax Conformity to the E.E.C.

Since tax harmonization does not aim to produce identical tax systems but only to bring them in accord, Greece has two options:

either to make the necessary changes in the existing system to bring
it in harmony with the E.E.C proposal, or to replace it by the propo-
sal. If the first option is chosen, then Greece has to introduce the
necessary changes described in Chapter Two for obtaining capital ex-
port neutrality and intercountry equity where one country employs the
imputation system and another the dividend paid deduction system.
Under the second option the question arises which type of imputation
system Greece should introduce since the existing imputation systems,
within the E.E.C. differ from each other on various technical as-
pects. We believe that the second option is more probable for two
reasons. First, the required changes in the tax system under the
first option would face the same reactions as Germany faced when it
used the split-rate system and second, the second option would bring
the Greek tax system close to the existing systems in Europe. After
all, Greece is the only country which has this system, and it has had
it for a period of twenty-two years.

In a developing and growth-oriented economy such as the Greek,
the need to take the maximum of capital for development puts a differ-
ent emphasis on the corporate income tax developments.

In Chapter Two we compared the Greek corporate tax system with the
imputation system at a theoretical level. Now, we proceed to discuss
a more practical exercise, namely, the replacement of the existing
Greek system by the proposed imputation system by the E.E.C.

6.4 Changes in the Tax Structure
6.4.1.
Introduction

History suggests that whenever it is proposed to change established
tax system, like the Greek one, the shape and the extent of the tax
reform should be based on a number of considerations. If this is
not done the consequences are often unexpected and unintended hard-
ships and benefits ensue. Therefore, Greek tax reform should be based
on the following considerations.

1. The structural characteristics of the Greek econ-
    omy may constitute a constraint to any kind of
    change. The E.E.C. Commission in its report on
    Greek application for membership emphasises that
    "certain of the structural features of the Greek
    economy should be given particular attention in

so far as they may limit the Greek government's
ability to conform to these provisions upon ac-
cession. Thus the country's fiscal structure
(very low proportion of direct taxes), its bank-
ing system, etc. do not appear to be sufficiently
developed to meet Community requirements as they
are set out in the Council's Directive dated 18th
February 1974 on stability, growth and full em-
ployment" (E.E.C.1976a).

2. The reform in question should not be a-once-
and-for-all business but it must constitute the
basis for further future reforms when the final
solution has been given to the business tax har-
monization problem.

3. At that stage the reform should be confined
to the system of CIT and further reform concerning
the various elements of the tax base will take
place when the E.E.C Commission provides the mem-
ber states with a proposal in that area.

4. The appropriate new relationship between per-
sonal income tax and corporate income tax and the
relative weight to be placed on each, should take
into account the distribution of tax burden, growth
and other fiscal and social aspects.

In order to save space we have prepared a table outlining what
we think to be the most important changes in the E.E.C proposal.
To provide a more complete basis for comparison, the table also
mentions some of the features of the present system (table 6.1).

6.4.2 Tax Base

Under the existing Greek system CIT is levied on that part of
profits which remains in the corporation only, whereas the distribu-
ted part is taxed under the personal income tax rules. The E.E.C.

T A B L E 6:1

A COMPARISON BETWEEN PRESENT AND PROPOSED CORPORATE TAX SYSTEM			
	PRESENT SYSTEM	PROPOSED SYSTEM	REQUIRED CHANGE
1. Tax Base	Undistributed Profits	Undistributed & distributed Profits	Extension of the tax base to include distributed profits.
2. Corporate Tax Rate	40%	45%-55%	5%-15%
3. Treatment of Corporate Source Income in the hands of individuals.	100 per cent of dividend received are included in income. A specific amount is exempt from shares quoted with A.S.E.	An imputation credit must be granted of between 45%-55% of the Corporate level tax applicable to the income distributed.	New Development.
4. Compensatory Tax	- - -	Equal to the amount of imputation credit applicable less any amount of CIT already paid	New Development.
5. Withholding tax.	38%-47%	25%	Reduction by 13%-22% .

proposal requires the extension of CIT to profits which are distributed. Thus, like the existing system, the new system would achieve partial integration for distributed corporate profits, but the necessary adjustments would be made at the individual, rather than the corporation level. This constitutes the primary operational difference between the two systems. However, the primary main difference between imputation system and the dividend deduction system is the extension of CIT on distributed profits as well.

The study of the treatment of various elements which constitute the tax base is beyond the purpose of this dissertation for two reasons. First, there is no proposal from the E.E.C for tax base harmonization and second, there are, as we saw, discrepancies between the E.E.C member states on the subject without any clear tendency for the E.E.C countries themselves to reduce these discrepancies as there are for the system of CIT. However, we expressed some preliminary ideas how these discrepancies could be lessened in the previous chapter.

6.4.3 Tax Rate and Tax Credit

Under a system of grossing-up the dividend and of allowing a credit for the CIT, the selection of CIT rate and of CIT rate eligible for the credit is obviously of importance.

The proposal suggests a tax rate on total corporate profits not less than 45 per cent and not higher than 55 per cent. Therefore, the increase of the Greek tax rate should not be less than 5 per cent and not higher than 15 per cent. In addition to the credit rate some other considerations should also be taken into account, such as the possibility of the increase in tax rate may lead to greater effort for evasion and avoidance, to economically unjustified (but deductible) expenses. The new tax rate appears likely to be equal to or less than 50 per cent. A CIT rate equal to 55 per cent combined with a reduction of top marginal personal tax rate from 60 per cent to 55 per cent would preclude the postponement of tax on retained earnings since there is no capital gains tax in Greece.

The selection of CIT rate eligible for the credit is a more difficult and politically controversial subject. The question is:

full or partial credit? The answer is related to considerations
such as the purpose of the credit, namely, alleviation of economic
double taxation, encouragement of individual investment etc., the
incidence and shifting of Greek CIT. As we saw, the E.E.C propos-
al requires a partial credit without justifying its preference for
partial and not full credit. The purpose of this credit is the
alleviation of economic double taxation. Greece, since 1958, fully
alleviates economic double taxation. Therefore, if Greece wants to
continue to do so, it should join Germany and Italy, introducing a
full imputation and not a partial imputation system. However, if
Greece would like to be in line with the E.E.C. proposal it should
introduce a partial imputation system which would imply a new
treatment of economic double taxation in Greece.

The introduction of a compensatory tax is related to the pur-
pose of the credit. That is, if the credit is intended to allev-
iate economic double taxation of corporate profits then the introd-
uction of a compensatory tax is necessary to safeguard the CIT. How-
ever, if the credit is intended to encourage individual investment
in equities then the credit should be provided regardless of whether
or not Greek CIT had been paid or not and there is no need for a
compensatory tax.

We believe that Greece should introduce a full imputation sys-
tem as a first step towards harmonization for two reasons.

First, the full imputation system is closer than the
partial imputation to the existing system, therefore,
the effects from the reform would be easier to predict.
Table 6.2 shows that the economic effects for the cor-
poration can be similar under either the dividend-ded-
uction system or the full imputation system, because
both systems lead, for a given revenue, to similar redu-
ctions in the overall tax bias against corporate source
income. Second, as we pointed out elsewhere Greece
needs capital for its development, which means invest-
ment in equities should be encouraged.

T A B L E 6.2

Compariosn Between Dividend Deduction System and Full Imputation System.

	Present System	Full Imputation
1. CORPORATION		
2 Tax Computation		
3 Income	1000	1000
4 Dividend Paid Deduction	500	–
5 Taxable Income	500	1000
6 Tax at 50%	250	500
7 Cash Effect		
8 Dividends Paid	500	250
9 Net Cash Retained	250	250
10 SHAREHOLDER		
11 Tax Computation		
12 Dividend Cash	500	250
13 Gross-up	–	250
14 Taxable Income	500	500
15 Tax at 40%	200	200
16 Tax Credit	–	250
17 Cash Effect		
18 Dividend Received	500	250
19 Tax Paid or (Refund)	200	(50)
20 Net Cash Dividend	300	300
21 Total Tax	450	450

6.4.4 Withholding Tax

The purpose of a withholding tax is twofold. First, to fight tax evasion at domestic and international level and second, to act as a proxy for personal income tax on income of foreigners. Under the dividend paid deduction system the role of the withholding tax is crucial from both points of views. Greece, to achieve these purposes, levies a high rate of withholding tax, namely, from 38 per cent to 47 per cent, depending on the nature of the shares which produce these dividends; that is, according to whether they are quoted with the Athens Stock Exchange or not and whether they are registered or bearer shares. Article 14 of the E.E.C proposal generally provides for a 25 per cent withholding tax on dividend no matter who is the recipient.

At first glance, it seems that the withholding tax rate is reduced by 13 per cent to 22 per cent. This is the nominal reduction since as we have seen under the imputation system both credit and withholding tax act in the same way. Table 6.3 explains this situation. In the left-hand side of the table the various withholding tax rates under the present system are shown. In the right-hand side the new total withholding tax rates are shown under corporate tax rates equal to 45 per cent and 50 per cent. We see that the new withholding tax rate may be 30, 35 or 40 per cent depending on the corporate tax rate and the correspondent credit rate. Concluding, we would argue that the theoretical argument concerning the imputation system that it might improve compliance because the shareholder has to report dividends in order to receive the credit, it is not valid in our case since under the new system the withheld tax is lower than under the present system.

T A B L E 6.3

Withheld Taxes Under the Two Systems				
Present	Proposed			
	Tax Rate	Tax Credit	Withholding Tax	TOTAL
A. From shares quoted with A.S.E.	45%	16.25	13.75	30.00
a. Registered Shares 38%		20.25	13.75	35.00
b. Bearer Shares 41%				
	50%	22.50	12.50	35.00
B. From Shares not		27.50	12.50	40.00
quoted with A.S.E.				
a. Registered shares 43%				
b. Bearer Shares 47%				

6.4.5 Administrative Simplicity

Administrative simplicity is more important in less developed countries rather in advanced economies, because bureaucracy and the morality of the taxpayers are not at the same standards as in developed economies. The dividend deduction system is administratively uncomplicated and it is not hard to understand how it works. The imputation system, on the other hand, because of the grossing-up process applied to it, is difficult to grasp and sometimes unintelligible to the simple shareholder.. This system could be made simple to him if the corporation would make the necessary calculation for him and he would be informed only of the amount of dividends which he has to include in his personal tax declaration and the amount of his credit. However, in practice this difference between the two systems, from a simplicity point of view, is not so great. In Greece, for example, there is a withholding tax withheld by the corporation on behalf of the government. Therefore, the shareholders report in their income tax declaration not the net amount which they receive from the corporation but the gross amount which includes the withheld tax and they receive a credit against their final tax liability equal to the withheld amount.

6.5 The Effects Upon The Greek Economy

6.5.1 Introduction

We are now ready to turn to the third and more significant objective of this dissertation: the estimates of the impact that the tax reform would have on the Greek Economy.

A classic example of an economic change is the case of free trade. The abolition of tariffs creates a new situation for firms and individuals. Both parties have to adjust to the new situation. New competition is created from abroad. This change requires new investment in various facilities and equipment for firms and a new orientation for a group of individuals.

A case related to the free trade case is that of tax harmonization in a common market. The free movement of goods and factors

of production have similar but wider impacts than those of the free trade case. The theoretical study of tax harmonization requires the overlapping of two different fields of economics: the theory of Public Finance and the theory of International Trade. The study of the impact of tax harmonization is not confined, as in the case of free trade, to the resource allocation aspects but it is extended to cover some other aspects of Public Finance such as revenue, income distribution, balance of payments and growth.

The macroecomomic effects of integration can be sensibly assessed by taking into account the various feedback relationships among the countries which constitute the integrated area. This requires the development of a multicountry model which captures the simultaneous feedbacks among the member countries. Unfortunately, the development of such a model requires certain compromises because of the lack of suitable time-series data or the lack of comparability in time-series data for the countries in question. In addition to that the system inevitably becomes quite large because it consists of several sub-systems which are linked tightly together. Therefore, the development of such a model is a difficult task without providing reliable results due to the many compromises which are necessary. It has been pointed out that " ... the distance which still had to be travelled in order to close the gap between the public finance pundits interested in the influence of budgetary transactions on important macro-policy variables and the model-builders, who ..... have concentrated little effort on specification of the role of the public sector in their constructions" (A Peacock and M. Ricketts, 1975). On the other hand, the use of a typical econometric model of one country would not be realistic since it neglects the economic inter-dependence between the member states of the integrated area.

This study makes no attempt to determine the full equilibrium effect of changing the CIT system, it presents a detailed analysis of the immediate impact of the tax change upon Greek companies and the way in which they would respond to their changed circumstances. A corporation tries to avoid the CIT through changes in dividend pay-out ratio, in debt-equity financing or switching to the unincorporated sector. Unfortunately, many studies in the literature (for

example, Harberger) assume that there is no financial response of the corporation to a tax change. Therefore, we assume that a tax reform takes place in Greece neglecting this cause of this reform. The estimates of the economic effects resulting from this reform require the following considerations to be taken into account. First, some of the main characteristics of the Greek corporate sector in particular and of the Greek economy in general described in the third and fourth chapters. Second, the degree of the present economic relationships between Greece and the E.E.C. will determine to some extent the eventual economic impact of full membership.

Two important and closely inter-related effects of any change in tax rates or in the system of taxation are those on the level of corporate investment and those on the relation of dividend payments to after-tax profits. We will use the econometric parameter estimates described in chapter four to estimate these effects evaluating their consequences for income distribution and growth.

6.5.2 Tax Revenue

We saw in chapter three that tax revenue from CIT is unimportant, therefore, we do not expect the effect of the tax reform to be significant in that area. In addition, as we have argued, this effect may be neutralized by choosing the appropriate tax base, tax rate and the dividend tax credit. A change, if any, in corporate tax revenue will have an effect upon the total composition of tax revenue. In fact, if it is positive the Greek government could improve the relation between direct and indirect taxes by reducing the latter by the correspondent amount.

We have made an examination of the tax revenue which would have been raised in 1975 had the proposed system been in full effect for all that year, 1975 being the most recent year for which we could obtain sufficient data for detailed estimates[1]. Assuming the new tax rate to be 45 per cent we expect the reform to increase revenue by 511.573 thousand Drs. that is, by 20 per cent. Table 6.4 shows the expected changes in revenue for CIT and from personal income tax.

T A B L E   6.4

The Effect of the Proposal on 1975 Revenue from Taxes Affected by the Reform			
	Present System	Proposed System	Change
Corporation income tax.	2,135,442	2,823,570	+688,128
Personal income tax.	312,962	136,407	-176,555
Total	2,448,404	2,959,977	511,573

In our estimates, the tax revenue collected from corporation would be increased as a result of two types of reforms which are recommended. First, the increase in tax rate and second, the widening of the tax base to include distributed profits.

The changes in tax liabilities implied by the proposal depend crucially on the response of dividends to the tax change. We therefore analyse two quite different assumptions about the change in dividends. The first assumption, which we refer to as "direct dividends held constant" is that companies continue to pay the same dividends to their shareholders, that is, they write the same dividend checks that they would if there had been no change in the tax law. The second assumption, which we refer to as "net cash dividends held constant" is that shareholders receive the same amount of dividends after personal income tax as they would if there had been no change in the tax law.

Table 6.5 shows how the tax liability and cash of both corporation and shareholder under the "direct dividends held constant" hypothesis. We assume various corporate tax rates with the correspondent tax credit rates. Column 1 shows the operation of the existing system assuming that firms earn 1,000 Drs. and they distribute 400 Drs. We see that the firm's tax liability increases from 240 Drs.

TABLE 6.5

TAX CONSEQUENCES UNDER THE "DIRECT DIVIDENDS HELD CONSTANT" HYPOTHESIS

	PRESENT SYSTEM	PROPOSED SYSTEM									
Tax Rate	40%	40%		45%		48%		50%		55%	
Tax Credit	–	30%	37%	37%	45%	42%	51%	45%	55%	55%	67%
1. CORPORATION											
2. Tax Computation											
3. Income	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
4. Dividends Paid Deduction	400	–	–	–	–	–	–	–	–	–	–
5. Taxable Income	600	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
6. Tax	240	400	400	450	450	480	480	500	500	550	550
7. Cash Effect											
8. Dividends Paid	400	400	400	400	400	400	400	400	400	400	400
9. Net Cash Retained	360	200	200	150	150	120	120	100	100	50	50
10. SHAREHOLDER											
11. Tax Computation											
12. Dividend Cash	400	400	400	400	400	400	400	400	400	400	400
13. Gross-up	–	120	148	148	180	168	204	180	220	220	268
14. Taxable Income	400	520	548	548	580	568	604	580	620	620	668
15. Tax at 35%	140	182	192	192	203	199	211	203	217	217	234
16. Tax Credit	–	120	148	148	180	168	204	180	220	220	264
17. Cash Effect											
18. Dividend Received	400	400	400	400	400	400	400	400	400	400	400
19. Tax Paid or (Refund)	140	62	44	44	23	31	7	23	(3)	(3)	(30)
20. Net Cash Dividend	260	338	356	356	377	369	393	377	403	403	430
21. Total Tax	380	462	444	499	473	511	487	523	497	547	520

under the existing system to 400 Drs. if the corporate tax rate
remains equal to 40 per cent, as it is now, and to 550 Drs. if the
tax rate increases to 55 per cent (line 6). The net cash retained
by the firm decreases tremendously from 360 Drs. to 50 Drs. (line 9).
The shareholder continues to receive 400 Drs. as previously: however,
his personal tax liability is lower (line 19). Therefore, the net
cash dividends are higher under the new system (line 20). This in-
crease reflects the decrease in the net cash retained by the corpor-
ation. Finally, the total tax liability, that is, that of corporat-
ion plus that of the shareholder increases under the new system
(line 21). It is worth noting that all the above described effects
result not only from the change of tax systems but from the increase
of tax rate, too.

Table 6.6 shows the effects of the new system upon tax liability
and cash under the "net cash dividends held constant" assumption.
We see that the corporation continues to pay the same amount of tax
as under the previous assumption (line 6). However, the amount of
dividends paid differs now depending on the corporate tax rate and
the credit tax rate. It is 310 Drs. under a CIT rate equal to 40
per cent and it is reduced to 240 Drs. under a CIT rate equal to 55
per cent (line 8). The combined effect of the same corporate tax
liability and the lower dividend payments results to higher net cash
retained under this assumption than under the previous. Namely, the
net cash retained falls but not so drastically as under the previous
assumption. The shareholder receives a smaller cash amount of divi-
dend now but the gross amount of dividend, that is, cash dividend
plus the credit is equal to the amount distributed under the current
system. His final tax liability is less, therefore, he finally re-
ceives the same net cash dividend as under the current system (line
20). The total tax liability is again higher than under the present
system.

6.5.3 Distributional Effects

The major distributive consequences of implementing the E.E.C
proposal's recommendations are to be found in : -

a) the impact of the new system upon dividend policy.

TABLE 6.6

TAX CONSEQUENCES UNDER THE "NET CASH DIVIDENDS HELD CONSTANT" HYPOTHESIS

	PRESENT SYSTEM	PROPOSED SYSTEM					
Tax Rate	40%	40%	45%	48%	50%	55%	55%
Tax Credit	—	37%	45%	51%	55%	55%	67%
1. CORPORATION							
2. Tax Computation							
3. Income	1000	1000	1000	1000	1000	1000	1000
4. Dividends Paid Deduction	400	-	-	-	-	-	-
5. Taxable Income	600	1000	1000	1000	1000	1000	1000
6. Tax	240	400	450	480	500	550	550
7. Cash Effect							
8. Dividends Paid	400	292	276	263	258	258	240
9. Net cash Retained	360	308	274	257	242	192	210
10. SHAREHOLDER							
11. Tax Computation							
12. Dividend Cash	400	292	276	263	258	258	240
13. Gross-up	-	108	124	137	142	142	160
14. Taxable Income	400	400	400	400	400	400	400
15. Tax at 35%	140	140	140	140	140	140	140
16. Tax Credit	-	108	124	137	142	142	160
17. Cash Effect							
18. Dividend Received	400	292	276	263	258	258	240
19. Tax Paid or (Refund)	140	32	16	3	(2)	(2)	(20)
20. Net Cash Dividend	260	260	260	260	260	260	260
21. Total Tax	380	432	466	483	498	548	530

b)   the impact on the share prices.

c)   the shifting and incidence of the Greek CIT.

d)   the removal of the existing tax inequities.

6.5.3.1 Dividend Policy

There arises the question of how dividend policy would be affec-
ted by substituting the imputation system for the dividend paid ded-
uction system. A number of effects of opposing direction might be
generated which make any prediction difficult. The effects whose
significance seems most reliable are: -

a)   the value of discriminatory variable against or in favour
     of distribution described in chapter three,

b)   the shelter effect, that is, the incentive utilized by high
     income shareholders to retain corporate profits in order to
     reduce personal tax liabilities,

c)   shareholder preferences regarding gross dividend or net cash
     dividend and,

d)   the treatment of equity and debt financing.

6.5.3.2 The Tax Discriminatory Variable

We found in chapter three that the value of the tax discriminat-
ory variable under the existing system is given by the formula,

$$\theta_G = \frac{1 - tp}{1 - tc} \qquad (3.4)$$

Under the new system this formula becomes as follows: -

$$\theta_1 = \frac{1 - tp}{1 - S} \qquad (6.1)$$

where tp and tc is the rate of personal and corporate tax and S is
the rate of credit under the new system. It is worth noting that
under the new system the value of the discriminatory variable does
not depend on the corporate tax rate directly, but only indirectly
through the rate of tax credit. Since the numerators in both equa-
tions are the same their relative size depends on the rate of corpor-
ate tax and of the credit. Therefore three cases may be distingui-

shed: -

a)   if $s > tc \rightarrow 1 - s < 1 - tc \Rightarrow \theta_G > \theta_1$

b)   if $s = tc \rightarrow 1 - s = 1 - tc \Rightarrow \theta_G = \theta_1$

c)   if $s < tc \rightarrow 1 - s > 1 - tc \Rightarrow \theta_G < \theta_1$

From equation (6.1) we receive various values for θ_I giving various values to s. According to the E.E.C. proposal s takes values in the range between 45 per cent and 55 per cent. As we saw in chapter three the most representative value of tp is 35 per cent. Therefore table 6.7 shows the values which the tax discriminatory variable may take under the new system.

T A B L E 6.7

Tax Discriminatory Variable's Values				
Existing System			New System	
tp	tc	θ_G	S	θ_1
.35	.40	1.08		
.35			.45	1.18
.35			.50	1.30
.35			.55	1.44

From the above table we see that the most representative value of θ under the existing system is 1.08 whereas under the new system it would be higher. This implies that the cost of retained earnings is higher under the proposed system, which induces corporations to distribute higher amount of profits than under the existing system.

5.3.3   The Shelter Effect

In countries where individual income tax rates substantially exceed the rate of corporate tax, a company would provide a shelter for individuals whose marginal rate of income tax exceeds the CIT rate on profits retained by the company. This is the case of Greece

where the top value of the marginal personal tax rate is equal to
60 per cent whereas the corporate tax rate is equal to 40 per cent.
In addition, the absence of a capital gains tax makes this incentive
even stronger. We expect, under the new system, this incentive to
be alleviated since the corporate tax rate should be increased at
least by 5 per cent according to the E.E.C proposal. The introduc-
tion of a capital gains tax on gains from shares does not seem lik-
ely, at least in the near future, for two reasons. First it would
require the annual valuation of shares. However, in the case of
actively traded shares this would be relatively easy, but in the case
of closely held family corporations, as the Greek ones, no active
market exists and the valuation of shares of such corporations would
raise great difficulties. Second, equity considerations would re-
quire the introduction of tax on capital gains on other assets, for
example, land which seems very difficult at the present time for tech-
nical reasons.

On the other hand, under the new systems, corporations would
not have a direct incentive to increase dividends out of any given
amount of profits because as we have seen their tax liabilities do
not change by changing the distributed amount. However, the exist-
ing system, where corporations are taxed only on retained profits,
provides such an incentive because an increase in dividends reduces
the amount of corporate income taxes. This reasoning is based on
the assumption that management is concerned with the corporate tax
liability only and not with the total tax liability. It does not
seem to be a realistic assumption particularly, for Greece, where the
majority of the corporations are controlled and ruled by families.

6.5.3.4 Debt and Equity Financing

The new system of partial imputation by introducing economic
double taxation of dividends increases the discrimination against
equity financing and in favour of debt financing. As a consequence
of this bias one would expect part of this stimulus to take the
form of higher distributed profits.

6.5.3.5 Implications From Higher Payout Ratios

From the above discussion we may predict that under the new

system the payout ratios would increase. If this is so then we have various implications concerning equity considerations.

Higher payout ratios mean a larger proportion of income can be closely adjusted to the taxable capacity of the individual share-holders. Therefore, the new system would result in a fairer tax structure in which different types of income are taxed more nearly on uniform base.

In addition, in the absence of a capital gains tax, as in Greece, higher payout ratios means fewer capital gains are created, which de-crease shareholders' wealth.

From table 6.8 we see that under the new system the reduction of the tax liability is higher for shareholders who belong to low income classes than those who belong to high income classes (lines 10, 15). At the same time the increase in the net cash dividends is high-er in the first category of the shareholders than in the second (lines 11,16).

On the other hand, higher payout ratios imply less available funds to the company for financing investment programmes and assum-ing that more investment means more growth whose benefit is spread over the community as a whole, the new system might be more regres-sive than the present one assuming that the recipient of dividends are in the top-half of the income bracket scale. However, two re-servations exist regarding this view. First, we have seen in chap-ter four that there is no strong relationship between investment and dividend decisions. Therefore, the new system does not seem to have a significant effect upon investment in that respect. Second, greater dividend does not only affect national income through in-vestment decisions but it also affects it through consumption and tax revenue. Thus, an increase in dividends may lead to a decrease in investment, which will tend to lower the national income; but in the personal sector one may expect an increase in consumption, which tends to raise national income. Furthermore, the increase in the tax revenues may lead to additional government spending, which will also tend to raise the national income. Thus, the final effect on national income may be either positive or negative depending on

T A B L E 6.8

TAX CONSEQUENSES FOR SHAREHOLDERS WITH DIFFERENT PERSONAL INCOME TAX RATES				
	CURRENT SYSTEM		PROPOSED SYSTEM	
	PAYOUT RATIO :40%	PAYOUT RATIO :60%	PAYOUT RATIO :40%	PAYOUT RATIO::60%
1 Corporate Profits	1000	1000	1000	1000
2 Corporation Tax	375	285	500	500
3 After Tax Profits	625	714	500	500
4 Retained Earnings	375	286	300	200
5 Dividends	250	428	200	300
6 Plus Tax Credit	-	-	100	150
7 Gross Dividends	250	428	300	450
8 Personal Income Tax at 40%	100	171	120	180
9 Less Tax Credit	-	-	100	150
10 Net Personal Tax	100	171	20	30
11 Net Dividend	150	257	180	270
12 Total Gov't Revenue	475	456	520	530
13 Personal Income tax at 60%	150	257	180	270
14 Less Tax credit	-	-	100	150
15 Net personal Tax	150	257	80	120
16 Net Dividend	100	171	120	180
17 Total Gov't Revenue	525	542	580	620

Note: 1. Corporate tax rate 50 per cent

2. The formulas $T=K(P-D)$ and $D= g(P-T)$ were used respectively to calculate amount of taxes and dividends under the current system, where K denotes the CIT rate g the payout ratio, P profits.

3. The tax credit under the proposed system was assumed 50 per cent of the cash dividends.

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the spending propensities of consumption, of individuals and government.

6.5.3.6 Incidence and Shifting of the CIT

The discussion of tax shifting is related to the assumptions one makes regarding the tax rates applied, the management behaviour and the reverse shifting hypothesis.

We saw in chapter two comparing the two systems at a theoretical level that for a given amount of revenue the dividend-deduction system requires a higher tax rate than the partial imputation system. However, the tax reform in question requires the tax rate under the new system (partial imputation) to be higher than the current tax rate under the dividend-deduction system. The higher tax rate under the new system provides the corporation with a greater incentive to shift the tax. If this happens then the dividend tax credit provision is considered as an "unwarranted" subsidy.

Under the present system the distributed profits are not taxed at the corporate level; therefore, the chances of shifting the tax on to distributed profits, and that of an "unwarranted" bonus to shareholders, are eliminated. On the other hand, if we assume that the management takes into account the level of tax on distribution and shifts it, then the shareholders receive a tax-free income.

From table 6.8 we see that tax is imposed to a greater extent on the corporation (line 2) and to a lesser extent on the shareholder (lines 8 and 13) under the imputation system as compared with the present Greek system. This implies that the new system would give little inducement to reverse shifting. On the other hand, the present system by reducing tax collections at the corporate level would encourage reverse shifting.[2]

A simplified attempt was made in the present study to test the shifting hypothesis in Greece. Of course our purpose here is not to solve the problem but simply to give some evidence about the indications of tax shifting in Greece. The evidence seems to support the hypothesis of no shifting in Greece.

6.5.3.7 Removal of Existing Tax Unneutralities

Criticising the present taxation of dividends in Greece we argued that there are two kinds of inequities:

a) The 15,000 Drs or 60,000 Drs exemption from dividend income creates inequities. First between shareholders who receive dividends from shares quoted with Athens Stock ... Exchange and those who receive dividends from shares not quoted with Athens Stock Exchange. Second, between high and low income shareholders who receive dividend from shares quoted with Athens Stock Exchange since the exemption granted is the same for both classes of shareholders.

b) Shareholders who receive dividends from bearer shares not quoted with Athens Stock Exchange are taxed at 47 per cent tax rate and are not allowed to include their income from dividends with their other income. This treatment involves two kinds of inequity. First, it violates the principle of global taxation since it deprives the right of a category of shareholders of including their income from dividend along with the rest of their income and at the same time it provides other shareholders with the option to decide to include or not their income from dividends along with the rest of their income. This may have as a consequence their low income shareholders are overtaxed.

Article 1(2) of the E.E.C proposal provides that member states shall not maintain or introduce a reduction in the taxation of dividends alone, apart from the reduction resulting from the credit mechanism of the proposed imputation. Thus, the application of special exemptions or rates to dividend income only is prohibited. However, the wording of article 1(2) seems to indicate that specific (rather than general) tax reductions, even when applied to dividends and not to other income categories, are allowed. Therefore, it depends on the willingness of Greece to give up its right to grant tax incentives for investing in shares. If Greece were to give up the provi-

sion of this incentive then the above described inequities would be eliminated. However, the extent of the reform in this area is that the regressivity of the existing exemptions will be partially countered by bringing the dividend tax credit into taxable income before computation of tax and credit.

6.5.3.8 Price of Shares

We finally close our discussion about the distributional effects of the tax reform by including the effect which the reform would have upon the price of shares. Since shares reflect, to some extent, the wealth of the owner, the change in their prices have an effect upon their total wealth.

Two effects of opposing directions may well be generated. The first is concerned with the relationship between the level of distribution and the price of shares. It is argued that shareholders who prefer more dividend rather than retained profits are willing to pay a higher price for such shares. Unfortunately, there is no well established study dealing with this relationship in Greece. However, two simplified ones exist. The earlier, concerning the years 1962 - 66, reaches the conclusion that a positive relationship exists between share prices and the level of distribution (G.Papoulias, 1971). The recent one, concerning the years 1975-78, concludes that the main cause, that is, 83 per cent, of the fall in the price of shares during the period in question, was the absence of any dividend distribution, whereas on the other hand, the main cause of the rise, that is 70%, was a higher level of current or, prospective dividends. (A. Nicolopoulos, 1978). Thus, in the light of these findings we may be allowed to conclude that higher payout ratios have a positive effect upon share prices. Since the new system favours distribution to a greater degree than the existing system it would have a positive effect upon share prices. Assuming firms with identical expected future profits we accept that the prices of shares with currently high payout ratios rising more than those with currently low payout ratios. In addition, it is reasonable to assume that shareholders who put more emphasis in the income through dividends rather than capital gains belong to low income classes rather to high income classes. Therefore, the change of the tax system will provide low income shareholders with a benefit

greater than that of high income shareholder.

On the other hand, it can be argued that the replacement of the dividend paid deduction system by the imputation system would decrease the attraction of company stock relative to other savings media by introducting a discriminatory tax on the return of corporate equity. Consequently, the attractivness of stocks relative to other savings media would fall decreasing the price of shares. This argument loses its validity if we take into consideration that first, the yield from shares is usually higher than that from other saving media and second, the tax incentives provided for investing in equities.

6.5.4 ECONOMIC GROWTH

6.5.4.1 Introduction

The purpose of this section is to analyze the possible effects of the new system upon Greek economic growth. The effects of the proposed change on the level of economic growth might operate via
a) the more efficient use of scarce capital resources which is a pre-requisite for economic growth.
b) the aggregate amount of savings and,
c) the rate of fixed capital formation.

6.5.4.2 Efficiency Gains

The corporate tax reform would affect efficiency, at least, through its effect upon the choice,
a) between dividends and retained earnings,
b) between corporate and noncorporate activities and,
c) between equity finance and debt finance.

The higher payout ratio will provide more funds to the capital market and increase the tendency for firms to go to the market for their funds. This increases the mobility of capital and may result in higher quality of investment. Therefore, an increase in the dividend payout ratio would encourage investment by new companies and improve the allocation of capital within the corporate sector. However, as we have seen this argument is not undebatable. The higher payout ratio would decrease the availability of internal funds. This would further increase the dependence of new firms on external sources of funds which makes the problem of financing difficult for new firms. On balance, it seems unlikely that this approach would seriously affect the rate of Greek economic growth, especially if provisions were made for tax-preferred retentions of earnings by corporations[3]

It has been a special aspect of the Greek economy that even some of the most important businesses are unincorporated. Table 6.9 illustrates the influence of tax arrangements on the choice between corporate and non-corporate activities. Investors divide the available capital stock between corporate and noncorporate activities until

TABLE 6.9 : TAX INFLUENCE ON THE CHOICE BETWEEN CORPORATE AND NONCORPORATE ACTIVITIES

	UNINCORPORATED BUSINESS		INCORPORATED PRESENT SYSTEM		BUSINESS NEW SYSTEM	
			RETAINED PROFITS	DISTRIBUTED PROFITS	RETAINED PROFITS	DISTRIBUTED PROFITS
	(1)	(2)	(3)	(4)	(5)	(6)
1. Income before CIT.	100	100	100	100	100	100
2. Less CIT.	-	-	-40	-	45	45
3. Income available for distribution, or addition to reserves.	100	100	60	100	55	55
4. Imputation Credit.	-	-	-	-	-	20
5. Income before Personal Income Tax.	100	100	-	100	-	75
6. Less Personal Income Tax.	40[2]	45[3]	-	40[2]	-	20[1]
7. Net Income.	60	55	60	60	55	55

Note: 1. Net Personal Income Tax after the deduction of credit Personal Income Tax rate 53%.

2. This rate of personal income tax of 40% was chosen to illustrate at what rates of tax the net income after tax in the first and fourth columns of the table would be equal to the net income after tax in the third column.

1,3: For the same reasons as in 2 but for columns 2, 6 and 5.

the net of tax rates of return are equalized. From the table we see that uhder the present system of corporate taxation the investor is indifferent in choosing the one form of making business or the other if his personal tax rate is lower than 40 per cent. If his rate is higher than 40 per cent he may have an advantage in incorporation since he may enjoy a lower rate of corporate tax on undistributed profits. Under the new system the investor has an advantage in incorporation if his personal tax rate is now higher than 45 per cent. This implies that investors whose personal tax rate is between 40 per cent and 45 per cent and has chosen the corporate form of making business have now an advantage to switch to the noncorporate sector in order to enjoy a lower than 45 per cent tax rate. In addition this will inhibit large enterprises to move from the uncorporate sector to the corporate sector. If this is so we will have an undesirable effect upon the growth process. Greek authorities try to induce enterprises to take the corporate form since it is accepted, that the easiness of raising capital and the limited liability of the shareholders consist the main advantages of a corporation in comparison with an unincorporated enterprise.

Finally, under the new system the bias in favour of debt financing rather than equity financing is higher. The disadvantage of such a high ratio of debt to equity is the increased risk of bankruptcy. Particularly for Greece, this is most important since as we have seen this ratio has already been high enough.

From the above discussion we could conclude that the new system would achieve the first goal but not the last two.

6.5.4.3 Saving

The question whether the new system will affect the level of saving in the Greek economy depends on the effects upon the corporate, personal, and government saving.

Earlier in this chapter we discussed the possible impact that adoption of the proposed tax system would have on business saving. It was pointed out that we expect a substantial part of the increased taxes borne by corporations to be reflected in reduced cash dividends rather than in reduced corporate retention (net dividend held constant hypothesis)[4]. Private saving in the form of corporate retained profits is likely to decline. However, we expect this decline not to be /

significant.

Whether or not the new system would affect total saving depend upon whether the drop in corporate saving was matched by an increase in saving by individuals. That is, it depends upon whether the response of consumption to changes in dividends differs from that for change in retained profits. Since dividend payout increases and given a marginal propensity to save for dividend recipient that is less than unity, the loss in corporate saving will not be offset by a rise in personal saving. Assuming that the shareholder belongs to high income classes we accept a high marginal propensity to save, therefore, this will result in a slightly reduction in total private saving.[5] Generally speaking, the tax changes at the shareholder level and the changes in cash dividends would be complementary. This is enhanced by the fact that Greek corporations are owned and ruled by families. Therefore, it is reasonable to expect that shareholders will substitute the corporation in saving of the distributed part. Two empirical studies for the u.S.A. and the U.K. have reached the same result (M. Feldstein, 1973, M. Feldstein and G.Fane, 1973).

6.5.4.4 Investment

The effect of the tax reform upon investment might operate via,

    a) availability of funds and cost of capital and,

    b) via profitability of investment through a change of tax rate and tax incentives.

6.5.4.4.1 Availability of Funds and Cost of Capital

There is a connection between these two channels which affect the corporate investment decisions. As we saw, the present system leaves more funds in corporate treasuries than the imputation system would leave. Higher payout ratio may induce shareholders to spend more on consumption. The issue here is whether the genesis of economic growth is in the corporation or in the individual saver. Actual results would depend upon specific features of the Greek economy, but it seems reasonable to say that relief from double taxat-

ion in the form which encourages dividend distribution will reduce
somewhat the amount used for capital formation as compared with the
present system which provides the relief at the corporate level.
However, if the capital market functions perfectly, payout ratios
and rates of reinvestment of dividends could eventually be adjusted
in the two cases so that the two ways of relieving double taxation
of dividends would in fact have identical results. If not, the two
approaches might have somewhat different implications for the aggre-
gate rate of savings and economic growth.

Under the new system the greater payout ratio may lead to high-
er share prices which encourage investment by decreasing the cost of
equity capital in the sense that fewer new shares must be issued in
order to raise a given amount of money. However, the partial miti-
gation of economic double taxation under the new system would de-
crease the attraction of company stock relative to other saving media.
Consequently, the attractiveness of stocks relative to other saving
media would decline, discouraging investment by increasing the cost
of equity capital, in the sense, now, that more shares must be issued
in order a given amount of money to be raised.

6.5.4.4.2 Profitability

The effect on the profitability of investment depends on the
following three changes:
   a)   The change in tax system per se.
   b)   The change in tax rate.
   c)   The change in the system of tax incentives.

If the corporate managers consider total taxes on corporate in-
come, the two systems may not be different in their effect upon the
profitability of investment, as long as equal revenue is raised from
taxes on corporate source income under each system. However, the new
system is likely to raise tax revenue from corporate income and in
that respect will discourage investment. In addition, to the extent
that decisions are made by the corporation, and that corporations do
not take account of personal income tax, incentives should be given
at the corporate level. In that respect the new system will discour-
age investment by providing the relief at the shareholder level.

We now consider the economic effects of a shift in the evaluation of corporate investment projects from the existing 40 per cent corporations tax rate to the proposed 45 per cent. In the first place, there would be some direct disincentive to investment from such a tax rate increase, and it would act to reinforce the cost-of-capital effect already noted in the previous section. The strength of this direct stimulus is difficult to predict. However, we found earlier in this dissertation that the elasticity of investment with respect to the tax rate is between 2.24 and 2.31. Despite the fact that these values are considered very high they may allow us to conclude that a change in tax rate has a direct significant effect upon investment. In the second place, the value of capital allowances to a company varies directly with the rate of CIT. Theprospective increase in CIT rate from 40 per cent to 45 per cent or higher forms part of a fundamental change in the structure of company taxation. Tax incentives would be more effective policy instruments under a higher tax rate since as we saw the elasticity of investment with respect to them was found to take values between 0.71 and 1.33 from the above discussion it seems that the first effect of the increase of tax rate upon investment is stronger since the elasticity of investment is higher with respect to tax rate than with respect to tax allowances.

The prospective increase in the tax rate may affect investment through different channels too. That is, the increase of the tax rate may introduce an incentive for companies to postpone investment until later accounting periods.

We now turn to the question of compatibility of the Greek system of tax incentives to industry with that of the Community. We are of the opinion that this area is the most crucial in the tax reform process. Greece, as we saw, applies to its industries an extensive system of aids. The leader of the Greek team opening the negotiations between Greece and E.E.C. in 1976, emphasized that "since Greece still has a long way to go in terms of industrialization and modernization to cath up with the rest of the Community, it is important that it should be accommodated under both regional and social policy and their instruments. Greece would like to be

recognized as a special development area and so qualify for maxi-
mum development aid, and it wanted special arrangements to enable
it to maintain certain tax concessions for its industries.(P.Papaligouras,
1976).

The extent to which the existing system of tax incentives is
compatible with Community regulations is difficult to determine for
two reasons. First, there is no draft document on the Community's
part to deal with these incentives and second, as we saw in the
previous chapter the existing tax incentive systems in the E.E.C
countries are characterized by the absence of transparency. How-
ever, one obvious characteristic of Greece practice is the absence
of investment grants, contrary to the Community's practice. It
is reported that the whole structure of investment incentives and
regional policy in Greece is under review and major changes are ex-
pected to be announced. The purpose of this review is to make in-
vestment incentives more effective and to put these in line with
the existing in the E.E.C. It is argued that the adaptation will
be fairly easy provided that the incentives already offered are
guaranteed to continue to stay until the end of 1981.

CONCLUSIONS

The E.E.C Commission has developed a plan for the harmoniz-
ation of the CIT within the E.E.C. Analysis of the plan in the pre-
ceding sections has identified a number of important potential econ-
omic effects upon the Greek economy, some favourable and some unfav-
ourable. On the favourable side we have: -

1. The new system will result in a fairer tax structure in
    which different types of income are taxed more nearly on
    uniform base. However, this improvement is not expected to
    be significant since the rise of dividends is not expected
    to be significant as well.

2. The regressivity of the existing exemption for income from
    dividends will be partially countered by bringing the divi-
    dend tax credit into taxable income before computation of
    tax and credit.

3. The increase of capital mobility may result in higher qual-
    ity of investment.

4. For reasons given above, it seems likely that the increase
    in the tax rate would increase the effectiveness of such
    government policy tools as accelerated depreciation, capi-

tal allowances, and similar devices.

5. It is expected that the adoption of the new system will result in a revenue gain.

On the unfavourable side we have:

1. Some increase in administrative and compliance costs is probable since the new system is more complex than the existing system and the total withholding tax rate is less under the new system than under the present.

2. The new system will give little inducement to reverse shifting.

3. Marginal investors will be induced to switch to the noncorporate sectors.

4. The bias in favour of debt financing will increase.

5. We expect a slight reduction in total private saving which will reduce somewhat the amount used for capital formation as compared under the present system.

6. The greater corporate tax burden may lead to lower investment.

The introduction of the imputation system for the taxation of dividend will put Greece on the same level as other more advanced countries. Investors will surely be forced to modify and adapt their plans to the new system, which has more than a minor impact on the entire Greek economy; careful tax planning both on the part of resident and non-resident investors is therefore of the utmost importance.

6.7 SUMMARY, CONCLUSIONS, IMPLICATIONS OF THE FINDINGS, RELEVANCE
OF THE FINDINGS FOR PUBLIC POLICY AND DIRECTIONS FOR FURTHER
RESEARCH

In this final section we recapitulate the main findings and
methods followed by the thesis, we discuss the implications of the
findings and indicate directions for further research.

The principal aim of the thesis was to estimate the impact upon the
Greek economy from corporate tax changes resulting from Greek member-
ship of the E.E.C. This estimate required the appropriate theoreti-
cal and technical background for the CIT systems involved. Chapter
two, therefore provided us with the theoretical information about the
imputation and dividend deduction system, whereas chapters three,
four and five discussed the technical characteristics of these systems.

The comparison on theoretical grounds of the dividend deduction
system with the imputation system showed the following: -

1. The imputation system is more complex than the dividend deduct-
   ion system due to the presence of grossing-up and credit process.
   We argued that this system could be made simple to the share-
   holder if the corporation would make the necessary calculations
   for him and he would be informed only of the amount of dividends
   which he has to include in his personal tax declaration and the
   amount of his credit.

2. For a given amount of revenue the dividend deduction system re-
   quires a higher tax rate than the imputation system does, where-
   as for a given tax rate the latter system provides the govern-
   ment with greater amount of tax revenue (tables 2.1 and 2.2).

3. The imputation system imposes a degree of economic double taxa-
   tion of dividends whereas under the dividend deduction system
   this degree is zero.

4. Both systems provide the corporation with a possibility of deter-
   mining distribution according to the marginal personal tax rate

of the shareholders. From Table 2.1 we saw that for given tax liability the dividend deduction system induces firms to distribute a larger amount of profits than the imputation system does. The two system would be equivalent regarding their effect upon distribution of profits if the tax rate under the dividend deduction system would be equal to the rate of dividend tax credit under the imputation system. The presence of a capital gains tax makes both systems to favour distribution.

5. The dividend deduction system is neutral between equity and debt finance whereas for the imputation system to be neutral, interest payments should be deductible not against the tax rate but against the rate of imputation.

6. Both systems conform with vertical and horizontal equity principles but only for the distributed part of profits. The dividend deduction system would improve equity if all profits were distributed and taxed under the personal income tax rate.

7. As far as the allocation of capital within the economy is concerned both systems discriminate against the corporate sector. However, again, the dividend deduction system would be neutral with that respect in the theoretical case where all profits were distributed.

8. From the international point of view the imputation system provides the country which employs that with stronger bargaining power than the dividend deduction system does, due to the fact that it is easier to deny the provision of dividend tax credit to the foreign shareholders under the former than to impose a tax on distributed profits under the latter because of the reciprocity rules holding on international taxation.

On the other hand, the practical exercise of replacing of the dividend deduction system, as it is applied to Greece, by the imputation system, with the technical characteristics suggested by

last E.E.C proposal, showed the following implications for the
Greek economy:

1. An application of the imputation system to Greece for the year
    1975, assuming that firms would follow the same dividend policy
    as they did under the existing system, showed that the imputat-
    ion system would result in a tax revenue gain.

2. The new system would give little inducement to reverse shifting,
    if the Greek CIT is shifted, since the tax paid at the corporate
    level is greater under this system than under the current.

3. The regressivity of the existing exemptions for income from
    dividends will be partially countered by bring the dividend tax
    credit into taxable income before computation of tax and credit.

4. Despite the theoretical conclusion that the dividend deduction
    system induces firms to distribute a larger amount of profits
    than the imputation system does, in practice, the latter sys-
    tem favours larger distribu tion. Under this system the tax
    discriminatory variable will be larger than its current value.
    This is due to the fact that the rate of imputation under the
    new system is expected to be higher than the current tax rate.
    This result will have three implications.
    First, the tax structure will become fairer since a larger a-
    mount of income will be taxed under the personal tax rate.
    However, this improvement is not expected to be significant
    since the rise of dividends is not expected to be significant
    as well. Second, the greater amount of dividend under the im-
    putation system implies that more funds are passed the test of
    capital market which may result to higher quality of invest-
    ment. Third, it seems more reasonable to expect a slight re-
    duction in total private saving since the marginal prospensity
    to save of the dividend recipients is at least less than one.
    This is expected to reduce somewhat the amount used for capi-
    tal formation.

5. The increase of tax rate will raise tax saving from accelarated

depreciation and investment allowances. However, this in-
crease will induce marginal investors to switch to the non-
corporate rate of the economy.

6. The introduction of economic double taxation of dividends un-
der the new system will eliminate the neutrality between debt
finance and equity finance under the current system. Debt
finance will become a more attractive method of finance.

To reach the above mentioned results we had a long way to walk.
In chapter three and four we assessed the dividend deduction system
as it is applied to Greece. We began this assessment discussing the
Greek tax structure whose main characteristics are the predominance
of indirect taxes, the absence of capital gains tax, the minor con-
tribution of wealth taxes and finally, the corporation income tax
followed by a plethora of tax incentives.

Assessing the CIT system we discussed the existing non-neutral-
ities on dividend taxation whose purpose is to support the capital
market. We introduced a new technique to calculate the tax discri-
minatory variable between dividend and retention. Its value was not
significant different from one, which supports the view that not
such a policy was followed by the Greek authorities during the per-
iod under consideration. Having established this variable we went
on in chapter four to test econometrically how taxation affects the
appropriation of profits. To the contrary to the existing empiric-
al studies on dividend behaviour we established a dividend model
with a priori economic justification based on the Greek economic
circumstances. The model also verified the statistical inference
that tax discriminatory policy does not exist in Greece. The impli-
cation from this finding is that the Greek authorities may wish to
use this policy instrument for affecting the appropriation of prof-
its. However, the appropriate use of such a policy is by no means
obvious. In the first place, there are many valid pros and cons
with respect to the advisability of encouraging corporate saving,
and there is no consensus on how they balance, as we have discussed.
The investment argument in favour of increased corporate saving
depends on the assumption that these savings would actually result

in new investment rather than moving into other assets. Our dividend model revealed that the tax system also affects, indirectly now, the appropriation of profits through depreciation allowances. It showed that firms take into account cash flow and not net profits in determining their dividend policy.

As far as the method of financing investment programmes is concerned we found that the Greek firms heavily relied on debt finance rather than equity finance. Tax policy to attract equity finance was almost ineffective since it failed to bring both demanders and suppliers of shares in the Athens Stock Exchange. The banking system and the public financial institutions provided firms with adequate funds for financing investment programmes. We argued, in line with findings by other studies, that profitability and not finance was the constraint factor to new capital formation. This explains our finding that investment and dividend decisions are independent. To reach this conclusion we first established a joint profits-accelarator model reflecting the demand-oriented Greek economy and the government financial policy for the period under consideration. This model showed that retained profits had a satisfactory contribution to financing investment. We used both single equation and simultaneous equations model to test the interdependence assumption between dividend and investment decisions.

Depreciation allowances and investment allowances were generous during the period under review. We introduced a more realistic version of the Jorgenson's model to test the relationship between tax saving and investment in the Greek manufacturing. The results, despite the econometric limitations, seems to support the view that investment incentives had a satisfactory contribution to capital formation. However, a qualitative discussion in chapter three, showed that the quality and distribution of investment were not satisfactory. The implication of this finding is that the Greek authorities should reconsider the structure of tax incentives in order to make these more effective.

We should realize that the study of tax incentives did not go deeply enough. We did so for two reasons; first, because the main

concern of this thesis was to cover the existing gap from the lack of background studies in this area and second, the question of tax incentives is not so urgent since Greece has requested to be allowed to retain these incentives for a transitional period. However, the need for further research in this area is very obvious because we believe that the greater impact from tax harmonization will come through the change of tax incentives.

This thesis made a simplified attempt to study the incidence and shifting question in Greece. It is the first time in the literature where this problem is dealt by using a dividend and investment model. We incorporated the tax shifting coefficient in our tax discriminatory variable θ and using the dividend model we tested this hypothesis. This model was inadequate to provide us with any indication about the shifting hypothesis due to the fact that the discriminatory variable θ had a neglible effect upon dividend decisions. Moreover, we used the investment model to test this hypothesis. The evidence from this test seems to support the hypothesis of zero shifting in Greece. However, the need for research in this area through a more sophisticated model including a dividend equation is very obvious.

Finally, in chapter five we dealt with the problem of tax harmonization within the E.E.C. We argued that corporate tax harmonization is necessary to make capital flows instrumental in achieving the aims of Treaty of Rome despite the existence of other international economic barriers. Comparison of the existing CIT systems in the E.E.C. showed that seven out of the nine member countries employ the same system, however, each of these differs from the other in many technical respects. We accepted that the last E.E.C. proposal for CIT harmonization is a good starting point but it goes half way to solve the problem. Therefore, we proceeded to discuss the differences in the tax bases within the E.E.C. countries. We found no clear tendency for the E.E.C. countries themselves to reduce these discrepancies as there is for the system of CIT. We took the opportunity to make some preliminary ideas for tax base harmonization. We suggested ways for harmonization of the main elements of the tax base. For example, depreciation allowances may be harmonized either by introducing the "reserve ratio" test or by in-

troducing free depreciation allowances. In addition, interest
rate may be harmonized by associating the interest rate paid on
private transactions to that adopted by each member countries'
central bank.

There are very few studies in estimating the impact of tax
harmonization. This study followed a partial equilibrium analysis
to estimate the impact upon the Greek economy. We adopted this
analysis for two reasons: first, a general equilibrium analysis,
which would be more appropriate, would require data which are not
available for the Greek economy. The absence of related studies
was a particular constraint to this study, for example, the absence
of a well established study dealing with dividend policy and share
prices or the absence of any evidence about the rate of return in
corporate and uncorporate sectors of the economy, deprived this
study from dealing with the impact of the reform more deeply.

Second, the lack of the appropriate econometric model to cap-
ture the simultaneous feedbacks among the member countries. How-
ever, we share the belief of Peacock and Ricketts that "public
financiers, particularly those who make part in policy-making
increasingly have to understand the role of models in helping poli-
cy-makers to trace the movements in important macro-variables,
(1975).

Finally, the association of Greece with the E.E.C. will stimu-
late Greece to review its taxation system in general and the cor-
poration tax system in particular. Both Greece and the E.E.C. have
realized the need for clarification in that area. Therefore, our
hope that this study will provide both Greece and the E.E.C. with
a necessary background study, provides us with the satisfaction
that we correctly undertook this study, despite the difficulties
we faced.

NOTES: CHAPTER SIX

1.   Assuming no change in dividend behaviour.

2.   See section 2.4.3.

3.   Assuming that Greece will be allowed to retain these.

4.   See tables 6.5 and 6.6, particularly line 9.

5.   For example in 1975, the 68 per cent of dividend was
      received by shareholders who were above 40 per cent in-
      come tax rate.

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