

Measuring the Tax Subsidy in Private Equity and Hedge Fund Compensation*

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INTRODUCTION

It is unusual for a legal academic to be the subject of a profile in the *New York Times*. Even more so for a tax professor. But the issue of the taxation of private equity and hedge fund managers is hot. Having written the first paper on the topic,¹ Professor Victor Fleischer has become something of a celebrity.² And the issue of whether the tax advantages enjoyed by private equity and hedge fund managers are fair has become front-page news.

Beginning in earnest in the Spring of 2007, driven by both the announcement of the impending IPO by the Blackstone Group,³ a leading private equity group, and the ongoing reports of billion dollar hedge fund profits, the media picked up the story of what one headline

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1. See Victor Fleischer, *Two and Twenty: Taxing Partnership Profits in Private Equity Funds*, 83 N.Y.U. L. REV. 1, 1 (2008).

2. See Andrew Ross Sorkin, *A Professor's Word on a Buyout Tax Battle*, N.Y. TIMES, Oct. 3, 2007, § Bus., at 8 (asking Professor Fleischer “about the whirlwind his paper had caused”), available at <http://www.nytimes.com/2007/10/03/business/03tax.html>.

3. See Michael J. de la Merced, *Blackstone to Set a Stock Offering Price Sooner than Expected*, N.Y. TIMES, June 20, 2007, at C2 (noting Congressional reaction to Blackstone IPO).

called *The Under-Taxed Kings of Private Equity*.⁴ Although there are several different tax issues that have been raised,⁵ one has stood out for attention—the preferential taxation of the carried interest or performance fees earned by these investment professionals. As one commentator put it, “[t]he backlash against the tremendous wealth being created by managers of hedge funds and private equity funds may be gaining strength.”⁶

That backlash has led to proposed legislation⁷ to eliminate at least one aspect of the tax advantage—the taxation of carried interest at the lower long-term capital gains rate.⁸ These bills have led to public hearings⁹ and substantial commentary on both sides of the issue.¹⁰ They have also engendered a growing number of academic studies.¹¹

4. Alan S. Blinder, *The Under-Taxed Kings of Private-Equity*, N.Y. TIMES, July 29, 2007, § Bus., at 4 (arguing that preferential taxation of carried interest is not sound economic policy), available at <http://www.nytimes.com/2007/10/03/business/03tax.html>.

5. In addition to the capital gains treatment of carried interest and the deferral available for both carried interest and performance fees, commentators have questioned the ability of publicly-traded partnerships like the Blackstone Group to avoid the payment of corporate-level taxes. This was the primary focus of the legislation proposed by members of the Senate Finance Committee. See, e.g., Stephen Joyce, *Baucus, Grassley Introduce Measure to Tax Traded Partnerships Similar to Corporations*, BNA DAILY REPORT FOR EXECUTIVES, June 15, 2007, at G-5 (reporting on the introduction of S. 1624). The legislation proposed by three Democratic members of the House went further to specifically address the issue of the tax rate on carried interest payments. See Brett Ferguson, *House Democrats Target Fund Managers With Bill to Raise Taxes on Carried Interest*, BNA DAILY REPORT FOR EXECUTIVES, June 25, 2007, at G-9 (reporting on the introduction of H.R. 2834). Blackstone’s use of good will depreciation has also drawn criticism. See David Cay Johnston, *Tax Loopholes Sweeten a Deal for Blackstone*, N.Y. TIMES, July 13, 2007, at A1.

6. Jenny Anderson, *Scrutiny on Tax Rates That Fund Managers Pay*, N.Y. TIMES, June 13, 2007, at C3.

7. H.R. 2834, 110th Cong. (2007); S. 1624, 110th Cong. (2007).

8. Commentators, including members of Congress, are often not very careful to distinguish between the “carried interest” earned by private equity managers and the “performance fee” earned by hedge fund managers. See, e.g., *Sen. Baucus Opening Remarks for Senate Finance Committee Hearing on Taxation of Carried Interest*, 7 BNA TAXCORE, July 11, 2007, at 133–34 (July 11, 2007). As we discuss below, there are important differences in the two types of compensation. See discussion *infra* Part I and accompanying notes.

9. *Carried Interest Part I: Hearing Before the Subcomm. on Finance*, 110th Cong. (2007); *Carried Interest Part II: Hearing Before the Subcomm. on Finance*, 110th Cong. (2007); *Carried Interest Part III: Pension Issues: Hearing Before the Subcomm. on Finance*, 110th Cong. (2007); *Hearing on Fair and Equitable Tax Policy for America’s Working Families Before H. Comm. on Ways and Means*, 110th Cong. (2007).

10. For example, the two presidential candidates have taken opposing positions on the taxation of carried interest. See ROBERT WILLIAMS & HOWARD GLECKMAN, URBAN INSTITUTE, AN UPDATED ANALYSIS OF THE 2008 PRESIDENTIAL CANDIDATES’ TAX PLANS: EXECUTIVE SUMMARY OF THE AUGUST 15, 2008 ANALYSIS I (2008), available at http://www.taxpolicycenter.org/uploadedpdf/411750_updated_candidates_summary.pdf. The opposing positions were typified by the testimony before Congress in connection with the aforementioned hearings. H.R. 2834 (2007); S. 1624 (2007). An Internet search for “taxation carried interest” will bring hundreds of references to the discussion on both sides of the issue.

11. See, e.g., Fleischer, *supra* note 1, at 49–50 (concluding that the status quo treatment of a profits interest in a partnership is no longer a tenable position to take as a matter of sound tax policy);

This Article offers a new analysis of the subject. Our goal is to provide an analytical model that allows us to measure the relative benefits currently enjoyed by private equity and hedge fund managers and other managerial types, such as corporate executives and entrepreneurs. We look to “relative benefits” in order to determine the extent to which the current state of the world favors the services of a private equity or hedge fund manager over these other workers. Our conclusion is that private equity and hedge fund managers do outperform other workers on a risk-adjusted, after-tax basis. In the case of hedge fund managers, this superiority persists even after the preferential tax treatment is eliminated, suggesting that taxes alone do not provide a complete explanation. We assume that, over time, compensation of private equity and hedge fund managers should approach equilibrium on a risk-adjusted basis with other comparable compensation opportunities. In the meantime, however, our model suggests that differences in tax account for a substantial portion of the disjuncture that exists at the moment. We thus find that the current state of the world provides a meaningful incentive for workers to pursue careers as private fund managers, relative to other careers as corporate managers, entrepreneurs, and ordinary wage earnings, and that a significant portion of this incentive is created by the current preferential tax treatment.

It is not our purpose to suggest that a change in the tax treatment of hedge fund or private equity fund manager compensation would be good policy.¹² That is a much more complicated question than the one we seek to answer. Nevertheless, we believe this analysis is important. It provides a perspective on the current issue that has so far been ignored.¹³ It answers the question of how taxation affects behavior in the market for allocating human capital. It also provides quantitative precision to the current debate. On each side, advocates rely on loosely drawn analogies between fund managers on the one hand, and entrepreneurs and corporate executives on the other, to argue that similar tax treatments

see also Chris William Sanchirico, *The Tax Advantage to Paying Private Equity Fund Managers with Profit Shares. What Is It? Why Is It Bad?*, 75 U. CHI. L. REV. 1071 (2008); David A. Weisbach, *The Taxation of Carried Interests in Private Equity*, 94 VA. L. REV. 715, 716–20 (2008); Michael S. Knoll, *The Taxation of Private Equity Carried Interests: Estimating the Revenue Effects of Taxing Profit Interests as Ordinary Income 1* (Univ. of Pa., Inst. for Law and Econ. Research, Working Paper No. 07-20), available at <http://ssrn.com/abstract=1007774>; Note, *Taxing Private Equity Carried Interest Using an Incentive Stock Option Analogy*, 121 HARV. L. REV. 846, 846–47 (2008).

12. It may well be that a subsidy is good policy because, for example, an investment by society in alternative asset management leads to greater economic growth. Our goal is simply to provide a quantitative analysis to inform the discussion.

13. With the exception of one editorial by the economist, Robert Frank, taking a perspective similar to ours. Robert H. Frank, Editorial, *A Career in Hedge Funds and the Price of Overcrowding*, N.Y. TIMES, July 5, 2007, at C3 (“By making the after-tax rewards in the investment industry a little less spectacular, the proposed legislation would raise the attractiveness of other career paths, ones in which extra talent would yield substantial gains.”).

are or are not justified.¹⁴ We simply seek to provide the mathematics that these comparisons imply.

We assume that much of the current public debate over the taxation of private investment managers is based upon a logic that does not necessarily rely on rigorous analysis. Government has a persistent need to raise revenues while facing the perils of voter displeasure over any attempt to increase taxes. Therefore, being realists about tax politics, we are not surprised that members of Congress would show initial enthusiasm for a tax increase that is focused on a population that is both small and notorious for its extraordinary wealth. Until the campaign finance implications are fully understood (the private investment industry is a significant source of political contributions)¹⁵, it must be difficult for a legislator to resist the allure of a potentially significant revenue source that might be tapped while spouting a populist rhetoric demonizing the already much-distrusted titans of Wall Street.¹⁶ After all, is it not true that these congressmen are simply proposing that the super-rich pay the same taxes as we all do?

As compelling as this simple “fairness” argument might seem on its face, Congress has discovered that the issue is more complex.¹⁷ Not only has the industry lobby reminded many politicians on both sides of the aisle of their fundraising power,¹⁸ but also genuine issues of good policy have been raised. When examining tax policy, two fundamental issues must be addressed. First, since taxes serve society by raising revenues for governmental activity while imposing a cost on private transactions, tax choices must be evaluated by weighing the potential revenue to be generated for government and the potential costs imposed, including any

14. See, e.g., Sanchirico, *supra* note 11, at 1078–79, 1134–35; Weisbach, *supra* note 11, at 717–18 (discussing the alternative analogies used to argue over the appropriate tax treatment of carried interests); Private Equity Council, *Private Equity and the Treatment of Carried Interest: An Overview*, <http://www.privateequitycouncil.org/public-policy/legislative/private-equity-funds-tax-treatment-of-carried-interests/> (last visited Nov. 13, 2008) (“The justification for a reduced tax rate for long-term capital gains is based on the concept of entrepreneurial investment.”). The Private Equity Council is the principal trade association for the private equity industry. It sponsored the research that lead to Professor Weisbach’s article. Weisbach, *supra* note 11, at 715 n.*.

15. See, e.g., Nicholas Rummell, *Private Equity and Hedge Funds Work Both Sides of the Aisle*, FIN. WEEK, Sept. 1, 2008, at 3, 20, available at <http://www.financialweek.com/apps/pbcs.dll/article?AID=/20080901/REG/309019978>.

16. See, e.g., Robin Toner, *A New Populism Spurs Democrats on the Economy*, N.Y. TIMES, July 16, 2007, at A1.

17. Editorial, *Too Timid for Tax Increases*, N.Y. TIMES, Oct. 11, 2007, at A30 (“A spokesman for the Senate majority leader, Harry Reid, told The Post that time appeared to have run out to act this year and that, in any event, the issue needs more study.”).

18. *Id.* (“That decision has all the signs of a delaying tactic to avoid raising taxes on an industry that is a heavy campaign contributor.”); Associated Press, *Private Equity Warns Against Raising Taxes*, N.Y. TIMES, Aug. 1, 2007, at C2 (“Though private equity groups and hedge funds could be tempting targets for lawmakers looking to pay for new federal programs, the industry has been lobbying aggressively against the tax increase and crucial senators appear to be listening.”).

secondary costs beyond the tax itself. Thus we discuss the merits of tax proposals by comparing the revenue opportunity with the cost to tax payers and to the economy as a whole. If a tax is likely to impact economic growth adversely, for example, that cost must also be weighed. Some commentators have raised the issue of whether the revenue opportunity in changing the way we tax private investment managers is as great as perceived,¹⁹ and whether the complexity and spillover costs of any change doesn't outweigh the value of the tax.²⁰ These questions certainly need to be answered before Congress can make an intelligent choice on the issue.

There is, however, another fundamental question which should not be forgotten in the debate. When taxation creates differences between similar economic activities, we realize that incentives may be affected. A lower tax on one activity may be fairly described as a subsidy, since the lower tax cost favors one activity over another. We thus focus on a fundamental question: does the current tax regime favor one form of managerial activity—hedge fund manager, private equity fund manager, corporate manager or entrepreneur—over another? If yes, which over which and by how much? Our goal is to add to the current debate by comparing the “subsidy” the current tax regime offers to private investment managers relative to wage earners, entrepreneurs and corporate executives. Our premise is that if we can offer a relative measure—i.e., an ability to see the impact of taxes on manager economics in the private equity and hedge fund industries relative to comparable impacts on wage earners, entrepreneurs and corporate executives—we will then have a tool for a more analytical discussion of the issue.

To meet this goal, we provide a methodology for comparing the tax subsidy that a tax regime offers under various managerial compensation arrangements. To construct the model, we treat two cases—wage earners and entrepreneurs—as benchmarks, or given values in our tax system, against which each of the other types and their treatment by the tax law can be compared. We then analyze each of the other types—corporate executives, private equity fund managers, and hedge fund managers—to determine where their compensation arrangements and treatment under the tax law fall in relation to the benchmarks. To make this comparison meaningful, we construct a model that reduces each type of

19. Professor Knoll has calculated the potential tax revenues that would come from changing the tax treatment of private equity carried interests at an estimated two to three billion dollars per year. See Knoll, *supra* note 11, at 12–13. He also predicts that much of that gain will be eliminated as private equity funds restructure in order to ameliorate the effect of any change. *Id.* at 14.

20. Professor Weisbach concludes that any attempt to change the partnership tax rules, which give rise to the preferential treatment of carried interest, “will be complex and easily avoidable rules that raise little revenue while imposing excessive compliance costs.” Weisbach, *supra* note 11, at 719.

compensation arrangement into a set of common variables, allowing us to calculate the relative values of each arrangement and the relative impact of taxes.

Before turning to our model, we should address a significant possible objection to our premise. Professor Chris Sanchirico has made the point that the only tax advantage enjoyed by private equity fund managers stems from a “joint tax arbitrage,” and not simply from availability of deferral or long-term capital gains treatment.²¹ He rightly makes the point that taxes must be viewed from an “all parties” or “joint tax” perspective.²² Under this approach, we cannot evaluate the tax benefits made available to private equity fund managers without evaluating the cost of those benefits to other involved parties, such as the private equity fund’s investors. Professor Sanchirico rightly concludes that absent a difference in tax rate spreads among the parties to a fund, there would be no net tax savings, since any tax savings given to the manager would be offset by the lost deduction available to the investors in the fund.²³ A similar “closed system” critique can be made regarding the use of deferral by hedge fund managers.²⁴

Professor Sanchirico suggests that this perspective on the issue leads to the conclusion that “the tax treatment of profits interest comes to seem like something of a red herring.”²⁵ His colleague, Professor Michael Knoll, uses a similar “joint tax” analysis to conclude that the net revenue opportunity from changing the taxation of carried interests is likely to be small.²⁶ Both acknowledge that a joint tax arbitrage opportunity does in fact exist in the private equity industry.²⁷ The dominance of tax-exempts as investors in private equity funds is an important part of the tax story.²⁸ Tax-exempts like universities and public pension plans do not “pay” for the tax benefits given to fund managers because, as non-tax payers, they do not bear the “loss” of the offsetting deductions. Professor Sanchirico

21. Sanchirico, *supra* note 11, at 1076 (“[T]he Article’s main point is that the tax advantage . . . is . . . a form of ‘joint tax arbitrage.’”).

22. *Id.* at 1077–78.

23. *Id.* at 1076.

24. “Lost” tax revenues from deferred compensation are matched by the “lost” tax deduction that would have otherwise been available to the investors in the funds, and vice versa. *Id.*

25. *Id.* at 1082.

26. Knoll, *supra* note 11, at 5–7.

27. Knoll, *supra* note 11, at 14; Sanchirico, *supra* note 11, at 1076.

28. Offshore investors play a similar role in hedge funds. They do not pay U.S. taxes and therefore do not value the lost deduction for compensation expense. See 26 U.S.C. § 864(b) (2006). Under section 864(b) of the Internal Revenue Code, trade in stocks, securities, and commodities through a resident agent does not amount to the conduct of a trade or business within the United States by a foreign principal. Thus, if a foreign individual invests in a hedge fund structured as a U.S. partnership but has no other connections with the United States, and if the hedge fund engages exclusively in transactions qualifying under section 864(b), then the foreign individual will not be subject to U.S. income taxation.

sees this fact as making the discussion more “complicated” since we may well feel differently about the tax advantage if we see it as benefiting universities and public pensions rather than Wall Street tycoons.²⁹ Professor Knoll predicts that any change in tax treatment would simply cause a shift in investor base from tax-exempts to high net-worth individuals.³⁰ Implicit in both assessments is the assumption that equilibrium exists between the fund manager and the fund investors. In equilibrium any change in the net, after-tax value of the manager compensation will result in a shift. Presumably, the argument goes, if asked to pay a larger tax bill, fund managers will seek greater pre-tax compensation. Therefore the only “subsidy” arising from the tax arbitrage is paid to tax-exempts who pay less in manager compensation than they otherwise would. If this is the case, can we even speak of a tax “subsidy” for the managers? If managers are being paid what the market requires and taxes are providing no net savings other than to the extent they allow tax-exempts some reduced cost, isn’t it true that this whole controversy is but a “red herring” or simply sour grapes over private fund managers’ enormous paydays?

Perhaps, but consider the possibility that in the real world equilibrium is often elusive, and that it may well be that private equity and hedge fund managers have been enjoying “above market” rewards for their services.³¹ If in fact investors do not possess the power to “bargain away” the joint tax arbitrage that may exist, then the tax law may be providing not only a subsidy but indeed a windfall. In such a world, private equity and hedge fund managers would enjoy risk-adjusted returns that exceed those of other managers by even more than the effect of taxes. In this world, it might be that fund managers, already able to command “non-market” compensation from their investors, are simply allowed to pocket the found money of lower taxes. This is the story that is consistent with our findings.

We say “consistent,” not “proven.” We do not have evidence of market failure in the bargain between private fund managers and their investors.³² We did not look for it. Instead, we developed a model that

29. Sanchirico, *supra* note 11, at 1152.

30. Knoll, *supra* note 11, at 14.

31. Professor Sanchirico has not ignored this possibility, but asserts that any disequilibrium is not best addressed as a tax issue. Sanchirico, *supra* note 11, at 1151. We tend to agree, but nevertheless see value in developing our model as an analytical tool.

32. Two observations may be of interest. First, in the Authors’ experience, hedge fund managers limit their use of “deferral” to their off-shore funds. This suggests that they hesitate to impose the “cost” of deferral on those of their investors who may value the current deduction of management fee expenses, and take advantage of the tax planning opportunity only where it is costless to their investors. Any suggestion that this implies that the tax opportunity provides “excess” returns begs the question of why offshore and tax-exempt investors do not bargain for their share in providing this opportunity. One theory that is consistent with our experience is that individual investors simply do

provides a comparison of the risk-adjusted returns available to five types of compensation—private equity fund manager, hedge fund manager, corporate executive, entrepreneur, and wage earner. By enabling us to compare on an “apples to apples” basis, adjusting for the differing structures of their compensation and the differing levels of risk,³³ the model allows us to suggest that private fund managers enjoy excess returns for their labor and that a portion of that excess comes in the form of preferential tax treatment.

To reach this conclusion, we must make a critical normative assumption—one with which many will disagree.³⁴ We must assume that the risk/reward opportunity available to a wage earner and the risk/reward opportunity available to the entrepreneur³⁵ serve as benchmarks for our analysis. We can compare any two points in our data

not think this way, at least not yet, about the terms of their investee funds. They focus on the net returns offered at the fund level. In order to effectively bargain for their “share” of the value of the deferral opportunity, hedge fund investors would first need to understand the potential value from a total portfolio perspective (and in their case insert structures that allow them to capture some of the value) and then overcome the collective action problems inherent in seeking to change industry terms necessary to capture a share. This same “fund level, net returns” focus is also common among the much more developed and mature investor community in private equity. Here lies our second observation. Because private equity funds are essentially liquidating partnerships, cash flows tend to be fairly well matched. So, investors receive cash at roughly the same time as they “book” taxable gains. We would suggest that the appetite of investors to revisit the “sharing” of tax benefits would be voracious if this were not true. If investors had to fund cash taxes before they received cash returns because of the taxation of carried interests, this would change. But because there is this match of cash flows, investors simply focus on their net after-tax returns. The “cost” of deferring the deduction for the management fees and the carried interest paid to the fund manager is never made evident, leading fund investors to view the “tax benefit” paid to the managers as “costless” to them and outside the economics of the fund. As Professors Knoll and Sanchirico demonstrate, they are wrong. Knoll, *supra* note 11, at 11–15; Sanchirico, *supra* note 11, at 1076–77. But it is instructive to see how the negotiations over the carried interest and its structure changes when one compares a “captive fund,” such as the private equity arm of a large financial institution or family office and a stand-alone private equity limited partnership. In the captive context, the tax benefits of carry are very much on the table. Not so in the traditional partnership structure. We see this as anecdotal evidence of disequilibrium, at least for the time being.

33. Professor Sanchirico does make passing reference to the issue of risk in comparing types of activities. He argues that risk is not a basis for distinguishing labor from capital returns. *See* Sanchirico, *supra* note 11, at 1152–53. We agree. However, as asset pricing theory informs us, differing risk is a basis for modeling, and ultimately comparing, differing financial “streams,” whether they stem from “sweat” or money. *See generally* ZVI BODIE ET AL., *INVESTMENTS* (8th ed. 2009) (outlining the importance of risk in comparing asset returns and forming portfolios).

34. Professor Sanchirico makes the point that horizontal equity “analysis is plagued with many serious problems.” Sanchirico, *supra* note 11, at 1146. We agree, and do not want to suggest we are doing anything more than adding some analytical tools for the larger, more complex normative discussion.

35. As will become clear in our choice of modeling inputs, we define entrepreneur to include only that very narrow subset of self-employed persons who are able to attract venture capital financing for their businesses. The concept of “entrepreneur” is often seen to include a much larger universe of activities. *See generally* SHANE A. SCOTT, *THE ILLUSIONS OF ENTREPRENEURSHIP* 2–3 (2008) (defining entrepreneur in several different ways).

to illustrate the differing risk and reward profiles. But in order to make an assertion that any one point is superior or inferior to another, we need to have defined a frontier—a relationship between two points that demarcates the targeted trade-off between risk and reward. By setting our benchmarks as the wage earner and the entrepreneur, and by defining our frontier as a portfolio of wage earner and entrepreneur compensation, we are able to establish what we call a “policy line.”

The wage earner is the archetype of one kind of tax treatment of compensation—ordinary income. The entrepreneur is the archetype for the other—deferred long-term capital gains. Our primary justification for using them as benchmarks is simply that so many others do. As we’ve noted already, much of the discussion of the taxation of private fund managers relies on analogies to these types.³⁶ More fundamentally, however, we also believe that notions regarding the benefits of entrepreneurship and new business formation (as well as the value of capital versus labor, as Professor Sanchirico has suggested³⁷) are important forces within tax policy. They do in fact define a frontier that reflects policy assumptions. While we leave for another day the much broader question of whether a tax preference for various kinds of entrepreneurial activity is good policy,³⁸ it is useful to begin an analysis of how taxes may favor one activity over another by setting up a model that allows us to compare them to the one activity many already assume is to be favored. If nothing else, our discovery that private fund managers enjoy an even greater benefit than entrepreneurs (and wage earners and corporate executives as well) raises the question of whether that is what we really want.

Again, it may be true that taxes have little impact on what the reward is for taking the risk of becoming a private fund manager. We assume that over time, they probably will not. But if it is possible, as we suspect, that equilibrium has not yet been reached and that it may well take time for it to be achieved, it is at least interesting to know that

36. See sources cited *supra* note 14.

37. Sanchirico, *supra* note 11, at 1148–49 (noting that limiting a horizontal equity discussion to the differing tax treatments of labor returns ignores the issue of how returns on endowments, such as gifts and inheritance, may also benefit from preferences).

38. Professor Sanchirico expresses some skepticism. Sanchirico, *supra* note 11, at 1137 (noting that the “sweat equity” analogy is inapt). Our analysis agrees with his conclusion as it regards the taxation of carried interests. We also agree more generally that the “sweat equity” concept needs unpacking for proper analysis. The kind of “entrepreneur” Professor Sanchirico seems to have in mind in his discussion sounds more like the self-employed small business person than the venture capital-backed high-technology executive. Our initial suspicion is that the latter may be the one case where the usual rhetoric around “sweat equity” may make sense. See Ronald J. Gilson & David M. Schizer, *Understanding Venture Capital Structure: A Tax Explanation for Convertible Preferred Stock*, 116 HARV. L. REV. 874, 889–96 (2003) (discussing the “tax subsidy” available in structuring management incentives in venture capital companies). Our current project is a taxonomy (excuse the pun) of various compensation structures that live behind the “entrepreneur” label.

private equity fund managers enjoy a compound average after-tax return³⁹ that is 8.2 percentage points higher per year, and that hedge fund managers enjoy an even higher 24.1 percentage points advantage, in each case relative to the risk-adjusted reward available to other workers. Interestingly, we find that taxes may account for 93%, or nearly the full amount, of the excess returns enjoyed by private equity managers, and as much as 20% of the excess returns enjoyed by hedge fund managers.

I. MANAGERIAL COMPENSATION: THE TYPES

A. THE BENCHMARK TYPES

The basic story of the taxation of compensation (returns on human capital) is that compensation (such as wages) is ordinary income, and is taxed at ordinary income rates (we use 35% for our illustrations)⁴⁰ as soon as it is earned (meaning when received). This is in contrast to the taxation of capital gains (returns on financial capital) which if held long-term is taxed at lower capital gains rates (we use 15% for our illustrations).⁴¹ We call this basic story the “wage earner” type.

In contrast to the wage earner, the “entrepreneur” receives a significant portion of her compensation through an equity investment in her firm. This “choice” of stock over cash is often driven by the nature of an entrepreneurial or “start-up” venture. First, cash is often quite limited in an early-stage company. Second, investors in early-stage companies typically insist that management have a substantial personal stake in the success of a company as a way of both ensuring their commitment to the venture and testing their belief in its potential.⁴² Finally, because of this belief, entrepreneurs commonly seek the perceived high return potential of an equity position in lieu of cash compensation. Because society seeks to encourage entrepreneurial activity, when an entrepreneur takes a significant portion of her return on her human capital—her compensation—in the form of an ownership interest in the firm being established (commonly called “founders’ stock”), the U.S. tax regime rewards entrepreneurial activity with preferential tax treatment.⁴³

39. For a discussion of how we make these calculations, see *infra* notes 97–102 and accompanying text.

40. See 26 U.S.C. § 1(i)(2) (2006) (specifying that 35% is the current maximum rate generally applicable to ordinary income).

41. See 26 U.S.C. § 1(h)(1)(C) (2006) (specifying that 15% is the current maximum rate generally applicable to long term capital gains).

42. See Gilson & Schizer, *supra* note 38, at 880–81.

43. See, e.g., Julie B. Cullen & Roger H. Gordon, *Taxes and Entrepreneurial Activity: Theory and Evidence for the U.S.* 1 (Nat'l Bureau of Econ. Research, Working Paper No. 9015, 2002) (“Given [the] positive spillovers generated by entrepreneurial activity, there are clear reasons to try to subsidize such activity through the tax system.”).

The preferential treatment stems from the tax treatment of the founders' stock. If at the time of its founding a newly-formed company issued equity to its founding CEO for a nominal sum, there would be no tax event.⁴⁴ Indeed we would treat the entrepreneur as a capitalist, even though we all understand that she forwent future cash compensation in exchange for her equity stake. If she holds her stake for at least a year⁴⁵ and she sells it for \$10 million, she would be taxed at the long-term capital gains rate. So having "earned" a \$10 million reward for her efforts in building and growing the firm, she pays taxes in the amount of \$1.5 million (the 15% long-term capital gains rate) rather than \$3.5 million (the 35% ordinary income rate). Because she was there at the beginning and chose to convert her "sweat into equity" the tax rules give her a \$2 million benefit, and allow her to accumulate her reward without paying tax along the way. Because our wage earner does not make the same "investment" in his firm, the tax law does not accord him the same opportunity. Indeed, the tax law does not offer the same opportunity to the executive who converts her sweat into equity at a more mature company. While the corporate executive is given the chance to take equity on a tax deferred basis, in the end she must pay tax on both the value of the grant, and the value of any growth she oversees, as ordinary income.⁴⁶

Our analysis sees these two types—wage earner and entrepreneur—as extreme points that define a frontier. The wage earner is the low-risk alternative for which there is no tax subsidy. The entrepreneur is the highest-risk option for which the tax law provides a subsidy in allowing both tax-deferred accumulation and a lower capital gains rate upon realization. The frontier is the line between these two extremes, formed as one substitutes an increasing amount of entrepreneur compensation for wage-earner compensation. The interesting results come from seeing where the other types fall in relation to this frontier.

B. HEDGE FUND MANAGER

A hedge fund manager is one or more investment professionals, usually organized as an entity of some kind, such as a limited liability company, who engages in the business of managing a pool of capital, investing typically in liquid securities markets like equities, commodities or related derivatives.⁴⁷ The insertion of an entity is largely irrelevant for

44. We are ignoring the risk of being assessed for any amount of original issue discount. *See generally* JACK S. LEVIN, STRUCTURING VENTURE CAPITAL, PRIVATE EQUITY, AND ENTREPRENEURIAL TRANSACTIONS ¶ 202, at 2–9 to 2–26 (2008) (discussing tax structuring options for equity investment by the entrepreneur).

45. *Id.* ¶ 202.3.7, at 2–22.

46. *See id.* ¶ 408, at 4–46 to 4–56.

47. *See generally* FRANCOIS-SERGE LHABITANT, THE HANDBOOK OF HEDGE FUNDS 1–50 (2006) (providing background on the nature of hedge funds and their compensation structures).

our discussion since routinely the entities used are “pass through” entities for tax purposes and most of the compensation we are examining is in any event “passed through” to individuals as salary and bonus. So, for our purposes, it is both valid and simpler to think of a hedge fund manager as an individual. The analysis applies equally well whether or not the manager actually consists of a one-man sole proprietorship or a limited liability company employing hundreds of highly compensated investment professionals.

The pool of capital known as the “hedge fund” is typically organized as a limited partnership-style entity (such as a Delaware limited partnership or Cayman Islands share company), and obtains its capital from sophisticated investors such as high net worth families, pension funds, and endowments. The hedge fund manager enters into an advisory agreement with the hedge fund pursuant to which the fund grants to the manager investment discretion over its capital. As compensation for its investment management services, the hedge fund manager is typically provided both a “management fee” and a “performance fee.” The industry standard (although often negotiated up or down in individual cases) is known as “two and twenty,” meaning that the hedge fund manager receives a management fee of 2% of the assets under management and a performance fee equal to 20% of the profits earned by the fund during a given (usually annual) period.⁴⁸

To use a simple example of a “two and twenty” arrangement, if a hedge fund manager manages a hedge fund with total assets under management at the beginning of the year of \$1 billion and that fund grows through its investment activity to \$1.2 billion by year end (in other words, experiences a 20% return for the year), the hedge fund manager would be entitled to receive a management fee of around \$22 million (assuming average assets under management for the year of \$1.1 billion) and a performance fee of \$40 million. Each of these fees is treated as compensation under U.S. tax law and, absent use of the deferred compensation rules, would be taxable once earned as ordinary income. Assuming operating expenses (other than compensation expense) of say \$5 million and applying an assumed tax rate of 35%, our hedge fund manager would owe total taxes of just under \$20 million (total revenue of \$62 million, less \$5 million of expenses,⁴⁹ leaving \$57 million of pre-tax income).

However, as has led to criticism of late, rarely do hedge fund managers pay taxes immediately on the management and performance

48. See Fleischer, *supra* note 1, at 3 (describing the industry standard of “2 and 20”).

49. See 28 U.S.C. § 162 (2006) (allowing for a deduction from gross income for all ordinary and necessary business expenses).

fees they earn.⁵⁰ Instead, they make use of the U.S. tax law's deferred compensation rules. These rules allow managers (indeed technically just about any earner of compensation) to elect to defer receipt of their earnings and thereby postpone payment of any taxes.⁵¹ We will discuss the deferral rules in greater detail below. The opportunity to defer compensation as a hedge fund manager offers an attractive benefit to the industry by allowing hedge fund managers to effectively borrow from the government at no cost the amount they would otherwise pay in tax if no deferral were allowed. It also allows them to invest funds in their funds' trading activities in a manner that avoids the current taxation of trading profits that would otherwise be payable if they had simply invested after-tax dollars in their own funds. In other words, the manager can compound his investment tax-free. These two benefits of deferral for hedge fund managers can be extraordinarily valuable, both absolutely and relatively to other managers in other industries who may also have an opportunity to defer compensation.

C. PRIVATE EQUITY FUND MANAGER

Like our hedge fund manager, a private equity fund manager is one or more investment professionals, usually organized as an entity of some kind such as a limited liability company, who engages in the business of managing a pool of capital, investing typically in either control investments in private companies or in venture capital opportunities.⁵² Again, the insertion of an entity is largely irrelevant for our discussion since routinely the entities used are "pass through" entities for tax purposes and most of the compensation is "passed through" to individuals as salary and bonus. So again we will think of a private equity fund manager as an individual.

The pool of capital is known as the "private equity fund," is typically organized as a limited partnership, and obtains its capital from sophisticated investors such as high net worth families, pension funds and endowments. Unlike a hedge fund, which deploys capital from its investors relatively quickly in liquid market transactions, private equity funds begin with "committed capital," which is drawn down over time as transactions are identified and completed. A typical private equity fund

50. See, e.g., Jenny Anderson, *Managers Use Hedge Funds as Big I.R.A.'s*, N.Y. TIMES, Apr. 17, 2007, at A1.

51. See *infra* notes 69–71 and accompanying text.

52. See generally GUY FRASER-SAMPSON, PRIVATE EQUITY AS AN ASSET CLASS 15–42 (2007) (discussing the background on the nature of private equity firms and their compensation structures); JOSH LERNER ET AL., VENTURE CAPITAL AND PRIVATE EQUITY: A CASEBOOK 1–35 (4th ed. 2009) (same); Andrew Metrick & Ayako Yasuda, *The Economics of Private Equity Fund* 19–20 (Univ. of Pa., Wharton Sch., Dept. of Fin., Preliminary Draft, Feb. 22, 2007) (on file with author) (same). For a complete discussion of the current tax law treatment of private equity fund compensation, see Weisbach, *supra* note 11, at 727–33.

will contemplate an investment period of five to seven years during which committed capital can be called by the manager to fund individual investments. Typically a private equity fund will contemplate a harvesting of all of its portfolio investments within a ten to twelve year period.

The private equity fund manager generally serves as the general partner of the private equity fund and as such is given investment discretion over its capital. As compensation for its investment management services as the general partner of the fund, the private equity fund manager is typically provided both a "management fee" and a carried interest. Like with hedge funds, the industry standard (although subject to negotiation up or down in individual cases) is "two and twenty," meaning that the private equity fund manager receives a management fee of 2% of the assets under management (generally measured by reference to total committed capital) and a carried interest equal to 20% of the profits earned by the fund during its total life.

It is important to highlight the key differences in the "two and twenty" structure between hedge funds and private equity funds. First, while analogous, the 20% performance fee paid by hedge fund investors is quite different from the 20% carried interest paid by private equity investors. In the hedge fund case, the fee is paid annually based upon changes in value in the fund. In the private equity fund, the carried interest is paid through the partnership's distribution waterfall, so is not paid until actually realized. So, if in our hedge fund example the fund were to suffer a 20% decline the following year, our hedge fund manager would not be required to return the previous year's performance fee. Often investors in the fund would have had the option to redeem their investments to lock in any one period's profits, and therefore can fairly be said to have started a new one-year investment management relationship. But it is not necessarily true that a hedge fund investor's right to redeem will match the fund manager's right to "book" his fee. So it is possible for hedge fund managers to earn significant performance fees even when their investors lose money. This is not true for private equity fund managers. For them to earn a carried interest the overall performance of the portfolio, as determined by actual amounts distributed (not simply a "mark to market" calculation at some arbitrary date), must show a profit (indeed, under most private equity fund terms, the return on the fund's investments must exceed a hurdle rate before carried interest is paid).

On the other hand, private equity firms generally have the benefit of much longer-term capital, and consequently a much less risky fee stream. Their investors do not have the right to redeem their interests until the specified termination date of the partnership, usually twelve years out. Until recently, hedge fund managers traditionally provided quarterly

liquidity to their investors.⁵³ As has been seen with some frequency, a hedge fund manager can go out of business in a matter of months (if not hours in particularly calamitous circumstances).⁵⁴ Private equity fund managers know once they raise a fund, they will at least have a management fee coming in for years to come.

To use a simple example of a “two and twenty” arrangement in a private equity fund, if a private equity fund manager manages a private equity fund with total committed capital of \$1 billion, and that fund invests that capital in a series of portfolio companies which ultimately, over the course of the fund’s life, are sold for net proceeds of \$3 billion, the private equity fund manager would be entitled to receive a management fee of around \$20 million per year during the investment period (typically the fee begins to decline once the specified investment period is over), and a carried interest of \$400 million (ignoring the effect of management fees and other partnership expenses and taking a simple calculation of \$3 billion of net proceeds less \$1 billion invested as the amount of the partnership’s profits).

The 2% management fee paid each year is treated as compensation under U.S. tax law and, absent use of the deferred compensation rules, would be taxable once earned as ordinary income. Like the hedge fund manager, a private equity fund manager may defer taxation of the annual management fee, usually reinvesting it into the fund’s portfolio and recognizing the income at the time the underlying investment is harvested.⁵⁵ So, like the hedge fund manager, the private equity fund manager has the chance to take an interest-free loan from the government equal to the tax he would otherwise have owed, and invest and compound it tax free, paying tax only once the fee is paid out as part of the proceeds from the portfolio investment.

In addition to this deferral opportunity, the private equity manager receives another tax benefit that has been the principal subject of the recent call for legislative change.⁵⁶ Because a private equity fund manager’s carried interest is structured as a partnership interest, it comes

53. Ironically, one response to the SEC’s attempt to compel hedge fund managers to register as investment advisers was a shift from quarterly to two-year lock-ups which would have allowed hedge funds to escape the registration requirement. See Gregory Zuckerman & Ian McDonald, *Hedge Funds Avoid SEC Registration Rule; Some Big Firms Change Lockups, Stop Accepting New Investments to Take Advantage of Loopholes*, WALL ST. J., Nov. 10, 2005, at C1. More recently, higher performing firms have been able to impose longer lock-up periods as a cost of entry for new investors. See, e.g., *All Hedge Funds: Locked-Up*, THE ECONOMIST, Aug. 4, 2007, § Finance & Economics.

54. See, e.g., Andrew Ross Sorkin, *Hard Lesson on Running Hedge Fund*, N.Y. TIMES, Aug. 19, 2008, at C1, C5 (“Wall Street is going to be littered with such flameouts.”).

55. Some managers have attempted various techniques to both defer and convert to capital gains a portion of these management fees by essentially taking additional carried interest in lieu of management fees. See Fleischer, *supra* note 1, at 17.

56. See *supra* notes 7–11 and accompanying text.

with the tax attributes of the underlying transaction.⁵⁷ In other words, because a carried interest represents a share of what are usually long-term capital gains, it retains this character in the hands of the manager. So even though the carried interest is indeed being “paid” to the private equity manager as compensation for his services as the investment manager for the fund, the manager pays tax on this reward as if it were capital gains. At current marginal rates that difference translates into a difference of at least twenty percentage points. So, in our example, rather than paying \$140 million of tax on his carried interest (35% of \$400 million), our private equity manager pays \$60 million (15% of \$400 million). This spread is the source of revenue (and “unfairness”) that has attracted so much attention recently.

D. CORPORATE EXECUTIVE

A corporate executive is an employee of a company who in a sense is engaged in an economic function comparable to the hedge and private equity fund managers. She is a manager of assets. Particularly if we focus on senior management, such as chief executive officers (CEOs), the analogy is a common one. Like the portfolio managers in the hedge fund and private equity businesses, a CEO is meaningfully viewed as the manager of a portfolio of assets and liabilities. Similarly, we often speak of her compensation in terms of the size of the enterprise under management and in terms of a participation in the upside she oversees. And so analogous to the management fee and performance fee/carried interest dichotomy, we see our CEO receiving a combination of salary and relatively fixed bonus paid in cash and incentive or performance-based compensation paid in equity (e.g., restricted stock awards or stock options). We also see the use of deferral.

Like the hedge fund and private equity managers, the corporate executive can elect to defer compensation under the current U.S. tax regime.⁵⁸ As to cash compensation, as others have pointed out,⁵⁹ there is little benefit to electing deferral unless an executive is expecting her tax rates to drop in the future.⁶⁰ Where deferral is an important benefit is in the case of equity-based compensation.

57. See LEVIN, *supra* note 44, ¶ 1001.1, at 10–3 to 10–9.

58. *Id.* ¶ 602, at 6–37 to 6–74.

59. See Eric D. Chanson, *Deferred Compensation Reform: Taxing the Fruit of the Tree in Its Proper Season*, 67 OHIO ST. L.J. 2, 2–4 (2006); Ethan Yale & Gregg D. Polsky, *Reforming the Taxation of Deferred Compensation*, 85 N.C. L. REV. 571, 571–74 (2007).

60. Beyond the limited financial benefit of deferring cash compensation, deferral of cash also imposes additional risk on the manager. See Sanchirico, *supra* note 11, at 1152; see also Yale & Polsky, *supra* note 59, at 572–74. The deferral rules generally require the person deferring to have only a general creditor’s claim against her employer for the amount deferred. In other words, the deferred amount needs to be at risk of bankruptcy. So given the limited benefit of deferring cash payments and the risk of loss, it would seem unlikely that deferral is a meaningful benefit outside of the equity-based

If a company wishes to pay its CEO through the grant of stock options, in the usual case there is no tax triggered upon grant of the option.⁶¹ This is because the option itself is seen as having no value (although this is not economically correct)⁶² because the exercise price at grant will typically equal the current market price (thus there is no money to be made today if the option is exercised).⁶³ Tax will be triggered only if and when the CEO exercises the option.⁶⁴ Then she will have ordinary income equal to the difference between the exercise price and the market value of the stock.⁶⁵ So, for example, if we had a company with a total market value of \$1 billion and we granted our CEO an option on 20% of the equity at an exercise price of \$200 million (sounds rich but not dissimilar to the “twenty” deal we gave our two fund managers), if the market value of the company grows to \$1.2 billion (after giving effect to the exercise) and the CEO exercises her options, she would own stock worth \$240 million having paid an exercise price of \$200 million. She would now owe tax on the \$40 million of profit payable at the ordinary income rate.⁶⁶ This was the classic structure for equity-based compensation for corporate executives.

Recently, however, stock options have fallen out of favor as a compensation device because of their “upside only” character.⁶⁷ Unlike a true equity stake, where an investor not only benefits from a growth in value but suffers from any loss, options incentivize managers to focus solely on the upside, perhaps at the expense of managing risk.⁶⁸ In place

compensation situation. The risk of bankruptcy, while important with respect to cash compensation, does not impose a greater risk in the case of deferred equity compensation. Any compensation whose value is tied to the firm’s equity value is by definition already subject to bankruptcy risk.

61. See LEVIN, *supra* note 44, ¶ 408.1, at 4-46 to 4-47.

62. As Black-Scholes tells us, the option itself even if not “in the money” today is valuable as long as it remains unexpired. The chance that it will sometime before expiration become “in the money” is worth something. See, e.g., RONALD J. GILSON & BERNARD S. BLACK, (SOME OF) THE ESSENTIALS OF FINANCE AND INVESTMENT 231-51 (1993) (discussing the Black-Scholes model).

63. This was the problem with option backdating. By setting a date were the market value was lower than the date of grant, thus setting the exercise price so that the option was “in the money,” issuers were giving income (nothing inherently wrong with that since they could have given cash bonuses) but were failing to book this expense because they treated them as “no money” options.

64. See LEVIN, *supra* note 44, ¶ 408.1 at 4-46 to 4-47.

65. *Id.*

66. This may explain why so many CEOs want to turn their companies into private equity investments. Although not the same as the fund manager’s carried interest, managers of private equity portfolio companies have an opportunity to have their equity-based compensation be taxed as capital gains rather than ordinary income. See Sanchirico, *supra* note 11, at 1075.

67. See, e.g., Carolyn Said, *Companies Reassess Stock Option Grants*, S.F. CHRON., Aug. 27, 2006, at F1.

68. Of course the Enron debacle is the poster child for how this dynamic can play out. There is a lively academic debate over the use of stock options as compensation. See, e.g., Lucian Arye Bebchuk, et al., *Managerial Power and Rent Extraction in the Design of Executive Compensation*, 69 U. CHI. L. REV. 751 (2002) (arguing that stock options are not optimal arrangement for maximizing shareholder wealth but result rather from the exercise of managerial power); Kevin J. Murphy, *Explaining*

of options, more and more boards are looking to grants of restricted stock as a better device for tying management's interests with shareholders. The way a restricted stock award generally works is that a manager is granted a number of shares subject to some form of vesting regime. While you can find every variety imaginable, generally vesting is tied to either or both of time or specified performance criteria. If the vesting requirement is met, the stock belongs to the manager. If not, it is forfeited.

Using our previous example, if we wanted to provide our CEO the same \$40 million outcome, we would have granted her restricted stock equal to 3% of the company (3% of \$1.2 billion is \$40 million). The problem with doing so, however, is that the minute we granted the stock she would have had taxable income of \$30 million (3% of the \$1 billion in market value at grant, ignoring any arguments for discount in value based upon illiquidity, etc.). So she would have to pay \$10.5 million in tax (a cash outlay) in order to receive the equity-based incentive. You can imagine why this may not be attractive.⁶⁹ So what the tax rules permit is again to defer the recognition of income and the tax.

Instead of recognizing income at the time of the stock grant, our CEO can treat the grant as a deferred compensation arrangement and elect to receive the value of the shares at some future date.⁷⁰ When the deferred stock or their value is ultimately paid out, the CEO will have ordinary income equal to the value paid on that future date.

E. COMPARING THE TYPES

It is meaningful to compare the compensation arrangements of our managerial types—hedge fund manager, private equity fund manager, and corporate executive—with the benchmark types of wage earner and entrepreneur for two primary reasons. First, much of the discourse on the taxation of hedge fund and private equity fund managers relies on an analogy to the tax treatment of one of the other types.⁷¹ So, defenders of

Executive Compensation: Managerial Power Versus the Perceived Cost of Stock Options, 69 U. CHI. L. REV. 847, 851–55 (2002) (disputing managerial power thesis and arguing that stock options are over used because they are mispriced by both employers and managers).

69. Although, if you truly believe in the potential return on the stock, it actually is a good deal since you would be entitled to capital gains treatment on any appreciation.

70. See LEVIN, *supra* note 44, ¶ 602 at 6–37 to 6–74.

71. Much of both Professor Sanchirico and Professor Weisbach's discussion is an analysis of the validity of the analogy between private equity managers and entrepreneurs. See Sanchirico, *supra* note 11, at 1135–39; Weisbach, *supra* note 11, at 717. Professor Sanchirico makes the point that the analogy fails because the real source of tax advantage in the private equity context lies in the tax-exempt status of the majority of private equity limited partners, whereas the "sweat equity" story is "a single actor tax play," which does not rely on the differing tax rates that give rise to the tax rate arbitrage opportunity that private equity managers are exploiting. Sanchirico, *supra* note 11, at 1079–80. Professor Weisbach concludes that the analogy of a private equity investor to an entrepreneur is as compelling as the analogy to a wage earner and that therefore "the problem is which one to choose."

the current taxation of hedge fund managers and their use of deferral point to the treatment of corporate executives, arguing that there should be no difference between them. Similarly, the defenders of the taxation of private equity fund manager's point to the long-term capital gains treatment of entrepreneurs and other "capitalists" and argue again that there are no grounds for treating them differently. Since so much of the discourse relies on these comparisons, we believe it is useful and important to consider them ourselves. Second, and perhaps more importantly, each of these activities are in a very real sense variations on a theme. The theme is the management of assets. At a fundamental level each of our types are being paid for their services as asset managers. Admittedly the skills required among the four types do differ. A successful hedge fund manager may well fail as an entrepreneur. An entrepreneur may be a poor corporate executive. And so on. While this is true, at least at the beginning of a career, these managerial types are drawing on a common labor pool. It is not at all trivial to say that a first-year MBA student is equally a potential hedge fund manager, private equity fund manager, corporate executive, entrepreneur, or wage earner. Therefore, it is meaningful to determine whether our tax laws make it cheaper to pay one type over the other.

II. THE MODEL

To answer the question of how and to what extent the tax laws subsidize these different managerial compensation arrangements, we have developed a model that allows us to compare the types. To do so, we treat each of our compensation schemes as a kind of security or investment contract. By doing so, we can compare on an "apples to apples" basis the economics of each, and the impact of differing tax regimes, by valuing each type employing established financial analytics. As we discuss below, each of the types can be described as a form of call option.

A. WAGE EARNER

The wage earner provides our benchmark case for "unsubsidized" compensation. He receives his pay up front, it is immediately recognized as income and is immediately taxed at the ordinary income rate. To allow us to make the "apples to apples" comparison with the four types of managerial compensation schemes, we assume the wage earner reinvests his net earnings (after paying the tax) in equity and describe this investment as a call option on the market having a nominal strike price.

Weisbach, *supra* note 11, at 717. Professor Sanchirico has catalogued a long list of various commentators' use of the "sweat equity" analogy at Sanchirico, *supra* note 11, at 1078.

Therefore, wage earner's option is assumed to be "in the money" and to change in value as the value of the market assets change.⁷²

B. ENTREPRENEUR

Our other benchmark case is the entrepreneur. The entrepreneur is assumed to buy a "knock-out" call option on an asset with a significant idiosyncratic component. By "idiosyncratic" we are referring to the fact that entrepreneur, unlike wage earner who holds market assets, is holding an undiversified portfolio and therefore is taking idiosyncratic risk (i.e., having all her eggs in one basket) as well as market risk. Like the wage earner, the strike level is nominal. The value of the option will vary as the value of the firm changes, and an entrepreneur makes money so long as the value of her firm grows. In order to simulate the risk of failure (bankruptcy), we impose a "knock-out" level,⁷³ which causes the option to lapse valueless if the "knock-out" threshold is crossed.

C. EXECUTIVE

The executive is also assumed to buy a call option on an asset with an idiosyncratic component.⁷⁴ The strike level is again nominal. Like the entrepreneur, the value of the executive's option varies with the value of the firm, and the executive will make money if the value of her firm grows. The idiosyncratic volatility of the executive's asset, however, is less than that of the entrepreneur's asset. This is because we assume that the volatility of a more mature, well-established firm is lower than that of a start-up. Put simply, it is less risky to hold stock in Microsoft than to hold stock in a start-up software company.

D. PRIVATE EQUITY MANAGER

The private equity manager is assumed to buy a call option on a portfolio of assets with idiosyncratic components. The strike level is equal to the initial value of all the assets. Because a carried interest is only valuable once the private equity fund returns the original investment of its investors, the strike price on this option is set at the starting value of the portfolio assets. So, the private equity manager only

72. In essence, this is equivalent to simply making an investment in an index fund that mimics the performance of the entire market. We set this up as a call option so that we have similar components in the model across the four types we are comparing.

73. The effect of inserting a "knock-out" feature is to cause the option to expire before its stated maturity date in the event that the value of the underlying asset falls below the stated "knock-out" level. This is a convenient way of adding the risk of bankruptcy or firm failure to the analysis. If the value of the firm or portfolio falls below a certain level, the ability of the option holder to "wait and see" if the value will recover may, in some cases, be "knocked out" even though the possibility remains.

74. The investment of an executive in the equity of her employer, like that of an entrepreneur, is an investment in a single, undiversified asset (again, all her eggs are in one basket), and therefore she faces idiosyncratic risk. *See generally* Murphy, *supra* note 68, at 847-60.

begins to make money once the value of the portfolio exceeds the initial capital (debt and equity) invested. The idiosyncratic volatility of the private equity asset portfolio benefits from diversification across the portfolio. In other words, because a private equity fund does not hold all its eggs in one basket, it is less risky than the entrepreneur's option. Where the risk lies relative to the market assets (i.e., a fully diversified portfolio) is open to debate. We run scenarios based on findings in the existing literature.⁷⁵

E. HEDGE FUND MANAGER

The hedge fund manager is assumed to buy a series of knock-out call options on an idiosyncratic asset. Because hedge fund performance fees are earned annually, each call of the hedge fund manager has only a one-year life. If, at the end of the year, the option is "in the money," the spread is taken and invested directly in the asset, and a new option is purchased for the upcoming year. In addition, because we are assuming a "market neutral" strategy, the hedge fund manager has a beta of zero and hence only idiosyncratic risk and return.⁷⁶ To simulate the risk of a fund failure, we impose a "knock-out" level, which, if crossed, causes the option to lapse valueless. We interpret this "knock-out" level as being equivalent to the percentage draw down that fund investors will tolerate before redeeming their interests in a fund.⁷⁷

75. See generally Sanchirico, *supra* note 11.

76. Since beta is the measure of portfolio risk correlated with the market, a market neutral strategy which seeks to avoid correlation with the market, has a beta of zero. In real life, few "market neutral" hedge funds succeed in fully eliminating beta. For our purposes, we simply incorporate any such volatility into the idiosyncratic risk variables we use in the model.

77. As already noted, an important difference between hedge funds and private equity funds is the differing degree of liquidity each type of fund offers its investors. Traditionally, most private equity funds require their investors to commit capital for a period of ten to twelve years. The capital-weighted average life is shorter since capital is drawn down (as investments are made) and returned (as investments are harvested) over time. Nevertheless, the legal commitment made at the outset calls for a long-term, relatively illiquid investment in the fund. As a consequence, private equity fund managers can be said to operate a relatively low-risk business since they do not face the risk of a sudden demise of their business by reason of a "run on the bank." To use the industry vernacular, they have relatively "permanent capital." In contrast, hedge fund managers face a substantially higher risk of "losing their seat." Until relatively recently, the majority of hedge funds offered their investors annual and often quarterly redemption rights. See Jasmina Hasanhodzic & Andrew W. Lo, *Can Hedge-Fund Returns Be Replicated?: The Linear Case 1-7* (unpublished draft of Aug. 16, 2006), available at <http://ssrn.com/abstract=924565>. This changed, at least among the more successful funds, to bi-annual redemption because of the recent attempt by the SEC to regulate hedge fund managers. See SEC STAFF REPORT, IMPLICATIONS OF THE GROWTH OF HEDGE FUNDS 7-8 (2003), available at <http://www.sec.gov/news/studies/hedgefunds0903.pdf>. The SEC exempted funds with "lock-up terms of two years or more in order to leave private equity managers unregulated." *Id.* Ironically, this attempt to increase regulation simply caused the hedge fund industry to curtail the liquidity rights it afforded its investors to avoid regulation. See Said, *supra* note 67. Nevertheless, hedge fund managers continue to face a far greater risk of "going out of business" when their performance disappoints their investor base. In addition, because of so-called "high water mark" provisions, it is actually in a manager's interest to consider shutting a fund with negative returns and returning capital even when investors

To make the comparisons, we begin by asking the following two questions: What are the returns (measured in annual percentage returns and aggregate dollars) on an equal dollar amount invested in each type of call option we've described? And what are the risks associated with each such investment as measured by the standard deviation (measured in annual percentage variance and aggregate dollars) of those returns? We begin with a standard linear model for asset returns:

$$R_A = R_f + \beta_A(R_\mu - R_f) + \alpha_A + \varepsilon$$

Where:

- R_A is the asset return;
- R_f is the risk-free rate of return;
- β_A is the asset's beta, measuring its correlation to market assets;
- R_μ is the market return, and therefore $(R_\mu - R_f)$ is the equity risk premium;
- α_A is the asset's alpha, measuring the non-market component of return;
- and ε is the measure of the asset's idiosyncratic risk and the associated return.

While it is descriptive of the components of asset returns, this simple linear model offers little insight. It is too static. Richness comes from putting this basic description of asset pricing into motion by using a stochastic process to simulate the range of potential outcomes for an assumed investment in each of the asset types.⁷⁸ We do this by using a standard Monte Carlo simulation.⁷⁹ By analyzing each compensation type through a simulation of the distribution of probabilistic outcomes, we can now calculate expected return as the mean of the outcomes in $n = 1,000$ random iterations of each investment, giving us a sample set from which to observe important secondary characteristics.⁸⁰ In developing the expected return outcomes through a Monte Carlo simulation we can

themselves have not forced a liquidation of the fund through redemption calls. To reflect this risk faced by hedge fund manager, we have inserted a "knock-out" feature into the call option we model. We set the "knock-out" level to be equal to the level of fund losses at which a typical fund would shut down and return capital, either voluntarily or through investor redemptions. This is admittedly a very arbitrary variable for which we have no empirical foundation. We do test the sensitivity of our conclusions to changes in our assumed "knock-out" levels below.

78. See *infra* Table A.

79. See generally JOHN C. HULL, *OPTIONS, FUTURES, AND OTHER DERIVATIVES* (7th ed. 2008) (discussing Monte Carlo simulation in the context of financial instruments); GEORGE S. FISHMAN, *Monte Carlo: Concepts, Algorithms, and Applications* (1996) (discussing the Monte Carlo technique in more general circumstances).

80. In addition to the 1,000 basic random iterations of investment simulation, we also use an additional second set of 1,000 random iterations, for a total of 2,000 iterations. The second set is constructed by using underlying normal random variables which are antithetic to the first set. This technique allows us to obtain more precise results by reducing the sampling error associated with a Monte Carlo simulation.

reveal and quantify the differing impact of risk by measuring the standard deviation of the set of outcomes and the impact of any “knock-out” thresholds on the expected value of each asset type. This in turn will allow us to make a meaningful comparison of each compensation type while adjusting for the differing structures *and risks* associated with each.

In running the Monte Carlo simulations, returns on the “market asset” are modeled as normally distributed with a mean annual return of 13% and a standard deviation of 16%.⁸¹ The idiosyncratic components of asset returns are also assumed to follow normal distributions, and these components are assumed to be uncorrelated with the market returns. Since the return variables are normally distributed, asset values will follow log-normal distributions. As stated in the model, the mean return of each asset will have a market component and an excess return component, and the volatility will have a market component and an idiosyncratic risk component. In addition, if an asset has a “beta” value relative to the market other than one, a risk-free rate of 5% is used to compute the market portion of returns.⁸²

III. THE RESULTS

The assumptions used in running the simulation are set out below:

TABLE A: MODELING ASSUMPTIONS

TYPE	BETA (β)	ALPHA (α)	IDIOSYNCRATIC VOLATILITY (ϵ)	“KNOCK- OUT” LEVEL	CALL STRIKE	OPTION TERM
WAGE EARNER	1.0	0%	0%	0%	0%	5 years ⁸³
ENTREPRENEUR	1.9	0%	60%	50%	0%	5 years
EXECUTIVE	1.0	0%	30%	0%	0%	5 years
PRIVATE EQUITY MANAGER	1.0	0%	17.32% (60% per asset/12 uncorrelated assets)	0%	100% aggregate	5 years
HEDGE FUND MANAGER	0.0	14.59%	15.96%	90% aggregate	100% aggregate	1 year; invested in asset thereafter

81. A normal standard distribution is completely characterized by its mean and standard deviation. *See generally* KAI LAI CHUNG & FARID AITSAHLIA, *ELEMENTARY PROBABILITY THEORY* (4th ed. 2006) (discussing probability and the normal distribution).

82. *See infra* Table A.

83. The Wage Earner is assumed to receive a salary payment each year and, after paying ordinary income taxes on the payment, invest the proceeds in the market for the remainder of the five year term of the analysis. Thus, the term of each of his investments expires at the end of the five year window, but there will be a new investment made in each year of the analysis.

The assumptions for a wage earner are simply driven by our definition of the “market asset” and commonly used inputs for the market asset. For entrepreneur, we set the beta level based upon a recent empirical study of venture capital portfolio companies.⁸⁴ That study measured volatility of entrepreneurial companies at 89%.⁸⁵ We instead use a more optimistic volatility of 60%, being an approximation of the volatility of a small cap NASDAQ-traded company.⁸⁶ The effect of this change is to narrow the tax subsidy we find for private fund managers. We also impose a 50% “knock-out” threshold in order to simulate the risk of going out of business.⁸⁷ At a 50% “knock-out” rate, the failure rate for the entrepreneur is approximately 30.65%. For the corporate executive we use a beta of one and idiosyncratic risk of 30%, approximating the characteristics of a mature, large cap NYSE-traded company.⁸⁸ For the private equity fund assets, we take the approach found in a recent study of private equity fund economics, setting beta as one (relatively mature, steady cash-flowing businesses) but individual idiosyncratic risk at 60% (comparable to the small-cap stock level used for the entrepreneur).⁸⁹ We do not impose a “knock-out” level for either the corporate executive or the private equity fund manager because of our assumption that the idiosyncratic risk variable and the structure of the call option adequately encompass the risks of failure. We do impose “knock-out” levels in the cases of the entrepreneur and the hedge fund managers because of the need we perceive to include not only a risk of failure related solely to the performance of the underlying asset, but also a risk of failure arising from the “early” termination of the option when investors “pull the plug” at some level of loss. We believe these are important nuances to the terms of the entrepreneur and the hedge fund manager because they do substantially dampen the expected value of each that derives from the combination of high volatility and the leverage inherent in the option structure. Finally, for the hedge fund assets, we used the data on a sample of long/short equity funds from a recent study of hedge fund returns to set alpha at 14.59% and idiosyncratic volatility at 15.96%;⁹⁰ we assume such funds are “market

84. John H. Cochrane, *The Risk and Return of Venture Capital*, 75 J. FIN. ECON. 3, 19 (2005).

85. *Id.* at 18.

86. Turan G. Bali & Nusret Cakici, *Idiosyncratic Volatility and the Cross Section of Expected Returns*, 43 J. FIN. & QUANT. ANALYSIS 29, 41–42 (reporting that the range of idiosyncratic volatility and betas for all stocks traded over a twenty-year period on the major exchanges range from a volatility of 15.87% per annum and a beta of 0.60 for the highest quintile to a volatility of 95.69% and a beta of 1.14 for the lowest). In picking our inputs, we used values that were not set at the two extremes, but approximated the second and fourth quintiles.

87. The Cochrane study found a failure rate of 9% among its sample. *Id.*

88. *See supra* Table A; *see also supra* notes 86–88.

89. Metrick & Yasuda, *supra* note 52, at 19–20; *see also*, Knoll, *supra* note 11, at 13–18 (using the same attributes to calculate likely tax revenues from a change in the taxation of carried interests).

90. *See* Hasanhodzic & Lo, *supra* note 77, at 24.

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neutral” and therefore use a beta of zero. We assume a “knock-out” level of 90%, implying a tolerance by investors for drawdowns of up to 10%.

These inputs generate the following results:

TABLE B: FIVE-YEAR EXPECTED RETURN MULTIPLES AND STANDARD DEVIATION OF RETURNS⁹¹

TYPE	EXPECTED RETURN	STANDARD DEVIATION
WAGE EARNER	1.06	0.24
ENTREPRENEUR	10.17	26.75
EXECUTIVE	1.67	1.44
PRIVATE EQUITY MANAGER	3.64	3.56
HEDGE FUND MANAGER	4.96	3.63

To express these results in annual terms, we calculate the geometric annual returns as follows:

TABLE C: ANNUALIZED EXPECTED PERCENTAGE RETURNS AND STANDARD DEVIATIONS

TYPE	EXPECTED RETURN	STANDARD DEVIATION
WAGE EARNER	0.77%	4.57%
ENTREPRENEUR	3.66%	75.85%
EXECUTIVE	5.76%	16.45%
PRIVATE EQUITY MANAGER	10.66%	45.18%
HEDGE FUND MANAGER	26.29%	37.45%

In judging the reasonableness of these simulated results, we note that both the hedge fund manager and private equity manager have “leveraged” positions relative to the returns of the underlying portfolio assets (in other words, they hold options). We also note that all returns are calculated giving effect to current tax regimes. Therefore, for example, wage earner expected returns are calculated after deducting an upfront tax of 35%, and corporate executive expected returns are calculated after deducting a 35% tax paid at the end of the five-year

91. These return multiples represent the full, final after tax return to the investor per dollar invested, including any return of the amount originally invested.

period. The annualized geometric returns for the underlying portfolios in our simulation (in other words the gross returns enjoyed by the investors in the funds, which returns are comparable to the ones more commonly reported for these types of investments) are 14.57% for private equity funds, and 22.04% for hedge funds. The standard deviations of these returns were 12.22% for private equity funds, and 9.09% for hedge funds. In our simulation, hedge funds substantially outperformed the market with comparable risk; private equity firms outperformed the market but with higher risk.

We also note that while the entrepreneur has a very low annualized rate of return, he nevertheless has a very high five-year expected return in dollar terms. While this may appear peculiar initially, the outcome is intuitive. In any given year, an entrepreneur faces a low expectation of return given the enormous volatility and “knock-out” risks he faces. However, over time, that same volatility offers increasingly outsized potential rewards, which begin to overwhelm the risks in determining expected value. In other words, to take big risks, the entrepreneur must have the possibility (however small) of relatively enormous outcomes in the end. Despite the relatively low probability of success, the size of opportunity generates a large expected value (just a very risky one).

Having made these calculations, we are now in a position to compare on an “apples to apples” basis the managerial compensation types by benchmarking them against the wage earner and the entrepreneur, and to measure the impact of taxes. As noted above, these results were calculated imposing the taxes payable under the current regime. This current regime of taxation is summarized below:

TABLE D: TAX ASSUMPTIONS (UNDER CURRENT LAW)

TYPE	INITIAL TAX	TAX ON GAIN ABOVE INITIAL AMOUNT RECEIVED ⁹²	TAX ON FINAL AMOUNT
WAGE EARNER	35%	15%	0%
ENTREPRENEUR	0%	0%	15%
EXECUTIVE	0%	0%	35%
PRIVATE EQUITY MANAGER	0%	0%	15%
HEDGE FUND MANAGER	0%	0%	35% ⁹³

92. The column “Tax on Gains Above Initial Amount Received” represents a tax on gain amounts only, with no tax deduction for losses.

93. In fact, the actual rate paid by hedge fund managers on “deferral” brought into income is probably lower. First, there may be planning opportunities within the hedge fund structure to allocate gains and losses among various investors so as to allocate long-term capital gains to the manager and ordinary income or short-term capital gains to offshore or tax-exempt investors. Second, hedge fund managers can defer income for much longer than five years. The longer term would increase the value of their option. Thus, it may be that our calculation understates the level of tax subsidy enjoyed by the hedge fund manager.

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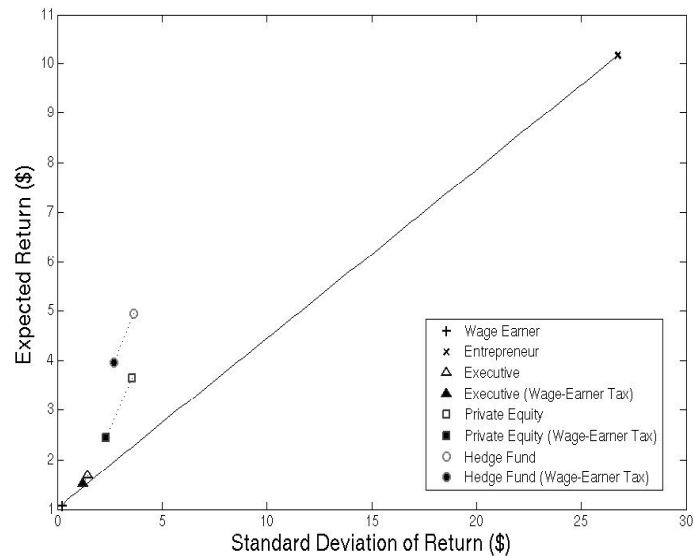
To measure the effect of taxes, we ran the model again using a second tax regime. The second scenarios applied a regime where all managerial compensation types (other than entrepreneur) were taxed in the same manner as wage earner compensation. This tax regime is summarized below:

TABLE E: TAX ASSUMPTIONS (UNDER PROPOSED REVISION)

TYPE	INITIAL TAX	TAX ON GAIN ABOVE INITIAL AMOUNT RECEIVED ⁹⁴	TAX ON FINAL AMOUNT
WAGE EARNER	35%	15%	0%
ENTREPRENEUR	0%	0%	15%
EXECUTIVE	35%	15%	0%
PRIVATE EQUITY MANAGER	35%	15%	0%
HEDGE FUND MANAGER	35%	35% annual tax on earned amounts	0%

The results can be seen in the following graph:⁹⁵

FIGURE I:



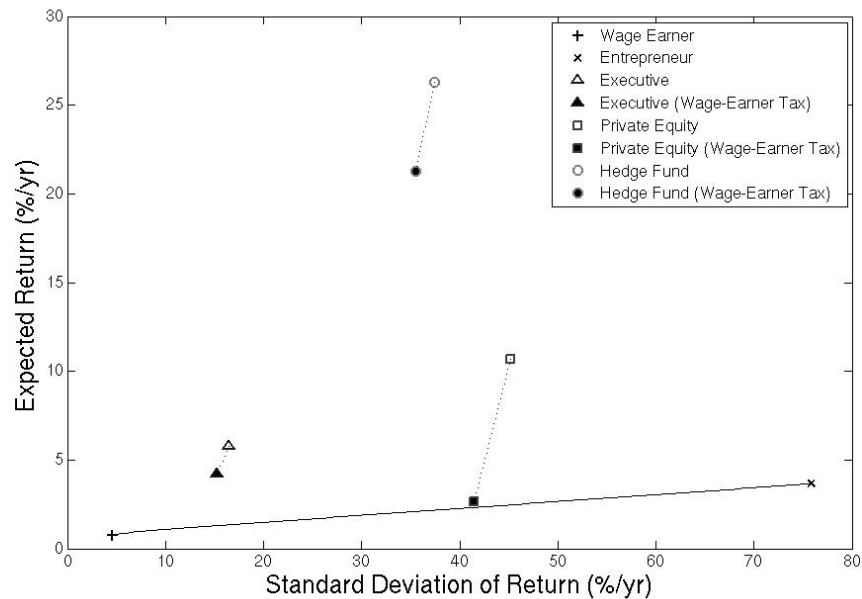
94. The column "Tax on Gains above Initial Amount Received" represents a tax on gain amounts only with no tax deduction for losses.

95. The vertical axis on the graph measures full final after tax return to the investor per dollar invested, including any return of the amount originally invested. The horizontal axis measures the standard deviation of this return amount.

In Figure 1, the dark line represents the frontier formed as one substitutes wage earner compensation for entrepreneur. Since each of these choices is taken as a given value under current tax policy and as the points of comparison for discussing other forms of compensation, we define this frontier as the “policy line.” In other words, it is the line that the current taxation of these two archetypal forms of compensation defines as the risk/reward benchmark. If other types of compensation offer a different risk/reward trade-off than one achievable through a blending of these two types (such potential blending being represented by the points lying on this line), we can say that that type is more or less attractive relative to the other types. To the extent taxes affect that difference, we can then talk about and measure a “tax subsidy.”

We can examine the same comparisons looking at the annualized risk and return numbers. These are plotted on the graph below.⁹⁶

FIGURE 2:



As each of these sets of results shows, as currently taxed, both private equity fund and hedge fund managers enjoy a risk/reward proposition that is superior to the “policy line.” Interestingly, as

96. The vertical axis on the graph measures the annualized compounded percentage return realized by each investment. The horizontal axis measures the standard deviation of this return percentage.

currently taxed, the opportunity to earn compensation in the form of a nonqualified deferred restricted stock award falls very close to the policy line, suggesting that that tax rule does satisfy the notion of parity among types. The private equity fund managers enjoy a compound average after-tax return that is 8.2 percentage points higher per year than the after-tax return to the combination of entrepreneur and employee activities having the same level of risk.⁹⁷ The edge enjoyed by a hedge fund manager is even higher, at 24.1 percentage points per year.⁹⁸ If the tax rate on carried interests of private fund managers were increased from a 15% capital gains rate to a 35% ordinary income rate, and if the tax were payable at the time of grant, rather than in the future, the edge enjoyed by the managers would decrease, *ceteris paribus*, to 0.4 percentage points for private equity managers and to 19.2 percentage points for hedge fund managers.⁹⁹ Thus, taxes may account for as much as 95%, or nearly all, of the excess returns enjoyed by private equity managers, and as much as 20% of the excess returns enjoyed by hedge fund managers.¹⁰⁰

IV. ROBUSTNESS

An appropriate objection to our conclusions generally, and to any attempt to calculate a precise amount of subsidy in particular, is that our conclusions are highly dependent on the inputs we use in our model. Obviously if we are measuring the distance between points on a graph

97. We calculate that the compound average annual return to a private equity manager is 10.7% per year, with a risk of 45.2%. An individual who spends approximately 59% of his time engaged in entrepreneurial activities and the remaining 41% of his time as an ordinary wage earner has the same level of risk but an expected return of only 2.5%, or 8.2 percentage points less than that of the private equity manager. All averages and risks are computed for geometric returns that compound over a period of five years.

98. We calculate that the compound average annual return to a hedge fund manager is 26.3% per year, with a risk of 37.5%. An individual who spends approximately 49% of his time engaged in entrepreneurial activities and the remaining 51% of his time as an ordinary wage earner has the same level of risk but an expected return of only 2.2%, or 24.1 percentage points less than that of the private equity manager. All averages and risks are computed for geometric returns that compound over a period of five years.

99. This calculation assumes that the entire impact of the tax change would be borne by the fund managers and that no correlative change in salary paid by the limited partner investors would occur. For the calculations under the revised tax, the compound average annual return to the private equity manager is 2.7%, with a risk of 41.5%, and the average annual return to the hedge fund manager is 21.3%, with a risk of 35.5%. The corresponding return levels for a combination of entrepreneurial and wage-earner activities with the matching risk levels are 2.3% and 2.1%, respectively. All averages and risks are computed for geometric returns that compound over a period of five years.

100. For private equity managers, the percentage is computed as the percentage reduction from an excess return of 8.2 percentage points to an excess return of 0.4 percentage points. For hedge fund managers, the percentage is computed as the percentage reduction from an excess return of 24.1 percentage points to an excess return of 19.2 percentage points. Both of these results require the assumption that the hypothetical tax change is borne entirely by the fund managers and not their clients.

and drawing conclusions from those measurements, it is enormously important that the positions of the various points be correct, if not absolutely, then at least relatively. While, as we explained above, we have attempted to define each relevant point based upon empirically compelling assumptions, none of the assumptions we use is without uncertainty. Therefore, the best we can say about the precise numerical conclusions we reach regarding the size of the tax subsidy enjoyed by private equity and hedge fund managers is that they are reasonable estimates of their order of magnitude.

We can, however, be more definitive about the general conclusion that a subsidy does in fact exist. To make this assertion we simply need to establish that the relative position of the private equity and hedge fund manager types is superior (i.e., falls above the line) to the other types under a broad range of assumptions. If this finding holds true under all plausible conditions—using ranges of modeling inputs that encompass most any description of the world, then our conclusion is robust.

To test for this form of robustness, we used the following range of modeling inputs:

TABLE F: ROBUSTNESS TESTING INPUTS

TYPE	BETA (β)	ALPHA (α)	IDIOSYNCRATIC VOLATILITY (ϵ)	“KNOCK-OUT” LEVEL
ENTREPRENEUR	1.5 to 4.0	n/a	60% to 90%	30% to 70%
EXECUTIVE	n/a	n/a	30% to 60%	n/a
PRIVATE EQUITY MANAGER	0.6 to 2.0	n/a	40% to 60% per asset/ 12 uncorrelated assets	n/a
HEDGE FUND MANAGER	n/a	12% to 18%	13% to 19%	85% to 95% aggregate

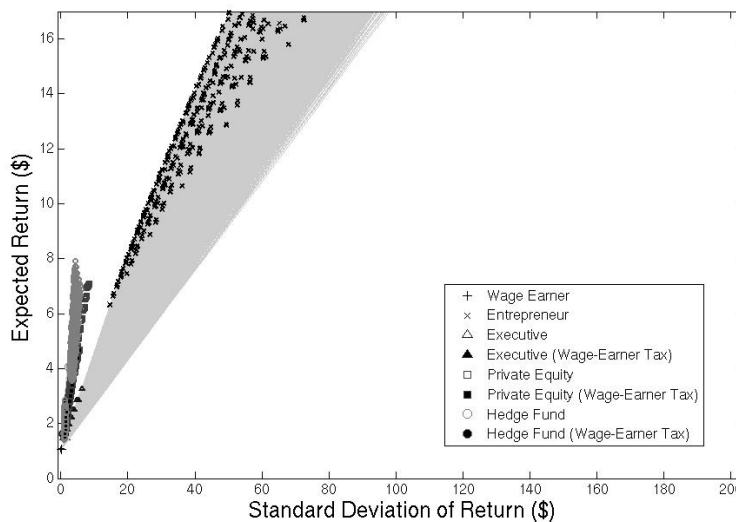
These ranges encompass the range of values for beta, alpha and idiosyncratic volatility we have found in the literature on these various types of investments. For “knock-out” level assumptions for the entrepreneur, we selected a range of levels that translate into a firm failure rate that range from 14.3% to 59.5%.¹⁰¹ For robustness testing purposes, the key is the lower end of the range we selected. As failure rates increase, we are only shifting the policy line further away from the other types. By adding the possibility of a failure rate as low as 16.6%, we are moving the range of potential outcomes for the entrepreneur much farther toward the other points than we suspect most observers

101. Assuming a constant beta of 1.9 and idiosyncratic volatility of 60%.

would see as realistic.¹⁰² For “knock-out” level assumptions for the hedge fund, we selected rates that translate into investor tolerance for up to a 5% loss of capital.

Using these ranges of inputs, we then ran the model again to determine the range of outcomes and their relative positioning. The outcome of this robustness testing can be seen by displaying the “clouds” of potential outcomes these ranges of inputs produce. The results are shown in the following graphs.

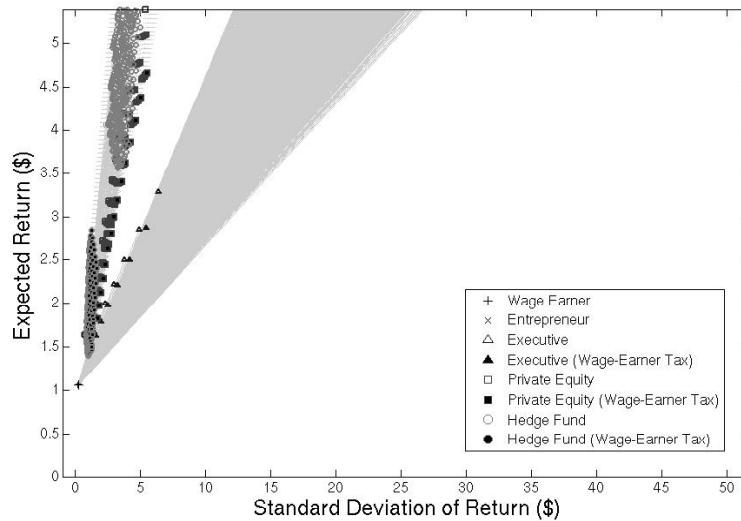
FIGURE 3:



102. Estimates of failure rates among entrepreneurial companies vary greatly. *See, e.g.*, Cochrane, *supra* note 84, at 8 (finding that 8.9% of companies in a large sample of venture-backed companies go out of business); Mark Henricks, *Think Your Startup's Destined to Fail?*, ENTREPRENEUR MAG., Feb. 2007, at 22 (reporting that the popularly believed statistic of a 90% failure rate among new businesses is unsubstantiated and that the best evidence available shows that a majority of new businesses are still in business four years after their founding).

These outcomes can be seen even more clearly if we scale the graph to focus on the lower left quadrant of the picture:

FIGURE 4:



The results portrayed in these pictures illustrate that throughout virtually the entire range of inputs described above, the risk/reward proposition for the hedge fund manager and the private equity fund manager is superior to the complete range of outcomes available to either a wage earner or an entrepreneur. We note that only by subjecting private equity and hedge fund managers to a tax regime comparable to that applicable to an ordinary wage earner do we bring their results close to the “policy line” and then only at the extreme margin. Interestingly, the risk/reward proposition of the corporate executive’s equity compensation package falls close to the “policy line,” albeit at the upper end.

These outcomes suggest to us that our general conclusion is robust—private equity and hedge fund managers do enjoy a tax subsidy.¹⁰³

CONCLUSION

While the precise amount of additional tax required to eliminate the subsidy enjoyed by private fund managers is highly dependent on the

103. Readers are invited to visit the website, <http://www.tbrenn.net/rtm>, where they can find a copy of the model used in this Article’s analysis, color versions of the graphs, and the ability to change the various inputs in order to explore the robustness of our results.

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inputs used in our model, the overall direction of the analysis is clear. Wage earners, entrepreneurs, corporate executives, private equity fund managers and hedge fund managers are each offered an opportunity to convert their human capital into wealth. What differs among them is the nature of the different investment opportunities—the risks and rewards—they have before them, and the way each of these different compensation schemes is taxed. Adjusting for the differing risk and return characteristics of each type of compensation, under a broad range of modeling inputs, we find that private equity fund and hedge fund managers enjoy risk/reward propositions that are superior to wage earners, corporate executives, and entrepreneurs. A significant part of that superiority comes from tax.
