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**APOLOGIA FOR DOUBLE TAX
OF
CORPORATION INCOME**

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**LAW AND ECONOMICS
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Apologia for the Double Taxation of Corporate Income

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One of the most controversial aspects of the U.S. income tax system is the double taxation of corporate income. Such income is taxed both when it is earned by the corporation and when it is distributed to the shareholders. Most other kinds of income are taxed only once. It is generally thought that treating corporate income less advantageously than other income distorts investment incentives and reduces economic productivity. This article draws upon the fundamental insight that a properly structured income tax encourages investment in risky assets to argue that a second layer of tax on corporate income can be a very efficient way of raising revenue and can possibly improve economic productivity. The article also shows how this insight helps to justify the difference in tax treatment between debt and equity which is generally thought indefensible. It also analyzes how the U.S. income tax could be restructured to take advantage of this phenomenon.

The double taxation of corporate income by the United States has existed for many decades,² even though this is generally thought to significantly distort investment incentives and

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² Income earned by partnerships and sole proprietorships is taxed only once, at the owner level. Income earned by corporations is taxed twice: once at the corporate level and again at the shareholder level when dividends are paid or when the shares are sold. *See* ALVIN C. WARREN, A.L.I. FED. INCOME TAX PROJECT, INTEGRATION OF THE INDIVIDUAL AND CORPORATE INCOME TAXES (1993); For a history of the corporate double tax, see Katherine Pratt, *The Debt-Equity Distinction in a Second-Best World*, 53 VAND. L. REV. 1055 (2000) .

reduce economic productivity.³ The distortion results from taxing corporate income at a higher rate than other income⁴, which is generally thought to discourage investment in the corporate sector.⁵ While there have been proposals for the United States to adopt an “integrated” system⁶

³ REPORT OF THE DEPARTMENT OF THE TREASURY ON INTEGRATION OF THE INDIVIDUAL AND CORPORATE TAX SYSTEMS : TAXING BUSINESS INCOME ONCE (1992) (“Treasury Study”); *See also* Alvin Warren, *The Relation and Integration of Individual and Corporate Income Taxes*, 94 HARV. L. REV. 719 (1981).

⁴ Technically, merely because the income is subject to two levels of tax instead of one, it is not necessarily the case that the income is subject to a higher tax rate. Terrence R. Chorvat, *Taxing International Corporate Income Efficiently*, 53 TAX L. REV. 225 (2000). However, in the case of the United States, it is generally the case that the two layers of tax impose a higher rate. *See* Pratt, *supra*, note 1; *see also* Warren, *supra*, note 2.

⁵ Gravelle and Kotlikoff have estimated that the deadweight loss from the corporate double tax is greater than the revenue of the corporate tax itself. Jane Gravelle and Laurence Kotlikoff, *Corporate Tax Incidence and Inefficiency When Corporate and Non-Corporate Goods Are Close Substitutes*, 31 ECON. INQUIRY 501 October 1993. This would imply a reduction in productivity of over \$235 billion, (the level of revenue from the corporate tax). INTERNAL REVENUE SERVICE, DATA BOOK 2000 12 (2001); *See discussion in* Charlotte Crane, *Corporate Taxes* in ENCYCLOPEDIA OF LAW AND ECONOMICS (Boukert and De Geet eds.,1998); *See also* Arnold Harberger, *The Incidence of the Corporate Tax*, 70 J. POL. ECON. 215 (1962).

(in which the tax paid at the shareholder level and the corporate level are integrated into one tax),⁷ it seems unlikely that this will occur in the near future.⁸ This is true in part because integration for non-publicly traded entities was essentially adopted when the “check-the-box” rules,⁹ which effectively permit “closely held” entities to choose whether to be subject to the double tax or not, were promulgated. In addition, it is often argued that ending the double tax on those companies still subject to the tax (i.e., those whose shares trade on public markets) would

⁶ Many countries have adopted an integrated system including Canada, France, Mexico and the United Kingdom. Warren, *supra* note 1; *see also*, Treasury Study, *supra* note 2.

⁷ Treasury Study, *supra* note 2; *see also* Warren, *supra* note 1.

⁸ Jennifer Arlen and Deborah Weiss, *A Political Theory of Corporate Taxation*, 105 YALE L. J. 325 (1995); *see also*, Pratt, *supra* note 1 at 1109

⁹ Treas. Reg. § 301.7701-2,3,4. These rules permit the owners of entities such as partnerships, limited partnerships and limited liability companies to determine whether they wish the entity to be taxed as a corporation or as a partnership. Because the double tax is optional for these businesses, the tax rules do not control whether the owners can obtain the characteristics of a corporation other than public trading. *See* Susan Pace Hamill, *The Limited Liability Company: A Catalyst Exposing the Corporate Integration Question*, 95 MICH. L. REV. 393 (1997); *see also* John Lee, *A Populist Political Perspective of the Business Tax Entities Universe: “Hey the Stars Might Lie But The Numbers Never Do,”* 78 TEX. L. REV. 885 (2000)

significantly reduce tax revenues and would likely significantly increase compliance costs.¹⁰

Many objections have been raised to the double taxation of corporate income (sometimes referred to as a “classical” corporate tax system). It is often argued that the tax inhibits the flow of capital to corporations,¹¹ that it encourages the use of debt financing,¹² and that it encourages the use of retained earnings as opposed to new issuance of equity.¹³ All of these effects distort investment away from its most productive uses.¹⁴

Just as there have been attacks on the classical corporate tax system, there have been defenses of it. Some have argued for the classical system based on optimal tax theory and other

¹⁰ Jeffrey Kwall, *The Uncertain Case Against the Double Taxation of Corporate Income*, 68 N.C. L. REV. 613 (1990).

¹¹ Harberger, *supra* note 4; Treasury Study, *supra* note 2.

¹² Joseph Stiglitz, *Taxation, Corporate Financial Policy, and the Cost of Capital*, 2 J. PUB. ECON. 1 (1973); *see also*, Hans-Werner Sinn, *Taxation and the Cost of Capital: The “Old” View, The “New” View, and Another View*, 5 TAX POL’Y AND THE ECON. 5, 25 (David Bradford ed., 1991).

¹³ Arlen and Weiss, *supra* note 7.

¹⁴ Peter Birch Sorenson, *Changing Views of the Corporate Income Tax*, 48 NAT. TAX J. 279 (1995); *see also*, Treasury Study, *supra* note 2.

efficiency rationale.¹⁵ Others have argued for it based on equity considerations.¹⁶ Still others argue for it based on political considerations.¹⁷ However, as discussed in Part I, these defenses have not generally been very convincing to academics.¹⁸

This article advances a new argument in favor of the double taxation of corporate income. It argues that contrary to conventional analysis, a properly structured classical corporate tax can actually increase the amount of investment in corporate equity. The argument is based on a model that was developed by Evsey Domar and Richard Musgrave which describes the allocation of portfolio investment under an income tax.¹⁹

The Domar-Musgrave model shows that under certain conditions,²⁰ a “pure” income tax²¹

¹⁵ Rebecca Rudnick, *Who Should Pay the Corporate Tax in a Flat Tax World*, 39 CASE W. RES. L. REV. , 965 (1988); *see also*, MYRON SCHOLES AND MARK WOLFSON, TAXES AND BUSINESS STRATEGY 57-61 (1992)

¹⁶ Pratt, *supra* note 1; *See also*, Kwall, *supra*, note 9

¹⁷ Arlen and Weiss, *supra* note 7 at.

¹⁸ Rudnick, *supra* note 14; *see also* Arlen and Weiss, *supra* note 7.

¹⁹ Evsey Domar and Richard Musgrave, *Proportional Income Taxation and Risk Taking*, 58 QUART. J. ECON. 258, (1944).

²⁰ Domar and Musgrave, *supra* note 18, for some of the limitations of this model see Joseph Stiglitz, *The Effects of Income, Wealth, and Capital Gains Taxation on Risk-Taking*, 83

will cause rational investors to increase their investments in risky assets. The key intuition of this model is that a “pure” income tax not only reduces the return on assets, it also reduces their risk because losses from investments provide benefits in the form of lower taxes.²² The income tax then functions as a kind of insurance, because it lessens the effect of a loss. This model is fairly standard in analyzing the reaction of investors to the taxation of income from risky investments.²³ An extension of this model is that if a tax is properly structured, then imposing a

QUART. J. ECON. 263 (1969).

²¹ This is an income tax along the lines of what is generally referred to as a Haig-Simons income tax. HENRY SIMONS, PERSONAL INCOME TAXATION, 36-7 (1936). This implies that income is taxed as it is earned rather than waiting for a realization event (as described in Part III.C.1, *infra*) as well as full loss offsets, discussed in Parts II and III.

²² If the tax is assessed at a 30% rate and the taxpayer has a \$100 loss, the loss will generate a tax deduction of \$100, which will reduce his or her taxes by \$30. Hence, the taxpayer will only have an after-tax loss of \$70, rather than \$100.

²³For a sampling of the literature on this model see Agnar Sandmo, *The Effects of Taxation on Savings and Risk-Taking* in THE HANDBOOK OF PUBLIC ECONOMICS (Alan Auerbach and Martin Feldstein eds., 1985); *see also* Noël Cunningham, *The Taxation of Capital Income and the Choice of Tax Base*, 52 TAX L. REV. 17 (1996). Many economists believe this model accurately describes the U.S. tax system. *See* Kent Smetters, *Three Key Design Issues in Analyzing the Trust Fund Investment Policy*, 52 NAT. TAX J. 531, 537 (1999); *see also* Gareth Myles, PUBLIC ECONOMICS 214-9 (1995). For an application of this model to the income tax-

higher tax on a risky asset actually results in more capital being allocated to the asset than would have been if no tax was assessed.²⁴ While this conclusion is counter-intuitive, it follows logically from the structure of a “pure” income tax.²⁵

This article applies this analysis to the corporate double tax and concludes that taxing returns on corporate equity at a higher rate than other kinds of income can result in greater rather than less capital allocated to corporate equity.²⁶ Therefore, under a “pure” income tax a second layer of tax on corporate income can actually promote investment in corporations rather than reduce it.

consumption tax debate see Joseph Bankman and Thomas Griffith, *Is the Debate Between an Income Tax and a Consumption Tax a Debate About Risk? Does it Matter?*, 47 TAX L. REV. 377 (1992). *see also* Alvin Warren, *How Much Capital Income Taxed Under an Income Tax is Exempt Under a Cash-Flow Tax*, 52 TAX L. REV. 1 (1996);

²⁴ See the analysis in Part III.B, *infra*.

²⁵ See Part II.A, *infra*; For a mathematical proof see Agnar Sandmo, *Differential Taxation and the Encouragement of Risk-Taking*, 31 ECON. LETTERS 55 (1989)

²⁶ An argument similar to this was made in Roger Gordon, *Taxation of Corporate Capital Income: Tax Revenues Versus Tax Distortions*, 100 QUART. J. OF ECON. 1 (1985). However, that article analyzed the Domar-Musgrave model with respect to the corporate tax itself. The corporate tax is applied to so-called real investment, as opposed to portfolio investment and so does not have the feature of constant marginal returns which is necessary for the Domar-Musgrave model to apply. See Part III.A, *infra*.

This article is divided into four parts. Part I discusses the traditional arguments concerning the inefficiency of the classical system of taxation of corporate income. It analyzes both the criticisms and defenses of the corporate double tax. Part II discusses the Domar-Musgrave model and how it shows that a properly structured income tax can actually have the effect of increasing the amount of capital invested in more highly taxed assets. Part II demonstrates how a tax which meets the Domar-Musgrave model is an efficient way to raise revenue and has many additional desirable attributes. Part II also discusses some of the restrictions as well as some additional consequences of the model. Part III applies the Domar-Musgrave model to the second layer of tax on corporations, and shows that contrary to what many scholars have presumed, a classical corporate tax system can actually increase the investment in corporate equities. Part III also analyzes how well the current U.S. tax system meets this model. It shows that while the current system exhibits many features of the Domar-Musgrave model, it also departs from an ideal system. Part IV then discusses how we can use the model to improve the efficiency of the U.S. corporate tax system. In particular, it argues that the tax system should allow for more liberal loss offset rules on equity capital invested in publicly traded corporations. The exact amount of this liberalization will depend on the resolution of issues discussed in Parts III and IV, some of which are beyond the scope of this article.

The focus of this article is on the second layer of tax on corporate income. It will assume that the first layer of corporate tax (which is assessed on the corporation itself) is efficient and does not distort decision making.²⁷ As discussed in part I.B, many have defended the corporate

²⁷Crane, *supra* note 4. This tax in many ways mirrors of the income tax imposed on

tax before. Any inefficiency to be found in the tax imposed on the corporation itself is beyond the scope of this article.

This article will not attempt to discuss all of the issues that arise in connection with the classical system. In particular, it will not analyze in detail issues that arise due to the realization doctrine,²⁸ the progressivity of the individual tax income tax rates²⁹ or the different tax rates for

individuals. Hence, it shares many of the inefficiencies as well as efficiencies of that tax.

However, there are some particular concerns that arise under the corporate tax that are of a lesser concern with the income tax on individuals, such as the effects of accelerated depreciation and other business related items. See Sorenson, *supra* note 13; see also Roger H. Gordon and Jeffrey Mackie-Mason, “Why is There Corporate Taxation in a Small Open Economy? The Role of Transfer Pricing and Income Shifting” in *THE EFFECTS OF TAXATION ON MULTINATIONAL CORPORATIONS* (Martin Feldstein et al. eds., 1995). For an application of the Domar-Musgrave model to these problems, see Jeremy Bulow and Lawrence Summers, *The Taxation of Risky Assets*, 92 J. POL. ECON. 20 (1984).

²⁸ Realization creates its own set of problems best dealt with when analyzing realization. Daniel Shaviro, *An Efficiency Analysis of Realization and Recognition Rules Under the Federal Income Tax*, 48 TAX L. REV. 1 (1992); see also Chorvat, *supra* note 3. Some have suggested eliminating the realization requirement, see David Shakow, *Taxation Without Realization: A Proposal for Accrual Taxation*, 134 PA. L. REV. 1111 (1986). The realization doctrine is discussed briefly in Part IV.

²⁹ Progressivity means that tax rates increase as income increases. It is generally thought

capital gains as opposed to ordinary income.³⁰ Furthermore, the article does not make any systematic attempt to include the effects of inflation in the analysis. All of these issues are analytically separable from the classical system and are not essential to it.³¹

I. Traditional Arguments Against and for the Corporate Double Tax

A. Traditional Arguments Against the Corporate Double Tax

that adding progressivity to the income tax will decrease the incentive to take on risk compared to a flat-tax in the Domar-Musgrave model. JOSEPH STIGLITZ, *ECONOMICS OF THE PUBLIC SECTOR* (2000); *See also* Frank Cowell, *Some Notes on Progression and Risk-Taking*, 42 *ECONOMICA* 313 (1975).

³⁰ Currently, there is a distinction between “capital” income and “ordinary” income, see discussion in Part IV.A.1, *infra*. Because the income has already been taxed at the corporate level, any tax at the investor level is still a second level of tax even if the tax rates on some kinds of income from corporate equity are lower than ordinary rates. Therefore, even if there is a lower rate on capital gains, this only effects the rate of the second layer of tax. Unless that rate is zero, there are still two layers of tax.

³¹ In fact, at various times capital gains have not been taxed at different rates (1986-1989). In addition, the level of progressivity of the tax system changes fairly frequently, as of course the does the level of inflation. *See generally* C. EUGENE STEURLE, *THE TAX DECADE* (1991)

The traditional case against a second layer of tax on corporate investments³² is derived from a body of literature that originated with Frank Ramsey³³ which argues that the most efficient taxes are those that do not affect economic behavior very much or at all. Such taxes would result in little or no deadweight loss.³⁴ On the other hand, taxes that greatly distort behavior are likely to have significant and negative effects on productivity. Such taxes are often referred to as inefficient taxes.

The first step in the argument is to note that the corporation itself is a fiction.³⁵ It is simply a form of doing business. If the tax law treats one kind of business entity better than other

³²Stiglitz, *supra*, note 28; *see also* HARVEY ROSEN, PUBLIC ECONOMICS (1996).

³³*A Contribution to the Theory of Taxation*, 37 ECON. J. 47-61 (1927). One can argue that this line of analysis derives from Adam Smith, or at least Alfred Marshall, however modern efficient tax theory largely began with Ramsey. Richard A. Musgrave, *A Brief History of Fiscal Doctrine* in THE HANDBOOK OF PUBLIC ECONOMICS 26-7 (Alan Auerbach and Martin Feldstein eds., 1985).

³⁴Deadweight loss occurs when there is a loss to one party, without a corresponding gain to another. For example, when the tax system raises revenue there is a loss to the taxpayer, but a gain to the government. This is not an example of a deadweight loss. However, if the tax causes the taxpayer to alter his or her behavior in such a way as to reduce productivity, this loss of productivity is a deadweight loss. Stiglitz, *supra* note 28.

³⁵ Review of this in Stiglitz, *supra* note 28; *see also* Crane, *supra* note 4.

kinds, it will encourage the use of the tax-favored entity. To the extent the tax system alters real economic behavior because of this distortion, it will reduce economic productivity.³⁶

In order to avoid distortions in investment caused by the tax system, income earned by corporations and partnerships should be taxed at the same rate.³⁷ However, income earned by a partnership is generally only subject to one layer of tax while income earned by corporations is subject to tax both at the entity level and a tax at the owner level.³⁸ As discussed below, the problems thought to result from the classical system generally stem from too little capital being allocated to corporate equity.³⁹

The higher taxation of equity investments in corporations is thought to distort investment incentives in four ways. First, it creates a disincentive to use public equity markets. Second, it creates an incentive to capitalize a corporation using more debt (as opposed to equity) than would have been the case in the absence of the tax. Third, it increases the incentive to retain

³⁶For example, if the investors would have chosen a corporation but the tax system causes them to choose a limited liability company instead, the tax system has altered this behavior and likely will produce a deadweight loss, to the extent the two forms have different consequences.

³⁷ This notion derives from the view that a corporation or any business entity is simply a “nexus” of contracts and that the nominal form of operations is simply a formalistic distinction which should not affect the tax on the income. Treasury Study, *supra*, note 2 .

³⁸ See discussion *supra* note 1.

³⁹Gravelle and Kotlikoff, *supra* note 4.

capital in the corporation beyond what it would have been without the tax. Fourth, the tax gives a competitive advantage to “mature” corporations as compared to “immature” corporations.

1. Under-Use of the Corporate Form and the Public Equity Markets

If the use of the corporate form results in a higher tax burden, it is a standard economic conclusion that fewer investors will use the corporate form.⁴⁰ However, after the changes to the Internal Revenue Code that occurred in 1987 and in the Treasury Regulations in 1996, it is no longer the use of attributes of the corporate form⁴¹ which leads to double taxation, but rather

⁴⁰ Treasury Study, *supra*, note 2; Warren, *supra* note 1. This follows from the idea that, in general, if you increase the price of something, the demand for it will decrease. This is often known as the law of demand. WALTER NICHOLSON, *PRINCIPLES OF MICROECONOMICS* 125-7 (7th ed., 1998). The Slutsky equation for the demand for corporate equity in this case is $\partial C/\partial r = \partial C/\partial r|_{U=U^*} + \partial C/\partial I$, where C is the investment in corporate equity, r is the rate of return, and I is the income of the taxpayer, U=U* means that this partial derivative is evaluated in such a way as to hold utility constant. $\partial C/\partial r|_{U=U^*}$ represents the substitution effect from increasing or decreasing the rate of return on the corporate investment. $\partial C/\partial I$ represents the effect of income on the likelihood of investing in corporate stock. In order for the tax to increase the allocation to corporate equities the income effect would have to be negative and its absolute value larger than the substitution effect. The corporate stock would in effect have to be a “Giffen asset” in order for an increase in taxes to increase the demand for corporate asset, which most economists find dubious. See HAL VARIAN, *MICROECONOMIC ANALYSIS* 116-9, (3rd ed., 1990)

⁴¹ The earlier test for treatment as a corporation had been whether the entity in question

public trading of the equity interests in the entity.⁴² Therefore, the tax can distort the decision of whether to use the public equity market and even if the public market is used, it can distort the amount of capital raised.⁴³

In 1987, IRC § 7704 was enacted which requires that all publicly traded entities be

resembled a corporation. *Morrisey v. Commissioner*, 296 U.S. 344 (1935). It is still true that use of the corporate form likely results in a double tax (unless the owners qualify for and elect “S” status, see discussion *infra* at note 38 and surrounding text). However, by using a limited liability company, the owners can obtain all of the advantages of a corporation while still obtaining “flow-through” or one level of taxation. See Hamill, *supra* note 8; see also, Lee, *supra* note 8 .

⁴² Where the owners and capital providers plan to take the enterprise public before the company will pay a dividend, in particular if the corporation will have yet to earn significant amounts of income, they will often use a corporate form. Joseph Bankman, *The Structure of Silicon Valley Start-ups* 41 UCLA L. REV. 1737 (1994). The corporate double tax only applies when the stock is sold or dividends are paid that causes this to exist, which will generally only occur after the initial public offering. Hence, if the owners view the entity as publicly traded already, the double tax is already assumed. However, some practitioners argue that limited liability companies are becoming the preferred entity for non-publicly traded companies. Jeffrey Cole, *Choice of Entity: Report From the Trenches*, 87 TAX NOTES 1007 (May 15, 2000).

⁴³ Gravelle and Kotlikoff, *supra* note 4; see also Crane, *supra* note 4.

taxable as corporations.⁴⁴ In 1996, the Treasury adopted a set of regulations defining the term “corporation.”⁴⁵ Under these so-called “check-the-box” rules,⁴⁶ an entity that is not actually a corporation or deemed to be one under I.R.C. § 7704 can obtain all of the organizational benefits of a corporation and still not be subject to a second layer of tax.⁴⁷ Hence, for non-publicly traded entities the double taxation of income is essentially optional and therefore does not seem to present any problems for efficiency.⁴⁸ Even before the adoption of the “check the box” rules, many businesses were able to obtain “flow-through” taxation by use of a so-called “S”

⁴⁴ Certain corporations are not subject to double tax such as Real Estate Investment Trust and Regulated Investment Companies (I.R.C. §§ 851-860) as well as Real Estate Mortgage Investment Conduits (I.R.C. §§ 860A- 860G)

⁴⁵ Entities treated as corporations or associations are generally subject to the double tax, other entities are not. I.R.C. § 11.

⁴⁶ Treas. Reg. § 301.7701-2,3.

⁴⁷ See Hamill, *supra* note 8.

⁴⁸ Some have argued that it allows for the affirmative use of corporations to reduce taxes and that this presents its own efficiency problems. There are some instances in which taxpayers in the highest tax bracket can actually reduce their taxes through use of a corporation. See Lee, *supra* note 8 .

corporation⁴⁹ and other similar entities. However, this came at the cost of significant restrictions on ownership or operations of the business.⁵⁰ The “check the box” regulations essentially removed these restrictions for those willing to operate their businesses in the form of limited liability companies. For newly invested capital, the corporate double tax essentially only applies to investments in public traded entities.⁵¹ This tax is therefore a tax on the use of the public equity markets.⁵²

The purported efficiency problems of the double tax on corporate income result from discouraging corporations from issuing public equity and reducing the equity flowing to

⁴⁹ I.R.C. § 1361 -1375

⁵⁰ Prior to the issuance of these regulation the owners of an entity had to give up most of the significant attributes of the corporate form (see Morrisey, *supra*, note x.) or fit the strict ownership requirements of the “S” corporation rules. The shareholders of an “S” corporation can only be individuals who are U.S. citizens, and there can be only up to 35 total owners. Banks and insurance companies cannot be operated by “S” corporations. I.R.C. §§ 1361, 1362, Treas. Reg. § 301.7701-3.

⁵¹ Jerome Kurtz, *The Limited Liability Company and the Future of Business Taxation: A Comment of Professor Berger’s Plan*, 47 TAX L.REV. 815 (1992). Capital which was already invested in corporate equity can only be removed from corporate solution if both level of tax paid. *See* I.R.C. §§ 311, 331, 336.

⁵²Rudnick, *supra* note 14; Kurtz, *supra* note 50.

corporations from the public offerings.⁵³ In the standard analysis, because the income from corporate investments subject to a higher level of tax, the pre-tax expected value of the returns to corporations have to be higher by an amount equal to the tax.⁵⁴ This results in too little investment in publicly traded corporate equity.⁵⁵ By taxing the use of public equity markets,

⁵³ Investors will include the effect of the tax in their calculations of the value of the corporate stock. Scholes and Wolfson, *supra* note 14. The expected cost of the tax will decrease the value of the equity. One may ask why are there public corporations or new equity offerings? If the advantage to use the public equity markets exceeds the tax cost, then a corporation will issue new equity. However, there will be a cost to the economy due to the misallocation of capital out of the corporate sector. See Gravelle and Kotlikoff, *supra*, note 4.

⁵⁴This is often referred to as a tax wedge or the tax hurdle rate. Sorenson, *supra* note 13.

⁵⁵ If a tax is imposed on one of two possible investments, then the returns on the taxed investment will have to be higher by $(1/(1-t))$ to attract investment, where t is the tax rate. For example if the tax rate 30% and the market rate of return is 10% , the corporate equity investment would have to return would have to be 14.29% to make up for the tax. Because of the general assumption of diminishing marginal return, less capital investment in the taxed asset will cause the marginal rates of returns to equalize, which is required for both profit and utility maximization. Hence, less capital is allocated to corporations as opposed to other forms of business. Scholes and Wolfson, *supra*, note 14.

there will be less equity capital raised, which reduces economic efficiency.⁵⁶

2. Incentive To Over-Capitalize the Corporation with Debt

One way a corporation may attempt to compensate for the higher tax on equity is by obtaining its capital from issuing debt (i.e. borrowing) rather than by issuing equity securities. Payments of interest are generally deductible from the income of a corporation.⁵⁷ Hence, the profits of the enterprise⁵⁸ paid to debt holders are only subject to one layer of tax.⁵⁹ It is argued

⁵⁶ Gravelle and Kotlikoff, *supra* note 4 ; *see also* Jane Gravelle, *The Corporate Income Tax: Economic Issues and Equity Options*. 48 NAT.TAX J. 267 (1995)

⁵⁷ I.R.C. § 162; *but see* I.R.C. §§ 163(j) (which imposes restrictions on the deductibility of interest paid by U.S. subsidiaries of foreign parent corporations) and 163(h) (which essentially treats certain kinds of debt as equity).

⁵⁸ Sorenson, *supra* note 13. This is generally referred to as earnings before interest and taxes. These are the earnings of the enterprise before they are allocated to the various “owners”.

⁵⁹ Tax is not paid on these profits at the entity level but the payments are included in income owner of the debt instrument. I.R.C. §§61, 162 Under the traditional analysis, because capital provided as debt is not subject to two layers of tax, debt capital is not directed away from corporations. Rather, the opposite occurs, because corporations will have a higher rate of return than other entities (which is a result of the tax wedge, see note x, *infra*) more debt capital will flow to corporations than would have in the absence of the tax. Stiglitz, *supra* note 11.

that by obtaining additional capital from debt, the corporation can overcome many of the efficiency problems of the corporate double tax.⁶⁰

To understand the argument, we must first note that the distinction between debt and equity in the U.S. tax system is generally thought to be artificial.⁶¹ A corporation can be capitalized with both debt and equity and almost all corporations have a mix of both. For example, let us assume that a hypothetical corporation could be capitalized with \$100 debt and \$100 equity. If the company earned \$20 in profit before interest and taxes, let us assume that \$10 is allocated to equity holders and \$10 to debt holders (paid in interest). The income allocated to the debt holders would be deductible from income and hence not subject to the corporate tax.⁶² Earnings from debt capital are subject to a lower rate of tax than earnings from equity capital. By adding more debt to its capital structure the investors can reduce the total tax paid on the income of the enterprise.⁶³ To the extent the corporation is not credit constrained,

⁶⁰ Stiglitz, *supra* note 11.

⁶¹ This is the basis of the Modigliani-Miller indifference proposition. Franco Modigliani & Merton Miller, *The Cost of Capital, Corporate Finance and the Theory of Investment*, 48 AM. ECON. REV. 261 (1958).

⁶² Under IRC § 162 interest incurred to conduct a trade or business is deductible. If the owner of the debt interest is exempt from income tax (e.g, some foreign persons or organizations qualifying under IRC § 501) there will be no tax on these earnings at all. Stiglitz *supra* note 11.

⁶³ Stiglitz, *supra* note 11.

imposing a tax on corporate equity would not seem to alter capital allocation, because the corporation could obtain debt-financing. If the corporation needed additional capital it would simply borrow it.⁶⁴

However, there are a number of problems with relying on debt financing to solve the problems with over-taxing equity. The most obvious is that to the extent the corporation is not able to use borrowing as a source of new capital for its operations, it must use new equity.⁶⁵ For corporations that are credit-constrained, which are more likely to be newer and more risky businesses, the original efficiency problems still occur.⁶⁶

Another problem is that debt financing can have additional costs that equity financing does not. One of the most significant costs imposed by debt financing is that it increases the possibility of a bankruptcy proceeding involving the corporation.⁶⁷ Bankruptcy imposes significant costs to society, not all of which are borne by the shareholders, debtholders or

⁶⁴ Stiglitz, *supra* note 11.

⁶⁵ The case of where the corporations can use retained earnings is analyzed in Section I. A.3. Sorenson, *supra* note 13.

⁶⁶ Terrence Chorvat, *Ending The Taxation of Foreign Business Income* 42 ARIZ. L. REV. 835 (2000).

⁶⁷ Michael Knoll, *Taxing Prometheus: How the Corporate Interest Deduction Discourages Innovation and Risk-Taking*, 38 VILL. L. REV. 1461 (1993); also Sorenson, *supra* note 13.

corporate managers.⁶⁸ Furthermore, a corporation with a high level of debt will generally behave differently than one with a lower level.⁶⁹ Because the interests of debt holders and equity holders diverge with respect to bankruptcy,⁷⁰ debt holders may attempt to control the decisions of the management of the company through the use of covenants in the debt and other similar means. The effect of this is to reduce the amount of risk the business will undertake.⁷¹ In addition, having a significant amount of debt also imposes cash-flow constraints. Equity holders cannot generally require current payment of dividends whereas debtholders often can require the current payment of interest. This can restrain the management's discretion in operating the enterprise, even in the absence of explicit debt covenants and other formal limitations.⁷² Hence,

⁶⁸ See generally THOMAS JACKSON, *THE LOGIC AND LIMITS OF BANKRUPTCY* (1986), Sorenson, *supra* note 13.

⁶⁹ Knoll, *supra* note 66.

⁷⁰The only way debt holders will incur a loss is if the corporation becomes insolvent and not able to pay its debts. Debtholders do not generally share in the up-side potential of the business, but they do have the risk of failure of the business. Hence they are uninterested in high-risk, high-reward operations being undertaken by the business. Richard Brealey and Stewart Myers, *PRINCIPLES OF CORPORATE FINANCE* 689-701 (6th ed. 2000)

⁷¹ Knoll, *supra* note 66.

⁷²Cash flow restrictions can severely limit a business's options. To overcome these

the tax system again distorts behavior of corporate managers.

While some of the bad allocative effects of the corporate double tax can be alleviated by the use of debt financing, this comes at what is sometimes a high price. Therefore, the use of debt will not eliminate the efficiency effects of the classical system.⁷³

3. Retained Earnings and the Classical System

The classical system can also effect the other major source of corporate capital, retained earnings. Retained earnings are profits from the operations of the corporation that have not yet been distributed to the shareholders. It is generally thought that if the marginal source of capital for the business is retained earnings, the second level of tax should not significantly distort investment.⁷⁴ The notion behind this is that the second layer of tax will be paid on the earnings

problems a corporation could issue what is referred to as original issue discount debt (which pays no current interest, but interest accumulates and compounds), but that might require a higher interest rate, because of the additional risk the investors are taking on. Sorenson, *supra* note 13. There are also arguments that these restrictions help to prevent waste by corporate managers. Crane, *supra* note 4.

⁷³ Knoll, *supra* note 66.

⁷⁴ Sinn, *supra* note 11 at. The idea is that the double tax has already been priced in and cannot be removed without this tax price, so now the second tax does not matter, but the difference in tax rates between individuals and corporations does matter. David Hartman, *Tax Policy and Foreign Direct Investment*, 26 J. PUB. ECON. 187 (1985).

of the corporation whether they are paid to the shareholders or reinvested.⁷⁵ Therefore, the second layer of tax is already “priced into” the value of the retained earnings. The firm’s decisions of whether this capital should be in the hands of the shareholders or in the hands of the corporation should not be affected by the corporate double tax.⁷⁶

Even though the corporation will start with less capital, it is more likely to retain its earnings in a classical system, and hence it will grow more quickly than it would in a world without a double tax.⁷⁷ Interestingly, under this analysis the equilibrium size for such a firm will

⁷⁵If the corporation already earned \$100 after pay the corporate tax and interest, the second layer of tax will paid on this income whether it is distributed out now, or distributed later. Hence, its net value to shareholders is simply $(1-t) 100$, where t is the tax rate on distributions.

⁷⁶ Sinn, *supra* note 11. The evaluation of whether the firm should pay a dividend or reinvest the income in the business will be based on whether $r_c(1-t)^n (1-t) > r_s(1-t)^n(1-t)$, where r_c is the expected rate of return on capital left in the corporation, r_s is the rate of return on capital held by the shareholder, t is the rate of tax, which we have assumed to be the same for the corporation and the shareholder, and the number of time periods for the decision is considering. The $(1-t)$ represents the tax on the distribution of the earnings to the shareholder. One can see that because this term is on both sides of the equation, it will affect the decision of whether to pay a dividend. Chorvat, *supra*, note 65.

⁷⁷ Sinn, *supra* note 11. This retention occurs because in the initial stages of the corporation, it will have too little capital, and the return on this capital will exceed market rates.

be the same regardless of whether there is a second layer of tax on the income or not.⁷⁸ Hence, the corporate double tax will then generally distort capital for so-called “immature” firms,⁷⁹ but mature firms will have the same amount of capital that they would have had in the absence of the tax.

Unfortunately, the use of retained earnings to finance the operations of the firm brings its own set of problems. The prior analysis was limited by the failure to account for the effects of uncertainty. In a world of uncertainty, if raising new capital (either debt or equity) is costly, managers have an incentive to retain more capital than they would have in the absence of the

Therefore, because this capital can earn above normal returns, the corporation will retain its earnings, until the rate of return on the capital in the corporation is the market rate of return on portfolio income. For example, if the market rate of return is 12% and the required rate of return on corporate equity is 16%, then it is rational for the managers to retain the earnings of the corporation until the rate of return of the corporation drops to 12%.

⁷⁸ Chorvat, *supra* note 65; Sinn, *supra*, note 11.

⁷⁹ An “immature” firm is one which has not reached its equilibrium size. The equilibrium size is where the earnings of the business are sufficient to fund operations. *See* Rene Stulz *Globalization of Equity Markets and the Cost of Capital*, NBER Working Paper No. 7021 (March 1999). Hans Werner Sinn, *The Vanishing Harberger Triangle*, 45 J. PUB. ECON. 271 (1991). This is sometimes referred to as the “nucleus” theory of corporate finance. Sorenson, *supra* note 13.

tax.⁸⁰ The more costly it is to raise additional capital, the greater the incentive to retain earnings.⁸¹ Contrary to the original conclusion in part I.A. that the corporate double tax would result in too little capital in publicly traded corporation, in fact at equilibrium the classical system might cause more capital to be allocated to “mature” corporations than there would be in the absence of such a tax.⁸² This is also a distortion (although in the opposite direction) from what would have occurred in the absence of the tax.

4. The Classical System and Advantages to “Mature” Corporations

Another problem created by the distinction between retained earnings and new equity is that older, mature companies will have a comparative advantage in the raising of capital. As

⁸⁰ This is simply an application of the theory developed by James Tobin that if there are costs to obtaining capital, a decision-maker will retain more of it if the decision-maker is uncertain of the amount of capital that will be needed in the future. James Tobin, *Liquidity Preference as Behavior Towards Risk*, 25 REV. ECON. STUD. 65 (1958)

⁸¹ This is because the greater the cost, the greater the risk of underestimating the amount of capital need for the business.

⁸² Arlen and Weiss, *supra* note 7, argue that because corporate managers are generally compensated based on the size of the corporation, they have an incentive to retain the corporate double tax because it increases the size of the corporation at equilibrium.

described in the previous section, for purposes of corporate decision making, capital in form of retained earnings essentially is not subject to the double tax. In order to have retained earnings, the corporation has to have had prior earnings. Therefore, newer and smaller companies will be less able to compete with larger firms on this basis.

A new or risky enterprise can seek capital in the private equity market (i.e., non-public market in private equity placements) or the debt capital market or use retained earnings and not be subject to this second layer of tax.⁸³ However, private equity markets can be quite costly⁸⁴ and often do not allow for optimal capital allocation. Therefore, if a company is credit constrained, or is very risky or does not have sufficient earnings, then too little capital will flow to that business.⁸⁵

By making it harder for new or risky businesses to raise capital, the classical system creates a barrier to entry for any business where capital from the public equity markets is required or greatly aids the enterprise.⁸⁶ If true, the classical system would distort capital

⁸³Mark Carey et al., *The Economics of the Private Placement Market*, Federal Reserve Study No. 166 (1993)

⁸⁴Carey, *supra* note 82.

⁸⁵ Because the tax system would be altering the capital structure from what it would be in the absence of the tax, it would be reducing the economic efficiency of the system. Shaviro, *supra*, note 27.

⁸⁶ Stulz, *supra* note 78; *see also* Chorvat, *supra* note 65, at. If there is a new project, a

allocation, and possibly increase inefficiency by concentrating market power in fewer companies.⁸⁷

* * * *

Under the traditional view of the effects of the classical system, each of the problems discussed above arises because new equity investments are subject to an extra level of tax at the investor level, and this tax discourages corporate equity investment. The higher tax induces the investors to require a higher price for this investment. As a consequence, fewer enterprises will avail themselves of the public equity markets, and when they do use the public equity markets, they will not receive as much capital from them as they would have without the tax. There are various ways corporations may attempt to mitigate these problems, but as discussed above each creates significant efficiency concerns of its own. Hence, under this analysis, the classical corporate tax system is a very inefficient tax because it raises the cost of capital for corporations.⁸⁸

B. Arguments in Favor of the Classical System of Corporate Taxation

large business would have a comparative advantage in raising capital.

⁸⁷ For the application of this idea to multinational investment, see Chorvat, *supra* note 65; *see also generally* ALAN J. FELD, *TAX POLICY AND CORPORATE CONCENTRATION* (1982).

⁸⁸ The optimum level of corporate investment occurs when the pre-tax marginal rates of return on corporate investment are the same as for other investment. Gravelle and Kotlikoff, *supra* note 4. estimate that under traditional models the deadweight loss of the corporate tax is approximately equal to or exceeds the revenues generated by the tax.

Just as there have been arguments against subjecting corporate income to two layers of tax, there have also been defenses of it. As discussed earlier, it is important to point out that defenses of the classical system are not the same as defenses of the corporate tax. The corporate tax is a tax imposed upon the corporation itself. This tax is analytically separate from imposing a second layer of tax assessed at the investor level on what is essentially the same income.⁸⁹ If corporations did not pay a tax on the income they earn, there would be a significant incentive to earn income through a corporation.⁹⁰ This would distort investments in favor of corporations and capital income and would essentially convert the income tax into a consumption tax.⁹¹ It is generally agreed that corporate income must be subject to tax in the year in which it is earned.

⁸⁹ Crane, *supra* note 4. The second tax is only assessed on the income remaining after the first tax, although this distinction is largely technical because if the tax were assessed on all of the corporate income were increased the rate could simply be reduced. For an example of this see I.R.C. §§78, 902; *see also* Chorvat, *supra* note 65.

⁹⁰ Crane, *supra* note 4. This would essentially allow for unlimited individual retirement accounts (I.R.C. § 219) and would reduce or eliminate the taxation of passive income. If the income of the corporations were imputed to the shareholders, this would not occur. DAVID BRADFORD, *UNTANGLING THE INCOME TAX* 100-2 (1986); *but see*, Hideki Kanda and Saul Levmore *Taxes, Agency Costs and the Price of Incorporation*, 77 VA. L. REV. 211(1991); *See also* Gordon and Mackie -Mason, *supra* note 26.

⁹¹ Bradford, *supra* note 89.

Further, many have argued that this tax should be imposed at the corporate level, rather than at the shareholder level for purposes of corporate governance, as well as ease of collection.⁹²

This line of analysis does not explain why there should be a second layer of tax, rather only that corporate income should be taxed.⁹³ We then need to discuss why the corporate income should be subject to a second tax when it is distributed to the shareholders. The defenses to the classical system have largely fallen into one of three types: efficiency defenses, equity defenses and political defenses.

1. Efficiency Defenses

Just as we can divide the defenses of the classical system into three categories, we can divide the efficiency defenses into three types: those based on optimal tax literature, those based on benefits theory and those based on signaling theory. This section discusses each efficiency defense separately.

A. Defenses Based on Optimal Tax Theory

One of the key defenses of the classical system argues that the deadweight loss of the

⁹² Kanda and Levmore, *supra* note 89 ;Treasury Study, *supra* note 2. See also Joseph Snoe, *The Entity Tax and Corporate Integration: An Agency Cost Analysis and a Call for a Deferred Distributions Tax*, 48 U. MIAMI L. REV. 1 (1993)

⁹³ Kanda and Levmore, *supra* note 89. The argument is that the entity level is the proper place for a tax on such income due to potential incentive problem with the corporate managers. Managers could have an incentive to distort income of the corporation to improve their own personal tax positions, as opposed to shareholders generally.

system is minimal. This defense directly confronts the attacks on the classical system by claiming that the behavioral response to the double taxation of corporate income is rather small. If the response to the second tax on corporate income is very small or non-existent, then under optimal tax theory such a tax would be an efficient way to raise revenue for the government.⁹⁴ This inelasticity arises because there are few good substitutes for new equity, both for the corporation and the investor.⁹⁵

However, even if both the decision of whether to enter the public market is inelastic and all taxpayers will have some corporate equity in their portfolio, the inflow of capital into the corporation can still be affected. Investors will still price these investments so as to equalize marginal returns for all investments.⁹⁶ The price investors are willing to pay for the equity is decreased by expected taxes.⁹⁷ While investors want liquid assets, other such assets exist (e.g,

⁹⁴ Ramsey, *supra* note 32.

⁹⁵ Rudnick, *supra* note 14.

⁹⁶ Varian, *supra* note 39 at 28-31. many of the points made here were made by Shaviro, *supra* note 27. These returns are equalized on an expected utility basis rather than actual returns to the investments being equalized.

⁹⁷ They will willing to pay for the assets based on risk-adjusted net expected present value of the revenue stream of the asset. Scholes and Wolfson, *supra* note 14.

corporate bonds, government bonds, pass-through entities such as REITs⁹⁸ and REMICs,⁹⁹ and commodities such as gold and silver). If corporate equity has a lower after-tax return, then other forms of investment will receive higher valuations. Hence, less capital will flow into the corporation as a result of the classical system.¹⁰⁰ While imposing the tax might not affect the number of corporations in the market,¹⁰¹ it would affect how much equity capital they receive.¹⁰² Therefore, the second layer of tax would still reduce the amount of equity capital of publicly traded corporations.

Further, this defense does not explain the distinction between equity and debt. There is a great deal of publicly traded corporate debt¹⁰³ which is also a highly liquid investment. As discussed earlier, income from capital supplied to the corporation in the form of debt does not

⁹⁸ I.R.C. §§ 856-860, these are publicly traded investments that are not subject to double taxation, but which cannot conduct a business.

⁹⁹ I.R.C. §§860A-860G.

¹⁰⁰ When corporations issue stock, outside capital flows in to the corporations. The amount of capital flowing in will depend on the price of the shares of the corporation. Scholes and Wolfson, *supra* note 14.

¹⁰¹ Rudnick, *supra* note 14.

¹⁰² Shaviro, *supra* note 27.

¹⁰³ Carey, *supra* note 82 ; Pratt, *supra* note 1.

pay a second layer of tax. Under this analysis, there is no reason income from corporate equity should be taxed at a higher rate than income from corporate debt.¹⁰⁴ Therefore, this defense does not explain the current classical system.

B. Benefits Tax Theory

If a tax is imposed that is commensurate with the benefits granted by government, some argue that such a tax would have small deadweight losses because taxpayers are receiving benefits commensurate with the amount they pay in tax.¹⁰⁵ Under such a tax, individuals will get the optimal level of the public good. Further, such a tax can be supported on fairness and equity grounds because people will pay taxes based on what they receive.

It is argued that the higher taxation of publicly traded equity is a benefits tax because liquidity is beneficial to investors and this liquidity comes about from the public market.¹⁰⁶ This public market is highly regulated and it is argued that this regulation improves the market and hence the value of the shares traded.¹⁰⁷ Therefore, shareholders receive a benefit from the

¹⁰⁴Actually one of the integration proposal in the Treasury Study would have imposed a business tax on income from both debt and equity capital. Treasury Study, *supra* note 2.

¹⁰⁵Erik Lindahl, *Just Taxation-A Positive Solution* in CLASSICS IN THE THEORY OF PUBLIC FINANCE 168 (R. Musgrave and A Peacock eds, 1957); Rudnick, *supra* note 14.

¹⁰⁶Rudnick, *supra* note 14.

¹⁰⁷ See Andrei Shleifer and Daniel Wolfenson, *Investor Protection and Equity Markets* HARVARD INSTITUTE OF ECONOMIC RESEARCH WORKING PAPER NO. 1906 (2000)

government and so should be taxed for it.

While these markets are regulated, it is hard to trace the benefits of this regulation to the costs imposed upon taxpayers.¹⁰⁸ Further, the government did not create these markets. The regulations may possibly improve the market, but did not create it.¹⁰⁹ Therefore, it is difficult to determine how much of a benefit taxpayers are receiving from the government action, and how much from private markets. In addition, if the tax reduces the after-tax rate of return, investors will still attempt to avoid the tax. Hence, the tax can still create deadweight loss to the society.

Further, the government also regulates the markets for public debt and other securities. There is no reason these other markets should not be taxed as well. Again, this argument does not explain the difference in the tax treatment between debt and equity in the classical system.

C. Signaling Theory

The argument based on signaling theory derives from the fact that there is generally an

¹⁰⁸ The budget of the Securities and Exchange Commission is only a small fraction of the revenues from the tax on dividends and capital gains from publicly traded stock. For Fiscal 2003, the President has requested a budget of \$469.9 million for the Commission. *Testimony before the Senate Subcomm. on Commerce, Justice, State and the Judiciary Committee on Appropriations* (March 7, 2002)(statement of Harvey Pitt, Chairman, Securities and Exchange Commission).

¹⁰⁹ Frank Easterbrook and Daniel Fischel, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* (1991), and Dennis Carlton and Daniel Fischel, *The Regulation of Insider Trading* 35 *STAN. L. REV.* 837 (1983).

information asymmetry between the shareholders and the managers.¹¹⁰ The managers know much more about the true value of the enterprise than do shareholders. Dividends then serve as a signal from management to the shareholders that the company is performing well.¹¹¹ If it is more costly for poorly performing firms to pay dividends, when a firm pays dividends, it signals to the market that the management expects the corporation's performance in the future to be good.¹¹² Because the second layer of tax increases the cost of raising new equity (making it harder for firms to raise new equity), the second layer of tax improves the value of the signal and gives valuable information to shareholders. By increasing the value of the signal. It is argued that this explains why often more capital shifts to corporations that increase their dividend payouts.¹¹³

¹¹⁰ Douglas Bernheim, *Tax Policy and the Dividend Puzzle*, 22 RAND J. OF ECON., 455 (1991); *see also* Sorenson, *supra* note 13. For empirical evidence of signaling theory, see Douglas Bernheim and Adam Wantz, *A Tax-Based Test of the Dividend Signaling Hypothesis*, 85 AM. ECON. REV. 532 (1995)

¹¹¹ Bernheim, *supra* note 109; *see also* Sorenson, *supra* note 13.

¹¹² In order for a signal to be effective, it must be less costly for the person who have the attributes which are attempting to be signaled than for person who do not. Nicholson, *supra* note 39 ; *see also* Bernheim, *supra* note 109.

¹¹³ Roni Michaely, et. al. *Price Reactions to Dividend Initiation and Omissions: Over-Reactions or Drift*, 50 J. FIN. 573 (1995); *see also* Bernheim, *supra* note 109.

This “signaling” explanation of dividends is controversial and there are many alternative explanations of this phenomenon.¹¹⁴ One prominent theory argues that because different investors have different tax situations and have different needs for liquidity, some corporations will pay dividends to accommodate their “clienteles” while other corporations will not pay dividends to accommodate a different segment of the market.¹¹⁵ Even if one accepts that dividends function as a signal to the market, in order to evaluate whether this creates an efficiency justification for the classical system one would have to determine the value of the information derived and whether this was the least costly way to get this information to the shareholders. It seems unlikely that imposing this tax to improve signaling is a net improvement in efficiency.¹¹⁶

2. Progressivity and the Classical System

Some argue for the corporate double tax because it increases the progressivity of the tax system.¹¹⁷ A progressive income tax is one in which higher earning taxpayers pay more tax than

¹¹⁴ Sorenson, *supra*, note 13.

¹¹⁵ There is also an argument that forcing corporations to pay dividends disciplines the management of these companies to not waste corporate assets. Sorenson, *supra* note 13.

¹¹⁶ Sorenson, *supra* note 13.

¹¹⁷ Kwall, *supra* note 9.

lower earning taxpayers.¹¹⁸ Many commentators have argued for the desirability of such a system, although its appeal is not universal.¹¹⁹ Because corporate equity is more likely to be owned by wealthy individuals than by moderate income individuals,¹²⁰ if we increase the tax on corporate stock, we effectively increase the tax on wealthy individuals. However, if one wants to tax the rich, the best way to tax them would be to tax them directly.¹²¹ Many of the richest individuals have much of their wealth in businesses that utilize an entity that is not subject to the double tax.¹²² Whereas many middle income workers have corporate stock investments.¹²³ Given this, it seems illogical on progressivity grounds to tax the portfolio corporate income higher than other forms of income.

3. Political and Historical Defenses

¹¹⁸ Stiglitz, *supra* note 28,

¹¹⁹ Michael Livingston, *Blum and Kalven at 50: Progressive Taxation, "Globalization" and the New Millennium*, 4 FLA. TAX REV. 731 (2000); *see also* Kwall, *supra* note 9; *but see*, ROBERT HALL and ALVIN RABUSHKA, *LOW TAX, SIMPLE TAX, FLAT TAX*. (1996)

¹²⁰ Kwall, *supra* note 9.

¹²¹ ANDREW LYON, *CRACKING THE CODE*, 57-8 (1997)

¹²² William Gentry and R. Glen Hubbard, *Entrepreneurship and Household Savings*, NBER, NBER Working Paper no. w7894 (2000)

¹²³ Gentry and Hubbard, *supra* note 121.

None of these defenses is wholly successful at countering the case for eliminating the second layer of tax on corporate income.¹²⁴ Why then do we continue to have it? It is often stated that the tax raises so much revenue that we cannot afford to get rid of it.¹²⁵ However, by definition, if we replace it with a more efficient tax, we could raise the same revenue and have less deadweight loss.¹²⁶

Another argument is based on the notion of “cognitive illusion.”¹²⁷ The argument begins by pointing out that no natural person nominally pays the corporate tax (even though ultimately some natural person bears this burden¹²⁸) and the incidence of the tax is far from certain.¹²⁹ Consequently, no taxpayer is really sure if he or she is bearing the tax. This makes it easier to raise revenue from corporate taxes than through the regular income tax, because there is less

¹²⁴ Arlen and Weiss, *supra* note 7.

¹²⁵ Kwall, *supra* note 9.

¹²⁶ David Weisbach, *An Efficiency Analysis of Line Drawing in Tax Law*, 29 J. LEGAL STUD. 71 (2000).

¹²⁷ Arlen and Weiss, *supra* note 7; *see also* Edward McCaffrey, *Cognitive Theory and Tax* in BEHAVIORAL LAW AND ECONOMICS 398- 421 (Cass Sunstein ed., 2000)

¹²⁸ Stiglitz, *supra* note 28.

¹²⁹ Arlen and Weiss, *supra* note 7 ; *see also* Sorenson, *supra* note 13; For a discussion of the problems of individuals cognition of the incidence see, McCaffrey, *supra* note 126.

opposition to it.¹³⁰

However, this theory does not explain the second level of tax on dividends.¹³¹ These taxes on dividends are in fact paid directly by individuals who receive the dividends and hence are not hidden.¹³² Further, as described by Arlen and Weiss, corporate managers lobby to reduce the corporate income tax, although not the tax on dividends.¹³³ Hence, neither tax is truly hidden nor neglected. At best, this argument is a political explanation of why the tax is still in existence. This is not an argument for why we should have a corporate double tax. It is simply an explanation of why we have it.¹³⁴ As David Hume famously pointed out, one cannot derive

¹³⁰ People would be less likely to spend real resources in opposition to a tax that they are uncertain if they bear, as opposed to one that they are certain they bear. Under traditional public choice theory because there is a diffuse opposition to the tax, it less likely to have effective resistance. Richard Posner, *ECONOMIC ANALYSIS OF LAW* 569-75 (5th ed.1999)

¹³¹ Arlen and Weiss, *supra* note 7.

¹³² Arlen and Weiss, *supra* note 7 at 332-333, in 1998 , \$169 billion of dividends were reported by taxable individual tax returns. Internal Revenue Service, *Individual Income Tax Returns, Preliminary Data, 1999*, STATISTICS OF INCOME BULLETIN 119 (Fall 2001).

¹³³ Arlen and Weiss, *supra* note 7.

¹³⁴ For another explanation of why the corporate double tax can continue see Merton Miller, *Debt and Taxes*, 32 J. FIN. 268 (1977). For an extension of this argument into the

an ‘ought’ from an ‘is’.¹³⁵

II. Risk Shifting and The Income Tax.

This section discusses how investors react to taxes on income. Its analysis is based on a model first advanced by Evsey Domar and Richard Musgrave (“the Domar-Musgrave model”).¹³⁶ This is perhaps the most commonly used model for discussing the effects of a “pure” income tax on risk-taking behavior.¹³⁷ Under this model, if an income tax with full-loss offsets¹³⁸ is imposed, it will result in greater investment in risky assets by taxpayers.¹³⁹ As

political arena, see Sinn, *supra*, note 11.

¹³⁵ A TREATISE ON HUMAN NATURE: BEING AN ATTEMPT TO INTRODUCE THE EXPERIMENTAL METHOD REASONING INTO MORAL SUBJECTS 469 (1740)

¹³⁶ Domar and Musgrave, *supra* note 18.

¹³⁷ For a small sampling of the literature about his model see Griffith and Bankman, *supra*, note 22; Warren, *supra* note 22. Louis Kaplow, *Taxation and Risk-Taking: A General Equilibrium Perspective* 47 NAT. TAX J. 789 (1994); Myles, *supra* note 22 ; Stiglitz, *supra* note 19 ; Smetters, *supra* note 22.

¹³⁸ This means that if losses are incurred, the tax benefits obtained are symmetrical to the tax costs of earning income (e.g., if there is \$ 100 of income and the tax rate is 30% tax, the taxpayer pays \$30 in tax, and if there is a \$100 loss the taxpayer receives a \$30 from the

explained more fully below, the investment shifts occur because such an income tax shifts some of the risk of a taxpayer's investments to the government. This risk shifting results from the government sharing both in the income and the loss of an investment to the same extent.¹⁴⁰ Taxpayers are essentially able to eliminate the tax burden on capital income by shifting more capital to risky assets.¹⁴¹

The Domar-Musgrave model makes certain assumptions. First, as stated above, it assumes the income tax has full loss offsets. Second, it assumes the investment has constant

government).

¹³⁹ This hypothesis was first formulated by Domar and Musgrave, and was extended by Mossin, *supra*, note x at and Stiglitz, *supra* note 19. For an overview see M. Allingham, *Risk-Taking and Taxation*, 32 ZEITSCHRIFT FÜR NATIONALÖKONOMIE 203 (1972); *See also* Sandmo, *supra* note 22.

¹⁴⁰ Under a pure income tax, if a taxpayer has \$100 in pre-tax income, \$30 or 30% is given to the government. If the taxpayer has a \$100 loss, then because under a "pure" income tax there are full loss offsets, the taxpayer will obtain a benefit (either a check from the government or a reduction in taxes of \$30). Hence, the government will share in both the loss and the gain to the same extent.

¹⁴¹ For an allied idea that income tax insulates consumption by providing insurance, see Thomas J. Kneisner and James P. Ziliak, *Explicit Versus Implicit Income Insurance*, Syracuse University Working Paper (July 2001).

marginal returns (as opposed to declining or increasing marginal returns).¹⁴² Third, this model assumes that investments are infinitely divisible. Fourth, this model assumes that transactions costs are zero. Fifth, it is assumed that investors are rational utility maximizers.¹⁴³ The realism of these assumptions is discussed in Part III.

The most intriguing thing about the Domar-Musgrave model is that if we make all of the assumptions required for the model, certain seemingly paradoxical results arise. The first of these is that an income tax will cause investors to increase the amount of capital allocated to risky investments. More paradoxically, the higher the rate of income tax on a risky investment, the higher the amount of capital allocated to the investment. This seems to run counter to normal intuition and standard price theory, which predicts that if you reduce the returns on an investment, you will reduce the capital allocated to it.¹⁴⁴

The key notion behind these results is that an income tax both reduces the expected return of an investment and the variance (or risk) of the investment proportionately. If the marginal

¹⁴² Constant marginal returns occur when the investor does not affect the return on an asset by investing more or less in that asset. One consequence of this assumption is that the prices of assets do not change as a result of the imposition of the tax. Varian, *supra* note 39.

¹⁴³In addition, it is assumed that the investor is risk averse, however, this follows from the fact that there is a premium for risk. For a discussion of this and other restrictions of the model see Stiglitz, *supra* note 19.

¹⁴⁴See note 39, *supra*.

rate of return is constant, investors can return to their pre-tax rate of return by shifting more capital to the risky asset. Under the Domar-Musgrave model, the “true” burden of an income tax is not the revenue paid to the Treasury. If all the assumptions are met, there essentially is no burden of the tax to the taxpayer.¹⁴⁵ The income tax has effectively made the government a partner in all the investments of the taxpayer.

The exposition of the Domar-Musgrave model is broken up into three sections. Section A examines what occurs if the riskless rate of return is zero. Section B examines what occurs if the riskless rate of return is positive. Section C discusses some limitations to this model, as well as some extensions and conclusions drawn from the model.

A. Riskless Rate of Return is Zero

It is easiest to understand the operation of the Domar-Musgrave model if we first assume the riskless rate of return is zero. In other words, an investment that bears no risk of loss will not produce any income. Only an investment that has a risk of loss will produce a positive return. While this may seem unrealistic, most calculations of the real (i.e. inflation adjusted) riskless rate of return are very small.¹⁴⁶

We begin with a world in which there are no income taxes. We assume that an investor

¹⁴⁵ The government is in effect taking on risk and being compensated for it. It is in effect issuing an insurance policy, see Kneisner and Ziliak, *supra* note 140.

¹⁴⁶ The inflation adjusted risk-free rate of return from 1926-1996 was .6%. Ibbotson Associates, *Stocks Bonds Bills and Inflation* in 1997 YEAR BOOK 88 (1997).

has optimally invested his or her capital. If an income tax imposed on the income from the assets in the portfolio causes the risky asset to be proportionately both less risky and have a lower rate of return. If the asset had a loss of \$100 and the tax rate is 30%, then the after-tax loss is now only \$70. Conversely, if the asset had a gain then \$100, the after-tax gain is only \$70. More generally, both the risk and the return on the investment are reduced to $(1-t)$ multiplied by pre-tax values of risk and return respectively tax, where t is the tax rate. By shifting more investments into risky assets, the taxpayer can return to the pre-tax rates of return.¹⁴⁷ An investor can avoid the effects of an income tax by increasing the amount invested in the risky asset to $a/(1-t)$,¹⁴⁸ where a is the proportion of the portfolio invested in the risky asset prior to the imposition of the tax.¹⁴⁹ This result occurs with any tax rate other than a 100% tax rate and any rate

¹⁴⁷ Domar and Musgrave, *supra* note 18; Sandmo, *supra* note 22.

¹⁴⁸ This is because the after tax rate of return is $(1-t)x$, where t is the tax rate and x is the pre-tax gain. The after-tax risk of the asset is also reduced to $(1-t)y$, where y is the pre-tax loss. If the taxpayer shifts $a/(1-t)$ to the risky asset, where a is the proportion of the portfolio in the risky asset before the tax was imposed, then the after-tax rate of return on the asset is ax or $(ax(1-t)/(1-t))$, and its risk is also ay (or $ay(1-t)/(1-t)$). If the shifts are made, the after-tax rates of risk and return are the pre-tax rates of return and risk.

¹⁴⁹ Warren, *supra*, note 22; see also ANTHONY B. ATKINSON AND JOSEPH E. STIGLITZ, LECTURES IN PUBLIC ECONOMICS 118 (1980); Jan Mossin, *Taxation and Risk-Taking: An Expected Utility Approach*, 35 *ECONOMICA* 74 (1968) has an alternative derivation of this result.

of return.¹⁵⁰ Example 1 illustrates how the shifts can allow the taxpayer to once again earn the pre-tax returns.

¹⁵⁰ *See supra* note 147. The proportion is undefined at 100%.

Example 1. Assume that an investor with \$200 can choose between a riskless asset with a zero rate of return and a risky asset that will produce either a 30% gain (with a probability of 50%) or a 10% loss (with a probability of 50%), for a positive expected return of 10%¹⁵¹ in a year. Assume that in a tax-free world, the investor would divide the portfolio equally between the risky and the riskless asset (i.e., \$100 in each). After a year, the riskless asset is still worth \$100, and the risky asset is worth either \$130 or \$90. Hence, the investor will have a total of either \$230 or \$190, and an expected total return of \$210.

Imposing a 30% income tax with full loss offsets will decrease the average return on an investment by the amount of the tax. However, it will also reduce the riskiness of the investment by the amount of the tax benefit (e.g., deduction, credit etc.) that results from a loss.¹⁵² The two effects combine so that an investor can avoid the effects of the 30% tax by increasing the amount allocated to the risky asset to \$142.86 and reducing the amount invested in the riskless asset to \$57.14. In that case, at end of the year, the riskless asset is still worth \$57.14. After the income tax is paid, the risky investment will be worth either \$172.86¹⁵³ or \$132.86.¹⁵⁴ The investor will have a 50% chance of having a net

¹⁵¹ $[.3 \times .5] - [.1 \times .5] = .1$.

¹⁵² If there are full loss offsets, then some kind of tax benefit must flow to the taxpayer when there is a loss, see *supra* note 147.

¹⁵³ Here, the after-tax value of risky asset is the after-tax rate of return $(1 + (1-t)r)$, where r is the pre-tax rate of return) times the amount of the capital in the asset $(100/(1-t))$ which equals $(1 + (1-.3).3) (100/[1-.3])$ or 172.86.

¹⁵⁴ Here, the value of risky asset after-tax is the after-tax

worth of \$230 and a 50% chance of having a net worth of \$190 after taxes. The investor is in the same position as if there were no tax at all.

rate of return $(1 + (1-t)r)$ times the amount of the capital in the asset $(100/(1-t))$ which equals $(1 - (1-.3).1)(100/[1-.3])$ or 132.86.

If the investor obtains the same return after the imposition of the tax as before the tax, how is it that the government collects revenue from capital income? The investor may be in the same situation, but society is not. The income tax has forced the investor to have a portfolio that is riskier on a pre-tax basis. Hence, while the private risk to the investor has not changed, total risk undertaken by society has. It is the government that bears the additional risk. In essence, the tax revenue is the compensation the government receives for taking the additional risk.¹⁵⁵

This analysis can be extended to any number of risky assets. To illustrate, assume there are n risky assets and one riskless asset.¹⁵⁶ In a non-taxed world, the investor would invest a_1 in the first risky asset, a_2 in the second, etc up to a_n in the n th risky asset, where $a_1 + a_2 + \dots + a_n$ is equal to the investor's total wealth. If a tax is imposed (at rate t), then if the amount invested in each of these risky assets is increased by a factor of $1/(1-t)$ to $a_n/(1-t)$ (for the n th risky asset), again the investor can return to the same pre-tax results.¹⁵⁷ If the income tax is imposed at a flat

¹⁵⁵ Domar and Musgrave, *supra* note 18. If they have already invested all their assets in risky assets, then the shift can be accomplished by borrowing. Warren, *supra* note 22. The government is essentially investing in a portfolio of stocks equal to $(1/(1-t))$ of all the assets subject to the tax. This is the capital shifted into the risky assets. See discussion, *infra* Part II.D

¹⁵⁶ Of course, there can be any number of riskless assets. However, because in this model they will all have the same risk-reward profile (no risk, no reward), we can treat them as one asset.

¹⁵⁷ This result was found by Agnar Sandmo, *Portfolio Theory, Asset Demand and*

rate, the tax does not change the allocations between risky assets because these portfolio shifts are not based on risk, but on the amount of tax imposed on them. Example 2 illustrates this.

Taxation: Comparative Statics with Many Assets, 44 REV. ECON. STUD. 369 (1977).

Example 2. Assume that an investor has \$300 and a choice of three assets: a riskless investment which has zero rate of return and two risky investments. The first risky investment (R1) will produce either a 30% gain (with a probability of 50%) or 10% loss (with a probability of 50%), for a positive expected return of 10% in a year.¹⁵⁸ The other risky investment (R2) will produce either 50% gain (with a probability of 50%) or an 20% loss (with a probability of 50%) for a total expected return of 13.5%.¹⁵⁹ Assume that in a tax-free world, the investor would divide the portfolio equally between the three investments (i.e., \$100 in each). After a year, the riskless investment is still worth \$100, and R1 is worth either \$130 or \$90, and R2 is worth either \$150 or \$80.¹⁶⁰

$$^{158} [.3 \times .5] - [.1 \times .5] = .1.$$

¹⁵⁹ The expected rate of return is higher here, because the risk is greater and it is assumed that the investor is risk averse (that is, the investor must be compensated for additional risk).

¹⁶⁰ Ex. 2, In the pre-tax world:

Riskless Asset	R1		R2		Value of Portfolio (R1+R2+ Riskless)
	Pays off?	Value	Pays off?	Value	
Value					

If a 30% income tax with full loss offsets is imposed, the investor can avoid the effects of the income tax by increasing the amount allocated to R1 to \$142.86 as well as the amount allocated to R2 to \$142.86. Consequently, the amount invested in the riskless asset is reduced to \$14.29. At end of the year, the riskless asset is still worth \$14.29. Notice that the investor is always in the same position as if there were no tax at all.¹⁶¹

100	Yes	130	Yes	150	380
100	Yes	130	No	80	310
100	No	90	Yes	150	340
100	No	90	No	80	270

¹⁶¹ Example 2: 30% tax, after portfolio adjustments

Riskless Asset	R1		R2		Value of Portfolio (R1+R2+ Riskless)
	Pays off?	Value	Pays off?	Value	
14.29	Yes	172.86	Yes	192.86	380

14.29	Yes	172.86	No	122.86	310
14.29	No	132.86	Yes	192.86	340
14.29	No	132.86	No	122.86	270

The amount of the increase of the investment in each risky asset will not depend on the risk of the asset. Rather the increase is a result of a tax being imposed on the income from the assets.¹⁶² All risky assets have had their risk reduced by the same percentage (t), and so a flat-rate income tax only alters the allocation between risky and riskless assets, not between risky assets.¹⁶³

If we extend the analysis to situations where each asset is subject to a different rate of tax, the investor should shift more of the investment to the higher taxed asset.¹⁶⁴ At first, this seems counter-intuitive. It is generally thought that if you tax the income from an asset at a higher rate,

¹⁶² Sandmo, *supra* note 156.

¹⁶³ It is also possible for the riskless asset to have some risk, as long as it is unambiguously less risky than the risky asset. See Stiglitz, *supra* note 19.

¹⁶⁴ Sandmo, *supra* note 24.

more capital will be shifted to a lower-taxed asset.¹⁶⁵ However, under this model, if the investor shifts an amount equal to $a_1 / (1-t_1)$ into asset 1 and $a_2 / (1-t_2)$ into asset 2 (where a_1 is the amount originally invested in asset 1, and a_2 is the amount invested in asset 2), the taxpayer can return to the pre-tax situation. If the tax on asset one is greater than that on asset two (i.e., $t_1 > t_2$), the investor can return to pre-tax returns by shifting more capital to the higher taxed asset. This is illustrated in example 3.

¹⁶⁵ Nicholson, *supra* note 39.

Example 3. Assume that there is one riskless asset and there are two risky assets: R1 and R2. These two risky assets each have the same risk-reward profile (i.e. a 50% chance of a 30% gain on the amount invested and a 50% chance of a 10% loss). In a world without tax, the investor would be indifferent between R1 and R2. Assume that in the absence of taxation, the investor would place \$100 in each of these three investments.¹⁶⁶

If a tax of 30% is imposed on asset R2, but no tax is imposed on the income from R1 and no portfolio adjustments are made, R2 now has a 50% chance of yielding a 21% gain after tax per dollar invested and a 50% chance of yielding a 7% loss after tax. If the investor adjusts to the tax by leaving \$100 invested in R1, but increases the amount invested in R2 to \$142.86 and decreases the amount invested in the riskless asset to \$57.14, the investor is again able to return to a pre-tax rate of return.¹⁶⁷ If R1

¹⁶⁶ Example 3: Pre-Tax World

Riskless Asset	R1		R2		Value of Portfolio (R1+R2+ Riskless)
	Pays off?	Value	Pays off?	Value	
100	Yes	130	Yes	130	360
100	Yes	130	No	90	320
100	No	90	Yes	130	320
100	No	90	No	90	280

¹⁶⁷ Example 3: 30% tax on R2, after portfolio adjustments

Riskless Asset	R1	R2	

now becomes subject to a 20% rate of tax, the investor should increase the investment in R1 to 125¹⁶⁸ (causing a decrease in the riskless asset to 32.14 (57.14-25)). Notice that \$142.86 is the amount invested in R2 and \$125 is the amount in R1. This occurs because the tax rate on R1 is lower than on R2.¹⁶⁹

Value	Pays off?	Value	Pays off?	Value	Value of Portfolio (R1+R2+ Riskless)
57.14	Yes	130	Yes	172.86	360
57.14	Yes	130	No	132.86	320
57.14	No	90	Yes	172.86	320
57.14	No	90	No	132.86	280

$$^{168}(100/(1-.2))$$

¹⁶⁹ Example 3: 30% tax on R2 and 20% tax on R1, after portfolio adjustments

Riskless Asset	R1		R2		
Value	Pays off?	Value	Pays off?	Value	Value of Portfolio (R1+R2+ Riskless)

14.29	Yes	155	Yes	172.86	360
14.29	Yes	155	No	132.86	320
14.29	No	115	Yes	172.86	320
14.29	No	115	No	132.86	280

Under the Domar-Musgrave model, it follows that when the tax on an asset is increased, there is an increase in the amount of capital allocated to it. This is simply because the risk on the more highly taxed asset has been reduced more than on the lower taxed asset. This result may at first seem to contradict normal price theory analysis, however, when one factors in the risk reduction provided by the tax, it becomes clear that this phenomenon is actually an interesting application of conventional price theory rather than contrary to it.¹⁷⁰

B. The Riskless Rate of Return is Greater Than Zero

In Section B, we assumed that the riskless rate of return was zero. This section discusses what occurs if we allow the riskless rate of return to exceed zero. In this case, the taxpayer cannot quite get back to the pre-tax situation. In particular, the riskless rate of return does not escape taxation. On the other hand, the risk premium does continue to escape the income tax. Example 4 illustrates what occurs if the riskless rate of return exceeds zero.

¹⁷⁰ David Hartman, *Foreign Investment and Finance with Risk*, 93 J. POL. ECON. 213 (1979) reached the same conclusion (that adding risk to traditional models causes higher taxes to result in increasing investment) using very different methods.

Example 4. Assume again the investor has two assets: One riskless asset with an initial value of \$100 and a .5% annual return¹⁷¹ and one risky asset with an initial value of \$100 and a 50% chance of returning \$130 and a 50% chance of returning \$90. If no tax is imposed, there is a 50% chance of the net worth of the portfolio being \$230.5 at the end of the year and a 50% chance of its net worth being \$190.5 at the end of the year.

If a 30% income tax is imposed, the effects of the tax can be reduced if the investor increases the amount invested in the risky asset to $a/(1-t)$. (Here \$57.14 in the riskless asset and \$142.86 in the risky asset). This means that the value of the after-tax value of the riskless asset is \$57.34 and the after-tax value of the risky asset is either \$172.86 or \$132.86. The total net worth is either \$230.20 or \$190.20. In either case, this is exactly \$.30 less than the net worth before the tax was imposed. This is equal to the amount of tax (30%) imposed on the riskless return of both assets.¹⁷²

¹⁷¹ Ibbotson Associates estimates that the historic riskless rate of return is .6%. I use .5% for computational simplicity.

Ibbotson Associates, *supra* note 145.

¹⁷² $(200 \times .005 \times .3)$ which is the value of the asset multiplied by the riskless rate of return times tax rate.

The investor is not in precisely the same position as before the tax was imposed, because the investor cannot avoid the tax on the riskless portion of the return.¹⁷³ The effect of this tax on asset allocation depends on the elasticity of investment to taxation.¹⁷⁴ Given the small amount of tax (about \$.015 per each dollar invested in Example 4), this amount seems unlikely to have a great effect on investment.¹⁷⁵

C. Limitations and Extensions of the Domar-Musgrave Model

This analysis suggests that a tax that has the characteristics described above might be quite desirable. The government could collect revenue from essentially owning a portfolio

¹⁷³ Warren, *supra* note 22.

¹⁷⁴ It will affect the relationship between saving and consumption. However, its effect on overall saving is ambiguous. The substitution effect would tend to reduce the amount of saving, but the income effect would tend to increase the amount of saving. Warren, *supra* note 22; *see also* Sandmo, *supra* note 22.

¹⁷⁵ Sandmo, *supra* note 22, proves that the elasticity form of the Slutsky equation for risky investment under the Domar-Musgrave model is $\frac{\partial a}{\partial t} (t/a) = -tr/(1+r(1+t)) [(\partial a/\partial A)(A/a)] + t/(1-t)$. Using .5% as the riskless rate of return, and 50% rate as the tax rate, the elasticity of investment in the risky asset to increases in income would have to be approximately 410 before the effect of taxing the risky asset would actually reduce the allocation of investment to the asset. This is a highly unlikely number (a 1% increase in wealth would yield a 410% increase in the desire to take on risk).

comprised of the investments chosen by private investors.¹⁷⁶ In addition, if the riskless rate of return is rather small, the tax would impose a very low burden on the taxpayer. When one compares these costs to the deadweight losses from the potential alternative tax systems, this kind of tax would be very efficient.¹⁷⁷

A limitation with the Domar-Musgrave analysis is that it evaluates the tax from the point of view of the effects of the tax alone. It does not include the fact that tax revenues are not burned after they are collected.¹⁷⁸ The reason for the tax is to raise money to fund public goods. If the revenue is used to finance a public good that taxpayers value, then they have not truly shifted the risk of the investment to the government as the model assumes.¹⁷⁹ If the amount of the public good is dependent on the returns to investment, taxpayers simply have shifted the risk

¹⁷⁶ It collects revenues because the expected value of these investments is positive. Of course in some years, there may be a net loss in investment for the economy as a whole. In this case the tax would not collect revenue.

¹⁷⁷ C.L. Ballard and D. Fullerton, *Distortionary Taxes and the Provision of Public Goods*, 6 J. ECON. PERSP. 117 (1992) finds that the deadweight loss of most taxes are about 30-50% of revenue raised, whereas the deadweight loss of this tax would be negligible. *See also* analysis in Part III.A.

¹⁷⁸ This is often referred to as a general equilibrium analysis, as opposed to partial equilibrium analysis which only considers the effects of the tax. Kaplow, *supra* note 136.

¹⁷⁹ Kaplow, *supra* note 136; *see also* Atkinson and Stiglitz, *supra* note 148.

from their portfolio to their consumption of public goods.¹⁸⁰ If the risk to one area (consumption of public goods) is increased, the tolerance for risk in another area (investment) may decrease.¹⁸¹ Hence, because the tax may cause taxpayers to be more risk averse with their portfolio choices, the tax might alter the original allocation between the risky and the risk-free asset and it is no longer clear that on net there is more capital allocated to the risky asset.

However, this argument fails to consider that the government might be able to take on the risk without returning it to the investors.¹⁸² To see how the government might not return the risk, we first note that the government can better manage portfolio risk than individuals. The government can suffer losses to its portfolio (i.e. run a deficit) for a much longer period than an individual.¹⁸³ Hence, it can take a longer-term perspective.¹⁸⁴ Increasing the time-horizon

¹⁸⁰ If they value the public goods less than the private goods (i.e., there is overinvestment or misinvestment in the public sector), then the transfer of risk will still be a reduction in the cost of the risk. If they value public goods more, then there will be an increase in the cost of the risk.

¹⁸¹ Kaplow, *supra* note 136.

¹⁸² Kai Konrad and Wolfram Richter, *Capital Income Taxation and Risk Spreading with Adverse Selection*, 28 CAN. J. ECON. 617 (1995)

¹⁸³ Historically, the U.S. government has run deficits for almost a quarter of a century. Daniel Shaviro, DO DEFICITS MATTER 4-5 (1996) In addition, there is not generally portfolio insurance offered by the market.

simply a few years significantly decreases the required risk premium for equity investment.¹⁸⁵

In addition, individuals generally do not have diversified portfolios.¹⁸⁶ Diversified portfolios generally have significantly smaller risk premiums than undiversified portfolios with similar returns.¹⁸⁷ Furthermore, even if all individuals have a completely diversified portfolio of stocks and bonds, their portfolio would still not be as diversified as the government. The government can collect tax revenue from all kinds of income.¹⁸⁸ It is literally the most

¹⁸⁴ There is an long-running argument over whether funding projects by taxes or by deficit spending is better. The principle argument in favor of deficit is sometimes known as Ricardian Equivalence. *See* David Ricardo, *THE PRINCIPLES OF POLITICAL ECONOMY AND TAXATION* (1817); *see also* Shaviro, *supra* note 182, at 28-31.

¹⁸⁵ Slomo Bernarzi and Richard Thaler, *Myopic Loss Aversion and the Equity Premium Puzzle*, 110 *QUART. J. ECON.* 73 (1995).

¹⁸⁶ Bernarzi and Thaler, *supra* note 184. In fact a longer time horizon (10 years) can cause the discount rate to drop to less than 10% of what it is for the average person. This almost entirely eliminates the risk.

¹⁸⁷ This is because diversified portfolios can eliminate idiosyncratic risk. Brealey and Myers, *supra* note x at.; *See also* Terrence Chorvat, *Ambiguity and Income Taxation*, 23 *CARDOZO L. REV.* 617, 640 (2001).

¹⁸⁸ I.R.C. § 61

diversified portfolio possible.¹⁸⁹ Hence, the risk premium that individuals will demand will be higher than the government would demand because stocks and bonds will still have risk unique to them that other kinds of income do not have.¹⁹⁰ It has been argued on this basis that the government should have a lower discount rate than individuals.¹⁹¹ Hence, the government is likely a significantly better risk bearer than individuals.¹⁹² If a risk is transferred from a highly risk-averse person to a risk-neutral person, the cost of the risk is essentially eliminated.¹⁹³ This

¹⁸⁹For a discussion of the importance of including all income in a portfolio and how it reduces risk premia, see R. Roll, *A Critique of the Asset Pricing Theory's Tests; Part I. On Past and Future Testability of the Theory*, 4 J. FIN. ECON. 129 (1977).

¹⁹⁰Roll, *supra* note 188. Also there is empirical evidence that individuals demand too high a risk premium for equity investments. See Jeremy Siegal and Richard Thaler, *Anomalies: The Equity Premium Puzzle*, 11 J. ECON. PERSP. 191 (1997).

¹⁹¹K. Arrow and R. Lind, *Uncertainty in the Evaluation of Public Investment Decisions*, 60 AM. ECON REV 266-78 (1970); See also Joram Mayshar, *Should the Government Subsidize Risky Projects*, 67 AM. ECON. REV. 20 (1977); For analysis of this argument see Chorvat, *supra* note 186.

¹⁹²Arrow and Lind, *supra* note 190. In fact, Arrow and Lind essentially argue that the government should be risk neutral.

¹⁹³If an investor is risk-neutral the amount of the asset will only depend on the expected

is the function of insurance agreements.¹⁹⁴ If the government can better manage the risk than individuals, much if not almost all of the risk assumed by the government is not returned to the shareholders. Therefore, it is highly unlikely that the effects of incorporating the riskiness of public goods financed by an income tax will significantly alter the Domar-Musgrave analysis.¹⁹⁵

D. Empirical Findings and the Domar-Musgrave Model

The most comprehensive study that has attempted to test the effects of taxes on portfolio choice¹⁹⁶ found that an increase in marginal taxes did in fact increase the allocation of portfolio

value of the return, not the variance. increasing the variance (or risk) as long as the expected value remains constant the investment will be the same. One way to measure risk aversion is by the risk premium required to take on a particular risk. J.W. Pratt, *Risk Aversion in the Small and in the Large*, 32 *ECONOMETRICA* 122 (1964).

¹⁹⁴ If a risk is shifted from a risk-averse person to a risk-neutral person, the risk has in essence disappeared, because only the expected value of the investment will matter, not the risk. More specifically, the utility cost of the risk disappears. If risk decreases the utility of person A but does not decrease the utility of person B, shifting the risk from A to B eliminates the utility cost. Nicholson, *supra* note 39.

¹⁹⁵ Also to the extent the government uses the tax revenues for redistribution, the risk is removed and not returned to the taxpayers, but transferred to government benefits recipients.

¹⁹⁶ Martin Feldstein, *Personal Taxation and Portfolio Composition: An Econometric Analysis*, 44 *ECONOMETRICA* 631 (1976)

capital to riskier assets.¹⁹⁷ Furthermore, studies on portfolio choice conducted in other countries, in particular the Netherlands and Sweden, (which both tax systems which are in many ways closer to Domar-Musgrave model¹⁹⁸ than the United States tax system) have found that increased tax rates correlate with a greater investment in risky assets, a key prediction of the Domar-Musgrave model.¹⁹⁹ In addition, many studies have found that the income tax has insurance

¹⁹⁷There are alternative explanations of the Feldstein result. *See* Sandmo, *supra* note 22.

¹⁹⁸ Both systems allow for greater use of losses to offset income than United States. HUGH AULT, *COMPARATIVE INTERNATIONAL TAXATION*, 197-8 (1996). *See also* Cnossen and Bovenberg, *Fundamental Tax Reform in the Netherlands*, 8 INT'L TAX AND PUB. FIN. 471 (2001).

¹⁹⁹ Jonas Agell and Per-Anders Edin, *Marginal Taxes and the Asset Portfolios of Swedish Households*, 92 SCANDINAVIAN J. ECON. 47, 61 (1990) and Stephan Hochgürtel, Rob Alessie and Arthur Van Soest, *Household Portfolio Allocation in The Netherlands: Saving Accounts Versus Stocks and Bonds*, 99 SCANDINAVIAN J. ECON. 81 (1997). Both studies took into account the effects of higher income on risk-taking, hence they show the effect of tax rate alone. One should note that one study conducted in South Africa found that higher taxes did not encourage risk-taking. That study looked at the reaction in South Africa to changes in income taxes and the willingness of investors to take on more risk. However, in South Africa there is no ability to offset losses on an investment against other income. Given these facts, one would predict *a priori* under the Domar-Musgrave model that the allocation to the risky assets would be

characteristics that are the basis of the Domar-Musgrave model in areas in addition to portfolio choice, such as the supply of labor and investment in human capital.²⁰⁰

Part III. Applications of Domar-Musgrave to the Corporate Double Tax

As discussed in part I, the problems thought to arise from the corporate double tax result from a decrease in the demand for corporate equity. However, as discussed in Part II, if the assumptions of the Domar-Musgrave model apply, a tax on the income from an investment can actually result in more capital allocated to the taxed investment rather than less, contrary to the traditional view. This section examines whether the Domar-Musgrave model can apply to portfolio investment in corporate equity and therefore whether the corporate double tax necessarily decreases the demand for corporate equity. Section A deals with the accuracy of the assumption of constant marginal returns for portfolio corporate equity. Section B analyzes how the model addresses the efficiency problems of the classical system. Section C analyzes the degree to which the model describes our current tax system.

lower than prior to the imposition of the tax. This study does not disprove the Domar-Musgrave model, but rather is consistent with it. Patrick Asea and Stephen Turnovsky, *Capital Income Taxation with Risk-Taking in a Small Open Economy*, 68 J. PUB. ECON. 55 (1998).

²⁰⁰ Kneisner and Ziliak, *supra* note 140 ; *See also* Douglas W. Elmendorf and Miles S. Kimball, *Taxation of Labor Income and the Demand for Risky Assets*, 41 INT'L ECON. REV. 801 (2000). For an application to human capital investments, see Syed Ashan and Peter Tsigaris, *The Taxation and Risky Human Capital Accumulation*, CESifo Working Paper (April 2001)

A. Constant Marginal Returns

The assumptions required for the Domar-Musgrave model to work are not trivial. One of the key assumptions of the model is that investments have a constant marginal rate of return.²⁰¹ Generally economists assume that investments have a declining marginal rate of return.²⁰² This means that as more capital is put in the investment, the rate of return declines. The taxpayer is not able to return to the pre-tax level of income because the new capital shifted into the investment will not earn as much as the capital that was already invested. The effects on risk-taking when there are declining marginal are ambiguous.²⁰³ Whether such taxes could on-balance reduce risk-taking, depends on how quickly the marginal rate of returns decline, as well as the elasticity of investment to declining returns. Hence, for most assets the Domar-Musgrave analysis yields ambiguous results.

However, portfolio investments have constant returns to scale. By definition, a portfolio

²⁰¹ Domar and Musgrave, *supra* note 18; Jack Mintz, *Some Additional Results on Investment, Risk-Taking and Full Loss Offset Corporate Taxation with Interest Deductibility*, 96 QUART. J. ECON. 631 (1981); Stiglitz, *supra* note 19.

²⁰² Nicholson, *supra* note 39.

²⁰³ Stiglitz, *supra* note 19. Mintz, *supra* note 200. For example where the current investment has a return of 12%, but if additional funds re-invested they will only give a return of 8%, then the tax will reduce total returns significantly, because it requires shifting additional capital into the risky asset.

investor's actions will not affect the overall return to investment. If the investor chooses to buy 100 or 1,000 or 10,000 shares of IBM or any other large publicly traded company, it will not affect his or her marginal returns on the investment.²⁰⁴ In practice, the corporate double tax is essentially imposed only on publicly traded corporations.²⁰⁵ Publicly traded stocks are owned mostly by portfolio investors.²⁰⁶ Therefore, the second layer of tax on corporate income is assessed on an asset that has constant marginal returns.²⁰⁷

A problem with the above analysis is that it only looks to the reactions of a single shareholder. Assuming that what holds true for each individual member of a group holds true for the group as a whole is known as the fallacy of composition.²⁰⁸ If we look to the effect of imposing this tax on all shareholders, constant marginal returns may no longer not result.²⁰⁹ If

²⁰⁴ It may affect risk of the total portfolio, but this is a separate matter. See Gordon, *supra* note 25.

²⁰⁵ I.R.C. § 7704, Kurtz, *supra* note 50.

²⁰⁶ Portfolio investors are those who play no individual role in the management of the corporation. They are the majority owners of most public traded corporations. Rudnick, *supra*, note 14.

²⁰⁷ Hamill, *supra* note 8.

²⁰⁸ OXFORD ENGLISH DICTIONARY 624 (1989)

²⁰⁹ This was pointed out to me by Michael Knoll.

all investors shift additional capital into corporate equity, this will increase the amount of capital corporations have to invest.²¹⁰ Hence, there will be more “real” investment by corporations, and if real investment is subject to declining marginal returns, the returns to such investment will decrease.²¹¹ As discussed above, if marginal returns are declining, the predictions of the model are ambiguous.²¹² Therefore, it is no longer clear that imposing a tax on corporate investment increases total net equity investment because of the offsetting effect of the possible decline in returns to the investment.²¹³

²¹⁰ This increase in working capital would occur through capital raised in public offerings, greater retained earnings, etc. Carey, *supra* note 82.

²¹¹ The change in demand for corporate equity investment can be described by a Slutsky equation of the form $\partial C/\partial t = \partial C/\partial t |_{U=U^*} - \partial C/\partial I$. That is, because returns to corporate investment decrease which the substitution effect would indicate less investment, whereas the income effect ($\partial C/\partial I$) would tend to be negative. $a/(1-t)$ is the amount of the shift. But so far have assumed that the initial allocation (a) will remain is constant after the imposition of the tax. If a changes to a_0 , then $a_0(1-t)$ might be less than a , in which case the tax will still decrease the amount of investment in corporate equity.

²¹² Stiglitz, *supra* note 19.

²¹³ For example, assume the same facts as in example one, but now the return on the capital shifted to the risky asset was 2% instead of 10%, which was the return on the capital already invested in the asset. This could alter the willing ness of the investor to invest in the

This fallacy of composition argument fails to consider some important aspects of investment. While one could argue that if the market return on corporate equity is lower, this might alter the initial allocation of assets from which the shifts are made,²¹⁴ the individualistic character of the decision-making means that the Domar-Musgrave shifts could never decrease corporate equity investment. Each individual investor makes their decisions independently of other investors, based on the conditions they individually face. Because the returns on the assets are given by the market, the individual investors cannot affect the return on the asset that they receive. As far as individual each individual investor is are concerned, there will continue to be constant marginal returns. Therefore, each individual investor will still make the shift to the more heavily taxed asset predicted by the model. If the classical system decreased corporate equity investment, then the marginal returns to such investment would increase.²¹⁵ If this occurs, then individual investors would then find that the returns to shifting more capital to the

risky asset. Perhaps now the investor would have allocated the portfolio \$140 to the riskless asset and \$60 to the risky asset, which even with the Domar-Musgrave portfolio shifts leads to total investment in the risky asset of \$85.7. This is less than there would have been in the absence of the tax.

²¹⁴ That is, if the allocation prior to the capital shift to the risky asset (a) drops by more than $a/(1-t)$, then the net effect of the tax would be to decrease the investment in corporate equity.

²¹⁵ This is the inverse of declining marginal returns, see Nicholson, *supra* note 39. As less capital is invested, then the marginal return will increase.

corporation are greater than before the tax was imposed (rather than less) and would individually shift at least as much capital to corporate equity as they would have in the initial calculations under the Domar-Musgrave model. Consequently, corporate equity would be the same or more than it was before the imposition of the tax.²¹⁶

Furthermore, the fallacy of composition argument fails to consider the effects on other investors (in particular, tax-exempt organizations and foreign investors) of giving incentives to U.S. individual investors to invest in corporate equity. Even if we assume none of the extra capital shifted by U.S. investors to corporations investment is shifted to foreign corporations,²¹⁷ then as the marginal returns to U.S. corporate equity decrease, foreign investors will shift their investments out of U.S. equity, leaving the marginal rate of return approximately what it was before.²¹⁸ Further, returns earned by tax-exempt entities are not subject to this tax and this is a

²¹⁶ Potential effects of overinvesting in corporate equity will be dealt with in Section III. B.2.

²¹⁷ Clearly some of it will be shifted to foreign stocks. *See* Chorvat, *supra* note 186.

²¹⁸ Sorenson, *supra*, note 13. The dividend payments to foreign shareholders of U.S. corporations will generally be subject to second layer of tax (known as the withholding tax, *see* IRC §§ 871, 881), however, these interest will generally be subject to tax in the home country even if the the United States adopts a regime of corporate integration. *See* Chorvat, *supra*, note 65.

significant portion of corporate equity investment.²¹⁹ For example, less than half the distributions from mutual funds are distributed to taxable persons.²²⁰ Therefore, imposing a second layer of tax on U.S. citizens will not increase the total equity capital in corporations by the amount calculated from a simplistic application of the Domar-Musgrave model, but only a much smaller percentage of the total.²²¹ As long as there is a sufficient amount of non-taxed investment to keep U.S. corporate equity equilibrated, then the additional shift from taxable investors to U.S. corporate equity will in fact change the amount of corporate equity investment fairly little.²²²

²¹⁹ This includes organizations which are tax-exempt under I.R.C. § 501 as well as individual retirement accounts (IRAs) which are exempt under I.R.C. § 219, as well as plans exempt under I.R.C. §§ 401(k) 403(b) etc.

²²⁰ A large percentage of public traded stocks held by individuals are held in tax-favored accounts such as IRAs and 401(k) plans etc. Jack Mintz, *Tax-Exempt Investors and the Asset Allocation Puzzle*, CESifo Working Paper no. 242 (January 2000)

²²¹ This analysis is often applied in the analysis of the effects of corporate integration , see Sorenson, *supra* note 13.

²²² Clemens Fuest and Bernard Huber, *The Optimal Taxation of Dividends in a Small Open Economy*, CESifo Working Paper (March 28, 2001). If other countries tax the income when received, then our withholding taxes will not affect the total tax paid by the foreign investor. This argument is analogous to why corporate integration in one country will not

The second layer of tax might change the composition of who owns U.S. corporate equity, but it should not affect the returns to such capital very much.²²³ However, if the system increases the incentives to invest in corporations for one group of investors, unless the elasticity of investment returns of other investors is perfect,²²⁴ there may be some additional corporate equity investment, but any decline in the return to corporate equity should be quite small. Therefore, it is clear that under the Domar-Musgrave model the amount of corporate equity investment will at least be equal to what it was before the tax, and it will very likely be higher.

B. Domar-Musgrave Model and the Efficiency of the Classical Corporate Tax System.

Given that the Domar-Musgrave model can potentially apply to portfolio investment, does this model provide a justification for the classical system? This section analyzes this question in three parts. First, it examines the how the problems discussed in Part I are treated under the Domar-Musgrave model. Then, it looks at the potential for over-investment in

necessarily increase efficiency. See Sorenson, *supra* note 13. We do impose a second layer of tax on such payments (I.R.C. §§ 871, 881), however, because most countries impose income tax on passive investments of their residents, such taxes are not additional taxes imposed by the United States, but rather ways to shift revenue to the United States Treasury from other governments. See Chorvat, *supra*, note 65.

²²³ Sorenson, *supra* note 13. Foreign investors are not subject to tax on the capital gains derived from investments in U.S. corporations.

²²⁴ That is, if the returns on an investment drop, the investment drops exactly enough to compensate for this drop. There would be no stickiness to the investment.

corporate equity. The section concludes by examining the debt-equity distinction.

1. The Traditional Case Against the Classical System and The Domar-Musgrave Model

As discussed in Part I, it is generally thought that the classical corporate tax is inefficient. The assumption behind all of the problems discussed in Part I was that a tax on corporate distributions will result in reducing the incentive to invest in corporate equity. This followed the general analysis that reducing the return to an asset will reduce the demand for an asset. However, as discussed Part II, if we apply the Domar-Musgrave model, we realize that an appropriately designed income tax does not merely decrease the return on the asset, it also decreases the risk. As demonstrated previously, the burden of the tax is merely the tax on the riskless rate of return, which generally is only a small portion of the total return. Because imposing the tax does not increase the required rate of return on corporate equity investment. It is highly likely that the problems of the classical system discussed in Part I do not result in significant deadweight loss, if any.²²⁵

2. Corporate Over-Investment and Loss Offsets

²²⁵ As long as the net effect of the tax on the allocation of the risky asset is positive, there would be no tax wedge against corporate equity. As shown in footnote 174, *supra*, the requirements for the marginal response to taxation to decrease the amount of capital allocated to corporate equity would be quite unrealistic. Hence, the model predicts that even if the amount shifted is not $a/(1-t)$, it will be positive. That is, there will be more capital allocated to corporate equity under the tax than without it. Therefore, the problems with the classical system discussed in Part I should not arise.

Another potential limitation to the Domar-Musgrave analysis of the corporate double tax is that if the tax increases the amount of capital allocated to risky assets, then there might be too much investment in the category of assets taxed. If one assumes that private investors in fact optimize their investment before the imposition of the tax, then if the government encourages risky investment to a greater degree than before, it has now distorted investment by encouraging the investment in the higher-taxed asset. Hence, to show the efficiency of such a tax, one must show that there was some market failure resulting in too little capital invested in these assets prior to the imposition of the tax. Unless the private market fails to provide sufficient corporate equity, the tax would over-encourage corporate equity.²²⁶

One can make the case for such a market failure based on behavioral research. The argument is that individuals should invest more in equity securities, but they do not because of cognitive biases. Evidence for this is found in the fact that returns to equity are much higher (or even after-tax) than what the models assuming rational investor behavior would predict. This might result from individuals overestimating the risks of a diversified portfolio, in part because they do not aggregate risks well.²²⁷ This is demonstrated by the fact that individuals generally

²²⁶ Bankman and Griffith, *supra* note 22.

²²⁷ Paul Samuelson, *Risk and Uncertainty: A Fallacy of Large Numbers*, 98 SCIENTIA 108 (1963). As discussed earlier, empirical evidence for this is found in the research dealing the equity premium. Corporate equities earn much more than they should relative to debt and other investments. See Siegal and Thaler, *supra* note 189 ; See also Hui Guo, *A Simple Model of Limited Stock Market Participation*, 83 FED. RES. BANK ST. LOUIS REV. 37,38 (2001)

lack diversified portfolios.²²⁸ Therefore, they will require a higher risk premium²²⁹ and consequently will allocate less capital to risky assets such as corporate stock than would be socially optimal. The literature in this area is vast, and few firm conclusions have been drawn. However, it is clear that if the returns are too high, the amount of total capital invested in corporate equity is too low.²³⁰

Another argument in favor of an increase in corporate equity investment derives from the lower discount rate for the government.²³¹ Under the pure income tax, both the risks and rewards of the capital shifts²³² accrue to the government rather than the individual investor. If we add to this analysis the point that the government's discount rate is likely to be lower than that for individuals,²³³ then because the marginal rate of return on this investment is essentially that of the individual investors, this "investment" is advantageous for the government.²³⁴ If such a

²²⁸ Bernarzi and Thaler, *supra* note 184.

²²⁹ Siegal and Thaler, *supra* note 189.

²³⁰ Bernazi and Thaler, *supra* note 184.

²³¹ See *discussion* at Part III.B *supra*

²³² That is, the return on the investment is $(1/(1-t) - 1)$ and $t/(1-t)$ is the proportion of the investent that the government is in essence investing in the risky assets.

²³³ Arrow and Lind, *supra* note 190.

²³⁴ For example, if the government's discount rate is 8% and corporate equity returns are

market failure does not exist, a government could respond by decreasing the ability of loss to generate tax benefits.

If none of these arguments for market failure are viewed as compelling,²³⁵ the government can reduce the shifts into corporate equity by reducing the ability of taxpayers to use losses to obtain tax benefits. This will unambiguously reduce the amount of corporate investment,²³⁶ because reducing the degree of loss offset increases the amount of risk to the investor without increasing the return. As stated before, the key reason an investor will shift more capital to the risky or more highly taxed asset is that the tax reduces the risk. By reducing the tax benefits of losses, if done precisely, the government can raise revenue and not alter the allocation of capital between corporate equity and other investments.²³⁷ The government could

12%, the “investment” by the government will be at an advantageous rate that its other investments. In fact this would be an infra-marginal investment for the government (see *supra*, note x)

²³⁵ Some commentators argue that the government should not have a lower discount rate than the market. See Jack Hirschleifer, *Efficient Allocation of Capital in an Uncertain World*, 54 AM. ECON. REV. 77 (1964) and *Investment Decisions Under Uncertainty: Applications of the State-Preference Approach*, 80 QUART. J. ECON. 252 (1966), and Agnar Sandmo, *Discount Rates for Public Investment Under Uncertainty*, 13 INT’L ECON. REV. 287 (1972).

²³⁶ Stiglitz, *supra* note 19.

²³⁷ Stiglitz, *supra* note 19, at 276-277, gives a proof of how increasing the allowance of

then collect tax revenue without altering the capital allocations from the pre-tax regime.

3. Debt-Equity Distinction

The Domar-Musgrave analysis helps to justify a key feature of the tax rules that scholars generally think is indefensible: the debt-equity distinction.²³⁸ Under the current classical system, income from equity investments is subject to the double tax, whereas income earned by debt capital is deductible from the income of the corporation and is only subject to tax in the hands of the investor.²³⁹ Given that both debt and equity investments are portfolio investments, one would expect that both such investments would also have constant marginal returns. Hence, as with traditional analysis the distinction between debt and equity would again be incoherent, but under the Domar-Musgrave analysis it would appear that both should be subject to a double tax.

However, there are a number of ways in which the argument for a second layer of tax on

losses unambiguously increases the amount of capital allocated to the risky asset; *See also* Atkinson and Stiglitz, *supra* note 148 at 119 ; The amount of the increase depends on the degree of relative risk aversion of the investor, and this depends on the shape of the utility function in particular the relationship between the second derivative of the utility function and the first derivatives; Alan Auerbach, *The Dynamic Effects of Tax Law Asymmetries*, 53 *REV. OF ECON. STUD.* 205 (1986); *see also* Pratt, *supra* note 192.

²³⁸ Pratt, *supra* note 1; *see also discussion* at x, *supra*

²³⁹ *See Part I, supra.*

debt capital is far less compelling. First, because such securities are generally less risky,²⁴⁰ the risk premium is less.²⁴¹ Consequently the ratio of the risk premium to the risk-free rate of return is lower. Because the risk premium, which is not taxed, is a smaller proportion of the total return, tax on the income of less risky securities is more likely to lead to distortions than a tax on risky assets like equity.²⁴²

Furthermore, if individuals have higher risk premiums than is optimal,²⁴³ it is the case that we should want to encourage more risk-taking. As discussed earlier, the return on corporate equity is higher than one would expect from a rational long-term investor standpoint. Hence, we should want to encourage more investment in corporate equity than in debt securities.²⁴⁴ Therefore, to the extent taxing corporate equity investment increases capital allocated to equity, we should tax income from corporate shares at a higher rate than from income from corporate or

²⁴⁰ Mintz, *supra* note 200.

²⁴¹ Bankman and Griffith, *supra* note 22; *see also* Mintz, *supra* note 200. The historic rate of return are: the riskless rate is .5% and corporate debt is 2.7%, and equity is 9%, hence it is less clear that Domar-Musgrave effects occur for debt and they will be less dramatic. Ibbotsons, *supra* note 145.

²⁴² Bankman and Griffith, *supra* note 22.

²⁴³ *See* discussion of the equity premium puzzle *supra* note at.

²⁴⁴ Knoll, *supra* note 66.

other debt.

Finally, corporate equity earns a higher return relative to its risk than other investments,²⁴⁵ thus corporate equity is a better investment for the government. As discussed earlier, the government is essentially investing in the portfolios that it taxes. From an investment perspective, a tax on corporate equities is more efficient than a tax on debt, because equities earn a higher return than debt. Particularly if viewed from a longer term perspective available to the government, corporate equities are a very good investment and hence the government should invest more in these assets.

Therefore, there are principled arguments for the debt-equity distinction of the classical system. While this analysis does not explain the exact line between which investments are considered debt and which are considered equity,²⁴⁶ it does at least give some justification for what is often considered unjustifiable.²⁴⁷

C. The U.S. Tax Rules and The Domar-Musgrave Model

This article has demonstrated, through use of the Domar-Musgrave model, that a corporate double tax can be an efficient tax in principle. This section analyzes the extent to which the current U.S. income tax system meets the requirements of the Domar-Musgrave

²⁴⁵ Siegal and Thaler, *supra* note 189.

²⁴⁶ For an analysis of this question see Weisbach, *supra* note 125.

²⁴⁷ Kwall, *supra* note 9; Pratt, *supra* note 1.

model.

1. The Domar-Musgrave Model and the U.S. Classical System

a. The Importance of Full Loss Offsets

One of the key requirements of the Domar-Musgrave model is that the tax system must provide for full loss offsets.²⁴⁸ This means that the income tax must be symmetrical. If the taxpayer has a gain, this income will be taxed at a certain rate (e.g., 30% or 35%) and if the taxpayer has a net loss, the government will pay the taxpayer an amount equal to the loss multiplied by the tax rate. Unlike the requirements discussed in above, this requirement is based on the nature of the legal system, rather than the facts concerning the corporate equity investment.

If the income tax does not provide for a method to offset losses against gains, the model predicts that it is likely that the amount of risk-taking will be less than in the absence of the tax.²⁴⁹ When there is no tax benefit from losses because the tax system does not reduce the risk of the investment, the model predicts that the tax will cause the investor to reduce the allocation to the highly taxed asset. To the extent that losses do create tax benefits, but the value of the benefits is not equal to the tax that is imposed on gains, the model's predictions become

²⁴⁸ Domar and Musgrave, *supra* note 18.

²⁴⁹ Stiglitz, *supra* note 19 ; Scholes and Wolfson, *supra* note 14. This is also empirically true. See Asea and Turnovsky, *supra* note 198.

ambiguous.²⁵⁰ However, it is clear that the greater the ability of losses to offset current income, the more capital that will be allocated to the more highly taxed assets.²⁵¹ A corollary of this result is that increasing or decreasing the value of losses will change the amount of capital allocated to the highly taxed asset.²⁵² That is, if the government properly calibrates the value of the tax benefits from losses, it could impose a tax on income from corporate equity and yet not alter the allocation of capital to corporate equity, or if it was thought desirable, the tax system could increase the capital allocated to corporate equity.

b. Summary of the U.S. Rules on Investment Income

The rules relating to the taxation of income from investment are fairly complicated. This section is intended to discuss only the foundational principles of the taxation of investment income, and in particular income from corporate equity investment. A gain is not generally included in income until it is “realized”, that is, until there is some event which alters the investment in such a way that the system views it as an appropriate time to take this income into account.²⁵³ In general, gains and losses on equity investments are only “realized” when the

²⁵⁰ Stiglitz, *supra* note 19. If they cannot be used in the current year, the present value of the loss offset decreases. See Kaplow, *supra* note 136.

²⁵¹ Stiglitz, *supra*, note 19.

²⁵² Stiglitz, *supra* note 19.

²⁵³ I.R.C. §§ 61,1001, For a historical view of the realization doctrine see *Eisner v. Macomber*, 252 U.S. 189 (1920); For the Supreme Court’s most recent statement on the doctrine

shares are sold, or when dividends are paid.²⁵⁴ Generally, portfolio investments will be considered what are called “capital” assets.²⁵⁵ Such assets are currently subject to a special tax regime. Under this regime, long term capital gains (i.e., those held for more than one year) are generally subject to a maximum rate of 20% as compared to a maximum ordinary rate of 38.7%.²⁵⁶ Dividends are considered ordinary income and are taxed at the higher rate. While gains on the sales of investment assets by individuals are taxed at a preferential rate, the losses on capital assets are only permitted to offset capital gains, except that up to \$3,000 of the capital losses can be used to offset ordinary income, if there are insufficient capital gains.²⁵⁷ Losses not used in the current year can be carried forward and used in later years, subject to the same rules in the later years.

see *Cottage Savings Assn. v. Commissioner*, 499 U.S. 554 (1991).

²⁵⁴ I.R.C. § 1(a), (h), see discussion in Stiglitz, *supra* note 19.

²⁵⁵ I.R.C. § 1221. If the taxpayer has \$150,000 of ordinary income, \$20,000 of capital loss and \$5,000 of capital gain, the economic income of the taxpayer is \$135,000, but the taxable income of the taxpayer is \$147,000, because the capital losses can only reduce the income from capital plus \$3,000 of ordinary income.

²⁵⁶ I.R.C. § 1(a),(h).

²⁵⁷ I.R.C. § 1211

These restrictions on the use of losses prevents them having their full present value.²⁵⁸ If there are insufficient gains, then the use of the losses is limited. In addition, losses are generally only permitted to offset income which is taxed at the capital gains rate. However, dividends are also returns from corporate equity investment and they are taxed at the ordinary rates. Hence, the losses from corporate equity investments are not even permitted to offset the entire gains from the same investments. Clearly, because the amount of risk reduction is far from perfect, this system is quite different than a pure Domar-Musgrave system.²⁵⁹ Because the tax system does not have full-loss offsets, it is ambiguous whether the investor will in fact shift additional capital to the more highly taxed asset or shift capital away from such assets.²⁶⁰ The exact value of the tax losses on investment assets is difficult to determine, though it is clear that they have less than 100% of their nominal value.²⁶¹

²⁵⁸Andrew Weiss, *The Fair Tax: A Tax Reform to Alleviate Recession and Reduce Bias in the Tax Code*, Boston University Working Paper (January 15,1999).

²⁵⁹ Even if the loss is actually fully used, the lack of full offsets can still can affect ex-ante decision making, because there was a probability at the time of the investment that the loss would not have its full value.

²⁶⁰ Domar and Musgrave, *supra* note 18; *See also* Stiglitz, *supra* note 19.

²⁶¹ Total capital loss carryforwards by individuals taxpayers in 1999 were \$10 billion. Internal Revenue Service, *supra* note 131. For an examination of this question with respect to losses by the corporations themselves, see Roseanne Altschuler and Alan Auerbach, *The*

2. Empirical Findings

A significant problem exists with respect to the empirical research on the deadweight loss of the classical system. Most models that are used to estimate the amount of deadweight loss from the classical corporate tax predict very large deadweight losses to the classical system.²⁶² These models predict deadweight losses of up to more than 100% of the value of corporate tax revenues.²⁶³ However, when empirical studies test the actual deadweight loss, they find it to be about ten to twenty times lower (approximately 5-10% of revenue raised).²⁶⁴

The Domar-Musgrave model can help to explain these results.²⁶⁵ Under the Domar-

Importance of Tax Law Asymmetries: An Empirical Investigation, 105 QUART. J. ECON. 61, 86 (1990). In that case, the restrictions reduce the value of the tax benefits from losses by a little less than a third of the total value.

²⁶² Gravelle and Kotlikoff, *supra* note 4.

²⁶³ Gravelle and Kotloloff, *supra* note 4.

²⁶⁴ Austan Goolsbee, *Taxes Organizational Form and the Deadweight Loss of the Corporate Income Tax*, 69 J. PUB. ECON. 143 (1998) Roger Gordon and Jeffrey Mackie-Mason, *The Effects of the Tax Reform on Corporate Financial Policy and Organization Form* 91-131 in DO TAXES MATTER (Joel Slemrod ed., 1990)

²⁶⁵ Individuals are apparently fairly good at estimating probabilities of events they have experienced. Michael Smithson, *Judgement Under Chaos*, 69 ORG. BEHAV. & HUM. DECISION PROCESS 59 (1997).

Musgrave model, even imperfect loss offsets should decrease the deadweight loss from the corporate tax by increasing the allocation to corporate equity.²⁶⁶ Unfortunately, the authors of these studies do not try to estimate how much of the discrepancy is due to Domar-Musgrave effects and how much is due to other factors.²⁶⁷ One important fact to be derived from these studies is that the deadweight loss results from bias *against* corporate investment.²⁶⁸ This leads to the conclusion that the Domar-Musgrave effects operating in the current system of imperfect loss offsets do not over-encourage investment in corporations.

Part IV. Proposal: Increase the Value of the Tax Benefits from Losses

The previous section discussed how the empirical data suggest that the classical system results in a disadvantage to corporate equity investment. Under the Domar-Musgrave model, an increase in the tax value of losses from corporate equity investments should increase the allocation of capital to these assets.²⁶⁹ Given that the U.S. system seems to exhibit Domar-Musgrave effects, but it does so imperfectly, the most effective way to increase investment in corporate equity would be to increase the value of the tax benefits of losses. Three methods to increase the value of these loss for tax purposes are commonly discussed. First, the government

²⁶⁶ Stiglitz, *supra*, note 19.

²⁶⁷ Goolsbee, *supra* note 263; Gordon and Mackie-Mason, *supra* note 193.

²⁶⁸ Goolsbee, *supra* note 263; Gordon and Mackie-Mason, *supra* note 193.

²⁶⁹ Stiglitz, *supra* note 19.

could allow a full tax credit equal to the amount of the loss multiplied by the tax rate.²⁷⁰ Second, the government could allow losses to fully offset any income of the taxpayer.²⁷¹ Third, the government could pay interest for time value of money during the delay in the use of the loss offset.²⁷²

Some commentators have argued that the only way to fully achieve the effects predicted by the Domar-Musgrave model is to permit losses to be fully refundable.²⁷³ Under such a system, a taxpayer would receive the full benefit of losses whether or not they had income (investment or otherwise) against which the losses could be offset. This kind of system would clearly meet the requirements of the Domar-Musgrave model.

In implementing such a credit system, the rules would have to account for the rate differential between capital and ordinary income. Under the Swedish income tax system, which

²⁷⁰ Mark Campisano and Roberta Romano, *Recouping Losses: The Case for Full Loss Offsets*, 76 NW.U. L. REV. 709 (1981); *see also* Weiss, *supra* note 257.

²⁷¹ Weiss, *supra* note 257.

²⁷² Saman Majd and Stewart C. Meyers, *Tax Asymmetries and Corporate Income Tax Reform*, THE EFFECTS OF TAXATION ON CAPITAL ACCUMULATION 343 (Martin Feldstein ed., 1987).

²⁷³ Campisano and Romano, *supra* note 269.

also has a rate differential²⁷⁴ between investment and other income, the taxpayer is allowed a credit equal to the amount of the loss multiplied by the investment tax rate.²⁷⁵ In the U.S. system, this would mean limiting the credit allowance to 20% or 10% of the loss.²⁷⁶ For example, if the tax rate on ordinary income is 35% and the rate on investment income is 20%, if there is a \$100 loss, it would generate a credit of \$20, rather than a deduction of \$100.²⁷⁷ If we wish to limit the use of losses, the tax rules could have a limitation as the current rules have or the rate applied to the loss could be lowered.²⁷⁸ One advantage of this system is that all investors would have the same value for the loss-offsets, rather than allowing a more full loss offset for those who have other income.²⁷⁹

²⁷⁴ Ault, *supra* note 197, at 197-8 (1997). A similar system exists in the Netherlands.

²⁷⁵ Ault, *supra*, note 197.

²⁷⁶ This would depend on which capital gains rate applies to the income.

²⁷⁷ If the credits were fully allowable at the higher tax rate, the credit would generate a benefit of \$35, but the income from the asset is only taxed at a 20% rate.

²⁷⁸ One could permit credits to be used against income of up to \$6,000 or \$8,000 more than capital gains from portfolio stocks.

²⁷⁹ For problems caused by having differences in this Alan J. Auerbach and James Poterba *Tax Loss Carryforward and Corporate Taxable Income* 305 in *THE EFFECTS OF TAXATION OF CAPITAL ACCUMULATION* 307-9 (Martin Feldstein, ed., 1987).

Another method would be to allow the investment losses to offset income of the investor, not just the current capital income. This would increase the tax value of such losses because generally those who have losses on portfolio corporate equity have other income against which the losses can be offset.²⁸⁰ The effects are likely to be almost exactly the same as allowing a full credit.²⁸¹

Finally the government could increase the value of losses by paying interest on loss carryforwards. That is, that every year that a loss is carried forward and not used, the amount of the carryforward would increase.²⁸² The appropriate interest rate would seem to be the government rate for borrowing for a year, because this government is in essence borrowing this amount.²⁸³ The taxpayer would simply multiply the carryover from the prior years multiplied by one plus the interest rate to give the value of the loss carryover. As with the other proposals, the interest rate could be calibrated to allow the proper amount of corporate investment. This is

²⁸⁰ Internal Revenue Service, *supra* note 131

²⁸¹ Majd and Meyers, *supra* note 271.

²⁸² Majd and Meyers, *supra* note 271. If there are \$20,000 of capital loss carryforward, and the interest rate is 3%, then in the next year the taxpayer could would have \$20,600 of capital loss to potentially use against income.

²⁸³ Currently this rate is 3.25% (www.fidelity.com).

generally thought to have a lower risk of significant fraud.²⁸⁴

Many economists believe a full credit system or even one allowing for full loss offsets would be too expensive, and that such a system has a significant potential for fraud by taxpayers.²⁸⁵ Furthermore, if it is thought if that the government should not encourage investment in corporate equity,²⁸⁶ the system should not allow full loss offsets, because this would over-encourage investment in corporate equity.²⁸⁷ In that case, the losses should have something less than their full value.

A simple way to increase the value of losses without increasing them to their full value would be to increase the current \$3,000 limitation on the use of capital losses to offset ordinary income. The case for increasing this limitation is even stronger because this amount is not indexed for inflation and has lost a significant portion of its value since it was first introduced in 1977.²⁸⁸ Another alternative would be to allow the \$3,000 limitation plus the amount of dividend income received. Dividends are also returns from corporate investment and so should the losses from stock instruments should be permitted to offset these offsets.

²⁸⁴ Weiss, *supra* note 257.

²⁸⁵ Cnossen and Bovenberg, *supra* note 197; *see also* Weiss, *supra* note 257.

²⁸⁶ *See supra* note, at.

²⁸⁷ *See* discussion at Part III.B *supra*.

²⁸⁸ I.R.C. § 1211 (1977)

The choice of which method to adopt depends very much on the resolution of whether to encourage corporate equity investment beyond the pre-tax levels. If full value for the losses is desired, either the credit mechanism or the full loss offset mechanism would accomplish this efficiency. If it is decided that the loss should have less than its full value, either increasing the loss limitation or paying a small amount of interest on the losses carried forward would seem the easiest methods to accomplish the goal.

Unfortunately, the empirical data collected so far do not indicate the appropriate value of the tax benefits from losses to eliminate the deadweight loss on the corporate tax. Before legislation to effect this proposal is adopted, this issue would need to be resolved. However, given that the deadweight loss from the corporate tax is not very large, it would seem that the amount of increase in the value of the losses would not have to be increased very much if we do not want to increase corporate investment above its pre-tax levels. Any revenue loss from these proposals could be made up for by slightly increasing the rate of tax, which as discussed previously should not affect the investment allocation much if sufficient loss offsets are provided.

Conclusion

Contrary to much of the literature on this subject, the classical corporate tax system can in fact be an efficient method of taxing income. While this conclusion is in contrast to almost all of the literature on the subject, it is consistent both with the theoretical literature on portfolio choice as well as consistent with empirical research. The key insight is that a tax not only

reduces the return to an asset, it also reduces its risk. That is, taxation can produce benefits as well as burdens.

Understanding the risk reducing effects of an income tax helps us to understand that increasing the tax rate on an asset will not always decrease the demand for the asset. This helps to explain the empirical evidence and it leads us to understand that the effects of the classical system are reduced by the ability of shareholders to use the losses to reduce the tax on their income. It also shows us ways to reduce the remaining deadweight loss of the current classical system. In particular, it shows us that increasing the ability to use losses from corporate equity will unambiguously increase investment in these assets. The value of such loss can be calibrated so as to achieve the desired amount of corporate equity. Hence, the inefficiency of the corporate double tax can be essentially eliminated and it might even improve efficiency.