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Financial Instability, Tax Policy, and the Tax Expenditure Concept

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FINANCIAL INSTABILITY, TAX POLICY, AND THE TAX EXPENDITURE CONCEPT

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*A*S a public policy goal, moderation of financial instability has gained considerable prominence in the face of the recent credit contraction. Not surprisingly perhaps, the role of the tax system in exacerbating instances of financial instability has begun to receive some attention in the tax-policy literature. Consistent with the general thrust of that literature, this article explores, in a very preliminary way, how some selected tax-base rule choices line up with an explicit goal of ensuring that the tax system supports regulatory and monetary policies intended to moderate financial instability. The article frames the inquiry in terms of Hyman Minsky's "financial instability hypothesis" as an explanation of the sources of financial instability. Minsky's work suggests how excessive leverage and risk taking arise and can be seen as defensible targets informing the choice of certain tax base rules, many of which are conventionally characterized in the tax-policy literature as efficiency-reducing concessions to revenue concerns. In this respect, the article draws on tax-expenditure analysis to reconceptualize the possible design of some of these familiar income base rules whose justification is altered somewhat when framed against Minsky's explanation of the sources of financial instability.*

More particularly, the article reviews the incomplete manner in which dividend imputation systems commonly address a tax bias in favor of corporate debt, and how this incompleteness can be justified as a means to promote maintenance of margins of safety. The article also reviews the case for and design of loss limitations, as applied to financial instruments, as well as restrictions on the deduction of interest expense under the personal income tax as a form of loss limitation. No claim is made to definitively resolve any of these base design issues; nor is there a complete canvassing of all of the possible issues whose resolution is potentially affected by a focus on financial instability. The purpose of the article is the much more modest one of suggesting how standard analyses of interest deductibility and the treatment of losses might be reframed with moderation of financial instability as a public policy goal.

I. INTRODUCTION

It is now somewhat trite to observe that the recent credit contraction is the most significant financial crisis since the Great Depression of the 1930s. But this financial crisis is only the latest installment (albeit the most severe) in a series occurring over the past twenty-five years, including:[1]

•   the savings and loan implosion in the United States;
•   the stock market crash of 1987;
•   the bursting of the Japanese real estate and stock market bubbles;

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1. For a detailed historical account of financial crises, see generally CHARLES P. KIN-DLEBERGER & ROBERT Z. ALIBER, MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES (John Wiley & Sons, 5th ed. 2005) (1978). *See also* CARMEN M. REINHART & KENNETH S. ROGOFF, THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY 3 (2009).

- the Nordic banking crises of the early 1990s;
- the Asian financial crisis;
- the bailout of the hedge fund, Long-Term Capital Management, in the face of the financial market turmoil occasioned by the default of the Russian government on its ruble-denominated debt; and
- the bursting of the technology share bubble.

The wild boom and bust swings characteristic of capital markets during this relatively brief period appear to have provoked renewed interest in the causes of asset price bubbles[2] and business cycles,[3] with the latter believed by many, until recently at least, to have been eliminated by continued growth supported by monetary policy focused on wage and consumer price inflation. The contraction of the global credit system triggered by the bursting of the housing bubble in the United States has also highlighted what was already an emerging reexamination of the intellectual framework of orthodox financial economics.[4]

The role of tax policy in all of this financial market mayhem is beginning to attract some attention. For example, the International Monetary Fund (IMF) recently released a thoughtful and detailed paper exploring the possible relationship between the tax system and financial instability.[5]

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2. *See* KINDLEBERGER & ALIBER, *supra* note 1, at 1 ("[B]y definition a bubble involves a non-sustainable pattern of price changes or cash flows.").

3. *See, e.g.*, Yair Listokin, *Stabilizing the Economy Through the Income Tax Code*, 123 TAX NOTES 1575, 1575 (2009) (noting renewed interest in the use of the tax system as a policy instrument to stabilize the economy).

4. *See, e.g.*, David Colander, Hans Föllmer, Armin Haas, Michael Goldberg, Katarina Juselius, Alan Kirman, Thomas Lux & Brigitte Sloth, *The Financial Crisis and the Systemic Failure of Academic Economics* 1 (Kiel Inst. for the World Econ., Working Paper No. 1489, 2009), *available at* http://www.ifw-members.ifw-kiel.de/publications/the-financial-crisis-and-the-systemic-failure-of-academic-economics/KWP_1489_Colandereta/Financial%20Crisis.pdf (criticizing the economics profession for the construction of theoretical models based on unrealistic assumptions and for failing to communicate the limitations of those models). *But see* J. Doyne Farmer & John Geanakoplos, *The Virtues and Vices of Equilibrium and the Future of Financial Economics*, 14 COMPLEXITY 11, 11 (2008) (arguing that equilibrium models can be useful, but they have limitations that require economists to explore alternative approaches and directions). For a technical and mathematical account of financial markets as dynamic systems, see JOSEPH L. MCCAULEY, DYNAMICS OF MARKETS: THE NEW FINANCIAL ECONOMICS (2d ed. 2009).

5. *See generally* Int'l Monetary Fund [IMF], *Debt Bias and Other Distortions: Crisis-Related Issues In Tax Policy* (June 12, 2009), *available at* http://www.imf.org/external/np/pp/eng/2009/061209.pdf [hereinafter IMF, *Crisis-Related Issues*]. The paper was preceded by a brief note suggesting the various lines of inquiry that the IMF was pursuing. *See generally* IMF, *Tax Policy and the Crisis—First Thoughts* (Feb. 2009), http://www.itdweb.org/documents/FeatureArticle/IMF_feb_2009_full_article.pdf [hereinafter IMF, *Tax Policy*]; *see also* Org. for Econ. Co-Operation & Dev. [OECD], Comm. on Fiscal Affairs, *Moving Beyond the Crisis: Using Tax Policy to Support Financial Stability*, at 1, CTPA/CFA/(2009)32/ADD1 (June 12, 2009); Samuel T. Eddins, *Tax Arbitrage Feedback Theory* 1 (last revised Aug. 18, 2009), *available at* http://ssrn.com/abstract=1356159; Thomas Hemmelgarn & Gaetan Nicodeme, *The 2008 Financial Crisis and Taxation Policy* 2 (CESIFO Working Paper No. 2932, 2010), *available at* http://ssrn.com/abstract=1546973; Michael Keen, Alexander Klemm & Victoria Perry, *Tax and the Crisis*, 31 FISCAL STUD. 43, 43 (2010); Douglas A. Shackelford, Daniel Shaviro & Joel B. Slemrod, *Taxation and the Financial Sector* 2 (May 2010), *available at* http://ssrn.com/abstract=1601330; Daniel Shaviro, *The 2008–09 Financial Crisis: Implications for Income Tax Reform* 2 (NYU Ctr. for Law, Econ. & Org., Working Paper No. 09-35, 2009), *available at* http://ssrn.com/abstract=1442089; Joel Slemrod, *Les-*

The IMF paper's principal points of emphasis are the well-known tax bias in favor of corporate debt, as well as tax preferences for housing.[6] There is also some discussion of the possible effects of tax preferences for managerial compensation, loss limitations and risk taking, and tax-driven financial innovation, particularly in the cross-border context.[7] The IMF paper emphasizes that, at the macro level, tax is probably of secondary importance in any attempt to realize a rough balance between financial stability and economic growth.[8] This secondary role is suggested most obviously by the fact that the tax biases identified as possibly contributing to financial instability have been part of tax systems for some time and probably cannot be seen as precipitating the latest crisis (or even the series of crises over the past twenty-five years).[9] Nonetheless, because of its magnitude, this latest financial crisis brings into sharper focus the need for tax rules that can be seen to support regulatory and monetary policy in the sense that any behavioral responses do not exacerbate financial instability.[10] With this secondary role in mind, the IMF paper tentatively supports measures that attempt to realize consistency of treatment along certain behavioral margins.[11] The suggestions tend to be broadly consistent with familiar arguments for reform in the various areas highlighted in the IMF paper. Indeed, these arguments are entirely independent of maintenance of financial stability as a public policy goal.

This article similarly explores how some selected aspects of tax policy line up with an explicit goal of ensuring that the tax system supports regulatory and monetary policies intended to moderate financial instability. The article differs, however, from the IMF paper, as well as the other limited literature on the same subject,[12] in two respects. First, it frames

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sons for Tax Policy in the Great Recession, 62 NAT'L TAX J. 387, 387 (2009). Two academic workshops on the relationship between tax policy and the financial crisis have also been held recently. *See* TAX POLICY AND THE FINANCIAL CRISIS (Apr. 30, 2009) ECONPUBLICA, Ctr. for Research on the Econ. of the Pub. Sector, Universita Commerciale Luigi Bocconi, Milan, http://www.unibocconi.eu/wps/wcm/connect/Newstand+Events/Bocconi-Events/Program_of_Events/cv2009030089; RETHINKING THE TAXATION OF THE FINANCIAL SECTOR IN THE LIGHT OF THE RECENT CRISIS (Feb. 5, 2010) NYU Sch. of Law, Office of Tax Policy Research, Ross Sch. of Bus., Univ. of Mich., and Univ. of N.C. Tax Ctr., http://www.bus.umich.edu/Conferences/Taxation-of-the-Financial-Sector.

6. IMF, *Crisis-Related Issues, supra* note 5, at 1.

7. *See id.* at 26–29.

8. *See id.* at 4.

9. *See, e.g.*, Hemmelgarn & Nicodeme, *supra* note 5, at 2 ("While taxes have not generated the crisis, some aspects of tax policy may have led to increased risk-taking and indebtedness of banks, households and companies."); OECD, *supra* note 5, at 17 ("[T]axes were not the root cause of the financial crisis, but tax rules for individuals and corporates may have encouraged financial instability through encouraging risk-taking, risky credit and corporate leverage, and through a lack of transparency facilitated by tax havens."); Shaviro, *supra* note 5, at 3 (observing that any "causal relationship" between tax policy and the recent credit crisis "remains unclear"). *But see* Martin A. Sullivan, *Deleveraging the Tax Code*, 120 TAX NOTES 1241, 1241 (2008) (emphasizing a close link between interest deductibility for income tax purposes and levels of leverage).

10. Shaviro, *supra* note 5, at 22–23 (emphasizing the need for tax rules to avoid behavioral responses that exacerbate the causes of financial crises).

11. *See* IMF, *Crisis-Related Issues, supra* note 5, at 33.

12. *See supra* note 5 and accompanying text.

the inquiry explicitly in terms of a theoretical perspective that attempts to explain the sources of financial instability. Second, the discussion draws on the tax-expenditure concept and tax-expenditure analysis to reconceptualize the design of some familiar income base rules whose justification is altered somewhat when framed against this particular explanation of the sources of financial instability.

Part II begins, therefore, with a brief description of Hyman Minsky's financial instability hypothesis,[13] which explains how excessive leverage and risk taking arise. As the sources of financial instability, they can be seen as defensible targets informing the choice of certain tax-base rules, many of which are characterized in the tax-policy literature as efficiency-reducing concessions to revenue concerns. Part III then attempts to advance this suggestion at a broad conceptual level by reviewing some familiar ground covered in the tax-expenditure literature. It is argued that the tax-expenditure concept can usefully frame the assessment of various tax rules as prone to excessive leverage and risk taking. Tax-expenditure analysis can be invoked to supplement standard technical tax-policy analyses of these provisions once they are framed in this much different manner.

At a macro level, the tax-policy literature tends to highlight the use of a progressive personal income tax and broad-based consumption taxes as automatic stabilizers. Consistent with the IMF paper, Parts IV and V go further and examine some fundamental tax-base rule choices with a view to moderating financial instability. Part IV reviews the tax bias in favor of corporate debt and, more particularly, how the incomplete manner in which dividend imputation systems commonly address this bias can be justified as a means to promote maintenance of margins of safety. Part V examines the case for, and design of, loss limitations as applied to financial instruments, as well as restrictions on the deduction of interest expense under the personal income tax as a form of loss limitation. The article makes no claim to resolve any of these particular base design issues; its purpose is the much more modest one of suggesting, in a very preliminary way, how standard analyses of interest deductibility and the treatment of losses might be reframed with moderation of financial instability as a public policy goal.

Given this modest aim, the review of the income base design issues in the last two parts is necessarily incomplete.[14] Perhaps most importantly,

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13. Minsky's financial instability hypothesis is articulated most completely in HYMAN P. MINSKY, STABILIZING AN UNSTABLE ECONOMY (1986) [hereinafter MINSKY, STABILIZING (1986)]. With the first edition out of print, recent interest in Minsky's ideas led to posthumous publication of a second edition under the guidance of Dimitri B. Papadimitriou and L. Randall Wray, two former colleagues of Minsky's at the Levy Economics Institute. *See generally* HYMAN P. MINSKY, STABILIZING AN UNSTABLE ECONOMY (McGraw Hill Prof'l, 2d ed. 2008) (1986) [hereinafter MINSKY, STABILIZING (2008)]. Much of the earlier development of the financial instability hypothesis is found in HYMAN P. MINSKY, JOHN MAYNARD KEYNES (1975).

14. For a more complete canvassing of the possible tax-policy issues whose resolution is potentially affected by a focus on moderation of financial instability, see generally IMF,

there is no discussion of issues unique to the financial sector.[15] Parts IV and V note only in passing how some of the rule choices applied on the demand side of capital markets might be modified when applied on the supply side—the financial services sector. There is similarly no discussion of (i) the effect on risk taking of the provision of preferential tax rates for managerial compensation;[16] or (ii) the use of a transactions tax to moderate financial instability.[17] Adequate discussion of any of these subjects,

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Crisis-Related Issues, supra note 5; OECD, *supra* note 5; Hemmelgarn & Nicodeme, *supra* note 5; Keen, Klemm & Perry, *supra* note 5; Shaviro, *supra* note 5. *See also* Martin A. Sullivan, *10 Tax Changes to Prevent the Next Fiscal Crisis*, 124 TAX NOTES 1295, 1295 (2009) (briefly describing a set of tax-reform measures intended to moderate financial instability).

15. *See, e.g.*, Shackelford, Shaviro & Slemrod, *supra* note 5, at 6–15 (discussing the theory and design of corrective taxes as applied to the financial sector); *see also* Tobias Adrian & Markus K. Brunnermeier, *CoVAR* (Fed. Res. Bank of N.Y., Staff Reports, No. 348, 2009), *available at* http://ssrn.com/abstract=1269446; Viral V. Acharya, Lasse H. Pedersen, Thomas Philippon & Matthew Richardson, *Regulating Systemic Risk, in* RESTORING FINANCIAL STABILITY: HOW TO REPAIR A FAILED SYSTEM 283 (Viral V. Acharya & Matthew Richardson eds., 2009) (suggesting the use of a capital charge as a corrective tax capturing the marginal contribution of individual financial institutions to system-wide risk); Jaime Caruana, Gen. Manager, Bank for Int'l Settlements (BIS), The International Policy Responses to Financial Crises: Making the Macroprudential Approach Operational, Panel Remarks at Jackson Hole (Aug. 21–22, 2009), *available at* http://www.bis.org/speeches/sp090911.htm. A "financial activities tax" levied on the sum of the profits of and remuneration paid by, financial institutions, is suggested in IMF Staff, A FAIR AND SUBSTANTIAL CONTRIBUTION BY THE FINANCIAL SECTOR, *in* IMF, FINANCIAL SECTOR TAXATION: THE IMF'S REPORT TO THE G-20 AND BACKGROUND MATERIAL 2, 19–34 (Stijn Claessens, Michael Keen & Ceyla Pazarbasioglu, eds., forthcoming 2010) (on file with the SMU Law Review), *available at* http://www.imf.org/external/np/g20/pdf/062710b.pdf. *H.R 4173 IH* proposes the adoption of a tax on wholesale liabilities of large financial institutions as a means to recover some of the cost of the provision of liquidity and capital insurance by the US government. *See generally* Lee A. Sheppard & Martin A. Sullivan, *Taxing Financial Pollution*, 126 TAX NOTES 697 (2010).

16. *See* IMF, *Crisis-Related Issues, supra* note 5, at 29–31 (highlighting deferred taxation of executive stock options and capital gains treatment of the return to the carried interests of fund managers as the two principal forms of tax-preferred managerial compensation which may affect risk taking); *see also* Shaviro, *supra* note 5, at 20 (suggesting that the tax system should disfavor "poorly-designed incentive arrangements"). *But see* Rüdiger Fahlenbrach & René M. Stulz, *Bank CEO Incentives and the Credit Crisis* 25 (Fisher Coll. of Bus., Charles A. Dice Ctr. for Research in Fin. Econ., Working Paper No. 2009-13, 2009), *available at* http://ssrn.com/abstract=1439859 (finding (i) no evidence that alignment of managerial incentives with the interests of shareholders resulted in better bank performance during the credit crisis and (ii) option compensation did not have an adverse impact on performance). France and the United Kingdom recently adopted temporary taxes on bonus payments to financial sector employees. *See* Shackelford, Shaviro & Slemrod, *supra* note 5, at 17–18.

17. *See, e.g.*, Adam H. Rosenzweig, *Imperfect Financial Markets and the Hidden Costs of a Modern Income Tax*, 62 SMU L. REV. 239, 279–87 (2009) (proposing the application of a transactions tax to derivative financial instruments to dampen increased counterparty default risk in the presence of the scaling up of the bets associated with such instruments to eliminate the effect of income taxation). There is a deep literature on the design of financial transaction taxes as a policy instrument to dampen excessive volatility in commodities and securities markets. This literature is surveyed in Thornton Matheson, Taxing Financial Transactions: Issues and Evidence, *in* IMF, *supra* note 15, at 144–187. *See also* Hemmelgarn & Nicodeme, *supra* note 5, 15, 27–35 (concluding that the effects of a financial transactions tax on asset price bubbles are ambiguous and preferring elimination of the preferential treatment of debt as a more promising means to avoid excessive leverage and risk taking).

with moderation of financial instability as a policy goal, warrants separate treatment. Finally, the subject of tax avoidance is largely ignored.[18] The unique issue in this area is the relationship, if any, between risk taking and tax-avoidance activity. This also appears to be a subject that requires separate treatment, primarily as an empirical inquiry.[19] It is possible, however, that the broad conceptual framework described in the article can usefully frame the discussion of these other issues in much the same way that it does the tax-base rule choices reviewed in Parts IV and V.

II. MINSKY'S FINANCIAL INSTABILITY HYPOTHESIS AND THE MISMEASUREMENT OF RISK

Minsky's financial instability hypothesis emphasizes the role of leverage as the source of persistent financial instability in sophisticated market economies. The instability may be exacerbated by the development of a broad range of derivative financial instruments, as well as by fundamental weaknesses of finance theory that have led to the mismeasurement of risk. This broader economic framework highlights the significance of excessive risk-taking attributable to excessive leverage and the mismeasurement of risk as sources of default risk and the associated systemic risk. On the assumption of an optimal allocation of resources in the absence of the change in price occasioned by the imposition of taxes, tax policymakers have ignored these effects while focusing on micro-level incentives. At a macro level, these incentives can exacerbate the effect of nontax factors as causes of financial instability, with potential costs for the economy that are borne, in part, by innocent third parties. In this respect, excessive leverage and risk taking, at a macro level, can be viewed as a negative externality.[20]

A. FINANCIAL STABILITY AS A PUBLIC POLICY GOAL AND LEVERAGE AS A SOURCE OF FINANCIAL INSTABILITY

Because a focus on maintenance of financial stability as a public policy goal would seem to require a working definition of the concept, it is per-

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18. There is some limited discussion of tax planning along the debt-equity boundary when interest and dividends are treated inconsistently for a range of investors. See *infra* notes 239–46 and accompanying text.

19. IMF, *Crisis-Related Issues, supra* note 5, at 25–28 (noting the lack of understanding of the effect of tax-driven financial innovation, including securitization, as well as the use of low-tax jurisdictions in cross-border tax planning). The growing empirical literature on corporate governance and tax sheltering would appear to suggest a weak link between tax avoidance and risk taking. See DANIEL N. SHAVIRO, DECODING THE U.S. CORPORATE INCOME TAX 174–78 (2009) (briefly reviewing some of the relevant literature). *But see* Eddins, *supra* note 5, at 19–20 (characterizing securitization and credit default swaps as tax-driven transactions requiring the creation of low-quality mortgages with systemic risk implications); Hemmelgarn & Nicodeme, *supra* note 5, at 26 (characterizing Eddins's tax arbitrage feedback theory as "a seducing and rather convincing theory" that requires empirical testing).

20. *See* IMF, *Crisis-Related Issues, supra* note 5, at 12 (characterizing excessive leverage as a negative externality that is not captured by micro-economic models focused on the level of firm-specific borrowing as a function of the internalization of bankruptcy costs).

haps surprising that this concept has not been articulated with any precision; like the corresponding concept of price stability, it may inevitably be somewhat flexible. This characteristic is evident, for example, in one of the more thorough attempts to define financial stability provided by Allen and Wood,[21] who also canvass various policy instruments that can be used to promote financial stability. They begin the definitional exercise by noting that public policy interest in financial stability reflects an awareness of the negative social and economic consequences associated with an episode of financial instability.[22] They argue "that it is most useful to think of financial stability . . . as a property of a system" much like that in the physical sciences.[23] A "financially stable" economy is said to be "one that does not degenerate into instability when it experiences . . . an unexpected event, or shock, . . . or the unexpected failure of a substantial company."[24] Allen and Wood then canvass possible characteristic features of an episode of financial instability, which they define as: "episodes in which a large number of parties, whether they are households, companies, or (individual) governments, experience financial crises which are not warranted by their previous behavior, and where these crises collectively have seriously adverse macro-economic effects."[25]

For households, businesses, and governments, a financial crisis occurs when access to funds is curtailed such that spending plans must be curtailed.[26] But financial instability at a micro level does not mean that an economy experiences an episode of financial instability at a macro level.[27] At some admittedly ill-defined point, the extent of individual crises becomes so pervasive "that innocent bystanders get hurt."[28] Moreover, as Allen and Wood recognize, financial stability as a property of an economy is not "completely observable," because an episode of financial instability can be latent and policymakers cannot be certain that the economy will be able to dampen rather than amplify a shock that precipitates a crisis.[29] Given these circumstances, the best that policymakers can do is to monitor "certain crucial features of an economy . . . and to draw inferences from such monitoring about the financial stability of the econ-

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21. *See* William A. Allen & Geoffrey Wood, *Defining and Achieving Financial Stability*, 2 J. FIN. STABILITY 152, 152 (2006) (noting the lack of a "widely accepted definition of 'financial stability'" and the lack of any associated consensus regarding the policies that should be pursued to promote financial stability); *see also* Garry J. Schinasi, *Defining Financial Stability* (IMF, Working Paper No. WP/04/187, 2004), *available at* http://www-bec.imf.org/external/pubs/ft/wp/2004/wp04/87.pdf.
22. Allen & Wood, *supra* note 21, at 154.
23. *See id.* at 155; *see also* Schinasi, *supra* note 21, at 8 ("A financial system is in a range of stability whenever it is capable of facilitating (rather than impeding) the performance of an economy, and of dissipating financial imbalances that arise endogenously or as a result of significant adverse or unanticipated events.").
24. Allen & Wood, *supra* note 21, at 155.
25. *Id.* at 160.
26. *Id.* at 159.
27. *See id.*
28. *Id.* at 159–60.
29. *Id.* at 155.

omy."[30] This necessary monitoring function is obviously performed most effectively when policymakers have an adequate explanation of the causes of episodes of financial instability. Despite lacking some of the formal features of a model, Minsky's financial instability hypothesis can be seen to serve this function.[31]

The intuition underlying Minsky's financial instability hypothesis is deceptively simple in its description of the financing function. As Minsky points out, his hypothesis is an interpretation of Keynes's classic work, *The General Theory of Employment, Interest, and Money*,[32] but with an emphasis on the debt financing of investment, rather than fluctuations in household demand and savings, as the principal source of instability.[33] At its core, the financial instability hypothesis is a theory of "the impact of debt on system behavior and also incorporates the manner in which debt is validated."[34] As a finance theory of investment, "the level of profits" is "the key determinant of system behavior," since profits validate debt.[35]

More particularly, Minsky illustrates how, at the macro level, aggregate profits for each period equal aggregate investment and depend on aggregate spending on investment.[36] At a micro level, he argues that firms must be able to realize a markup over labor costs and will pursue market power to do so.[37] Prices, therefore, have five discrete functions:

- to ensure that a surplus is generated;
- to ensure that some of the surplus accrues to business owners;

30. *Id.*

31. *See* GEORGE COOPER, THE ORIGIN OF FINANCIAL CRISES: CENTRAL BANKS, CREDIT BUBBLES AND THE EFFICIENT MARKET FALLACY 158 (2008) (concluding that policymakers should develop macroeconomic policy using the financial instability hypothesis as the only model adequately explaining financial market behavior). *But see* Elisabetta De Antoni, *The (Too?) Optimistic 'Financial Keynesianism' of Hyman Minsky* 23–24 (2005), *available at* http://www.ius.unicas.it/mc2005/papers/deantoni.pdf (noting some weaknesses of the financial instability hypothesis and suggesting that Minsky seemed sufficiently aware of them to label his analysis a hypothesis rather than a theory). Kindleberger draws on Minsky's financial instability hypothesis to frame his historical account of financial crises. *See* KINDLEBERGER & ALIBER, *supra* note 1, at 24–37.

32. Hyman P. Minsky, *The Financial Instability Hypothesis* 1 (Jerome Levy Econ. Inst., Working Paper No. 74, 1992) [hereinafter Minsky, *Instability*] (discussing JOHN MAYNARD KEYNES, THE GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY (1936)); *see also* De Antoni, *supra* note 31, at 23–25 (contrasting Minsky's emphasis on upward instability with Keynes's focus on a depressed economy).

33. *See* De Antoni, *supra* note 31, at 2–5.

34. Minsky, *Instability*, *supra* note 32, at 6.

35. *Id.* at 5.

36. *See* MINSKY, STABILIZING (2008), *supra* note 13, at 157–90. The aggregate amount of profits equals the sum of investment plus consumption out of profits plus the government's deficit and any trade surplus, less savings out of wages. *See* Dimitri B. Papadimitriou & L. Randall Wray, *Minsky's Analysis of Financial Capitalism* 6–9 (Jerome Levy Econ. Inst., Working Paper No. 275, 1999) ("In the simplest model (no government deficits, balanced trade, and no savings out of wages) profits equal investment plus capital consumption."); *see also* Janelia Tse, *Minsky's Financial Instability Hypothesis*, 4 OECONOMICUS 77, 79–80 (2001); De Antoni, *supra* note 31, at 5–13.

37. *See* MINSKY, STABILIZING (2008), *supra* note 13, at 157–90.

- to ensure that the demand price of capital assets is consistent with the supply price;
- to ensure that debt finance commitments can be satisfied; and
- to ensure that resources are allocated to the investment sector.[38]

In a capitalist economy, these functions are discharged in the form of two sets of prices: one for current output and one for capital assets.[39] The price of current output depends on short-run expectations of demand and wage rates. Spending on investment depends on the demand price (the price that a purchaser is willing to pay) and the supply price (the price that a producer is willing to accept) of capital assets. Investment occurs and profits are generated when the demand price of capital assets exceeds the supply price. The latter is a function of the costs of production, which consist primarily of purchase price (costs of labor plus a markup) and financing costs. The former is a function of expectations about future profits. In other words, capital asset prices reflect long-run expectations of future profits, but also the borrower's and lender's risk associated with the financing of investment. Borrower's risk is the risk of losing equity with increased levels of borrowing. Lender's risk is the risk of default, which increases with the level of debt financing.

Investment thereby links the price of capital assets with the price of current production. But the uncertainty associated with expectations of future profits and the financing of capital assets with debt makes the economy unstable. Expectations of profits depend on future investment, with realized profits determined by investment. In short, businesses invest now because they expect investment to occur in the future. Financial intermediaries are the critical actors in this process; they receive savings from households that are provided to businesses for production, with a reverse flow of funds moving from businesses to households again through financial intermediaries. The flow of money to businesses occurs as a response to expectations of future profits, while the flow of money from businesses is financed by realized profits. Expectations of profits determine the flow of financing contracts to businesses and the value of those contracts, with the past, present, and future linked by these financial relations. Expectations are validated when realized profits equal or exceed commitments in the financial contracts as the outcome of negotiations between financial intermediaries and businesses. Minsky's description of financial relations is not limited, however, to businesses; it extends to households and governments by way of their ability to borrow on the basis of expectations of future cash flows. Moreover, his description extends to an open-economy setting when businesses, households, and governments borrow internationally.[40]

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38. *Id.*; *see also* Tse, *supra* note 36, at 79.

39. Tse, *supra* note 36, at 80.

40. *See* Minsky, *Instability, supra* note 32, at 4–5; *see also* Philip Arestis & Murray Glickman, *Financial Crisis in Southeast Asia: Dispelling Illusion the Minskyan Way*, 26 CAMBRIDGE J. ECON. 237, 237 (2002) (arguing that the sources of instability identified by Minsky are intensified in an open-economy setting); Jan Kregel, *Managing the Impact of*

The explanatory power of these essential features of Minsky's financial instability hypothesis is captured in his two theorems. The first theorem holds that the character of the financial relations predominating at any time in an economy determines its financial stability.[41] In this respect, Minsky describes three states of financial relations characteristic of economic units: hedge finance, speculative finance, and Ponzi finance. A hedge finance unit is characterized by an ability to fulfill payment commitments with realized cash flows. Because equity finance provides a margin of safety in the event that realized profits are less than payment commitments under debt contracts, economic units with greater weighted levels of such finance will tend to be hedge finance units. A speculative finance unit is one that can meet its interest and similar income account commitments as they fall due, but cannot repay the amount of its principal repayment obligations and must roll over or refinance its liabilities on maturity. A Ponzi finance unit is one that cannot fulfill its obligations to pay interest or principal as they become due and must borrow against rising asset prices or sell assets to meet these commitments. Equity finance, and the associated margin of safety, is reduced as a Ponzi unit relies on either or both asset sales and further borrowing. An economy that is dominated by hedge finance units is stable in the sense that it is vulnerable only to external shocks. An economy that is dominated by speculative and Ponzi finance units is unstable in the sense that it is vulnerable to shocks, both internal and external.

Minsky's second theorem holds that capitalist economies tend to move from a financial structure dominated by hedge finance to a structure dominated by speculative and Ponzi finance during "periods of prolonged prosperity."[42] The transition occurs as realized profits continue to validate debt, which increases expectations of future profit levels and investment financed by greater levels of debt.[43] Financial intermediaries are supposed to function as skeptics and prudently dampen the excessive enthusiasm of businesses so that realized profits are more likely to be sufficient to fulfill commitments.[44] But, as Minsky emphasizes, financial

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Volatility in International Capital Markets in an Uncertain World 4 (Levy Econ. Inst., Working Paper No. 558, 2009) (describing the transmission of financial instability through international capital flows and risk-management techniques of multinational banks).

41. Minsky, *Instability, supra* note 32, at 7–8.

42. *Id.* at 8. Much the same process is described by John Geanakoplos as the "leverage cycle." *See* John Geanakoplos, *The Leverage Cycle* 2 (Cowles Found. for Research in Econ., Discussion Paper No. 1715, 2009), *available at* http://cowles.econ.yale.edu/P/cd/d17a/d1715.pdf; *see also* Franklin Allen & Douglas Gale, *Bubbles and Crises*, 110 Econ. J. 236 (2000) (constructing a simple model in which agency problems associated with leveraged investment in risky assets cause those assets to be priced above their fundamental value in the context of a credit expansion).

43. This process is famously captured by the label "irrational exuberance," which was used by Alan Greenspan when he was chairman of the U.S. Federal Reserve Bank in testimony before Congress, to describe the U.S. stock market bubble in the mid-1990s. The label was arguably made that much more famous when Robert Shiller subsequently used it as the title of his book describing the same asset price bubble. *See* Robert J. Shiller, Irrational Exuberance 3 (1st ed. 2000).

44. Minsky, *Instability, supra* note 32, at 4.

intermediaries are profit-seeking enterprises that innovate in their acqui-
sition of assets and marketing of liabilities.[45] In effect, financial in-
termediaries constantly innovate in their profit-seeking role as
"merchants of debt"[46] and tend to fuel the transition to speculative and
Ponzi finance during periods of prolonged prosperity. Financial in-
termediaries and businesses (as well as households) become increasingly
confident and downplay the need for margins of safety while increasing
the price of capital assets.[47] An ostensibly stable economy is essentially
destabilized by its tranquility, as past success leads to expanding credit
and the assumption of riskier positions.[48] A "Minsky moment"[49] can oc-
cur, for example, when the inevitable inflationary pressures lead mone-
tary authorities to tighten credit and an expansionary credit cycle tips
over to a credit contraction phase.[50] Speculative units become Ponzi
units, and Ponzi units see their net wealth disappear. Debt deflation fol-
lows as financial intermediaries call in debts and tighten the provision of
new credit, while borrowers must sell assets to fulfill payment commit-
ments. The ensuing collapse of asset values and profits only exacerbates
the debt deflation, resulting in increasing bankruptcies, recession, and a
depression in the extreme.[51]

B. DERIVATIVES AND THE MISMEASUREMENT OF RISK AS SOURCES OF FINANCIAL INSTABILITY

In contrast with neoclassical economic theory, Minsky takes seriously
the financial intermediation function, which he refers to generically as
"banking."[52] He describes a sophisticated capitalist economy as charac-

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45. *Id.* at 6.

46. *Id.* ("[T]hus, bankers . . . are merchants of debt who strive to innovate in the assets they acquire and the liabilities they market.").

47. *See generally* REINHART & ROGOFF, *supra* note 1; *see also* Caruana, *supra* note 15, at 2 (emphasizing the feedback effects of "[c]redit extension and leverage, risk perceptions and risk appetite, asset prices and economic activity," which together can make the finan-cial system more complex and characterized by nonlinear dynamics); Geanakoplos, *supra* note 42, at 16 (emphasizing the significance of reductions in collateral requirements during periods of prosperity that are then increased in a debt deflationary environment).

48. Minsky, *Instability, supra* note 32, at 8.

49. Minksy never used the term "Minsky moment" to describe the downward shift in a business cycle with the ensuing necessity to sell assets to meet payment commitments. The term was apparently coined by a bond fund director, Paul McCulley, during the Russian debt crisis. *See* Justin Lahart, *In Time of Tumult, Obscure Economist Gains Currency,* WALL ST. J., Aug. 18, 2007, at A1.

50. Minsky, *Instability, supra* note 32, at 8.

51. *See, e.g.,* E. Philip Davis & Mark R. Stone, *Corporate Financial Structure and Fi-nancial Stability* 4 (IMF, Working Paper No. WP/04/124, 2004) (finding that the debt-equity ratios of firms are correlated with investment and inventory declines following crises). The process of debt deflation was first described by Irving Fisher. *See* Irving Fisher, *The Debt-Deflation Theory of Great Depressions,* 1 ECONOMETRICA 337, 337 (1933).

52. MINSKY, STABILIZING (2008), *supra* note 13, at 172–173 ("In today's standard eco-nomic theory, an abstract nonfinancial economy is analyzed. Theorems about this abstract economy are assumed to be essentially valid for economies with complex financial and monetary institutions and usages . . . . [T]his logical jump is an act of faith . . . ."); *see also* Papadimitriou & Wray, *supra* note 36, at 4–5 (describing the assumptions underlying the orthodox microeconomic and macroeconomic models criticized by Minsky).

terized by expensive capital assets and a sophisticated financial system required for the deployment of such assets.[53] Present money pays for the resources needed for the creation and use of capital assets in production; it is exchanged for liabilities that commit producing units to pay future money in the form of profits at specified dates under specified conditions. Borrowers and lenders expect that profits generated by the capital assets will exceed financing commitments, but because this does not always turn out to be the case, financial stability cannot be taken as an assumed condition.

The dynamics of this financing function, which are described by Minsky as the source of financial instability, do not depend on a premise of irrationality on the part of investors along any behavioral margin.[54] Rather, the instability-breeding characteristics of the market for financial assets are the product of rational responses to market signals, albeit with exacerbating behavioral dynamics attributable to human shortcomings such as cognitive biases and the use of heuristics in decision making under uncertainty.[55] Minsky's challenge to neoclassical orthodoxy can be characterized, therefore, as a fundamental one distinguishing the market for consumer goods and services from the market for financial assets.[56] The pricing mechanism of the former operates to allocate resources.[57] Increased demand for an item triggers an increase in supply and vice versa, with changes in price equating demand and supply such that markets clear.[58] Because of this process, the market for consumer goods and services is equilibrium seeking: it is inherently stable, since only external shocks can move the market pricing mechanism off course into a state of disequilibrium.[59] As emphasized by Minsky's financial instability hypothesis, the market for financial assets is much different because it is charac-

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53. *See* MINSKY, STABILIZING (2008), *supra* note 13, at 172–75.

54. *See* COOPER, *supra* note 31, at 101 ("[F]inancial instability is hard wired into the mechanics of the asset and debt markets; it is therefore unnecessary to resort to the still-contentious arguments of behavioural finance to demonstrate market instability. But this is not to say that behavioural finance should be ignored, as this area can also give rise to powerful positive feedback cycles."); Geanakoplos, *supra* note 42, at 3 ("But a crucial part of my leverage cycle story is that every agent is acting perfectly rationally from his own individual point of view."); *see also* ROBERT J. BARBERA, THE COST OF CAPITALISM: UNDERSTANDING MARKET MAYHEM AND STABILIZING OUR ECONOMIC FUTURE 186 (2009) ("[B]ehavioral finance . . . provides modern day insights that buttress Minsky's financial instability hypothesis. Championing the notion that mainstream theory should embrace important parts of Minsky's thesis, in effect, also amounts to ending the fringe status of behavioral finance.").

55. Shiller provides a thorough account of various factors driving the herd mentality that produces the kind of powerful positive feedback effects emphasized by Minsky. *See* SHILLER, *supra* note 43, at 149–53; Robert J. Shiller, *Human Behavior and the Efficiency of the Financial System*, HANDBOOK OF MACROECONOMICS 1 (John B. Taylor & Michael Woodford eds., 1999); GEORGE A. AKERLOF & ROBERT J. SHILLER, ANIMAL SPIRITS: HOW HUMAN PSYCHOLOGY DRIVES THE ECONOMY, AND WHY IT MATTERS FOR GLOBAL CAPITALISM 11–56, 131–48 (2009); *see also* ANDREI SHLEIFER, INEFFICIENT MARKETS: AN INTRODUCTION TO BEHAVIORAL FINANCE (2000).

56. MINSKY, STABILIZING (2008), *supra* note 13, at 141.

57. *Id.*

58. *Id.* at 114.

59. *See id.*

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terized by the search for scarcity value in an environment in which supply does not respond completely to changes in price.[60] An increase in price can stimulate increased demand without a corresponding increase in supply, while a decrease in price can cause a decrease in demand without a contraction of supply.[61] In this type of market, it is the rate of price change that affects demand rather than price change itself;[62] such a market is not equilibrium seeking and is inherently unstable.

Orthodox financial theory has tended to ignore these fundamental differences and has largely transplanted the pricing mechanism of the market for consumer goods and services as a conceptual framework for the modeling of the pricing mechanism of the market for financial assets.[63] As expressed in the "efficient market hypothesis,"[64] this orthodoxy posits that at any point in time, the price of particular financial assets incorporates all relevant information—concerning both the present and the future—and is the correct price as determined by the forces of supply and demand.[65] Prices are seen to move in response to new information,[66] and only external shocks can force the market into a state of disequilibrium.[67] Price movements are entirely random,[68] with this characteristic of finan-

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60. COOPER, *supra* note 31, at 8. *But see* RICHARD BOOKSTABER, A DEMON OF OUR OWN DESIGN: MARKETS, HEDGE FUNDS, AND THE PERILS OF FINANCIAL INNOVATION 212–13 (2007) (emphasizing demand and supply of liquidity as the principal driver of price movements rather than the revelation of information).

61. MINSKY, STABILIZING (2008), *supra* note 13, at 141–43 (explaining circumstances under which a capitalist economy can "sometimes break[ ] down").

62. COOPER, *supra* note 31, at 8; *see also* Jack Treynor, *Bulls, Bears, and Market Bubbles*, FIN. ANALYSTS J., Mar.–Apr. 1998, at 69, 69 (arguing that investors' different views mean that there are winners and losers as prices change in response to new information, with the resulting wealth effect creating a new equilibrium and wealth shift that can cause greater subsequent price changes).

63. For accessible and entertaining accounts of the development of financial theory, see PETER L. BERNSTEIN, CAPITAL IDEAS EVOLVING (2007) [hereinafter BERNSTEIN, EVOLVING]; PETER L. BERNSTEIN, AGAINST THE GODS: THE REMARKABLE STORY OF RISK (1996); PETER L. BERNSTEIN, CAPITAL IDEAS: THE IMPROBABLE ORIGINS OF MODERN WALL STREET (1992).

64. The efficient market hypothesis is the outcome of a deep literature, which attempts to explain the apparently random price movements in markets for financial assets and commodities. For a bibliographic, as well as temporal, listing of the various research contributions to the development of the efficient market hypothesis along with significant contributions to the behavioral finance school of thought, see Martin Sewell, *History of the Efficient Market Hypothesis* (August 2008), *available at* http://www.e-m-h.org/emh-history.pdf. *See also* JUSTIN FOX, THE MYTH OF THE RATIONAL MARKET: A HISTORY OF RISK, REWARD, AND DELUSION ON WALL STREET (2009). For seminal articles, in the sense that they are generally accepted as presenting the first and most complete articulations of the efficient market hypothesis, see Eugene F. Fama, *Random Walks in Stock Market Prices*, FIN. ANALYSTS J., Sept.–Oct. 1965, at 55 [hereinafter Fama, *Random*]; Eugene F. Fama, *The Behavior of Stock-Market Prices*, 38 J. BUS. 34 (1965) [hereinafter Fama, *Behavior*]; and Paul A. Samuelson, *Proof That Properly Anticipated Prices Fluctuate Randomly*, 6 INDUS. MGMT. REV. 41 (1965). *See also* Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383, 384–88 (1970) (defining different forms of the efficient market hypothesis).

65. *See* Fama, *Random*, *supra* note 64, at 56.

66. *Id.* at 36.

67. COOPER, *supra* note 31, at 13.

68. *See* Fama, *Behavior*, *supra* note 64, at 34.

cial markets providing the conceptual foundation for risk management and trading strategies.[69] Most importantly perhaps, an assumption of random future price movements has permitted the modeling of such movements on the basis of normal probability distributions,[70] which has become the foundation for risk-management strategies using derivative financial instruments.

Indeed, it is the development of a broad range of sophisticated derivative financial instruments, along with the provision of increased depth and liquidity of markets, which is routinely heralded as the principal efficiency–enhancing product of financial innovation undertaken during the prolonged period of prosperity from the mid-1980s to the present. The current financial landscape is thus characterized by an increasingly expanded range of positions—both long and short—in markets for the underlying assets on which derivatives are written.[71] The apparent result is a significant transformation of the relatively simplistic description of the debt–financing function articulated by Minsky. Yet the difference in the financial landscape is fundamentally one of degree and not one of kind.[72] As a source of instability, Minsky emphasizes the role of debt-financing of capital assets.[73] Derivative financial instruments simply provide an enhanced ability to place bets on price movements and to replicate leveraged positions in assets. By allowing investors to transact in asset markets at low cost, they have provided an ability to shed risk by transferring it to parties who are assumed to be better able to bear it and to take on greater risk by scaling up bets on future price movements.[74] But in much the same way as the debt financing of capital assets, the resulting leverage effect—especially in the latter instance—is an additional source of financial instability for the same reasons identified by Minsky.

Moreover, instability associated with excessive risk taking and leverage using derivative financial instruments may be compounded by the mis-

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69. *See id.* at 40.

70. *Id.* at 40–41.

71. *See generally* Stewart Mayhew, *The Impact of Derivatives on Cash Markets: What Have We Learned?* (Dept. of Banking & Fin., Terry Coll. of Bus., Univ. of Ga., Working Paper, 2000), *available at* http://www.terry.uga.edu/finance/research/working_papers/papers/impact.pdf (surveying the empirical literature and concluding that the evidence suggests that derivatives have either had no effect on volatility in underlying markets or have reduced volatility and have tended to improve the liquidity of these markets as well as the quality of information).

72. In his account of financial crises from the mid-1960s to the mid-1980s, Minsky notes a range of innovations that permitted the banking sector, in particular, to avoid reserve requirements. *See* MINSKY, STABILIZING (2008), *supra* note 13, at 15–106; *see also* Hyman P. Minsky, *Securitization* 1–8 (Levy Econ. Inst., Policy Note No. 2, 2008) (describing the causes and effects of securitization as an "originate and distribute" approach to the banking function); Viral V. Acharya & Matthew Richardson, *Causes of the Financial Crisis*, 21 CRITICAL REV. 195 (2009) (emphasizing the use of securitization by banks to avoid capital adequacy requirements).

73. Minsky, *Securitization, supra* note 72, at 1–3.

74. *See, e.g.*, COOPER, *supra* note 31, at 9–14, 18, 143–53 (drawing a link between the financial instability hypothesis and risk-management strategies based on the efficient market hypothesis); *see also* Charles J. Whalen, *The U.S. Credit Crunch of 2007: A Minsky Moment* 12–13 (Levy Econ. Inst., Pub. Policy Brief No. 92, 2007).

measurement of risk.[75] Despite an apparent ill fit with the data, the integrity of the risk-transfer market remains bound up in the efficient market hypothesis and its assumption of random price movements.[76] It is now increasingly recognized, however, that this assumption is incorrect, and risk-management models that are slavishly based on it systematically understate risk, contributing further to instability.[77] In other words, risk may be mismeasured because markets for financial assets differ fundamentally from markets for consumer goods and services. In particular, price movements in the market for financial assets are affected by the past in the sense that they tend to exhibit positive feedback effects, characterized by a kind of memory and the associated clustering of sharp price movements.[78] The positive feedback effects mean that standard probability distributions tend to understate extremes of price movements—both positively and negatively—which can only be captured in nonstandard distributions characterized by "fat tails" and "double peaks."[79]

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75. *See, e.g.*, Stefan Thurner, J. Doyne Farmer & John Geanakoplos, *Leverage Causes Fat Tails and Clustered Volatility*, *available at* http://www.arxiv.org/PS_cache/arxiv/pdf/0908/0908.1555v2.pdf (constructing a model of leveraged asset acquisitions with margin calls to demonstrate that leverage causes price fluctuations to become heavy tailed, displaying the clustered volatility characteristic of price fluctuations observed in real markets).

76. *But see* Burton G. Malkiel, *The Efficient Market Hypothesis and Its Critics* 2 (Ctr. for European Policy Studies, Working Paper No. 91, 2003), *available at* http://www.princeton.edu/~ceps/workingpapers/91malkiel.pdf (reviewing the challenges to the efficient market hypothesis in the academic literature and concluding that "stock markets are more efficient and less predictable" than these challenges suggest).

77. BENOIT B. MANDELBROT & RICHARD L. HUDSON, THE (MIS)BEHAVIOR OF MARKETS: A FRACTAL VIEW OF RISK, RUIN, AND REWARD 32, 79–107 (2004) (contrasting the "wild randomness" of financial markets with the "mild" randomness permitted by the efficient market hypothesis). The same general point is made by Nassim Nicholas Taleb. *See generally* NASSIM NICHOLAS TALEB, FOOLED BY RANDOMNESS: THE HIDDEN ROLE OF CHANCE IN LIFE AND IN THE MARKETS (2d ed. 2004); NASSIM NICHOLAS TALEB, THE BLACK SWAN: THE IMPACT OF THE HIGHLY IMPROBABLE (2007); BOOKSTABER, *supra* note 60, at 143–64 (characterizing the derivatives market as a complex and tightly coupled network, attributable to the combination of liquidity and leverage, and thereby subject to crises when all contingencies cannot be anticipated); COOPER, *supra* note 31, at 151–52 (observing that the risk-management industry may inadvertently encourage excessive risk taking by producing probability distributions that are too narrow); Colander, Föllmer, Haas, Goldberg, Juselius, Kirman, Lux & Sloth, *supra* note 4, at 4–7 (labeling as "control illusion" the false confidence provided by mathematical risk-management models based on an assumption of a normal probability distribution of asset price changes); Thurner, Farmer & Geanakoplos, *supra* note 75, at 4–6 (arguing that sophisticated risk-management techniques exacerbate extreme price fluctuations).

78. *See, e.g.*, Andrei Shleifer & Lawrence H. Summers, *The Noise Trader Approach to Finance*, 4 J. ECON. PERSP., no. 2, 1990 at 19–20, 24 (arguing that investor demand for risky assets is affected by "beliefs or sentiments that are not fully justified by fundamental news" and that changes in such sentiments are not fully countered by the arbitrage trading of rational investors).

79. *See, e.g.*, Jon Danielsson, *Blame the Models*, 4 J. FIN. STABILITY 321 (2008) (concluding that statistical models are useful for measuring the risk of frequent small events but not systemically important events); *see also* FIN. SERVS. AUTH., THE TURNER REVIEW: A REGULATORY RESPONSE TO THE GLOBAL BANKING CRISIS 39–49 (Mar. 2009), *available at* http://www.fsa.gov.uk/Pages/Library/Corporate/turner/index.shtml [hereinafter TURNER REVIEW] (emphasizing the significance for capital adequacy requirements of the understatement of tail risk); Andrew G. Haldane, Exec. Dir. for Fin. Stability, Bank of Eng.,

In sum, the source of financial instability emphasized by Minsky—excessive leverage—is substantially magnified by the introduction of a broad range of derivative financial instruments as both risk-creation and risk-transfer contracts in an environment characterized by mismeasurement of asset price risk.[80] In fact, Minsky's two theorems, which focus on the debt-financed acquisition of capital assets,[81] can be seen to apply analogously to transactions in derivatives. As already noted, the development of a broad range of derivative financial instruments has completed markets by providing economic units with desired payoffs for a broad range of contingencies that were previously unavailable.[82] Hedge finance units can use this expanded range of positions to reduce their risk in risk-transfer transactions that are equivalent to insurance.[83] Speculative and Ponzi finance units can use the same instruments, however, to place larger bets on price movements.[84] Proprietary trading desks and some hedge funds, for example, use sophisticated modeling techniques to identify price anomalies and the associated arbitrage opportunities, which are seized by taking positions often using substantial amounts of leverage.[85] But where price anomalies persist because of positive feedback effects, trading models can be subject to tracking error, and mark-to-market losses may be incurred in ever increasing size.[86] The accrued losses trig-

Why Banks Failed the Stress Test, Speech at Marcus-Evans Conference on Stress-Testing in London, England (Feb. 9–10, 2009), *available at* http://www.bankofengland/publications/speeches/. . ./speech374.pdf (identifying disaster myopia, network externalities, and misaligned incentives as the sources of market failure that can cause mismeasurement of market risk); Renë M. Stulz, *Risk Management Failures: What Are They and When Do They Happen?* 7–14 (Fisher Coll. of Bus., Working Paper No. 2008-03-017, 2008), *available at* http://ssrn.com/abstract=1278073 (providing a taxonomy of risk management failures, including the "mismeasurement of known risks" which can be the result of (1) the use of an incorrect probability distribution, (2) mismeasurement of the correlation of returns across positions, or (3) mistakes in information collection).

80. *See, e.g.*, Nassim Nicholas Taleb, *The Fourth Quadrant: A Map of the Limit of Statistics*, EDGE, Sept. 15, 2008, http://www.edge.org/3rd_culture/taleb08/taleb08_index.html (concluding that an analysis of the power coefficient on data for a range of financial instruments indicates a value of between two and three, with a mean absolute error greater than one, which has devastating consequences for predictive value).

81. Minsky, *Instability, supra* note 32, at 7–8.

82. *See, e.g.*, Minsky, *Securitization, supra* note 72, at 2.

83. *See* Minsky, *Instability, supra* note 32, at 7.

84. *See* Stulz, *supra* note 79, at 14 (emphasizing the need to make capital "available to cope with unknown risks" that, if known and captured in the relevant models, would alter the behavior of managers).

85. Because this form of arbitrage trading provides likely small gains and a small chance of large losses, it has been described as the equivalent of "picking up nickels in front of bulldozers." *See* ROGER LOWENSTEIN, WHEN GENIUS FAILED: THE RISE AND FALL OF LONG-TERM CAPITAL MANAGEMENT 102 (2000). The phrase actually refers to "risk arbitrage" transactions, which are pure bets on the price movements of the shares of corporations that are expected to merge. This particular strategy differs significantly from convergence trades, relative value trades, and volatility trades, which are hedged trading strategies based on the identification of pricing anomalies.

86. *See* Andrei Shleifer & Robert W. Vishny, *The Limits of Arbitrage*, 52 J. FIN. 35, 35 (1997) (arguing that arbitrage trading, as conducted by a small number of specialized investors, requires capital and entails risk, which has "implications for security pricing, including the possibility that arbitrage becomes ineffective" when "prices diverge far from fundamental values"); Shleifer & Summers, *supra* note 78, at 20–23 (emphasizing the limited and

ger margin calls that must be met by unwinding positions, which places further downward pressure on prices in markets that are often lacking depth. The resulting liquidity crisis can precipitate default for speculative and Ponzi finance units employing arbitrage-trading strategies or otherwise taking unhedged positions that are tantamount to "naked" bets on price movements.[87] As a specific example of this dynamic, the recent credit crisis differs from other financial crises only in the nature of the risk that was transacted and mispriced.[88] Rather than asset price risk, credit risk was the focus of the innovative "originate and distribute" model of banking used to extend mortgage financing to Ponzi-financed households.[89] The stripping of this risk and its transfer through credit default swaps was priced, however, using models that severely underestimated it.[90]

C. Minsky's Policy Agenda

Because of the significance of financial relations and expectations of profits that underlie those relations, Minsky sees a sophisticated capitalist economy as inherently unstable;[91] there is no equilibrium, but only phases of expanding or contracting credit.[92] There will be periods of tranquility when economic units are predominantly hedge finance units, but instability is latent as expectations of future profits become increasingly optimistic and economic units increasingly take on debt to finance increased investment.[93] The key aspect of Minsky's financial instability hypothesis is, therefore, the notion that business cycles are the result of the internal workings of a capitalist economy and not external shocks.[94]

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risky nature of arbitrage trading in an environment dominated by changes in price as a function of changes in sentiments and beliefs). *But see generally* Jefferson Duarte, Francis A. Longstaff & Fan Yu, *Risk and Return in Fixed Income Arbitrage: Nickels in Front of a Steamroller?* 20 Rev. Fin. Stud. 769 (2007) (concluding that fixed-income arbitrage strategies tend to yield positively-skewed supernormal returns).

87. The most notable case study of this dynamic is *When Genius Failed: The Rise and Fall of Long-Term Capital Management. See generally* Lowenstein, *supra* note 85; Nicholas Dunbar, Inventing Money: The Story of Long-Term Capital Management and the Legends Behind It (2000).

88. *See* Jan Kregel, *Minsky's Cushions of Safety: Systemic Risk and the Crisis in the U.S. Subprime Mortgage Market* 5 (Levy Econ. Inst., Pub. Policy Brief No. 93, 2008).

89. *Id.*

90. *See, e.g., id.* (emphasizing that the recent credit crisis was "the result of insufficient margins of safety" caused by the mispricing of risk in the U.S. subprime mortgage market); Barry Eichengreen, *Origins and Responses to the Crisis* 6 (Oct. 2008) (unpublished manuscript), *available at* http://emlab.berkeley.edu/users/webfac/eichengreen/e183_sp07/origins_responses.pdf (noting that the credit risk models were based on a truncated and unrepresentative sample and were misspecified in their understatement of tail risk).

91. *See* Minsky, *Instability, supra* note 32, at 2–4.

92. *See* Geanakoplos, *supra* note 42, at 1 (emphasizing the same feature with availability of credit determined by margin requirements).

93. *See* Minsky, *Instability, supra* note 32, at 7–8.

94. Minsky, Stabilizing (2008), *supra* note 13, at 172 ("[I]nstability is determined by mechanisms within the system, not outside it; our economy is not unstable because it is shocked by oil, wars, or monetary surprises, but because of its nature."). "Real business cycle theory" emphasizes external shocks, such as technology changes, as causes of the business cycle. *See, e.g.,* N. Gregory Mankiw, Macroeconomics ch. 19 (5th ed. 2003).

Economies are not, as such, equilibrium-seeking. Once they tip into a debt deflation, the process feeds on itself, and government must intervene to prop up aggregate demand and profits through deficit spending. Most importantly, the transfer payment system provides a floor for personal income, employment, and profits. The effect of a debt deflation on balance sheets can also cause the failure of one or more financial intermediaries, and central banks must serve as lenders of last resort for the banking system, providing loans and/or purchasing impaired assets to prevent systemic failure attributable to the interlocking nature of relations among financial intermediaries.[95] In discharging this function, central banks provide a floor for asset prices. As Minsky observes, government has to be sufficiently large to discharge both of these functions.[96] Nonetheless, instability remains and is only moderated in its effects.[97] Regulatory regimes attempt to address the associated moral hazard problem, which has been brought to the forefront of the public policy debate by the recent credit crisis.[98]

In an attempt to moderate financial instability, Minsky articulates a policy agenda that is not limited to regulatory supervision,[99] although it is his emphasis on the central bank's lender of last resort function as the principal stabilizing instrument in financial markets that has been emphasized by various commentators and fleshed out in more detail.[100] Minsky

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95. *But see* John Geanakoplos, *Solving the Present Crisis and Managing the Leverage Cycle* 1–6, 11–20 (Cowles Found. for Research in Econ., Working Paper No. 1751, 2010), *available at* http://cowles.econ.yale.edu/~gean/crisis/solving-present-crisis.pdf (outlining a more ambitious response to the credit crisis, including initiatives intended to prop up housing prices).

96. *See* Davis & Stone, *supra* note 51, at 4 (finding that financial crises have a greater impact on expenditure and the financing of the corporate sector in emerging economies, despite greater levels of precautionary liquidity); *see also* Ana Fostel & John Geanakoplos, *Leverage Cycles and the Anxious Economy*, 98 AM. ECON. REV. 1211, 1211 (2008) (articulating a pricing theory for emerging asset classes explaining how leverage cycles can cause contagion, flight to collateral, and credit rationing).

97. *See* Piero Ferri & Hyman P. Minsky, *Market Processes and Thwarting Systems* 4 (Levy Econ. Inst., Working Paper No. 64, 1991) ("[I]nstitutions and interventions thwart the instability breeding dynamics that are natural to market economies by interrupting the endogenous process and 'starting' the economy again with non market [sic] determined values as 'initial conditions.'").

98. *See generally* IMF, *Lessons of the Financial Crisis for Future Regulation of Financial Institutions and Markets and for Liquidity Management* (Policy Paper, 2009) [hereinafter IMF, *Lessons*], *available at* http://www.imf.org/external/np/pp/eng/2009/020409.pdf. *See also* TURNER REVIEW, *supra* note 79, at 51–103.

99. *See generally* Charles J. Whalen, *Stabilizing the Unstable Economy: More on the Minsky–Simons Connection*, 25 J. ECON. ISSUES 739 (1991) (reviewing similarities of analyses of the causes of business cycles of Minsky and Henry Simons, as well as some of their shared policy prescriptions).

100. *See, e.g.*, COOPER, *supra* note 31, at 124–25 (arguing that credit creation running substantially ahead of economic growth signals the development of an asset price bubble, which monetary authorities should control by contracting the supply of credit); BARBERA, *supra* note 54, at 188–89 (emphasizing the need for monetary policy to moderate asset price bubbles and monitor the appetite for risk as reflected in the spread between "long-term rates on risky assets" and long-term rates on government treasury bills); *see also* Geanakoplos, *supra* note 42, at 3–6 (emphasizing the need for monitoring of leverage and its limitation during periods of prosperity as a complement to government intervention to support profits and asset prices during a debt deflation); L. Randall Wray, *Financial Mar-*

also advocates an aggressive antitrust policy designed to limit the size of institutions in the financial sector such that no one institution will be seen as "too big to fail."[101] The government would also act as employer of last resort by providing public service employment.[102] This role is in addition to the use of counter-cyclical fiscal policy to prop up aggregate demand when private investment slows. But in terms of informative detail, Minsky's discussion of the tax system as a fiscal policy instrument can be ignored without any appreciable loss of important insights. Indeed, this aspect of Minsky's policy agenda, which focuses primarily on the broad mix of taxes, is extremely general and somewhat conventional.

Not surprisingly, Minksy argues that the tax system should provide the government with sufficient revenue to support aggregate demand and profits in the face of a debt deflation.[103] To realize this goal, he advocates a combination of a broad-based sales tax, preferably on the value-added model, and a progressive-rate personal income tax.[104] He prefers that the corporate income tax be eliminated on the apparent assumption that it is shifted forward to consumers and is inflationary.[105] Otherwise, Minsky has very little to say regarding the second-order details of tax design. He observes that the deductibility of corporate interest expense provides an undesirable tax bias in favor of debt finance in the context of an otherwise unintegrated tax on equity income.[106] Without much in the way of supporting analysis, he prefers conduit treatment of corporate income to prevent use of the corporate form as a tax-avoidance vehicle.[107] With apparent administrative and compliance costs in mind, he suggests broad application of the real estate investment trust (REIT) approach whereby a corporation that has distributed a minimum amount of its income annually is exempt from the tax that otherwise applies to nonqualifying corporations.[108] Much more interestingly, he argues that "nonproduction expenses such as advertising, marketing, and the pleasures of the executive suites," should not be deductible for corporate income tax pur-

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kets Meltdown: What Can We Learn from Minsky? 8 (Levy Econ. Inst., Pub. Policy Brief No. 94A, 2008) (emphasizing a focus on direct credit controls as well as supervision and regulation). *But see* Caruana, *supra* note 15, at 5 (noting difficulties in attempting to isolate a single variable that can reliably track the financial cycle).

101. *See* MINSKY, STABILIZING (2008), *supra* note 13, at 330.

102. *See* Hyman P. Minsky, *Uncertainty and the Institutional Structure of Capitalist Economies* 45 (Levy Econ. Inst., Working Paper No. 155, 1996) [hereinafter Minsky, *Uncertainty*].

103. *Id.* at 4.

104. MINSKY, STABILIZING (2008), *supra* note 13, at 339–43. *But see* Minsky, *Uncertainty*, *supra* note 102, at 5 (recommending the replacement of the personal income tax with a progressive personal consumption tax and a value added tax in order to fund a move from transfer payments to full-employment policies).

105. MINSKY, STABILIZING (2008), *supra* note 13, at 341.

106. *Id.* at 340.

107. Minsky says nothing about the treatment of losses. *Id.*

108. Minsky is unclear whether the corporate income tax should be integrated with the shareholder-level tax, although he seems to cryptically suggest as much following his brief discussion of the REIT model. *See* MINSKY, STABILIZING (2008), *supra* note 13, at 342 ("Either way, a unified income tax should be the major pillar of the tax system.").

poses.[109] In effect, these expenses are considered returns to capital and should be treated consistently with returns to equity. He also notes, somewhat cryptically and briefly in passing, that tax policymakers need "to consider the behavior modification aspects of tax policy and use the expected tax avoidance reaction to foster policy goals."[110] In this respect, he follows the standard legal definition of "tax avoidance" as a modification of behavior that legally results in a decrease or elimination of a taxed activity.[111] "Tax evasion," which is illegal, is defined as the nonpayment of taxes while continuing to carry on a taxed activity.[112]

As Parts IV and V attempt to illustrate, Minsky's financial instability hypothesis can be seen to have broad policy relevance for the resolution of certain tax-base rule choices, which have conventionally been framed as technical tax-policy issues. In fact, that relevance goes much deeper than was recognized by Minsky. I suggest first, however, in the following Part III, that a greater depth of policy analysis can be realized by reframing many of these rule choices as the subject of a tax-expenditure analysis focused on the moderation of excessive leverage and risk taking as the sources of financial instability emphasized by Minsky.

III. TAX EXPENDITURES, TAX-EXPENDITURE ANALYSIS, AND CORRECTIVE TAXES

The literature on tax expenditures—both generally and in terms of analyses of particular programs—is deep and rich. No attempt is made here to come to grips with that literature.[113] Instead, this Part does nothing more than emphasize a general point that is more thoroughly developed by Neil Brooks.[114] That is, a substantial slice of the tax-expenditure literature—especially the literature in the United States—has undermined the significance of the tax-expenditure concept by unnecessarily focusing on the need to classify particular rules in tax legislation as either technical tax rules or tax expenditures.[115] Contentiousness over the execution of this exercise has undercut the two important functions of the tax-expenditure concept: (1) the budgetary accounting function, and (2) the policy analysis function. In this respect, it is suggested below in Part III.B that the manner in which the policy case in support of a particular provision is framed goes a long way in executing the necessary classification exercise for a broad range of provisions without any contentious-

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109. *Id.* at 340.
110. *Id.*
111. BLACK'S LAW DICTIONARY 1460 (6th ed. 1990).
112. *Id.* at 1461.
113. For a comprehensive review of much of this literature, see J. Clifton Fleming, Jr. & Robert J. Peroni, *Reinvigorating Tax Expenditure Analysis and Its International Dimension*, 27 VA. TAX REV. 437 (2008).
114. *See* Neil Brooks, *The Under-Appreciated Implications of the Tax Expenditure Concept, in* AUSTRALIAN BUSINESS TAX REFORM IN RETROSPECT AND PROSPECT 233, 234–37 (Chris Evans & Richard Krever eds., 2009); *see also* Edward D. Kleinbard, *How Tax Expenditures Distort Our Budget and Our Political Processes*, 123 TAX NOTES 925 (2009).
115. *See* Kleinbard, *supra* note 114, at 925.

ness.[116] For a minority of provisions, alternative modes of framing will be plausible and a tax-expenditure classification can defensibly be made for budgetary accounting purposes. Moreover, the full policy analyst's tool-kit, encompassing both technical and budgetary criteria, can still be usefully applied.

At a more specific level relevant to the subject of this article, tax-expenditure analysis provides a conceptual framework that suggests directions in which Minsky's financial instability hypothesis might push the analysis of some important tax-base rule choices. As a tool of policy analysis, tax-expenditure analysis may be invoked by a change in emphasis on the consequential attributes of these rule choices attributable to the recognition of the potential significance of his financial instability hypothesis.

A. Executing the Classification Exercise by Specifying a Benchmark Income Tax

The tax-expenditure concept is deceptively simple. It requires the division of all rules in a tax system into two categories: technical tax rules and tax-expenditure provisions.[117] The first set of rules defines the tax base, unit, period, and rate structure.[118] The specific rules in each of these areas form the technical structure of the system designed to raise revenue.[119] Tax-expenditure provisions are spending programs delivered through the tax system in the form of exceptions to that structure; they are designed to realize certain economic or social policies otherwise associated with comparable spending programs using alternative delivery mechanisms.[120]

Although politicians and policymakers have long recognized that governments spend through the tax system,[121] the tax-expenditure concept was not developed in detail until the 1960s and early 1970s by Stanley Surrey,[122] who popularized the concept, coined the phrase, and wrote two definitive works on the subject.[123] According to Surrey, much of the debate about specific tax provisions and their reform is really an issue of

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116. *See, e.g., id.* at 927 ("Tax expenditure analysis is a pragmatic exercise, and the existence of a handful of close questions should not obscure the fact that literally hundreds of other cases can be labelled as tax expenditures without much controversy.").

117. *See* STANLEY S. SURREY & PAUL R. McDANIEL, TAX EXPENDITURES 3 (1985).

118. *Id.*

119. *See id.* at 1.

120. *Id.* at 3.

121. *See, e.g.,* Neil Brooks, Book Review, 34 CAN. TAX J. 681, 683 (1986) (reviewing STANLEY S. SURREY & PAUL R. McDANIEL, TAX EXPENDITURES (1985)) (citing William Gladstone's Parliamentary critique of an income tax exemption for charities as spending through the tax system).

122. *But see* Harry A. Shannon III, *The Tax Expenditure Concept in the United States and Germany: A Comparison,* 33 TAX NOTES 201, 203–05 (1986) (describing the development of the tax-expenditure concept in Germany in the 1950s).

123. *See generally* SURREY & McDANIEL, *supra* note 117; STANLEY S. SURREY, PATHWAYS TO TAX REFORM: THE CONCEPT OF TAX EXPENDITURES (1973).

spending reform.[124] The tax-expenditure concept allows the debate to be joined in terms of budgetary criteria relevant to such reform. From the outset of its development, however, the tax-expenditure concept has been contentious.[125] Proponents have argued that the concept helps to clarify the size of government spending while also providing an analytical tool to assess the desirability of particular rules formally embedded in tax legislation. Critics have emphasized the problematic nature of a perceived need to identify a benchmark tax system as a premise for characterization of deviations as equivalent to spending programs.

The genesis of this definitional debate is undoubtedly the related critiques of the comprehensive tax base and the tax-expenditure concept articulated by Boris Bittker at the outset of the development of both.[126] Beginning with Bittker, critics of the tax-expenditure concept have argued that the Haig–Simons concept of income,[127] which the comprehensive tax base is seen to operationalize, is too difficult to translate into a workable norm. Furthermore, it says nothing about certain issues, such as the appropriate tax unit.[128] In response, some proponents of the tax-expenditure concept have rejected the Haig–Simons concept of income in favor of a benchmark tax structure expressed in terms of what is widely accepted by tax analysts.[129] Others have vigorously defended the Haig–Simons concept of income as the basis for characterizing particular rules as tax expenditures, thereby triggering an accounting and analysis as spending programs.[130]

The lingering effects of the conceptual noise created by this perceived need to identify the elements of a benchmark tax system are evident in a recent report on tax expenditures prepared by the Staff of the U.S. Joint Committee on Taxation (Joint Committee). In an attempt to avoid the characterization problems of the past, the Joint Committee report introduces what is described as "a new paradigm for classifying tax provisions as tax expenditures."[131] In particular, the report proposes use of the existing provisions of U.S. income tax law as the reference point for

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124. *See* SURREY & MCDANIEL, *supra* note 117, at 69–70.

125. *See* Brooks, *supra* note 114, at 233.

126. *See generally* Boris I. Bittker, *Accounting for Federal "Tax Subsidies" in the National Budget*, 22 NAT'L TAX J. 244 (1969); Boris I. Bittker, *A "Comprehensive Tax Base" as a Goal of Income Tax Reform*, 80 HARV. L. REV. 925 (1967).

127. *See* HENRY C. SIMONS, PERSONAL INCOME TAXATION: THE DEFINITION OF INCOME AS A PROBLEM OF FISCAL POLICY 50 (1938) (defining income as the sum of present consumption and future consumption, which is represented by changes in wealth); R. Murray Haig, *The Concept of Income—Economic and Legal Aspects*, in THE FEDERAL INCOME TAX 1, 1–28 (Robert Murray Haig ed., 1921).

128. *See generally* Haig, *supra* note 127.

129. *See* SURREY & MCDANIEL, *supra* note 117, at 186–88; *see also* Dirk-Jan Kraan, *Off-budget and Tax Expenditures*, 4 OECD J. ON BUDGETING 121 (2004) (indicating OECD support of a benchmark based on current practice rather than a theoretical ideal).

130. *See, e.g.*, Fleming & Peroni, *supra* note 113, at 450–456.

131. STAFF OF JOINT COMMITTEE ON TAXATION, 110TH CONG., A RECONSIDERATION OF TAX EXPENDITURE ANALYSIS 1 (Comm. Print 2008), *available at* http://www.house.gov/jct/x-37-08.pdf [hereinafter JCT, RECONSIDERATION].

classification purposes,[132] which is supposed to avoid contentiousness surrounding the articulation of a theoretically pure benchmark. The report proposes that tax provisions be characterized as tax expenditures if they can be considered either:

- "deliberately inconsistent with an identifiable general rule of the present tax law" (referred to as "Tax Subsidies");[133] or
- a structural element of the Internal Revenue Code that "materially affect[s] economic decisions in a manner that imposes substantial economic efficiency costs" (referred to as "Tax-Induced Structural Distortions").[134]

After reviewing the historical development of tax-expenditure analysis in the United States, as well as the standard critiques of it, the Joint Committee report elaborates this proposed taxonomy in some detail, including a discussion of three subcategories of tax subsidies: (1) tax transfers, (2) social spending, and (3) business synthetic spending.[135] The report emphasizes the use of the tax-expenditure concept as an analytical tool, with the proposed approach to characterization intended to allow tax-expenditure analysis to "serve as an effective and neutral analytical tool for policymakers in their consideration of individual tax proposals or larger tax reforms."[136] This emphasis is much different than that in other countries where the tax-expenditure concept is used primarily as a weak budgetary accounting tool.[137] The Joint Committee report downplays this role, perhaps because of the apparent failure of the tax-expenditure account to control U.S. federal government spending.[138] Yet, the tax-expenditure concept may well have its singularly independent policy significance in performing a budgetary accounting function, with characterization problems being much less problematic when the concept is limited to this role.

Perhaps more importantly—given the stated goal of the Joint Committee report to enhance the analytical function of the tax-expenditure con-

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132. *Id.*

133. *Id.* at 9.

134. *Id.* at 10; *see also* Daniel N. Shaviro, *Rethinking Tax Expenditures and Fiscal Language*, 57 TAX L. REV. 187, 212, 228–30 (2004) (arguing in favor of "a separate category for 'structural' rules" that deviate from a theoretically pure income tax and "from conventional tax expenditures that seem more politically interchangeable with appropriations"). Much the same distinction has recently been proposed for reporting purposes in New Zealand. *See generally* Craig Fookes, *Spending Through the Tax System: Tax Expenditures* (N.Z. Treasury, Policy Perspectives Paper No. 09/01, 2009), *available at* http://www.treasury.govt.nz/publications/research-policy/ppp/2009/09-01.

135. JCT, RECONSIDERATION, *supra* note 131, at 10.

136. *Id.* at 1.

137. *See* Shaviro, *supra* note 134, at 205 (observing that the intensity of the classification debate appears to be unique to the experience in the United States). The emphasis on a weak budgetary accounting function may be responsible, in part at least, for the much less contentious status of the tax-expenditure account in other countries.

138. JCT, RECONSIDERATION, *supra* note 131, at 4 (noting that the first description of tax expenditures in 1972 consisted of 60 items, while thirty-five years later the description had expanded to 170 items using the same characterization approach).

cept[139]—it is unclear whether the suggested characterization approach really does much to advance the whole tax-expenditure enterprise as a policymaking tool. In short, because the suggested categories are in no way self-executing, it is not obvious that the proposed frame of reference solves what is assumed to be an insoluble problem.[140] In fact, the proposed taxonomy of tax expenditures appears to be based on the incorrect premise that characterization as a tax-expenditure provision accomplishes nothing unique for analytical purposes. An assumption of tax-policy agnosticism on this characterization issue is presumably advocated as a means to free policymakers to posit any set of rule choices, with the possibilities assessed on the basis of their efficiency and distributional effects, as well as administrative and compliance costs. Labeling a particular rule as a tax-expenditure provision apparently does nothing to advance this necessary policy analysis of the consequential attributes of possible rule choices.

It is more than just a bit ironic, however, that as a means to enhance the analytical function, any difference in policy analysis triggered by a tax-expenditure characterization is deemphasized, necessarily reducing the significance of the classification exercise. But technical tax-policy analysis and tax-expenditure analysis, albeit focused on the same consequential attributes, remain decidedly different because of a decidedly different emphasis on those attributes. It is this difference in emphasis that is central to the classification exercise when the government discharges its allocative function using a particular policy instrument.[141] Adopting the taxonomy suggested in the Joint Committee report, a tax-induced structural distortion is only sensibly included as a tax expenditure if the associated behavioral response is intended by policymakers. Indeed, deliberate inconsistency with an identifiable general rule of the present law as indicative of a tax subsidy can only be determined if it can be concluded that the behavioral response at issue is one that is intended by policymakers.[142] The concept of a benchmark income tax base—however it may be conceived—is utterly irrelevant to this classification exercise.

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139. *Id.* at 1.

140. For example, the study cites tax relief for charitable donations as a supposedly clear example of a tax rule in its tax-subsidy category. *Id.* at 12. It is not obvious, however, that tax relief, in the form of either a tax credit or an income deduction, for charitable donations can be considered deliberately inconsistent with an identifiable general rule of the present tax law. Similar characterization questions would appear to arise with the two examples of tax-induced structural distortions cited in the study: (1) deferral of foreign-source income earned through a foreign corporation, and (2) the different treatment of corporate interest expense and dividends. *Id.* at 10, 55.

141. *See* DANIEL N. SHAVIRO, TAXES, SPENDING, AND THE U.S. GOVERNMENT'S MARCH TOWARD BANKRUPTCY 174–93 (2007); Shaviro, *supra* note 134, at 218–21.

142. JCT, RECONSIDERATION, *supra* note 131, at 9.

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B.   EMPHASIZING BEHAVIORAL RESPONSE IN THE PRESENCE OF MARKET FAILURE

Brooks observes that there are two general problems with a perceived need to define a benchmark income tax system as the gateway to classification of particular rules as tax expenditures.[143] First, it is not clear what normative principles underlie such a system.[144] Second, even if such a principle could be identified, operationalizing it involves balancing political and administrative considerations. These problems were similarly emphasized by Bittker,[145] and, as Brooks notes, they do not in any way undermine the usefulness of the tax-expenditure concept, which, as a form of conceptual reasoning, does not depend on "an empirical or normative judgment."[146] Disputes about the precise dividing line between technical tax rules and tax-expenditure provisions do not mean, therefore, that the concept is incoherent and cannot serve its purpose of promoting clarity of thought.[147] Yet, this important point has been buried in the needless debate over a benchmark tax system and the execution of the characterization exercise as a trigger for the accounting and analytical functions associated with the tax-expenditure concept. Indeed, it is arguable that Bittker's original point has been lost with the passage of time and the volume of subsequent literature on the tax-expenditure concept; or worse, it has been misstated in its significance.

Although well intentioned, traditional defenses of the tax-expenditure concept, grounded in the comprehensive tax base tradition, mistakenly tend to mask the significance of the consequential attributes associated with various rule choices as the basis for a necessary distinction between technical tax rules and tax-expenditure provisions.[148] Although technical tax-policy and tax-expenditure analyses both involve consideration of the same consequential attributes, the emphasis is different, particularly where a tax-expenditure program is chosen by the government in discharging its allocative function.[149] As Shaviro suggests, tax-rule choices that are seen as part of the technical architecture under an income tax tend to be made with a focus on the distributional aspects, while balancing them against administrative and compliance costs and efficiency effects.[150] These other consequential attributes are thus decidedly secondary in importance. In fact, many of the features of a Haig–Simons or comprehensive tax base are presumably preferred because of the perceived distributional effects.[151] Revenue is ideally raised in a distributionally appealing manner at the lowest possible administrative and

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143. Brooks, *supra* note 114, at 235; *see also* Kraan, *supra* note 129, at 124.
144. Brooks, *supra* note 114, at 235.
145. Bittker, *supra* note 126, at 932.
146. Brooks, *supra* note 114, at 234.
147. *See id.*
148. *See, e.g.*, Fleming & Peroni, *supra* note 113, at 449.
149. *Id.*
150. SHAVIRO, *supra* note 141, at 183–90; Shaviro, *supra* note 134, at 207–13.
151. SHAVIRO, *supra* note 141, at 183.

compliance cost, with tolerable efficiency costs attributable to behavioral response to the change in price occasioned by the particular tax rule. All else being equal, the rule that changes behavior least should be preferred because of its smaller deadweight loss. But as Bittker emphasized early on, there are many rule choices that involve ambiguous distributional effects.[152] In these instances, considerations of administration and compliance, along with tax politics and possible behavioral response, tend to move to the forefront of policy analysis.[153]

Where a tax rule is chosen as an instrument to induce a behavioral response, the emphasis of the associated policy analysis obviously changes. Shaviro argues, for example, that the government in this instance is discharging its allocative function, and distributional effects are decidedly secondary.[154] This altered emphasis requires policymakers to invoke budgetary criteria in assessing the particular rule choice that is intended to induce the behavioral response. Consequently, the analysis of the associated efficiency effects is no longer framed in terms of deadweight loss. A market failure requiring government spending in the form of the posited tax benefit must be identified,[155] and the welfare gain associated with the intended behavioral response should be estimated and weighed against the expected cost of providing the benefit measured as the sum of:

- administrative costs; and
- windfall gains attributable to the delivery of benefits to economic units that would engage in the desired behavior irrespective of the availability of any such benefits.

This quantitative targeting feature will be a function, in part at least, of the qualitative targeting aspects of the tax-rule choice. Over-inclusiveness will result in costs in the form of inframarginal gains. Under-inclusiveness will result in a range of economic units being excluded from the provision of benefits even though their behavior would be affected in the intended manner. In terms of rule choice, delivery of the program through the tax system should be compared with alternative policy instru-

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152. Bittker, *supra* note 126, at 948.

153. *See id.* at 932.

154. SHAVIRO, *supra* note 141, at 183–91.

155. An example of the analytical significance of different framing of the efficiency effects attributable to different tax treatments is the consumption tax treatment of savings for retirement, which may be justified as an instrument to correct certain cognitive biases that otherwise result in a suboptimal level of savings. *See, e.g.*, AKERLOF & SHILLER, *supra* note 55, at 116–30. This framing, and the policy analysis that follows, is much different than that associated with the debate over the merits of the treatment of savings generally under a consumption versus an income tax, which centers on an assessment of the distributional and efficiency effects of the two possible treatments. Resolution of this timeless policy debate does not depend, in any way, on positing a market failure to be corrected by invoking a tax-based policy instrument. *See, e.g.*, SHAVIRO, *supra* note 141, at 181 (noting the objection of consumption tax advocates to the characterization of the consumption tax treatment of savings as a tax expenditure).

ments independent of the tax system,[156] since it is not a choice among alternative tax rules. Finally, the program itself, irrespective of the choice of delivery mechanism, should be assessed in terms of the government's policy and spending priorities.

The characterization of a particular rule embedded in the income tax system as either a tax-expenditure provision or a technical tax rule can thus be seen as contingent on its rationale. This point was emphasized some time ago by McIntyre, who argues that the tax system does not have to be unambiguously divided into technical tax rules and tax expenditures.[157] If a particular rule is, or has been, justified as a spending provision, it should be analyzed as a spending program.[158] As a means of conceptual reasoning, the tax-expenditure concept should be invoked whenever a rule embedded in the tax system is intended, or can be seen to be intended, to induce a particular behavioral response to correct a market failure, and the government is thereby performing its allocative function.[159] Where the classification of a particular rule might otherwise be contentious, McIntyre's classification paradigm errs on the side of a tax-expenditure characterization on the presumption that the provision of additional budgetary accounting information is useful, while enriching the policy analysis can only enhance discharge of the policymaking function.[160] McIntyre's approach to the articulation of the tax-expenditure concept also embraces what are sometimes referred to as "negative tax expenditures" as a class of rules that do not provide a tax benefit for particular behavior but impose an additional tax or tax penalty.[161] Such provisions are commonly intended to correct a market failure by increasing the cost of the targeted behavior and are nothing more than Pigouvian corrective taxes; they should be analyzed in the same manner as tax expenditures generally because they are intended, or can be seen to be intended, to induce a behavioral response.

By reconsidering the justification for some selected provisions that are commonly seen as technical tax rules, Parts IV and V illustrate the contingent nature of tax-expenditure classification and analysis emphasized by McIntyre. With moderation of excessive leverage and risk taking as

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156. *See* David A. Weisbach & Jacob Nussim, *The Integration of Tax and Spending Programs*, 113 YALE L.J. 955, 962–63 (2004) (emphasizing the relatively low delivery costs of tax-expenditure programs).

157. Michael J. McIntyre, *A Solution to the Problem of Defining a Tax Expenditure*, 14 U.C. DAVIS L. REV. 79, 82 (1980). McIntyre's argument was subsequently massaged by Victor Thuronyi. *See* Victor Thuronyi, *Tax Expenditures: A Reassessment*, 1988 DUKE L.J. 1155, 1156 (1988) (proposing that a tax provision should be analyzed as a tax expenditure if it functions as a spending program). *But see* Brooks, *supra* note 114, at 235 (arguing that a functional approach identifies a majority of tax expenditures, but fails to do so in the case of some significant tax rules that are so overinclusive they have no direct spending analogue).

158. McIntyre, *supra* note 157, at 100.

159. *See id.* at 101.

160. *See id.*

161. *See, e.g.*, JCT, RECONSIDERATION, *supra* note 131, at 9 (labelling as a "negative tax subsidy" any provision that deliberately overtaxes as compared to the general rule).

the policy goal, it is suggested that some provisions can be framed as tax subsidies while others can be framed as corrective taxes. More particularly, tax-expenditure analysis moves the assessment away from a focus on consistency of tax treatment along the relevant behavioral margins to a focus on inconsistency as a means to bias behavior. Many provisions that are conventionally characterized as part of the technical tax structure can be characterized as tax expenditures intended to induce particular behavioral responses in the presence of market failure, with much the same result in terms of rule choice supported by familiar technical tax-policy arguments. These arguments are especially important given that a tax-expenditure characterization of various rule choices highlights a significant targeting problem: an inability to precisely calibrate the required amount of any tax subsidy or corrective tax. Taxation, however, clearly plays a secondary role to the use of regulatory instruments on the supply side of capital markets as a means to moderate excessive leverage and risk-taking. This secondary role may mean that the quantitative targeting dimension is not as severe as it would be if a tax-based instrument were chosen as the principal instrument.[162] Moreover, much of the qualitative targeting dimension can be adequately executed. At a minimum, many of the practical considerations that have been seen to justify the particular tax-rule choices receive some enhancement from the application of tax-expenditure analysis.

At the price of some confusion, therefore, the following two Parts slide back and forth between technical tax-policy analysis and tax-expenditure analysis in assessing tax-rule choices for the treatment of: (1) returns to corporate debt and equity, (2) losses, and (3) interest expense of individuals. It is hoped that this admittedly confusing mode of analysis illustrates the need for flexibility in the use of both sets of policy tools in areas where the line between technical tax rules and tax-expenditure provisions is somewhat blurred.

IV. DIVIDEND IMPUTATION SYSTEMS, CORPORATE CAPITAL STRUCTURE, AND MARGINS OF SAFETY

In the context of an explicit policy goal of moderation of financial instability, the tax-policy literature highlights a tax bias in favor of corporate debt, which is characteristic of most corporate income tax systems, as the most significant tax distortion requiring reform.[163] Moving from a conventional micro to a macro focus, this tax bias is seen to induce an excessive level of debt in the corporate sector generally, which leaves it vulnerable to economic downturns.[164] A tax-rule choice that realizes

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162. *See, e.g.,* Slemrod, *supra* note 5, at 389 (suggesting that some insight may be gained from applying the economics of Pigouvian taxes to systemic financial risk); *see also* Shackelford, Shaviro & Slemrod, *supra* note 5, at 10–15 (emphasizing the difficulties in the design of Pigouvian taxes as a means to address systemic risk in the financial sector).

163. *See, e.g.,* IMF, *Crisis-Related Issues, supra* note 5, at 5–12; *see also supra* note 5 and accompanying text.

164. IMF, *Crisis-Related Issues, supra* note 5, at 12–13.

complete consistency of treatment of returns to debt and equity finance would eliminate this instability-breeding bias. Depending on the particular parameters, a tax-rule choice that realizes something less than complete consistency of these same returns would mute, but not eliminate, the same bias. In an effort to realize complete consistency of tax treatment, the IMF paper, for example, advocates adoption of an allowance for corporate equity (ACE) system[165] as a preferred reform option; it is reluctant, however, to go further and recommend use of a tax penalty for debt finance, presumably because of the difficulty determining the appropriate level of such a penalty that would force firms to internalize the negative spillover effects associated with excessive leverage. By eliminating the tax bias for debt financing, it is apparently assumed that a range of otherwise suboptimal investments will be forgone, with a reduction in the level of corporate leverage as an important secondary benefit. It is also apparently assumed that elimination of a tax bias in favor of corporate debt will induce a range of corporations to maintain stable hedge-finance states.

In advocating a strong form of consistent tax treatment, the IMF paper ignores some important policy constraints associated with the presence of tax exempts and nonresident investors. These constraints mean that realization of consistent treatment for the entire range of investors is unrealistic, leaving a compromised application of dividend imputation systems as the preferred alternative to the double taxation of equity returns under classical corporate income tax systems. This compromised application manifests itself in two principal respects:

- maintenance of a debt tax bias for tax-exempt and nonresident investors; and
- provision of an equity tax bias for a range of taxable investors.

This Part suggests that the latter can be framed as a tax-expenditure program intended to promote maintenance of margins of safety. But this bias must be supported with a comprehensive deductibility limitation for corporate interest expense, which is the necessary tax penalty analogous to a corrective tax for debt finance under dividend imputation systems with incomplete consistency of taxation of debt and equity returns as a persistent feature in the presence of tax-exempt and nonresident investors.

A. INCONSISTENT TAXATION OF DEBT AND EQUITY RETURNS AND THE SIGNIFICANCE OF CORPORATE/INVESTOR RATE RELATIONSHIPS

Standard country practice permits the accrual-based deduction of corporate interest expense while requiring the inclusion of interest income

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165. The ACE system was originally proposed in a study sponsored by the UK Institute for Fiscal Studies. *See* INSTITUTE FOR FISCAL STUDIES, EQUITY FOR COMPANIES: A CORPORATION TAX FOR THE 1990s 2 (1991).

by debtholders on the same basis.[166] Dividends are non-deductible for issuers and are taxable to shareholders, with or without credit for corporate tax paid on the underlying income.[167] Taking this different treatment as a given, the IMF paper provides a succinct review of the rate relationships that are the source of a tax bias in favor of debt for a range of investors.[168] In fact, the parameters of these relationships are the subject of a deep corporate finance literature[169] on the theory of an optimal capital structure, which lowers the after-tax cost of capital and maximizes shareholder wealth through the judicious use of debt. This literature begins with the work of Franco Modigliani and Merton Miller (MM) and their fundamental insight stated in the form of the following proposition: In the absence of taxes, the value of a corporation is independent of its capital structure, and corporate debt policy is irrelevant.[170] Their irrelevance proposition follows from two simple premises: first, that the value of a corporation is equal to the present value of the expected cash flows from its assets; and second, that the relative mix of debt and equity securities divides those expected cash flows among investors.[171] Accordingly, the sum of the present value of the expected cash flows associated with the outstanding debt and equity securities of a corporation must equal the present value of the expected cash flows associated with the underlying corporate assets.[172] Critical to this proposition is a requirement of perfect capital markets (for example, the absence of information asymmetries) and a resultant insensitivity as between the investment policy of a corporation and its borrowing policy.[173] Under those conditions, the value of two corporations with the same asset profile must be equivalent, whatever their mix of debt and equity securities. This equivalence holds because any alteration of the risk and return mix realized by an alteration of the relative mix of corporate-level debt and equity can be replicated by investors through the substitution of investor-level debt for corporate-level debt. Investors will not pay a premium for shares of corporations with capital structures that have a mix of debt and equity, since any changes in the mix of corporate-level debt and equity securities are only

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166. *See* IMF, *Crisis-Related Issues, supra* note 5, at 5.

167. An exemption for inter-corporate dividends ensures that there is only one level of corporate income tax on equity earnings.

168. IMF, *Crisis-Related Issues, supra* note 5, at 5–8.

169. For accessible surveys of this literature, see Murray Z. Frank & Vidhan K. Goyal, *Trade-off and Pecking Order Theories of Debt, in* 2 HANDBOOK OF EMPIRICAL CORPORATE FINANCE: EMPIRICAL CORPORATE FINANCE 135 (B. Espen Eckbo ed., 2008); John R. Graham, *Taxes and Corporate Finance: A Review*, 16 REV. FIN. STUD. 1075 (2005); Milton Harris & Artur Raviv, *The Theory of Capital Structure*, 46 J. FIN. 297, 297 (1991).

170. Franco Modigliani & Merton H. Miller, *Reply to Heins and Sprenkle*, 59 AM. ECON. REV. 592, 592 (1969); Franco Modigliani & Merton H. Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, 48 AM. ECON. REV. 261, 268–69 (1958) [hereinafter Modigliani & Miller, *Cost of Capital*].

171. Modigliani & Miller, *Cost of Capital, supra* note 170, at 262.

172. *Id.*

173. There must also be no additional transaction costs associated with personal borrowing as a substitute for corporate borrowing. *Id.*

changes in portfolio composition.[174]

As emphasized by MM, the introduction of taxes alters their analysis, primarily because of a tax bias in favor of corporate debt, which can be used to lower the after-tax cost of capital.[175] In particular, the deductibility of interest expense permits the distribution of corporate income free of the corporate-level tax.[176] Because of this shield from the corporate income tax provided by the interest expense deduction, corporate debt generates an increased after-tax return and lower cost of capital; in an important sense, the tax shield is an asset that adds value to a corporation and induces the issue of more debt than would otherwise occur in a world without taxes.[177] An extensive literature[178] is important, however, for its emphasis on the more complex rate relationships that determine whether, in the aggregate, there is: (1) a tax bias in favor of debt or equity, and (2) an optimal capital structure for particular corporations. In general, the focus of this literature is the expansion of the original MM analysis to account for the effect of investor-level taxes on debt and equity returns, as well as the impact of different effective corporate tax rates.[179] To some extent, these additional factors operate to reduce, offset, or both reduce and offset the present value of the tax shield from the corporate interest deduction, which reduces the tax bias in favor of debt. But even after accounting for differences in corporate and investor-level tax rates, there remains a general tax bias in favor of debt which arises largely because the investor-level tax on interest income is less than the two levels of tax on equity income for a range of investors.[180] The present value of the tax shield provided by the corporate interest deduction is sufficient, therefore, to induce corporations to issue more debt than they would in the absence of income taxes. The equilibrium point at which the present value of the tax shield equals the tax rate of the marginal investor is, in a general sense, drawn at a point that indicates a tax preference for corporate debt for a range of investors.

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174. A necessary implication of the irrelevance of corporate debt policy is the notion that the expected return on the shares of a leveraged corporation increases in proportion to the debt–equity ratio. The increase in expected return occurs as an offset to the increase in risk borne by the shareholders of a leveraged corporation. Because the presence of corporate debt does not affect the expected operating income of the corporation or the total market value of its securities, the presence of borrowing does not affect the expected return on the underlying assets. All that is affected is the division of that return among investors.

175. Merton H. Miller, *Debt and Taxes*, 32 J. FIN. 261, 262 (1977).

176. *Id.* at 266.

177. *Id.*

178. *See* Joseph E. Stiglitz, *Taxation, Corporate Financial Policy, and the Cost of Capital*, 2 J. PUB. ECON. 1, 6 (1973); *see also* Graham, *supra* note 169, at 1077–1104 (surveying the extensive empirical literature on the relationship between taxes and corporate financial structure).

179. *See supra* note 178 and accompanying text.

180. *See, e.g.*, Slemrod, *supra* note 5, at 388 (observing that the presence of tax-exempt investors means that an overall preference for corporate debt finance "almost certainly prevails").

As explanations of this equilibrium, the trade-off and agency theories of corporate capital structure posit that debt is issued to the point that direct and indirect costs of financial distress are equal to or less than the value of the associated tax shield.[181] In effect, the tax advantage associated with the deductibility of corporate interest expense induces a substitution of debt for equity to the point that the instruments are no longer perfect substitutes, and the substitution is considered inefficient because of the related nontax costs—both direct and indirect. Direct costs consist of the administrative and legal costs incurred in bankruptcy or a comparable legal proceeding that is invoked as the mechanism governing the orderly breakup or reorganization of an insolvent corporation.[182] Indirect costs consist of the more intangible costs associated with difficulties encountered in the operation of a corporation as a going concern or in financial distress short of bankruptcy proceedings.[183] These costs include the inefficiencies associated with asset substitution and underinvestment, which occur because of shareholders' decisions to pursue risky investments with zero or negative present values, as well as their decisions to forgo investments that would otherwise add value to a corporation.[184]

In an attempt to prevent potential gaming by shareholders, creditors typically require restrictions and covenants limiting actions that might be detrimental to the value of the issued debt. Negotiation of these more complex contracts involves legal and administrative costs, along with monitoring costs incurred to ensure that the specified restrictions are observed. In this respect, Minsky's financial instability hypothesis posits that the necessary calibration of the nontax costs associated with debt financing fails during a period of prolonged prosperity, with a range of borrowers and their lenders overstating the adequacy of margins of safety as they move from hedge finance to speculative or Ponzi finance states.[185] With understatement of the associated nontax costs of debt finance, a tax bias for corporate interest expense is problematic as a further impetus to

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181. *See* sources cited *supra* note 169. *But see* Roger H. Gordon, *Taxation and Corporate Use of Debt: Implications for Tax Policy*, 63 Nat'l Tax J. 151 (2010) (reviewing the literature on capital structure theory and characterizing the market for corporate debt as presenting a classic lemons problem, which explains the under-use of corporate debt given the prevailing tax bias).

182. The direct costs of financial distress attributable to bankruptcy proceedings are relatively easy to quantify; however, as most studies have concluded, such costs are relatively insignificant when measured as a percentage of asset value. For a pioneering study of bankruptcy costs as a percentage of asset value, see Jerold B. Warner, *Bankruptcy Costs: Some Evidence*, 32 J. Fin. 337, 343 (1977) (examining eleven railroad bankruptcies in the United States and finding that, on average, the costs were only 5.3% of the value of all outstanding debt and equity of the corporations immediately before bankruptcy and only 1.4% five years before bankruptcy). *But see* Edward I. Altman, *A Further Empirical Investigation of the Bankruptcy Cost Question*, 39 J. Fin. 1067, 1067 (1984) (finding that bankruptcy costs are not trivial).

183. *See* Warner, *supra* note 182, at 338.

184. *See* Altman, *supra* note 182, at 1071.

185. *See, e.g.*, Geanakoplos, *supra* note 95, at 20 (observing that managers of borrowing funds do not typically fully internalize the costs of bankruptcy to society, including systemic risk attributable to falling asset prices in a debt deflationary environment).

excessive risk taking.[186] Although it is now recognized that excessive leverage can be seen as a negative externality at a macro level,[187] the focus of the tax-policy literature has been the firm-level distortion of investment that arises because of the negative cost of capital attributable to the combination of the corporate interest expense deduction and accelerated depreciation. In this tax environment, investments that are not profitable in the absence of taxes become profitable because of the tax system.

As noted above, the ACE system is preferred in the IMF paper as one particular approach that realizes consistency of treatment of the returns on corporate debt and equity and thereby equalizes the after-tax cost of both forms of capital.[188] Under the ACE system, the corporate interest expense deduction is maintained, and a normal return is imputed on equity for deductibility purposes.[189] This return, as well as interest income, is exempt for holders; any return in excess of the normal rate is subject to tax at both the corporate and shareholder levels.[190] The ACE system is thus a nondistortive tax on economic rents, with consumption tax treatment of normal returns.[191] But as acknowledged in the IMF paper, there is only limited country experience with the ACE system,[192] which presents some difficult technical issues, including transitional problems and inconsistency with the different premises of the international tax status quo.[193] Perhaps most importantly, the extension of interest imputa-

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186. But see Michael S. Knoll, Taxing Prometheus: How the Corporate Interest Deduction Discourages Innovation and Risk-Taking, 38 VILL. L. REV. 1461, 1465–66 (1993) (arguing that the corporate interest deduction favors relatively safe projects involving the acquisition of tangible assets such as real estate and equipment as well as mature corporations with established credit records).

187. See IMF, Crisis-Related Issues, supra note 5, at 10; see also Slemrod, supra note 5, at 388 (noting the failure of public finance economists to account for spillover effects attributable to excessive leverage).

188. IMF, Crisis-Related Issues, supra note 5, at 14.

189. Id.

190. Id.

191. Edward Kleinbard's business enterprise income tax (BEIT) also entails a deduction for an imputed cost of corporate capital—both equity and debt—equal to a normal rate, but with taxation at the investor level on an accrual basis. EDWARD D. KLEINBARD, REHABILITATING THE BUSINESS INCOME TAX 10 (2007). The BEIT is thus consistent with an income tax imposed on the normal rate of return to both debt and equity capital. Id. Returns in excess of the normal rate would be taxed in a manner broadly similar to the ACE system. See id. at 38 n.41; Edward D. Kleinbard, Designing an Income Tax on Capital, in TAXING CAPITAL INCOME 165, 178–79 (Henry J. Aaron, Leonard E. Burman & C. Eugene Steuerle eds., 2007).

192. See Michael Keen & John King, The Croatian Profit Tax: An ACE in Practice, 23 FISCAL STUD. 401, 401 (2002); Alexander Klemm, Allowances for Corporate Equity in Practice, 53 CESIFO ECON. STUD. 229, 229–30 (2007); see also IMF, Crisis-Related Issues, supra note 5, at 14–15 (noting that adoption of an ACE system in Croatia may have reduced corporate income tax revenues by one-third, while the Fiscal Affairs Division of the IMF estimates that a revenue reduction of approximately one percentage point of gross domestic product has been experienced elsewhere).

193. See, e.g., John Isaac, A Comment on the Viability of the Allowance for Corporate Equity, 18 FISCAL STUD. 303, 304–05 (1997). There is no country experience with the BEIT system, which suffers from many of the same problems. See Alvin C. Warren, Jr., The Business Enterprise Income Tax: A First Appraisal, 118 TAX NOTES 921, 921 (2008). But see Edward D. Kleinbard, BEIT Proponent Kleinbard Responds to Warren's Critique,

tion to equity capital for deductibility purposes entails revenue loss, primarily because of the presence of tax-exempt and nonresident investors.[194] This revenue loss has tended to make the ACE system impractical in the presence of a budget constraint.

Denial of the corporate interest expense deduction is an obvious tax-reform alternative which attempts to realize consistency of treatment of returns to debt and equity while moderating revenue effects. This approach is developed most completely in the 1992 study by the U.S. Department of the Treasury proposing a comprehensive business income tax (CBIT).[195] For various reasons, including its taxation of debt returns to tax exempts, the CBIT system is also problematic.[196] The Nordic dual income taxes (DITs), which are probably the closest operationalization of a CBIT system, attempt to manage some of these problems by maintaining the corporate interest expense deduction and applying the corporate income tax on equity income either as a final tax (exemption at the shareholder level) or as a withholding tax (dividend imputation approach).[197] In fact, as a particular expression of a CBIT system, the Nordic DITs have received considerable support in the tax-policy literature.[198] Much of their attractiveness lies, however, in the application of a single rate to

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118 Tax Notes 1043, 1044–45 (2008); Daniel N. Shaviro, *Why the BEIT Proposal Shouldn't Be Discounted*, 118 Tax Notes 1048, 1048 (2008).

194. *See, e.g.*, David A. Weisbach, *Reconsidering the Accrual of Interest Income*, 78 Taxes 36, 43–44 (2000) (emphasizing the net revenue loss from a comprehensive, accrual-based deduction/inclusion system in the presence of tax-exempt investors). New Zealand is the only OECD country without any form of consumption tax treatment for retirement savings. *See* Lisa Marriott, *Taxation of Retirement Savings: New Zealand—The Extreme Experiment*, 22 Austl. Tax F. 93, 94–95 (2007).

195. U.S. Dep't of the Treasury, Report of the Department of the Treasury on the Integration of the Individual and Corporate Income Tax Systems: Taxing Business Income Once 39–60 (1992). Interest and dividends both would be nondeductible at the corporate level and would be exempt from investor-level taxation. *Id.* at 39. For a comparison of possible welfare effects under the ACE and CBIT systems, see generally Doina Maria Radulescu & Michael Stimmelmayr, *ACE versus CBIT: Which is Better for Investment and Welfare?*, 53 CESifo Econ. Stud. 294 (2007). *See also* Ruud A. de Mooij & Michael P. Devereux, *Alternative Systems of Business Tax in Europe: An Applied Analysis of ACE and CBIT Reforms* (European Commission, Taxation Paper No. 17, 2009), *available at* http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_papers/taxation_paper_17_en.pdf.

196. *See* IMF, *Crisis-Related Issues, supra* note 5, at 13–14 (noting the transitional difficulties presented by a CBIT system in dealing with pre-existing debt as well as the possible denial of foreign tax credits and the need for a specialized regime for banks). Taxation of the same returns at higher rates for nonresidents means that the tax is unlikely to be creditable by those capital-exporting countries with foreign tax credit systems for foreign-source income. The recent move by Japan and the United Kingdom to an exemption system for business income from outbound direct investment leaves the United States as the only major capital exporter operating a foreign tax credit system. *See* Arthur J. Cockfield, Advisory Panel on Canada's System of International Taxation, Examining Policy Options for the Taxation of Outbound Direct Investment 22, 24, 26 (2008).

197. Peter Birch Sorensen, *The Nordic Dual Income Tax: Principles, Practices, and Relevance for Canada*, 55 Can. Tax J. 557, 562 (2007).

198. For a recent and comprehensive account of the Nordic DITs as an option for reform, see generally Sorensen, *supra* note 197; *see also* Edward D. Kleinbard, *An American Dual Income Tax: Nordic Precedents*, 5 Nw. J. L. & Soc. Pol'y 41 (2010).

all forms of capital income, which permits the use of an interest-withhold-ing tax on deductible interest expense.[199] The benefits of this single-rate structure are largely forgone where exceptions must be made for tax-ex-empt and nonresident investors, with a zero rate applied to their interest income returns and the single rate for capital income applied to equity returns through nonrefundability of dividend imputation credits. Where these features are maintained, much of the attractiveness of a DIT system is undermined, and it tends to converge with existing dividend imputation systems in its realization of an incomplete consistency of taxation of debt and equity returns.

It is suggested below in Part IV.B that this incomplete consistency of treatment of the returns to corporate debt and equity, which is character-istic of most dividend imputation systems, can be seen as a preferred tax-rule choice when policymakers move from the standard micro focus that has informed tax-policy analysis to a tax-expenditure perspective focused on excessive leverage at a macro level. In short, what is commonly viewed as a weakness of dividend imputation systems, but a necessary concession to revenue, administration, and compliance considerations, looks much different when viewed in this different policy light. It may even be appropriate to provide a preferential tax rate for share gains as a means to support a retention bias.

B. Incomplete Consistency Under Dividend Imputation Systems and Maintenance of Margins of Safety

Dividend imputation systems ideally ensure that only the shareholder-level tax is ultimately paid on distributed equity income, and the tax sys-tem is consistent in its treatment of the returns to debt and equity. This condition holds provided that the corporate income tax rate and the high-est marginal personal income tax rate are equivalent, and shareholders receive full imputation credits for corporate tax on the underlying income from which dividends are paid. Under these strict parameters, a dividend imputation system ensures that the corporate income tax operates as a withholding tax on equity income, and there is no preference for debt or equity finance.[200] To varying degrees and for various reasons, however,

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199. Neil Brooks, *An Overview of the Role of the VAT, Fundamental Tax Reform, and a Defence of the Income Tax, in* GST in Retrospect and Prospect 597, 646–48 (Richard Krever & David White eds., 2007).

200. The "old view" of dividend taxation holds that the tax cost associated with divi-dend payments is traded off against nontax benefits, such as their signaling function and constraint on managerial discretion. Shaviro, *supra* note 19, at 73. In contrast with the "old view" of dividend taxation, the "new view" holds that, under specified conditions, the timing of dividend payments is irrelevant and there is no deferral benefit associated with retention of earnings. *Id.* at 74. One of the specified conditions is, however, equivalence of corporate and personal income tax rates. *Id.* at 72. Where the latter exceeds the former, there is a tax benefit to deferring dividend distributions. *See id.* at 73–88 (reviewing the old and new view of dividend taxation, including the empirical literature attempting to deter-mine which view has greater explanatory power); *see also* Graham, *supra* note 169, at 1104–11 (surveying the extensive empirical literature exploring the relationship between taxes and dividend payout policy).

national tax policymakers have failed to realize complete consistency of the returns to equity and debt for a range of investors. Although the policy pieces tend to be seen as the result of discrete technical tax-policy considerations, it is suggested here that the ostensibly incoherent whole can be rationalized as a tax-expenditure program intended to promote maintenance of margins of safety in the corporate sector.

The IMF paper does not discuss dividend imputation systems in any detail,[201] presumably because of certain structural features that combine to undermine consistency of treatment of debt and equity returns. Three important features with this effect are:

- limitation of imputation credits to taxable resident shareholders of domestic corporations;
- provision of unfunded imputation credits computed as a function of statutory corporate income tax rates rather than effective rates; and
- adoption of a statutory corporate income tax rate that is lower than the highest marginal personal income tax rate.

For a range of taxable investors, each of these features lowers the tax rate on equity income and provides a preference for such investment over debt. Although this equity bias tends to be accepted by national tax policymakers as the tolerable outcome of structural compromises,[202] it may also be justified on tax-expenditure grounds. As an illustrative example of this kind of policy flexibility, limitation of the Canadian dividend tax credit (DTC) to resident individuals holding shares of "taxable Canadian corporations"[203] has sometimes been justified on technical tax-policy grounds and sometimes on the basis of two related subsidy rationales.[204] One subsidy rationale posits that the DTC is provided as a nec-

201. *See generally* IMF, *Crisis-Related Issues, supra* note 5. For a general description of dividend imputation systems in some selected countries, see Hugh J. Ault & Brian J. Arnold, Comparative Income Taxation 405–09 (3d ed. 2010). Australia and New Zealand operate full imputation systems whereby credit is provided only to the extent of corporate tax paid on the underlying income. *See id.*

202. *See, e.g.*, Fookes, *supra* note 134, at 18 ("Double taxation provisions would not be reported [that is, as tax expenditures] as they seek to align effective tax rates between different tax structures. For instance imputation credits align tax on investment income with personal tax rates. This is not motivated by any alternative policy goal.").

203. *See* Income Tax Act, R.S.C. 1985 c. 1 pt. 1, § 89(1) (Can.) (defining a "taxable Canadian corporation" as a corporation that is incorporated in Canada and not statutorily exempt from income tax).

204. *See* Tim Edgar, *Integration Canadian Style: Comments on the Dividend Tax Credit and the Recommendation of the Ontario Fair Tax Commission*, 9 Tax Notes Int'l 1231, 1237–38 (1994). For a complete historical account of the DTC, see Neil Brooks, *Taxation of Closely-Held Corporations: The Partnership Option and the Lower Rate of Tax*, 3 Austl. Tax F. 381, 417–41 (1986). In the federal government's 1979, 1980, and 1981 tax-expenditure accounts, the DTC was characterized and accounted for as a tax expenditure. Edgar, *supra*, at 1236. In the 1985, 1992, and 1993 tax-expenditure accounts, this practice was changed, and the DTC was characterized as a partial integration mechanism, although its value as a tax expenditure was included as a memorandum item. *Id.* Subsequent tax expenditure accounts are consistent with a characterization of the DTC as a technical tax provision. *Id. But see* Robin Boadway, *The Annual Tax Expenditure Account—A Critique*, 55 Can. Tax J. 106, 125 (2007) (suggesting that the DTC warrants classification as a tax expenditure because it does not accomplish the technical tax policy goal of avoidance of double taxation).

essary stimulus for investment in Canadian corporations.[205] Proponents of this view apparently believe that, by reducing the burden of the double taxation of corporate income, the DTC should lead to increased equity investment in the Canadian corporate sector.[206] This result is presumably achieved through an increase in the after-tax return on dividend income, which is assumed to translate into increased savings, a lower cost of capital, and increased growth.[207] A related subsidy rationale posits that the DTC is provided to encourage Canadian share ownership.[208] This result presumably occurs because of the reduction in personal income tax provided by the DTC, which serves as an incentive for resident individuals to purchase shares of Canadian corporations, with assumed spillover benefits.[209] Yet this very same feature of the DTC—limitation to resident individuals holding shares of taxable Canadian corporations—has also been justified as a technical design feature.[210] In particular, the unavailability of the DTC for tax exempts and nonresidents is sometimes supported on the basis of the prohibitive revenue cost of extending the credit on a refundable basis to these shareholders.[211] Similarly, provision of dividend–imputation credits on an unfunded basis—provision on an assumed amount of corporate tax paid as a function of the statutory rate—has also been justified on technical tax-policy grounds, such as administrative simplicity; or, alternatively, as a means of allowing the benefit of corporate losses and tax incentives to be passed on to shareholders as a tax subsidy, with the lower effective tax rate reflected in an assumed lower cost of equity capital.[212]

Consistent with these other compromised features of dividend imputation systems, adoption of a statutory corporate tax rate that is lower than the highest marginal personal rate may also be rationalized as the out-

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205. Edgar, *supra* note 204, at 1238.

206. *Id.*

207. The DTC was enhanced for resident individuals owning shares of publicly-traded Canadian corporations as a response intended to suppress demand for the income-trust structure and its associated debt-equity substitution. *See* Press Release, Dep't of Fin. Can., Minister of Finance Acts on Income Trust Issue (Nov. 23, 2005), *available at* http://www.fin.gc.ca/n05/05-082-eng.asp. The proposal was implemented in legislation effective for dividends paid after 2005. *See* Tim Edgar, *Canadian Income Trust Saga: Over, or Headed for a Junk Bond Phase?*, 45 TAX NOTES INT'L 755, 755 (2007). Revenue cost apparently necessitated continued denial of the DTC for tax-exempts with the result that enhancement of the DTC did not suppress demand for the income-trust structure from this tax clientele. *Id.* A subsequent legislative response was required to completely shut down the income-trust structure. *See id.* For a discussion of a system of full integration as a systemic response intended to eliminate the income trust market, see generally Lalit Aggarwal & Jack Mintz, *Income Trusts and Shareholder Taxation: Getting It Right*, 52 CAN. TAX J. 792 (2004); Jack M. Mintz & Stephen R. Richardson, *Income Trusts and Integration of Business and Investor Taxes: A Policy Analysis and Proposal*, 54 CAN. TAX J. 359 (2006).

208. Edgar, *supra* note 204, at 1238.

209. *Id.*

210. *Id.* at 1238–39.

211. *See, e.g.*, Mintz & Richardson, *supra* note 207, at 392–94 (estimating annual revenue loss of $2.6 billion from the provision of a refundable DTC for tax exempts in Canada).

212. Edgar, *supra* note 204, at 1240–41.

come of technical tax-policy considerations or as a tax-expenditure provision. With respect to the former rationale, competition for mobile direct investment has placed considerable downward pressure on corporate tax rates. The result of this trend is that the statutory rate in many countries is lower than the shareholder-level tax rate for a range of investors. This rate gap provides the benefit of deferral through the retention of equity income at the corporate level.[213] As a function of tax competition, the gap is commonly seen as a technical design issue,[214] and, given an inability to stem pressure on the corporate tax rate, some reformers argue that it should be closed though a combination of base-broadening measures under the personal income tax and a lowering of the highest personal marginal rate.[215] But the rate gap can be framed instead in terms of a tax-expenditure rationale that is especially important for the promotion of maintenance of margins of safety. Again, the Canadian experience is instructive.

A lower statutory corporate tax rate has long been provided on a targeted basis for Canadian-controlled private corporations (CCPCs) on a specified maximum amount of annual income from an active business carried on in Canada.[216] This lower rate of corporate tax, and the retention bias it entails where the shareholder tax rate is higher, has sometimes been justified as a technical tax-policy provision intended to realize consistency of tax treatment between closely held corporations and the unincorporated sector with which such corporations are seen to compete.[217] The same lower rate of corporate tax has also been justified, however, as a tax subsidy that is intended either:

- to correct for an equity capital market bias faced by closely held corporations that are small to medium in size;[218] or

- to capture perceived spillover benefits associated with this sector.[219]

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213. *See supra* note 200 and accompanying text.

214. *See* George R. Zodrow, *Corporate Income Taxation in Canada*, 56 CAN. TAX J. 392, 452 (2008).

215. *See, e.g.*, John G. Head & Richard Krever, *Australian Business Income Tax Reform in Retrospect: An Analytical Perspective*, in AUSTRALIAN BUSINESS TAX REFORM IN RETROSPECT AND PROSPECT 17 (Chris Evans & Richard Krever eds., 2009).

216. Income Tax Act R.S.C., c. 1 pt. 1, (5th Supp.) § 125 (1985) (Can.). The specified maximum is currently $500,000, with this amount shared by "associated" CCPCs. For a complete account of the history of this lower rate of corporate tax, see Brooks, *supra* note 204, at 437–50.

217. *See* Boadway, *supra* note 204, at 126 (suggesting that the low rate of corporate tax for CCPCs may be characterized as part of the benchmark rate structure intended to ensure comparable treatment of incorporated and unincorporated small businesses).

218. *See* Brooks, *supra* note 204, at 482–85; Claire Crawford & Judith Freedman, *Small Business Taxation: A Special Study of the Structural Issues Surrounding the Taxation of Business Profits of Owner Managed Firms*, in DIMENSIONS OF TAX DESIGN: THE MIRRLEES REVIEW 1028, 1069–71 (J. Mirrlees et al. eds., 2009); William McCarten, *Evaluating the Costs and Benefits of the Federal Small Business Deduction: A Framework for Tax Expenditure Evaluation* (Aug. 21, 2009) (unpublished manuscript) (on file with author). CCPCs with taxable capital employed in Canada in excess of $15 million lose the benefit of the lower rate. *See* Income Tax Act R.S.C., c. 1 pt. 1, (5th Supp.) § 125(5.1) (1985) (Can.).

219. *See* Brooks, *supra* note 204, at 483, 485–87.

Since it extends equally to the income of widely held corporations and the income of closely held corporations subject to the same general corporate rate, the retention bias that is the result of downward pressure on statutory corporate tax rates from international tax competition is obviously much broader in its effect. Any tax-expenditure rationale probably must change, therefore, from an attempt to correct for equity-capital market biases, or to capture spillover benefits, to a perceived need to promote maintenance of margins of safety at the corporate level generally. In the context of closely held corporations, a significant offsetting effect is a distributional one, with higher-income individuals benefiting disproportionately from the deferral benefit associated with the lower rate. In the context of widely held corporations, an offsetting effect is perceived agency costs arising in the form of managerial "cash burning."[220] In other words, efficiency losses can result because earnings retention may be preferred for tax purposes even though, for nontax purposes, investors would be better off receiving the earnings in the form of dividends and reinvesting the after-tax amount in projects with greater expected returns.[221] The distributional effect can be addressed, in the worst instances at least, by imposing a refundable tax approximating the highest marginal personal rate on retained income that is not reinvested in an active business.[222] The agency-cost effect may be addressed through corporate governance innovations—both regulatory and market based.[223] It

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220. *See, e.g.*, Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 333–34, 337–40, 342 (1976).

221. The apparent need to control agency costs attributable to corporate management's control of excess cash flow is a specific application of the generalized argument for elimination of a perceived tax bias in favor of retention of earnings under a classical corporate income tax. In particular, the nontax significance of the signalling function served by dividend payments is the focus of a substantial literature on the desirability of consistency of tax treatment of distributed and retained earnings. For a review of some of this literature, see Kim Brooks, *Learning To Live with an Imperfect Tax: A Defence of the Corporate Tax*, 36 U. BRIT. COLUM. L. REV. 621, 659–63 (2003). Agency costs are emphasized in some of the literature as a political explanation for the durability of the double tax on equity income. *See* Jennifer Arlen & Deborah M. Weiss, *A Political Theory of Corporate Taxation*, 105 YALE L.J. 325, 326–28, 335–36, 346 (1995). *But see* Michael Doran, *Managers, Shareholders, and the Corporate Double Tax*, 95 VA. L. REV. 517, 521–24 (2009) (emphasizing heterogeneity of interests of shareholders, corporate managers, and third parties in the debate over the desirability of corporate integration and different methods of integration).

222. *See* Income Tax Act R.S.C., c. 1, pt. 1, (5th Supp.) § 129 (1985) (Can.). Much the same problem arises under the Nordic DITs. The lower rate on capital income means that an imputed return on equity capital must be determined for small businesses, both incorporated and unincorporated, which combine the capital and labor inputs of the participants. In effect, the imputed return operates as an upper limit that attempts to limit the ability to disguise labor returns as capital income. The Canadian corporate tax system for closely held corporations permits returns to labor to be taxed at the lower corporate rate equally with returns to financial capital up to the annual business limit for active business income.

223. *See, e.g.*, Jensen & Meckling, *supra* note 220, at 337–39 (emphasizing the use of debt to reduce free cash flow otherwise available to managers where monitoring is costly and imperfect); *see also* Michael C. Jensen, *Eclipse of the Public Corporation*, 67 HARV. BUS. REV. 61, 66–67 (1989) (defending the use of high-yield debt in leveraged buyouts in the 1980s). For a reprise of this argument in the context of the high-yield, subordinated junk debt used in income-trust structures in Canada, see Benjamin Alarie & Edward M.

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is nonetheless unclear whether these offsetting effects can be sufficiently muted to warrant provision of a retention bias as a means of promoting maintenance of margins of safety and a hedge finance state at the firm level. Because acceptance of a corporate/shareholder rate gap may be the more broadly effective tax-rule choice to realize this goal, these offsetting effects are especially significant.

By lowering the cost of equity capital and inducing the issue of new equity capital, the provision of dividend imputation credits for resident shareholders on an unfunded basis may also be rationalized as an attempt to promote maintenance of margins of safety rather than increased domestic ownership of the domestic corporate sector or increased output by that sector. Whatever the particular subsidy rationale, the desired effect may be substantially diluted where national capital markets are well-integrated with international capital markets and are relatively small in the sense that the domestic savings rate has virtually no impact on world interest rates.[224] These conditions mean that the cost of finance for a range of domestic corporations is determined by international capital markets independent of the level of domestic savings. As a result, any increase in the level of domestic savings because of personal income tax reductions may simply result in a reduction in the level of foreign savings invested in domestic corporations or an increase in the level of domestic savings invested in foreign assets. The dominant effect of a limitation of dividend imputation credits to resident investors may thus be a portfolio shift by residents away from debt and into shares of domestic corporations, with nonresidents shifting away from shares of the same corporations. Any stabilizing effect at the corporate level would be realized at the cost of an offsetting assumption of additional risk by households, while providing dubious spillover benefits associated with "national" share ownership.[225] These kinds of offsetting portfolio shifts would arguably occur most readily with large multinational corporations whose shares trade internationally. Viewed in the best possible subsidy light, therefore, limitation of dividend imputation credits to resident individuals may help to reduce equity capital market biases for small and medium-sized domestic corporations that are closely held. For those corporations, dividend imputation can actually result in an increase in the total amount of their equity capital[226] and, through a consequent reduction in their reliance on debt fi-

Iacobucci, *Tax Policy, Capital Structure, and Income Trusts*, 45 CAN. BUS. L.J. 1, 4, 6–8 (2007).

224. *See* ONTARIO FAIR TAX COMM'N, FAIR TAXATION IN A CHANGING WORLD 343 (1993) (recommending restructuring or repeal of the provincial portion of the DTC in the face of increasing integration of capital markets); *see also* Robin Boadway & Neil Bruce, *Problems with Integrating Corporate and Personal Income Taxes in an Open Economy*, 48 J. PUB. ECON. 39, 40–41, 52, 54, 61–62 (1992).

225. *See* Glenn P. Jenkins, *The Role and Economic Implications of the Canadian Dividend Tax Credit*, at v (Econ. Council of Can., Discussion Paper No. 307, 1986) (estimating that the suboptimal allocation of investment portfolios caused by the DTC imposes an annual economic cost of $500 million).

226. *See* Kenneth J. McKenzie, *Income Taxes, Integration, and Income Trusts*, 54 CAN. TAX J. 633, 648–53 (2006) (surveying the mixed evidence for the open-economy model and

nance, an increase in their margins of safety.

In fact, the revenue imperative associated with the provision of refundable credits for tax-exempt and nonresident investors is probably the more compelling basis for the limitation of dividend imputation credits to taxable resident shareholders of domestic corporations. As an incidental effect, denial of imputation credits for tax exempts and nonresidents can mute demand for dividend distributions and reinforce a retention bias with its maintenance of margins of safety.[227] Ideally, a focus on reinforcement of this bias dictates adoption of an advance corporation tax (ACT) applicable to dividend distributions to ensure that imputation credits are available only to the extent of actual tax paid. At its most fundamental level, an ACT attempts to limit the benefit of corporate tax expenditures, as well as any mismeasurement of income through the use of financial accounting conventions, to retained earnings.[228] Washing out of the value of corporate tax preferences and income mismeasurement on distribution is usually based on the empirical premise that the delivery of corporate tax preferences is not sufficiently enhanced through a lower cost of capital associated with the flow through to shareholders. With correction of excessive risk taking through excessive leverage as the policy goal, the associated retention bias is the more important effect. But national tax policymakers must still determine that the administrative and compliance costs associated with an ACT are less than the benefits attributable to such a bias.[229]

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suggesting that the capital market in Canada may be segmented such that the open-economy characterization applies to some investors and corporations while a closed-economy characterization applies to others).

227. By segmenting shareholders, dividend streaming delivers the benefit of tax shielding of corporate income to those shareholders who value it most. Dividend streaming is a significant problem for dividend imputation systems and has required specific anti-avoidance legislation. *See, e.g.*, Mark P. Gergen, *How Corporate Integration Could Kill the Market for Corporate Tax Shelters*, 61 TAX L. REV. 145, 145–48, 153–55, 163–67 (2008) (observing that the provision of full integration through, for example, refundable imputation credits causes different valuations of the benefit of tax shielding among shareholders subject to different tax rates, different investment time horizons, or both).

228. Adoption of an ACT to wash out corporate level preferences on distribution of tax-preferred income may be especially important for the financial services sector in the event that general or dynamic loan loss provisioning is used for regulatory purposes and is accepted, rather than more restrictive specific provisioning, as an additional means of promoting maintenance of margins of safety. *See, e.g.*, IMF, *Crisis-Related Issues, supra* note 5, at 17 (noting that dynamic or general provisioning includes a systematic and mandatory counter-cyclical element but raises tax issues); IMF, *Lessons, supra* note 98, at 13–14 (reviewing various forms of prudential reserve provisioning).

229. For a review of some of the relevant issues, see Edgar, *supra* note 204, at 1240–44. An especially contentious policy issue is the treatment of foreign-source income earned by domestic corporations. Application of a comprehensive ACT treats foreign-source income much like a tax expenditure and washes out any recognition of source-country tax on distribution as a dividend. *See generally* C. John Taylor, *Alternative Treatments for Foreign Source Income in Australia's Dividend Imputation System*, 20 AUSTL. TAX F. 189 (2005) (discussing the effects of a range of alternative treatments of foreign-source income under a dividend imputation system that attempts to ensure that credit is limited to tax-paid corporate income). The administrative and compliance costs of an ACT regime are limited in Canada to preferred shares that can be considered tax-driven debt substitutes. *See* Income Tax Act R.S.C., c. 1, pts. IV.1, VI.1 (5th Supp.) (1985) (Can.).

Denial of imputation credits for tax-exempt and nonresident investors means, of course, that a tax bias in favor of corporate debt continues to hold for such investors. In the absence of a generalized rule of nondeductibility for corporate interest expense, this debt tax bias may be addressed by comprehensive thin capitalization or earnings stripping rules. This particular legislative response is noted only briefly in the IMF paper and is criticized as ad hoc in nature.[230] The characterization may be attributable to the fact that the rationale for, and design details of, existing regimes vary considerably. Even so, there are two emerging trends in such legislation which potentially give it some conceptual coherence.[231] One trend is a move away from a focus on the use of related-party debt as disguised equity in favor of an application to all debt—both related-party and arm's-length debt—in an effort to limit the deductibility of corporate interest expense within a specified leverage ratio.[232] Another trend is a move away from a focus on inbound direct investment to either:

- symmetrical application in the context of outbound and inbound direct investment; or

- application equally in a purely domestic context and a cross-border context (both inbound and outbound).[233]

In the cross-border context, application of thin capitalization legislation to all debt of a corporation can be rationalized as an attempt to limit the tax-driven sourcing of the interest expense of multinational corporate groups in the context of both inbound and outbound direct investment. In the purely domestic context, similar application of thin capitalization legislation can be rationalized as an attempt to moderate the tax bias in favor of debt for a range of investors, including tax exempts and private-equity funds.[234]

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230. IMF, *Crisis-Related Issues, supra* note 5, at 13.

231. *See* Tim Edgar, Jonathan Farrar & Amin Mawani, *Foreign Direct Investment, Thin Capitalization, and the Interest Expense Deduction: A Policy Analysis,* 56 CAN. TAX J. 803, 810–11 (2008).

232. *Id.* at 811.

233. *Id.* at 810–11.

234. The extension in some EU countries of interest deductibility restrictions to arm's-length debt has been motivated by the European Court of Justice's characterization of thin capitalization regimes that are limited to related-party debt in the context of inbound direct investment as a violation of the right to freedom of establishment under the EC Treaty. *See* Christoph Kaserer, *Restricting Interest Deductions in Corporate Tax Systems: Its Impact on Investment Decisions and Capital Markets* 5 (European Private Equity & Venture Capital Ass'n, Special Paper, 2008), *available at* http://ssrn.abstract=1130718 (suggesting that the adoption of thin capitalization and earnings-stripping legislation applicable to arm's-length, as well as related-party debt, has been motivated by concern over income shifting by multinationals and the high leverage ratios resulting from corporate acquisitions by private-equity funds); *see also* OECD, *supra* note 5, at 19 (suggesting that country "best practice" standards should be developed for the application of thin capitalization rules to leveraged buyout cases); *Council Resolution of 8 June 2010 on coordination of the Controlled Foreign Corporation (CFC) and thin capitalisation rules within the European Union,* at 2, COM (2010) 156 final (June 16, 2010) (recommending that, when applying thin capitalization rules within the EU that are not applicable in domestic situations, consideration should be given to (1) the level of debt to equity, (2) the amount of net interest beyond a

Although the associated rationale differs depending on the context, the different rationales do not mean that thin capitalization legislation is ad hoc in nature. Indeed, a comprehensive application of thin capitalization legislation to limit the deduction of corporate-interest expense within a specified leverage ratio can comprehensively constrain the scope of a tax bias in favor of debt finance and support maintenance of margins of safety at the firm level. A difficult targeting issue is the specification of an acceptable leverage ratio. Admittedly, there will be an element of arbitrariness in the choice of a specified ratio at the firm level, with particular industry mean or median ratios serving as rough benchmarks.[235] Moreover, with the possible exception of the financial sector—where regulatory capital ratios can be used for tax purposes—any correlation between a targeted macro limitation on credit creation as indicative of declining margins of safety and the results produced by aggregate leverage ratios at the firm level, as constrained by comprehensive thin capitalization legislation, will also be somewhat random.[236] In effect, specification of a permissible leverage ratio at the firm level can produce defensible results at a macro level, albeit entirely incidentally.[237] Because it is less sensitive to changes in asset value and earnings, thin capitalization legislation that is intended, at least in part, to moderate financial instability should probably be based on tax-book asset value. This approach allows the constraint on leverage levels for income tax purposes to operate somewhat independently of the market forces that can otherwise lead to increasing levels of leverage as a function of rising asset values and earnings.[238]

The incomplete consistency of taxation that is characteristic of dividend imputation systems also leaves in place the significance of the familiar

specific threshold, and (3) a comparison between the equity percentage of a company to that of its worldwide group).

235. Regulatory ratios provide a convenient benchmark for the financial services sector. *See, e.g.*, Income Tax Act R.S.C., c. 1, pt. 1, § 20.2(3) (5th Supp.) (1985) (Can.) (providing a 95 percent debt-to-risk-weighted-assets ratio for authorized foreign bank branches). The Australian thin capitalization legislation specifies the level of permissible debt for authorized deposit-taking institutions (ADIs) in terms of a required capital base equal to 4% of risk-weighted assets. *See* Income Tax Assessment Act 1997 (Cth) Division 820.405 (Austl.).

236. *See* Geanakoplos, *supra* note 42, at 5–6 (emphasizing the lack of data on leverage levels, which are defined as the "ratio of collateral values to the down payment that must be made to buy them").

237. *See* IMF, *Crisis-Related Issues*, *supra* note 5, at 11–12 (observing that the tax bias in favor of corporate debt may undercut the effectiveness of regulatory requirements for the financial services sector, with the impact of externalities at a macro level likely to be especially large for this sector because of its systemic importance).

238. *See* Geanakoplos, *supra* note 42, at 5–6. Permitted tax-leverage ratios could follow regulatory ratios generally for specified asset classes and could be set at lower levels during periods of prosperity in an effort to moderate the leverage cycle. Such an approach would be particularly important for traders or dealers who mark financial assets and liabilities to market for income tax purposes. *See infra* note 295 and accompanying text. "Dynamic provisioning" for portfolio losses varies regulatory capital requirements through the business cycle by building up a margin of safety for losses yet to be incurred during an economic upswing and allowing some losses to be met in a downswing from this margin of safety. *See, e.g.*, TURNER REVIEW, *supra* note 79, at 61.

tax-law boundary between debt and equity.[239] By combining features commonly associated with one or the other form of instrument, debt-equity hybrids can be used in an attempt to:

- change the tax-law character of dividend payments to interest (tax-deductible equity); or
- change the tax-law character of interest payments to dividends (debt-like shares).

The conventional tax-policy focus is the revenue loss and efficiency effects associated with tax-driven substitution along this tax-law boundary.[240] However, as the IMF paper notes, the substitution of tax-deductible equity for debt may "ease the inefficiencies created by differential tax treatment of the two [at the cost of loss of revenue] . . . and increased complexity and opacity of financial arrangements."[241] In other words, tax-deductible instruments with equity features are imperfect substitutes that can enhance margins of safety, but at the cost of lost revenue and otherwise desirable nontax features.

The extent to which hybrid instruments are developed as tax-driven substitutes remains unclear empirically,[242] with various nontax factors appearing to constrain complete substitutability.[243] Furthermore, tax-law uncertainty acts as an additional friction that constrains tax-driven innovation of publicly traded securities because of the pricing effect for tax clienteles.[244] In this environment, tax policymakers and tax administrators have tended to use a combination of specific anti-avoidance rules, classification rules targeted to particular hybrids, and a generalized-factors approach to constrain taxpayer electivity along the debt-equity

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239. *See* Katherine Pratt, *The Debt-Equity Distinction in a Second-Best World*, 53 VAND. L. REV. 1055, 1065–72 (2000).

240. The different income tax treatment of interest and dividends and the associated boundary between debt and equity have preoccupied tax policymakers, tax administrators, and tax practitioners while attracting considerable attention in the academic literature. There are two quite distinct types of this literature. One type focuses on fundamental reform intended to realize consistency of treatment of debt and equity. Another type focuses on execution of the tax-law boundary. For an interesting combination of these two types of literature, see generally Pratt, *supra* note 239.

241. IMF, *Crisis-Related Issues, supra* note 5, at 11.

242. A notable exception is Ellen Engel, Merle Erickson & Edward Maydew, *Debt-Equity Hybrid Securities*, 37 J. ACCT. RES. 249, 249–50 (1999) (examining a particular form of tax-deductible preferred shares, referred to as trust preferred stock (TRUPs), to identify: "(i) the extent to which firms will incur costs to manage the balance-sheet classification of a security; (ii) the magnitude of net tax benefits . . . associated with leverage-increasing capital structure decisions; and (iii) the extent to which investor-level taxation imposes implicit taxes on securities"); *see also* Gordon Mackenzie, *Taxation as a Driver for Designing Hybrid Securities*, 1 J. APPLIED RES. ACCT. & FIN. 31, 32 (2006) (suggesting that the design of hybrid securities in Australia was driven more by accounting and regulatory changes than the adoption of comprehensive debt-equity classification rules for income tax purposes).

243. *See* Shaviro, *supra* note 5, at 5 ("If taxpayers can simply marry the preferred economic characteristics of financial arrangements to whichever tax label (debt or equity) they prefer—a situation that increasingly prevails although still not entirely—then the problem is simply one of making aggressive tax planning too easy. . . .").

244. *See* Mark P. Gergen & Paula Schmitz, *The Influence of Tax Law on Securities Innovation in the United States: 1981-1997*, 52 TAX L. REV. 119, 119–20 (1997).

boundary.[245] Because comprehensive thin capitalization rules are pre-mised on a prior characterization of particular instruments as debt or eq-uity, they can address the use of such instruments only indirectly. Nonetheless, by constraining the use of all forms of tax-deductible debt (whether hybrid in nature or not), a comprehensive thin capitalization regime is a direct and potentially effective policy instrument implicated by a focus on promotion of maintenance of margins of safety. Introduc-tion of the same focus as a policy-relevant factor in the execution of the debt-equity classification exercise would not appear to add anything of definitive policy value, given the lack of empirical knowledge of the ex-tent of the use of tax-deductible hybrids with equity features that might enhance maintenance of margins of safety.[246]

C. TAXATION OF SHARE GAINS

At least as an initial proposition, there is nothing special about capital gains, as a subset of disposition gains, which would suggest that the con-cept be used as a gateway to the provision of a lower tax rate. Apprecia-tion in the value of an asset over its cost is a gain, and any decline is a loss. These critical values are determined by discounting expected cash flows at an appropriate risk-adjusted rate. The passage of time reveals changes in expectations that affect those cash flows and, in turn, the value of the asset. The fact that cash flows are realized on disposition, produc-ing a gain or a loss, is arguably an arbitrary basis for recognition at a reduced rate. Moreover, the fact that an asset is acquired for the purpose of trading does nothing to alter the nature of the associated cash flows in a manner that should alter the tax treatment. There is, however, exten-sive literature challenging these simplistic propositions and articulating various reasons for preferential treatment of capital gains.[247] The narrow point made briefly here in Part IV.C is that, even where standard tax rates are applied to gain or loss on financial instruments generally, an exception to noncapital treatment might defensibly be made for share gains in an attempt to approximate the shareholder tax rate on dividends. Rather than the standard anti-avoidance rationale, this rate equivalence can be justified as an attempt to further reinforce a retention bias and to promote the maintenance of margins of safety.

A capital gains preference is often justified as a stimulus to risk tak-ing.[248] As such, the preference should probably be limited to unexpected

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245. Australia is notable in its adoption of legislation that purports to comprehensively classify all financial instruments as debt or equity based on the presence of noncontingent payments. *See* Income Tax Assessment Act 1997 (Cth) Division 974.10 (Austl.).

246. The same empirical uncertainty holds with the use of such hybrids to discipline managerial "cash burning." *See supra* note 223 and accompanying text.

247. For a comprehensive review of these arguments, see generally RICK KREVER & NEIL BROOKS, A CAPITAL GAINS TAX FOR NEW ZEALAND 41–86 (1990); LEONARD E. BURMAN, THE LABYRINTH OF CAPITAL GAINS TAX POLICY: A GUIDE FOR THE PER-PLEXED 42–83 (1999).

248. William D. Popkin, *The Deep Structure of Capital Gains*, 33 CASE W. RES. L. REV. 153, 154 (1983).

gains that are attributable to the bet element in financial instruments.[249] Yet, to address revenue loss and inefficiencies associated with tax-avoidance transactions, gain or loss attributable to the bet element in derivative financial instruments, as well as debt,[250] can be subjected to noncapital treatment, leaving any capital gains preference to apply to shares that combine an expected time-value return with a substantial bet element.[251] Here again, an income tax system can defensibly distinguish between shares of closely-held and widely-held corporations in its effect on risk taking. As already emphasized above in Part IV.B, a possible equity capital market bias in the context of closely-held corporations can be addressed by provision of a lower rate of corporate tax that encourages retention of earnings. A capital gains preference that is limited to shares of such corporations can be seen to reinforce this incentive effect. With shares of widely held corporations, there is no such bias and full taxation of realized gains could suppress some of the churning that is characteristic of speculative trading, without significantly diminishing the price revelation and liquidity functions provided by public trading.[252] But a tax bias in favor of retention can also be seen as desirable if suppression of excessive leverage and promotion of maintenance of margins of safety is the paramount policy goal. In fact, when the policy goal is reframed in this manner, a capital gains tax preference—just like a corporate/shareholder tax-rate gap—can be supported equally for shares of closely held and widely held corporations. In terms of rate choice, a capital gains tax rate for shares that approximates the dividend tax rate can preserve the positive features of a retention bias while avoiding the creation of tax-avoidance opportunities in the form of dividend-stripping transactions.[253]

Even with a preferential tax rate for share gains, an element of double taxation remains under dividend imputation systems because of a general failure to integrate the corporate and shareholder-level taxes when re-

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249. *See id.* at 155, 174–76 (arguing that the distinction between expected and unexpected gains and losses distinguishes time-value returns from returns to risk taking and the associated bet element that is the target of a capital gains preference provided as a stimulus to risk taking).

250. *See, e.g.,* Eddins, *supra* note 5, at 2 (arguing that different tax rates of capital market participants produce incentives that contribute strongly to financial instability).

251. *See* TIM EDGAR, THE INCOME TAX TREATMENT OF FINANCIAL INSTRUMENTS: THEORY AND PRACTICE 101–06 (2000).

252. *See, e.g.,* KREVER & BROOKS, *supra* note 247, at 82–84 (arguing that any adverse effects on risk taking may be offset by the substantial presence of tax-exempt investors, such as pension funds and venture capital corporations, that benefit from significant tax preferences and provide an adequate supply of risk capital at prices that do not exceed the risk-adjusted opportunity cost of capital); *see also* Alan J. Auerbach, *Capital Gains Taxation and Tax Reform,* 42 NAT'L TAX J. 391, 395 (1989); Daniel Halperin, *A Capital Gains Preference Is Not Even a Second-Best Solution,* 48 TAX L. REV. 381, 385–87 (1993) (emphasizing that a lower capital gains tax rate may only alter the pattern of ownership or allocation of financial assets and not the overall level of investment, with no serious inefficiencies for the economy as a whole).

253. *See, e.g.,* Mintz & Richardson, *supra* note 207, at 398 (emphasizing the need to maintain consistency of dividend and capital gain tax rates on shares).

tained earnings are reflected in the value of shares realized on a disposition in the secondary market. In short, limitation of imputation regimes to dividend distributions means that an element of double taxation arises similar to that under classical corporate income tax systems. However, any efficiency losses associated with this element of double taxation are uncertain. By providing a credit for corporate income tax paid, imputation systems maintain the integrated treatment of dividend distributions, which reduces the double taxation of the distributed income. Where the distributed income has previously been taxed as a gain realized on a disposition of the relevant shares, a corresponding loss attributable to the dividend distribution will arise. To the extent that recognition of the loss is permitted,[254] the amount can be considered to effectively offset the prior gain, thereby eliminating any double taxation. Although this offset is far from complete, it at least reduces the incidence of double taxation. Perhaps more importantly, any double taxation that ultimately arises because of the imposition of unintegrated corporate and shareholder-level income taxes on a secondary-market transfer may be an overstated cause of efficiency losses, with any such losses compensated for by a tax bias in favor of retention as a means to promote maintenance of margins of safety.

V. LOSS LIMITATIONS AND RISK TAKING

As a stimulus to risk taking, the provision of a capital gains preference presumes the presence of a market failure that results in an inadequate pool of risk capital. There is no clear evidence, however, that the level of risk capital is deficient or that any discrimination in the tax system against such investment by taxable investors causes a shortfall.[255] It may instead be the case that, in combination with an unrestricted interest expense deduction, a capital gains tax preference results in excessive risk taking in capital markets. In fact, Minsky's financial instability hypothesis, along with the mismeasurement of risk in capital markets, suggests that a lower capital gains tax rate may exacerbate such behavior even in the presence of:

- a reduced recognition rate for capital losses reflecting the reduced inclusion rate for capital gains; and
- a restriction on the deductibility of capital losses to the amount of realized capital gains as a response to the problem of selective realization.

Each of these features effectively increases the after-tax value of capital losses such that deviation from the expected return associated with an

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254. Various rationales for limitations on the recognition of losses generally on financial instruments are discussed *infra* in Part V.

255. *See* Agnar Sandmo, *The Effects of Taxation on Savings and Risk Taking, in* 1 HANDBOOK OF PUBLIC ECONOMICS 265, 293–95, 307 (Alan J. Auerbach & Martin Feldstein eds., 1985) (concluding that there is no conclusive basis to tax risky assets inconsistently with riskless assets).

asset is increased and, hence, the associated risk. As posited in the taxation and risk taking literature, the attractiveness of risky investments is reduced, which is presumed to result in a suboptimal level of risk taking.[256] But various features of markets for financial assets emphasized by Minsky's financial instability hypothesis suggest that the increased after-tax return from a lower capital gains tax rate may exert a much stronger pull in the direction of increased risk taking than the push of increased after-tax losses in the other direction.[257]

In the wake of the recent credit crisis, the IMF paper notes only the ambiguous effect that certain tax features, such as a capital gains preference, can have on asset prices.[258] It also briefly reviews the possible effects of the treatment of losses on risk taking, suggesting that limitations on loss deductibility, as well as the application of progressive personal tax rates, can act to suppress it.[259] Consistent with the other limited tax-policy literature,[260] the IMF paper observes that this effect may be desirable where an unspecified set of nontax factors leads to excessive risk taking.[261] This Part attempts to fill in much of the reasoning supporting this position. It is at least plausible that capital loss quarantining and a reduced recognition rate for capital losses are insufficient to suppress excessive risk taking. Corrective tax policy may require full taxation rates applicable to gains on financial instruments and a combination of:

* tighter loss limitations applicable to such instruments; and
* comprehensive interest expense deductibility restrictions under the personal income tax as a form of loss limitation.[262]

A. DOMAR-MUSGRAVE AND THE TAXATION AND RISK TAKING LITERATURE

Any discussion of the effect of taxation on risk taking begins with the model articulated over sixty years ago by Evsey Domar and Richard

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256. *Id.* at 293.

257. *See, e.g.,* Slemrod, *supra* note 5, at 390 (observing that preferential treatment of capital gains dominates when excessively optimistic investors do not account for restricted recognition of capital losses); *see also* BURMAN, *supra* note 247, at 120 (noting that it is unclear whether a rate preference is required, in addition to the deferral benefit from taxation of capital gains on a realization basis, to offset the increase in the after-tax value of losses because of incomplete offset).

258. IMF, *Crisis-Related Issues, supra* note 5, at 31–33 (concluding that "[s]tructural tax policy is best guided by the core objective of neutrality across assets and over time").

259. *Id.* at 28–29.

260. *See supra* note 5 and accompanying text.

261. IMF, *Crisis-Related Issues, supra* note 5, at 28.

262. As a means to reinforce a retention bias and maintenance of margins of safety, share gains could be excluded from noncapital treatment and subject to a preferential tax rate approximating the rate on dividends. *See supra* notes 247–54 and accompanying text. This rationale would not extend to short sales. *But see* Michael R. Powers, David M. Schizer & Martin Shubik, *Market Bubbles and Wasteful Avoidance: Tax and Regulatory Constraints on Short Sales,* 57 TAX L. REV. 233, 262–63 (2004) (noting that a preferential tax rate for long positions in shares, even where it is justified as a means to alleviate the double taxation of corporate equity income, might be extended to short sales to constrain upward price pressure).

Musgrave.[263] Under the simple Domar-Musgrave model, portfolio choice is limited to two assets:

- an asset without default risk yielding no real return; and
- a risky asset in the sense that its payoff depends on a specified contingency.[264]

To illustrate the fundamental insight of the model, assume that a risky asset is acquired at a cost of $100 and has a 50% chance of paying $120 or a 50% chance of paying $80. The expected return is zero ([0.5 x $20] – [0.5 x ($20)]), which is consistent with the expected return on an alternative riskless asset. Investors determine the composition of their portfolios based on their taste for risk. Symmetrical treatment of losses and gains ensures that the after-tax gain/loss ratio is the same as the pre-tax ratio.[265] For example, at a 40% tax rate, the positive payoff would be $12, and the negative payoff would be ($12) (assuming refundability of losses for income tax purposes at the 40% rate). In effect, the government shares at the same tax rate in both gains and losses on the risky asset. By lowering the variance of possible payoffs, symmetrical taxation of gains and losses reduces risk associated with the risky asset and may induce a portfolio shift out of the riskless asset. However, an income effect may dominate the substitution effect,[266] with the government effectively serving a risk-bearing function through the tax system. In this respect, recent consumption tax literature[267] has emphasized the income effect and, in particular, the ability of taxpayers to eliminate the taxation of the return to risk-bearing by scaling up their risky asset positions to maintain the

263. Evsey Domar & Richard Musgrave, *Proportional Income Taxation and Risk-Taking*, 58 Q.J. ECON. 388 (1944). For an expansion of the Domar–Musgrave model, see generally Joseph E. Stiglitz, *The Effects of Income, Wealth, and Capital Gains Taxation on Risk-Taking*, 83 Q.J. ECON. 263 (1969); James Tobin, *Liquidity Preference as Behavior Towards Risk*, 25 REV. ECON. STUD. 65 (1958).

264. Domar & Musgrave, *supra* note 263, at 400.

265. *See* Joseph Bankman & 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, 392 (1992).

266. *See* Terrence R. Chorvat & Gavin Elkins, *The Effect of the Taxation of Risky Income on Investment Behavior* 1 (Sept. 29, 2009) (unpublished manuscript), *available at* http://taxprof.typepad.com/files/toronto_workshop_chorvat.pdf (laboratory experiment with university students as subjects indicates no scaling up in the presence of symmetrical taxation of gain and loss and likely scaling down).

267. If taxpayers can freely adjust their investment portfolios to maintain the same pretax return on risky assets, only the normal or riskless rate of return may be exempted under a consumption tax and taxed under an income tax. The same proposition may extend to the risk premium for undiversifiable risk. *See* Joseph Bankman & Barbara H. Fried, *Winners and Losers in the Shift to a Consumption Tax*, 86 GEO. L.J. 539, 541–42 (1998); Bankman & Griffith, *supra* note 265, at 392; Alvin C. Warren, Jr., *How Much Capital Income Taxed Under an Income Tax Is Exempt Under a Cash Flow Tax?*, 52 TAX L. REV. 1, 9–12 (1996); David A. Weisbach, *The (Non) Taxation of Risk*, 58 TAX L. REV. 1, 15–19 (2004). The model on which this literature is based is articulated in Louis Kaplow, *Taxation and Risk Taking: A General Equilibrium Perspective*, 47 NAT'L TAX J. 789, 790–91 (1994); *see also* Jeremy I. Bulow & Lawrence H. Summers, *The Taxation of Risky Assets*, 92 J. POL. ECON. 20, 22–25 (1984); Roger H. Gordon, *Taxation of Corporate Capital Income: Tax Revenues Versus Tax Distortions*, 100 Q.J. ECON. 1, 16–17 (1985).

variance associated with their pre-tax positions.[268]

By introducing asymmetric taxation of gain and loss on risky assets, limitations on loss deductibility alter the after-tax gain/loss ratio as compared to the pre-tax ratio.[269] If, for example, losses are not recognized while gains are taxed at 40%, the after-tax amount of the negative payoff on the risky asset in the above example is the same as its pre-tax amount of $20; yet the after-tax amount of the positive payoff is $12. With the gain/loss ratio altered in this particular direction, investors may substitute the riskless asset for the risky asset. Common features of tax systems, such as loss limitations and progressive personal tax rates, introduce asymmetric treatment of gains and losses, which negates the ability to scale the magnitude of the bet element associated with risky assets. Where the income effect dominates, governments are able to tax returns to risk.[270] Where the substitution effect dominates, risk taking is adversely affected, with possible efficiency losses attributable to the shift away from risky assets.

In fact, loss limitations and progressive personal income tax rates have much the same effect as transaction costs and other nontax factors that constrain scaling as well as the substitution effect.[271] Deborah Schenk argues, for example, that the imputation of interest at the riskless rate on all capital assets (including shares) is normatively desirable as a tax base,

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268. *See* Thomas J. Brennan, *Certainty and Uncertainty in the Taxation of Risky Returns* 17 (Apr. 23, 2009) (unpublished manuscript) (on file with author) (observing that symmetric taxation of the return to risky assets provides a tax payoff profile equivalent to that of a forward contract written on the underlying asset in an amount equal to the tax that can be eliminated by entering into an equal and opposite forward contract).

269. Asymmetric taxation of gains and losses can also be a function of the application of progressive personal income tax rates. *See* Shaviro, *supra* note 5, at 13 (suggesting that a progressive tax rate structure is the principal source of asymmetric taxation for individual entrepreneurs, while loss limitations are the principal source for large publicly-traded corporations). The extent that loss limitations are binding, and thereby result in asymmetric taxation of gains and losses, may differ under the personal income tax and the corporate income tax. *See, e.g.,* Alan J. Auerbach, Leonard E. Burman & Jonathan M. Siegel, *Capital Gains Taxation and Tax Avoidance: New Evidence from Panel Data, in* DOES ATLAS SHRUG? THE ECONOMIC CONSEQUENCES OF TAXING THE RICH 355, 377–78 (Joel Slemrod ed., 2000) (finding that most individuals in the United States were able to deduct capital losses within one or two years of realization given the ability to deduct up to $3,000 of such losses annually against ordinary income); Alan J. Auerbach, *Why Have Corporate Tax Revenues Declined? Another Look,* 53 CESIFO ECON. STUD. 153, 161 (2007) (finding that non-deductible current losses net of net operating losses in the corporate sector increased from 11% of income in 1996–1997 to 44% in 2001-03); Rosanne Altshuler & Alan J. Auerbach, *The Significance of Tax Law Asymmetries: An Empirical Investigation,* 105 Q.J. ECON. 61, 71 (1990) (finding for the period 1976–1982 that one-half of firms in the nonfinancial sector, weighted by book assets, were required to carry forward tax benefits); Michael Cooper & Matthew Knittel, *Partial Loss Refundability: How Are Corporate Tax Losses Used?,* 59 NAT'L TAX J. 651 (2006) (finding for a dataset of firms for the period 1993-2003 that (i) 50-60% of tax losses are used over a ten-year carryover period; and (ii) 25-30% of tax losses expire unused).

270. *See generally* Reuven Avi-Yonah, *Risk, Rents, and Regressivity: Why the United States Needs Both an Income Tax and a VAT,* 105 TAX NOTES 1651 (2004).

271. *See, e.g.,* Brooks, *supra* note 199, at 609-17; David Elkins & Christopher H. Hanna, *Taxation of Supernormal Returns,* 62 TAX LAW. 93 (2008) (suggesting that scaling is unavailable with assets yielding supernormal returns to human capital and should be taxed under a consumption tax).

since the return to risk is taxed only accidentally under an income tax when nontax factors constrain the ability to alter portfolios in response to the tax.[272] Loss limitations, however, have independent normative significance under an income tax and have generally been seen by tax policymakers to trump possible efficiency losses associated with any behavioral response to asymmetric tax rates for gains and losses. Moreover, the taxation and risk taking literature assumes that risk is accurately priced, in which case the application of asymmetric rates can induce a behavioral response with efficiency losses.[273] As emphasized in Part II.B, the dynamics of financial markets, along with incomplete risk-modeling techniques, have destabilizing consequences. In this environment, loss limitations can also be justified as a constraint on excessive risk taking.[274] But even ignoring the quantitative targeting problem attributable to an inability to calibrate the amount of any corrective tax, the use of loss limitations to moderate risk taking presents a difficult qualitative targeting issue. In particular, it is necessary to distinguish between different types of losses for income tax purposes, since not all losses are attributable to risk taking.[275] A defensible distinction may also be drawn between losses that are attributable to risk taking in the market for consumer goods and services and the same type of losses incurred in financial markets. As a constraint on excessive risk taking, the case for tight loss limitations is strongest in the latter setting, subject to an important exception for a hedge-accounting regime.

The standard rationale for loss limitations is the revenue cost that refundability would entail The more nuanced version of this rationale depends on the cause of the loss. For this purpose, losses may be characterized as within one of the following general types:

- economic losses attributable to risk taking;
- tax losses attributable to the provision of tax expenditures or preferences for particular types of investment or activities;
- income mismeasurement losses attributable to income inclusion or expense deduction features that are adopted for compliance cost or administrative reasons; and

272. Deborah H. Schenk, *Saving the Income Tax with a Wealth Tax*, 53 TAX L. REV. 423, 444–48 (2000); *see also* Lawrence Zelenak, *The Sometimes-Taxation of the Returns to Risk-Bearing Under a Progressive Income Tax*, 59 SMU L. REV. 879, 898–99 (2006) (emphasizing the erratic taxation of risk under progressive tax rates). *But see* Brennan, *supra* note 268, at 17 (demonstrating that asymmetric treatment of risky returns produces tax burdens that are both systematic and quantifiable).
273. *See* COOPER, *supra* note 31, at 151–52 (observing that the risk management industry may produce probability distributions that are too narrow).
274. IMF, *Crisis-Related Issues, supra* note 5, at 28–29.
275. *See* Thomas Abhayaratna & Shane Johnson, *Revisiting Tax Losses*, 24 AUSTL. TAX F. 59, 64–66 (2009). *See generally* Michael J. McIntyre, *Identifying Tax Losses Entitled to Full Loss Offsets in a Business Profits Tax Under the Domar-Musgrave Risk Model*, 24 AUSTL. TAX F. 77 (2009); Satya Poddar & Morley English, *Treatment of Tax Losses: Lessons from the Canadian Experience, in* TAXATION TOWARDS 2000, at 479 (John G. Head & Richard Krever eds., 1997).

- tax-avoidance losses and/or fraudulent activity losses attributable to tax-avoidance transactions intended to create or transfer the loss and/or fraudulent reporting of revenue or expense.[276]

Loss limitations within the third and fourth categories can be used to protect revenue where, respectively, income measurement rules cannot be improved or anti-avoidance provisions and enforcement measures targeting tax avoidance and/or tax evasion are incomplete.[277] Limitations on losses within the first and second categories may be chosen as an alternative to refundability because of the associated revenue cost.[278] With tax losses attributable to the provision of tax expenditures, the value of the particular tax expenditure is reduced, but presumably on the basis of an assessment that the amount of any forgone efficiency gains attributable to the behavioral response otherwise intended to be induced by the tax-expenditure program are less than the revenue saved by limiting the cost of the program. With economic losses attributable to risk taking, any associated efficiency losses are presumably seen to be less than the revenue saved by a rejection of refundability.

McIntyre argues that the adoption of broad loss limitations applicable equally across losses within all four of these general categories is required in the absence of an ability to identify and prohibit the deduction of losses that are attributable to income mismeasurement or tax avoidance/fraudulent activity.[279] This identification problem leaves tax policymakers with the choice of selective refundability, either full or partial, for economic and tax losses arising in specified circumstances or in connection with specified activities. For example, tax-expenditure programs, such as preferential treatment for expenditures on basic research, are often delivered in the form of refundable tax credits.[280] Alternatively, losses generated with accelerated recognition of capital expenses may be permitted to be flowed through to investors for recognition. These exceptions to less than full refundability of expenses enhance the value of the relevant program where such enhancement is considered desirable. It is much more difficult, however, to extend full loss refundability beyond these kinds of specified expenditure programs without also providing recognition of losses attributable to income mismeasurement and tax-avoidance/fraudulent activity.

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276. Abhayaratna & Johnson, *supra* note 275, at 64–66; Poddar & English, *supra* note 275, at 492–96.

277. Abhayaratna & Johnson, *supra* note 275, at 65.

278. *Id.*

279. McIntyre, *supra* note 275, at 86–88; *see also* 2 AUSTL. GOV'T REVIEW PANEL, AUSTRALIA'S FUTURE TAX SYSTEM: REPORT TO THE TREASURER 175 (Dec. 2009), *available at* http://www.taxreview.treaury.gov.au [hereinafter TAX REVIEW PANEL] (noting that the treatment of business losses should reduce biases against risk taking, but this goal must be balanced against problems arising from the mismeasurement of losses attributable to difficulties in measuring economic income, artificial loss creation schemes or other forms of tax avoidance).

280. *See, e.g.*, Francisco Moris, *The U.S. Research, and Experimentation Tax Credits in the 1990s*, SCIENCE RESOURCES STATISTICS INFO BRIEF (2005), http://www.nsf.gov/statistics/inbrief/nsf0516.pdf.

This identification exercise emphasized by McIntyre is arguably altered where limitations on the recognition of risk-based losses are justified as a means to dampen excessive risk taking. Under this very different rationale, limitations on such losses serve as a form of corrective taxation that is intended to induce a portfolio shift away from risky assets. Indeed, the behavioral response assumed to be suboptimal in the taxation and risk taking literature becomes a desirable effect of limitations on economic losses, presumably on the basis that risk is otherwise mismeasured or, as suggested by Minsky's financial instability hypothesis, investors reduce margins of safety as they increasingly take on leverage in an environment of rising asset prices and profits.[281] But, as noted already, operationalizing this particular rationale for the application of limitations on the recognition of risk-based losses may require a distinction to be drawn between the incurrence of these losses in the market for consumer goods and services and those losses incurred in capital markets. The former may provide the best case for the empirical assumption in the taxation and risk taking literature that asymmetric treatment of gains and losses attributable to the imposition of loss limitations imposes efficiency losses attributable to the substitution effect. In effect, risk associated with investments in the real economy is often undiversifiable, and the case is strongest for the government to act as a risk bearer through the provision of either loss refundability or carryover with an interest gross-up to preserve the full value of any loss.[282] Tax policymakers must still exercise judgment that any efficiency gains warrant the associated revenue loss and the potential for inappropriate recognition of losses attributable to income mismeasurement, tax-avoidance/fraudulent activity or any combination thereof. In this respect, forms of limited loss refundability tend to be

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281. *See* MINSKY, STABILIZING (2008), *supra* note 13, at 208–09.

282. *See. e.g.*, Alan J. Auerbach, *Notes on Taxation and Risk Taking*, 24 AUSTL. TAX F. 31, 34 (2009) (observing that government could potentially improve diversification by providing the equivalent of insurance through the tax system for assets that are traded in limited markets); Michael P. Devereux & Clemens Fuest, *Is the Corporation Tax an Effective Automatic Stabilizer?*, 62 NAT'L TAX J. 429, 436 (2009) (arguing that more generous treatment of losses would help to smooth the effect of investment shocks to corporate income and thereby enhance the corporate income tax as an automatic stabilizer); Shaviro, *supra* note 5, at 15 ("Thus, one could plausibly surmise that the main risk-discouraging effects of nonrefundability relate to risk-taking that has greater social merit, such as that by entrepreneurs establishing start-up companies in which the players will largely bear their own losses rather than passing them onto others in the manner of 'too-big-to-fail' financial institutions."); *see also* Michael G. Cooper & Matthew J. Knittel, *The Implications of Asymmetry for U.S. Corporations*, 63 NAT'L TAX J. 33 (2010) (finding for the period 1993-2004 that partial loss refundability disproportionately affects certain industries and younger firms); Joseph J. Thorndike, *Risky Business: Using Taxes to Insure Against Loss*, 125 TAX NOTES 9 (2009) (describing post-World War I proposal for delivery of business loss insurance through the income tax system). *But see* Julie Berry Cullen & Roger H. Gordon, *Taxes and Entrepreneurial Risk-Taking: Theory and Evidence for the U.S.*, 91 J. PUB. ECON. 1479, 1493–94, 1501 (2007) (finding that various tax law features, including loss limitations and progressive personal rates, have collectively had large effects on the amount of entrepreneurial activity, but observing that the option to incorporate can encourage risk taking by providing favorable asymmetric rates where the corporate rate is lower than the personal rate).

targeted to the small business sector where shares and debt of issuers are not traded in deep and liquid markets, and investors bear undiversifiable risk attributable to the payoff profiles and value of the underlying assets.[283] Moreover, transaction costs and incomplete markets mean investors cannot scale their investments in risky assets, and governments collect tax on the returns to risk.

These same conditions do not hold with financial instruments traded in deep and liquid markets. Unique risk can be diversified, and scaling up the magnitude of a bet is more readily possible, particularly with derivative financial instruments.[284] Despite the lack of any definitive empirical evidence,[285] limitations on the recognition of economic losses may be invoked as a means to moderate excessive risk-taking attributable to scaling, which can have systemic risk implications when the instability-breeding dynamics of financial markets are exacerbated by the mismeasurement of risk or other failures of risk management.[286] In the absence of any behavioral response to loss limitations that would moderate exposure to systemic risk, the government must assume a role of insurer by acting as lender of last resort and propping up asset values and profits

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283. *See, e.g.*, Income Tax Act R.S.C., c. 1 pt. 1, § 3(d) (5th Supp.) (1985) (Can.) (providing noncapital loss treatment for the recognized portion of a capital loss realized on shares and debt of "small business corporations"). Such treatment is reported as a tax expenditure in the Canadian government's tax-expenditure accounts. *But see* Boadway, *supra* note 204, at 125 (arguing that provisions facilitating loss offsetting should be reported as memorandum items and not tax expenditures).

284. *See* Auerbach, *supra* note 282, at 34 (noting that the ability to scale a position is a reasonable assumption for liquid assets traded in established markets but may not be as reasonable for family businesses); *see also* Geanakoplos, *supra* note 42, at 6 (emphasizing the scaling that occurred with the standardization of credit default swaps, which facilitated leveraging of pessimistic views of the subprime mortgage market); Rosenzweig, *supra* note 17, at 264 (assuming scaling of bets with derivatives in response to taxation of the return to risk); David M. Schizer, *Balance in the Taxation of Derivative Securities: An Agenda for Reform*, 104 COLUM. L. REV. 1886, 1903, 1907 (2004) (observing that scaling is largely unconstrained with derivatives that are pure bets giving rise to unexpected gain or loss).

285. *See* Chorvat & Elkins, *supra* note 266, at 6 (noting the data difficulties which make empirical testing of the substitution effect difficult); Shaviro, *supra* note 5, at 3 ("Yet there is little evidence that nonrefundability or graduated rates mattered greatly to the managers who were taking absurd risks on behalf of publicly traded companies . . . ."); Weisbach, *supra* note 267, at 45–47 (surveying the empirical literature on taxation and portfolio choice and characterizing it as inconclusive). *But see* Eddins, *supra* note 5, at 16–19 (arguing that credit default swaps permitted the stripping of credit risk and its tax-driven transfer to those investors with symmetric gain and loss tax rates). The irrelevance of tax as a factor in the scaling of bets may be inferred from the investment behavior of tax-exempt fund managers who have aggressively pursued trading strategies designed to produce supernormal returns. *See, e.g.*, PHILIP AUGAR, CHASING ALPHA: HOW RECKLESS GROWTH AND UNCHECKED AMBITION RUINED THE CITY'S GOLDEN DECADE 75–95 (2009); BERNSTEIN, EVOLVING, *supra* note 63, at 148–64. *But see* Jack Mintz & Michael Smart, *Tax-Exempt Investors and the Asset Allocation Puzzle*, 83 J. PUB. ECON. 195, 196–97, 205, 210–11 (2002) (arguing that consumption tax treatment of pension funds provides the equivalent of the front loading of loss refundability and explains the holding of risky equities).

286. *See* Stulz, *supra* note 79, at 7–8; *see also* Chorvat & Elkins, *supra* note 266, at 20 (speculating that investment professionals may be more likely to engage in tax-driven scaling).

by stimulating demand in a downturn.[287] The application of loss limitations in publicly-traded asset markets, where diversification is otherwise available and scaling can more readily eliminate taxation of risk, can be defended as a form of insurance premium[288] that is extracted by the government for already serving these risk-bearing roles as lender of last resort and provider of aggregate demand in an economic downturn. In short, it is not clear that the government needs to serve an additional risk-bearing role through the provision of loss refundability in this market.[289] Serving such a risk-bearing function may even exacerbate market failures that are the source of excessive risk taking. Although the same result may be attributable to the government's other risk-bearing functions, those functions must be filled by the government because of the absence of any comparable market institution.[290] This is not the case with investment in risky assets where deep and liquid markets provide a broad range of self-insurance opportunities through portfolio diversification.

As a form of loss limitation, a prohibition on the recognition of losses on derivative financial instruments, as well as traded debt and shares, would be the strongest policy instrument intended to correct market failure in the form of excessive risk taking or, alternatively, to limit the extent of publicly-provided insurance in capital markets. Complete nonrecognition of such losses could inappropriately constrain, however, the price revelation and liquidity functions of these markets, with offsetting efficiency losses.[291] A weaker response would be a limitation of the deduction of unexpected losses attributable to the bet element in the same set of instruments to the amount of any unexpected gains that are similarly attributable to the bet element in such instruments. This form of limitation is comparable to that for capital losses under a realization-based capital gains tax system with less than full recognition rates and is required to the extent that gains and losses are treated on noncapital account.[292] A defensible case can also be made for the use of this kind of

287. *See* DAVID A. MOSS, WHEN ALL ELSE FAILS: GOVERNMENT AS THE ULTIMATE RISK MANAGER 85–122 (2002).
288. *See* Brennan, *supra* note 268, at 2–3, 15 (analogizing asymmetric treatment of the return to a risky asset as equivalent to the payoff profile associated with an option written on the asset, with carryover of pricing models based on the cost of synthetic replication of the option equal to the tax on the underlying asset).
289. *But see* Terrence R. Chorvat, *Apologia for the Double Taxation of Corporate Income*, 38 WAKE FOREST L. REV. 239, 280–81 (2003) (arguing that deadweight loss attributable to the classical corporate income tax can be offset by the provision of full loss offset with respect to portfolio equity).
290. *See generally* MOSS, *supra* note 287.
291. The necessary balance between the price revelation and liquidity functions, on the one hand, and constraint of excessive risk taking, on the other hand, is similar to much the same balance emphasized in the literature on financial transaction taxes. *See, e.g.*, Mattheson, *supra* note 17.
292. To the extent that traded shares are subject to a lower tax rate approximating the dividend tax rate, losses on such shares could be quarantined against gains. Noncapital losses associated with the proprietary trading operations of a financial institution could be quarantined against gains from those operations where such operations are permitted for regulatory purposes. *See, e.g.*, TURNER REVIEW, *supra* note 79, at 93–96 (criticizing the case for a prohibition on proprietary trading by banks with access to retail deposit insur-

broad limitation as an alternative to comprehensive marking-to-market as a response to the problem of selective realization. For the most part, existing legislative regimes do not rely on marking-to-market as the principal response to selective realization; nor do they reflect a well-targeted approach based on liquidity as a proxy for instruments that can be strategically traded because of low transaction costs.[293] A rule limiting the deduction of risk-based losses against risk-based gains on financial instruments is seen in some of the tax-policy literature as a means to address the problem of selective realization, albeit at the expense of a potentially adverse impact on risk taking attributable to asymmetric recognition rates.[294] However, as a policy instrument intended to moderate risk taking in deep and liquid markets for financial instruments, any form of broad loss limitation rule would remain binding even if comprehensive mark-to-market reporting were applied to such instruments as a response to the problem of selective realization.[295]

An important exception from a tighter noncapital loss limitation applied to financial instruments as the functional equivalent of a corrective tax on risk taking can be made for those instruments that are used to hedge positions in nonfinancial assets.[296] Taxing a hedge with reference to an underlying position ensures matching of both character and timing of gain and loss on the offsetting positions. By maintaining symmetry of effective tax rates, adverse pricing effects that might otherwise inhibit ef-

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ficient hedging strategies are avoided.[297] In effect, because they are risk-reducing transactions, hedge transactions can be excluded from a tighter loss limitation rule as a means to reinforce the dampening effect provided by maintenance of margins of safety.[298]

Another possible exception would provide some form of targeted loss refundability as a means to allow financially-distressed corporations to restructure.[299] As one possible example, Canada allows financially-distressed corporations to use accumulated tax losses to lower their after-tax cost of financing by replacing outstanding debt held by arm's-length creditors with preferred shares ("distress preferred shares") paying tax-sheltered dividends.[300] Nonetheless, the rationale for this tax expenditure program, as well as the specifics of its targeting, is problematic. Perhaps most importantly, no attempt is made to limit the program to those corporations whose failure would entail systemic risk. The broader availability of the program suggests that it can be supported more defensibly as a means to alleviate "congestion externalities" otherwise associated with the mass layoff of employees upon the failure of a business.[301] Although it has not been the subject of any empirical inquiry, any impact on risk taking from the relaxation of the binding nature of loss limitations in these limited circumstances may be weak.[302]

B. RESTRICTIONS ON THE DEDUCTION OF INTEREST EXPENSE UNDER THE PERSONAL INCOME TAX AS A FORM OF LOSS LIMITATION

Because the immediate cause of the credit crisis was a price collapse in the U.S. housing market, it is understandable that the status of the home mortgage interest deduction in that country has attracted attention. When it comes to the personal income tax, it is unsurprising, therefore, that the tax-policy literature highlights tax preferences for housing, in-

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297. *See, e.g.,* Schizer, *supra* note 284, at 1914–15 (arguing that a hedge-accounting regime is defensible because of the maintenance of symmetry of gain and loss recognition rates for offsetting positions).

298. The need for such an exception has not been the subject of any systematic empirical study in the context of income tax systems that give rise to the worst character and timing mismatches. The conventional view in the finance literature holds that hedging can increase the value of a firm by, in part, reducing taxes through the "smoothing" of taxable income. *See generally* John R. Graham & Clifford W. Smith, Jr., *Tax Incentives to Hedge,* 54 J. FIN. 2241(1999) (exploring the extent to which firms facing convex tax functions hedge to reduce the volatility of taxable income). *But see* John R. Graham & Daniel A. Rogers, *Do Firms Hedge in Response to Tax Incentives?,* 57 J. FIN. 815, 819 (2002) (finding that firms hedge to increase debt capacity and its associated tax benefit).

299. *See, e.g.,* Sullivan, *supra* note 14, at 1295–96 (recommending "loosen[ing] [of] restrictions on the use of losses by buyers of financial institutions and other companies 'too big to fail,'" as well as relaxation of tax rules on cancellation of indebtedness).

300. *See* Tim Edgar, *Distress Preferred Shares and Small Business Development Bonds: A Tax Expenditure Analysis,* 42 CAN. TAX J. 659, 678–80 (1994).

301. *Id.* at 688.

302. *See* IMF, *Crisis-Related Issues, supra* note 5, at 29 (suggesting that addressing a debt tax bias attributable to the corporate interest deduction would limit the risks of easing restrictions on the use of tax losses, which may be particularly defensible in the case of bank failure).

cluding the deductibility of home mortgage interest (or other form of home mortgage tax relief such as a tax credit).[303] Once the housing market recovers, the IMF paper suggests, for example, that countries with such relief consider phasing it out in the absence of the taxation of imputed rental income associated with home ownership.[304] The apparent basis for this recommendation is the perceived need to eliminate a tax bias in favor of household leverage as a source of financial instability in this particular asset market.[305]

It seems reasonably clear, contrary to the IMF paper's recommendation, that the housing price bubble was fueled primarily by innovative mortgage lending techniques which met an otherwise unsatisfied demand.[306] To a limited extent, the home mortgage interest deduction may have played a secondary role in lowering the after-tax cost of financing and feeding this demand,[307] which was met with supply from both domestic and foreign savings through the originate and distribute securitization model. Given this likely limited role of the home mortgage interest deduction, it is surprising that consideration of the relationship between tax policy and financial instability does not go further and discuss restrictions on the deduction of investment interest expense under the personal income tax as a particular form of loss limitation which can similarly constrain excessive risk taking associated with excessive household leverage. This Part broadens the focus on the relationship between tax policy and financial instability to consider the policy case for comprehensive restrictions on the deductibility of interest expense generally under the personal income tax.

As reflected in standard country practice, the case for nondeductibility of home mortgage interest expense is strong where the return from this dual-purpose asset is commonly tax-preferred in the form of the exemption of realized gain and the nontaxation of imputed rental income.[308] In the presence of these tax preferences for this particular asset, the personal consumption element can be taken as dominant and the associated interest expense denied deductibility like any other personal consumption expense. In this respect, tax policymakers in many countries have concluded that any spillover benefits associated with home ownership do not warrant the provision of an additional subsidy in the form of home mortgage interest relief.[309] The contentious issue is, instead, the need for

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303. IMF, *Crisis-Related Issues, supra* note 5, at 17–25.

304. *Id.* at 24.

305. *Id.* at 18.

306. *See* Slemrod, *supra* note 5, at 390; *see also* Hemmelgarn & Nicodeme, *supra* note 5, at 25 ("[T]ax incentives may have played a role in the development of the housing bubble but the size of this role is difficult to assess, although the odds are that this role has been secondary to monetary policy and credit markets developments.").

307. The taxable income profiles of borrowers in the subprime mortgage market means that the value of the tax shield from the home mortgage interest deduction is minimal to nonexistent.

308. *See* IMF, *Crisis-Related Issues, supra* note 5, at 18.

309. *See id.* at 20–21 (noting variety in effective average tax rates among countries).

restrictions on the deduction of investment interest expense as a particu-
larized form of loss limitation applicable to expected loss in the form of
interest expense rather than unexpected loss attributable to the resolu-
tion of a bet element in a financial instrument.[310] In fact, the conven-
tional framing of the policy case for investment interest restrictions is not
unlike that for loss limitations generally. Moreover, when the case is re-
framed as an attempt to impose a corrective tax on excessive leverage,
the parameters of investment interest expense restrictions are similar to
those of the loss limitation rule for financial instruments suggested in the
immediately preceding Part V.A.

Interest expense limitations under the personal income tax are conven-
tionally justified in the tax-policy literature as a means to limit the distri-
butional and efficiency effects otherwise associated with income
mismeasurement.[311] They target the windfall gains otherwise available
from an accrual-based interest expense deduction on borrowed funds
used to acquire an asset that generates tax-preferred revenue or gain at-
tributable to either tax-expenditure provisions or structural timing rules.
As with loss limitations generally, the strongest case for the application of
interest deductibility limitations is provided by straddle transactions,
which combine offsetting expected cash flows and are entered into to de-
rive a tax benefit from the inconsistent tax treatment of the short (bor-
rowing) and long (asset acquisition) sides of the transaction.[312] As
instances of tax avoidance, these transactions are devoid of any desirable
consequential attributes. By restoring consistency of tax treatment of loss
and gain associated with the short and long sides of straddle transactions,
restrictions on the deduction of interest expense eliminate the tax benefit
which is the only reason to enter into such transactions. The necessary
assessment of the consequential attributes of an unrestricted interest ex-
pense deduction are much more problematic, however, when the focus
shifts from straddle transactions to nonstraddle transactions—transac-
tions that are, in part, equity financed such that the expected cash flows
on a long asset acquisition exceed the expected cash flows on an associ-
ated short borrowing.

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310. *See* Tim Edgar, *Interest Deductibility Restrictions—Expecting Too Much from REOP?*, 52 CAN. TAX. J. 1130, 1140–46 (2004).

311. *See* Calvin H. Johnson, *Why Have Anti-Tax Shelter Legislation? A Response to Professor Zelenak*, 67 TEX. L. REV. 591, 598–603 (1989); Calvin H. Johnson, *Is an Interest Deduction Inevitable?*, 6 VA. TAX REV. 123, 124–26 (1986); Stanley A. Koppelman, *Tax Arbitrage and the Interest Deduction*, 61 S. CAL. L. REV. 1143, 1154–59 (1988); Jerome Kurtz, *The Interest Deduction Under Our Hybrid Tax System: Muddling Toward Accommo-dation*, 50 TAX L. REV. 153, 156–57 (1995); Michael J. McIntyre, *Tracing Rules and the Deduction for Interest Payments: A Justification for Tracing and a Critique of Recent U.S. Tracing Rules*, 39 WAYNE L. REV. 67, 109–12 (1992); Michael J. McIntyre, *An Inquiry into the Special Status of Interest Payments*, 1981 DUKE L.J. 765, 793–98 (1981); Cecily W. Rock & Daniel N. Shaviro, *Passive Losses and the Improvement of Net Income Measurement*, 7 VA. TAX REV. 1, 25 (1987); Theodore Sims, *Debt, Accelerated Depreciation, and the Tale of a Teakettle: Tax Shelter Abuse Reconsidered*, 42 UCLA L. REV. 263, 371 (1994); Lawrence Zelenak, *When Good Preferences Go Bad: A Critical Analysis of the Anti-Tax Shelter Pro-visions of the Tax Reform Act of 1986*, 67 TEX. L. REV. 499, 518–19 (1989).

312. Edgar, *supra* note 310, at 1140–46.

Ignoring legislative design features for the moment, those who are skeptical about the policy case for broadly-based restrictions on the deduction of interest expense under the personal income tax tend to characterize such restrictions as just one specific type of limitation on the recognition of losses.[313] In other words, they highlight a negative consequential attribute of broadly-based restrictions on the interest expense deduction that is, in fact, seen to be characteristic of loss limitations generally: by reducing the tax rate on unexpected losses and thereby increasing the after-tax amount of those losses, a broadly-based loss limitation increases the variance of the after-tax returns on a wide range of affected assets, which can deter investment in those assets.[314] In this respect, there is nothing particularly unique about broadly-based restrictions on the deduction of interest expense. Where a taxpayer borrows funds to acquire an income-earning asset, unexpected loss is realized when the expected cash flows associated with the long asset acquisition do not materialize. Because the unexpected loss is attributable, in part, to interest expense on the short borrowing, a restriction on the deduction of the interest expense can result in an increase of the after-tax amount of the unexpected loss, with a negative impact on risk taking following from the increased variance in after-tax returns that the deductibility restriction causes. Protection of the revenue base, as well as maintenance of an acceptable income distribution and limitation of the cost of tax-expenditure provisions, is thus seen to come at the cost of a potentially adverse impact on risk taking.

Where the target of interest expense restrictions is a range of nonstraddle transactions with consequential attributes that are nonetheless seen to warrant a response, some form of passive loss limitations[315] is the obvious target-effective response. This type of legislative regime relies on the identification of particular income sources (for example, investment income and passively-earned business income) as the core targeting feature. The character of the identified income sources is effectively used as a proxy for the consequential attributes that presumably justify application of the interest deductibility restrictions to straddle transactions and a range of nonstraddle transactions. But if the rationale for interest deductibility restrictions under the personal income tax is reframed as a corrective tax on excessive risk-taking associated with excessive leverage, the case for some form of passive loss limitations arguably becomes that much stronger. Similar to loss limitations generally, the strongest case for the application of such limitations as a restriction on the deduction of interest expense is in the context of asset acquisitions in deep and liquid markets where diversification of risk is readily available and scaling of

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313. *See, e.g.*, Joseph Bankman, *The Case Against Passive Investments: A Critical Appraisal of the Passive Loss Restrictions*, 42 STAN. L. REV. 15, 24–40 (1989); Leandra Lederman, *The Entrepreneurship Effect: An Accidental Externality in the Federal Income Tax*, 65 OHIO ST. L.J. 1401, 1427–35 (2004).

314. *See* Bankman, *supra* note 313, at 24–40.

315. I.R.C. § 469 (2006).

any bet is possible at low transaction costs.[316] Interest deductibility restrictions as a particularized form of loss limitation ensure that the government does not act as an insurer and collects tax on risk-taking; they also may suppress excessive leverage characteristic of speculative and Ponzi finance states and promote maintenance of margins of safety. Indeed, interest deductibility restrictions can support regulatory limitations on leverage, such as margin requirements and minimum levels of equity for mortgage eligibility.

A focus on the type of income source may also be a much better proxy for the application of restrictions as a corrective tax on excessive leverage. In particular, passive sources of income tend to be closely associated with financial assets acquired in deep and liquid markets, which are the most susceptible to excessive risk taking. An exception for income earned in an active business can serve as a proxy for an inability to diversify, in which case the potentially adverse effects of interest deductibility restrictions on risk taking are most compelling, and the government should act as a risk bearer. Indeed, even with an unrestricted interest expense deduction in this particular context, full loss refundability is undermined by noncapital loss limitations, which may or may not strike an appropriate balance between the need for a constraint on excessive risk taking associated with an unrestricted interest expense deduction and any adverse impact on risk taking that deductibility restrictions might entail. The same balance need not be struck, however, with investment in the housing market. Although there is not the same ability to diversity risk as there is with deep and liquid markets for financial assets, real estate speculation should be ineligible for an active business exception and thereby subject to interest deductibility restrictions. As the credit crisis illustrates all too painfully, investment in this market is especially susceptible to speculative and Ponzi financing.[317]

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316. *See, e.g.,* JIM STANFORD, PAPER BOOM: WHY REAL PROSPERITY REQUIRES A NEW APPROACH TO CANADA'S ECONOMY 316 (1999) (suggesting that the deduction of interest expense associated with leveraged share acquisitions should be denied because of the distributional consequences of the deduction and the inefficiencies that follow from the excessive trading of shares that is induced, in part, by the deduction); *see also* TAX REVIEW PANEL, *supra* note 279, at 70, 73 (recommending recognition of only 60% of interest expense on indebtedness linked to the acquisition of shares of listed corporations).

317. *See* AUSTL. GOV'T PRODUCTIVITY COMM'N, FIRST HOME OWNERSHIP 75–121 (2004) (suggesting that price pressure in the housing sector in Australia has been caused, in part, by the combination of a preferential capital gains tax rate and an unrestricted interest expense deduction on borrowed funds used to acquire rental property); *see also* Gavin A. Wood & Yong Tu, *Are There Investor Clienteles in Rental Housing?*, 32 REAL EST. ECON. 413, 415 (2004) (finding "that marginal tax rates affect the gross and net rental yields of investors' rental property portfolios"); TAX REVIEW PANEL, *supra* note 279, at 70, 73 (recommending application of a 40% discount for the recognition of rental revenue, capital gains, and associated interest expense as a means to mute the incentives for households to leverage the acquisition of rental real estate); Turner, *supra* note 292, at 17–19 (arguing that macro-prudential regulatory tools should be designed differently for real estate finance).

VI. CONCLUSION

A focus on moderation of financial instability as a public policy goal requires a comprehensive reexamination of regulatory regimes which are necessarily limited in their application to the supply side of capital markets. Consistent with an emerging literature, this article has suggested some directions in which tax policy can play an important secondary role, particularly on the demand side of capital markets where the effect of regulatory regimes focused on the supply side is indirect. More particularly, tax constraints on leverage, both corporate and household, can moderate the "animal spirits"[318] that drive capital markets to extremes of optimism. Given various practical policy constraints that necessitate incomplete consistency of the taxation of returns to corporate debt and equity, the article emphasizes how certain of the features of dividend imputation systems can promote maintenance of margins of safety, primarily through a tax bias in favor of the retention of earnings for a range of taxable investors. This bias should be supported, however, by adoption of comprehensive thin capitalization rules intended to constrain the appetite for corporate leverage of tax-exempt and nonresident investors. Limits on the deductibility of interest expense under the personal income tax targeted to investment in the housing market, as well as publicly-traded financial assets, can similarly be justified as necessary tax constraints. In addition, tighter limitations on the recognition of unexpected losses on financial instruments generally, along with full taxation of unexpected gains, can be framed as the equivalent of a tax intended to correct excessive risk taking in the face of its mismeasurement. But given the empirical ambiguity of their effectiveness, such limitations can be supported, alternatively, as a constraint on the extent of the provision of public insurance.

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318. *See generally* AKERLOF & SHILLER, *supra* note 55.