**No. 16-70496 and No. 16-70497**

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**UNITED STATES COURT OF APPEALS**
**FOR THE NINTH CIRCUIT**

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ALTERA CORPORATION AND SUBSIDIARIES,
*Petitioner-Appellee,*

v.

COMMISSIONER OF INTERNAL REVENUE,
*Respondent-Appellant.*

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**ON APPEAL FROM DECISIONS OF**
**THE UNITED STATES TAX COURT**

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**BRIEF OF *AMICI CURIAE***
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## CORPORATE DISCLOSURE STATEMENT

Pursuant to Rules 26.1 and 29(c) of the Federal Rules of Appellate Procedure, *Amici* state that they are all natural persons, and therefore no further disclosure is necessary.

## STATEMENT OF COMPLIANCE WITH RULE 29(c)(5)

Counsel for the parties did not author this brief. The parties have not contributed money intended to fund preparing or submitting of the brief. No person other than *amici curiae*, their members, or their counsel contributed money that was intended to fund preparing or submitting the brief.

## CONSENT OF THE PARTIES

Counsel for the parties have consented to the filing of this brief.

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## IDENTITY AND INTERESTS OF THE *AMICI CURIAE*

*Amici* are economists who have dealt with issues relating to stock-based compensation in their roles as academics, advisors to government agencies and consultants to corporations that use it. *Amici* conclude that, as a matter of economics, the U.S. Tax Court was correct to conclude in *Altera Corp. v. Commissioner (“Altera”)*, and earlier in *Xilinx Inc. v. Commissioner* (“*Xilinx*”), that parties acting at arm’s length would not agree to identify and share an “expense” associated with stock-based compensation in a cost sharing agreement. Amici have no financial interest in the outcome of this case.

**Charles W. Calomiris** is Henry Kaufman Professor of Financial Institutions at Columbia Business School, Director of its Program for Financial Studies, and a professor at Columbia’s School of International and Public Affairs. He serves or served on numerous public policy committees, including the U.S. Congress’s International Financial Institution Advisory Commission, the Shadow Financial Regulatory Committee, the Shadow Open Market Committee, the Financial Economists Roundtable, the Federal Reserve System’s Centennial Advisory Committee, and the Advisory Scientific Committee of the European Systemic Risk Board. Professor Calomiris testified on the subject matter of this Brief in the *Xilinx* case, and the opinions contained here are closely related to that testimony.

**Kevin A. Hassett** is the State Farm James Q. Wilson Chair in American Politics and Culture at the American Enterprise Institute (AEI). Dr. Hassett is AEI's director of research for domestic policy. Before joining AEI, Hassett was a senior economist at the Board of Governors of the Federal Reserve System and an associate professor of economics and finance at Columbia Business School. He served as a policy consultant to the U.S. Department of the Treasury during the George H. W. Bush and Bill Clinton administrations.

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## SUMMARY OF ARGUMENT

In *Altera*, the Tax Court invalidated a Treasury regulation requiring that related participants in cost-sharing agreements should share expenses associated with any stock-based compensation issued by participants to employees to the extent this compensation was related to activities undertaken within the scope of these agreements.[1] In promulgating this regulation, the Treasury argued for the expensing of stock-based compensation on the grounds that there is no distinction between stock-based compensation and other compensation such as wages and bonuses.[2] Under the Treasury's view, the failure to charge an expense for stock-based compensation allows U.S. multinational firms with intercompany cost-sharing agreements to engage in tax arbitrage by using stock-based compensation for employees rather than purportedly equivalent wages or bonuses.

As a matter of economics, the U.S. Tax Court is correct to invalidate this Treasury regulation, on the ground that unrelated parties transacting with one another at arm's length would not, and indeed as a practical matter could not,

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[1] *Altera Corp. v. Commissioner*, Nos. 6253-12, 9963-12 (T.C. July 27, 2015) ("*Altera*"), at 2.

[2] *Altera* at 11.

share stock-based compensation. In Part I, we establish that the Treasury's attempted rationale for requiring the cost-sharing of stock-based compensation is inconsistent with the well-recognized economic characteristics of such compensation. Stock-based compensation enhances firm value in ways that wages or bonuses cannot, by incentivizing employees to maximize shareholder value, encouraging talented employees to remain with the firm and providing a common economic objective that induces greater cooperation within the firm. Unlike wages or bonuses, stock-based compensation entails no expense to the firm because it transfers claims on future earnings from one group of shareholders to another (employees), leaving the aggregate economic income and cash flows of the firm unaffected. Stock-based compensation may entail no net cost to shareholders of record at the time the grant is made ("pre-existing shareholders") because any dilution to their share of future earnings may be more than offset by the additional future earnings generated by stock-based compensation's incentive effects.

Part II supplements the analysis in Part I and shows that it would be neither rational nor even feasible for participants in an arm's length cost-sharing agreement to share a deemed expense associated with the stock-based compensation of other participants. First, there is no firm cost to share; stock-based compensation entails no cost to the firms entering such an agreement at arm's length. Nor can one assume, in general, that it entails a cost to pre-existing shareholders in net terms. Even if one were to focus (incorrectly) on costs paid by pre-existing shareholders, and also focus (incorrectly) only the gross cost paid by those shareholders, the complexities of valuing stock-based compensation and the absence of an agreed framework for determining the gross cost to pre-existing shareholders make it infeasible for arm's length parties to agree on a method to share stock-based compensation even if they sought to do so. Stock-based compensation does not take the form of the transfer of marketable securities with readily estimable values, and its value cannot be ascertained with reasonable certainty using market information about firms' traded securities. Empirical evidence unambiguously confirms that arm's length parties entering into joint technology or marketing agreements do not explicitly share expenses associated with their employee stock options.

The arguments we present are not new. Professors William Baumol and Burton Malkiel reached similar conclusions in a report presented to Treasury when the regulation at issue here was being deliberated.[3] As noted in our

[3] Report of William J. Baumol and Burton G. Malkiel, "Status of Stock Options in Shared-Cost Contracts," April 8, 2002 (the "Baumol & Malkiel 2002

introduction, one of the authors of this brief (Charles Calomiris) presented these conclusions in expert testimony on the *Xilinx* matter and addressed many of these issues in a publicly available paper.[4] The ideas we discuss here are familiar to Treasury and to other participants in public deliberations of the now invalidated regulation.

In Part III, we address the Treasury's contention that despite evidence from arm's length transactions showing that stock-based compensation is not shared in cost-sharing agreements, that evidence is not relevant to cost-sharing agreements between related parties. Were this argument accepted, it would substantially eliminate the arm's length standard that underlies transfer pricing. However, this argument is fallacious and reflects a fundamental misconception regarding the arm's length standard. The arm's length standard requires one to analyze how the terms of an intercompany transaction *would* be established *if* the relevant entities were placed at arm's length. It is not conceptually difficult

Report"); presented in the Supplemental Excerpts of Record, Volume 1, pages SER098-SER158.

[4] Charles W. Calomiris, "What's Wrong with Expensing Employee Stock Options?", August 2005, American Enterprise Institute Working Paper, *available at* https://www0.gsb.columbia.edu/faculty/ccalomiris/papers/What's%20Wrong%20with%20Expensing%20Employee%20Stock%20Options.pdf.

to apply the arm's length standard to intercompany cost sharing arrangements. One simply places the related entities at arm's length and models their negotiations as being intermediated through market arrangements. By definition, two arm's length entities no longer share a direct interest in the same stock price or common access to shared information. Therefore the intercompany transaction between two such entities can be benchmarked by the observed results of third-party transactions in similar cost sharing arrangements – results that show, in keeping with the predictions of economic theory and reasoning, that unrelated parties do not in fact share stock-based compensation.

## ARGUMENT

### I. The inclusion of a deemed expense for stock-based compensation in cost-sharing agreements violates economic principles and sound tax policy.

The Treasury justified its invalidated 2003 regulation on the expensing of stock-based compensation on the grounds that stock-based compensation entails an economic cost to the issuing participant and that it could not find "any basis for distinguishing between stock-based compensation and other forms of compensation in this context."[5] That claim is echoed by Susan Morse

[5] *Altera* at 11.

and Stephen Shay, writing as *amici curiae* in support of Treasury's appeal before this court. Indeed, Professors Morse and Shay describe stock-based compensation as equivalent to cash.[6]

Treasury, and the *amici* who write in support of its position, make fundamental errors when comparing wages with stock-based compensation. Most obviously, they incorrectly assume that stock-based compensation is a cost to issuing firms. Furthermore, they incorrectly assume that its value can be readily ascertained using market data. With respect to the first error, stock-based compensation is more than just a substitute for wages, and it does not affect firms' cash flows the way wage payments do. Due to the incentives it creates among, stock-based compensation creates benefits, but no costs, to the issuing firm. Moreover, properly measured, stock-based compensation may not create any net costs to the shareholders of the firm at the time the grant is issued ("pre-existing shareholders").

With respect to the second error, quantifying the cost to pre-existing shareholders of issuing stock-based compensation to employees, if any, requires

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[6] Brief of *Amici Curiae* J. Richard Harvey, Leandra Lederman, Ruth Mason, Susan Morse, Stephen Shay And Bret Wells, In Support Of Respondent-Appellant, page 10.

much more information than that which is used to price market-traced stock options or other securities. For example, employees' expected longevity, the risk of an employee deciding to move to another firm, and the employees' risk aversion all would affect the expected value of employee stock options. Information about these factors is not available to outsiders. Thus it is not surprising that parties operating at arm's length would not incorporate stock-based compensation into their cost-sharing arrangements.

We first explain how stock-based compensation creates incremental value for a firm different from wage compensation. That is useful not only for understanding why stock-based compensation entails no cost to issuing firms; from a tax policy perspective it explains why measures imposing a cost on the use of such compensation—especially a cost ungrounded in economic principles—is likely to harm the economic performance of such firms, especially in technology-intensive sectors that offer the strongest prospects for growth within the U.S. economy.

### A. Broad-based employee stock options create value for the firm.

Historically, corporate employees were compensated predominantly through wages or bonuses, which depended only to a limited extent on the recent performance of the firm. Therefore, the interests of employees differed from those of shareholders, who were interested in the value of their shares. The separation of ownership from management and operation has been widely recognized, at least since the 1930s, as a potential impediment to the performance of the firm.

Stock-based compensation helps to overcome the divergence of interest between shareholders and employees, encouraging employees to act in the interest of the firm's owners. Consider employee stock options ("ESOs"), a widely used form of stock-based compensation. An ESO "vests," i.e. becomes exercisable by the employee, after a designated period after being granted. Thereafter, the employee (if still employed by the firm) has the option to purchase shares at a designated exercise price at any time prior to the expiry date of the option (barring non-trading windows). This right is worth exercising only if the stock price is higher than the exercise price. Therefore, employee stock options give employees the incentive to help raise the firm's future stock price.

Stock-based compensation not only focuses employees on the value of the firm but helps retain talented employees in rapidly growing markets with intense demand for skilled employees. ESOs or restricted stock grants do not vest until the employee has remained with the firm for a certain period, incentivizing them to remain in the meantime. Indeed, these grants may induce employees to remain even after ESOs have vested and can be exercised. In contrast, when employees are compensated with wages or bonuses, firms are under constant pressure to benchmark wages to market to avoid losing good employees. The cash flow and administrative burdens of constantly tracking and matching market salaries exposes the firm to the risk of losing their best employees in "hot" markets, and the risk of facing unexpected spikes in cash outflows. Stock-based compensation automatically adjusts compensation to changing market conditions, while also incentivizing individual effort, promoting teamwork, and building employee loyalty. If the firm's stock price rises with improvements in the stock prices of its sector or the broader market, the firm's ESOs become more valuable at precisely the time external job opportunities are also becoming more attractive. Therefore, ESOs allow firms to retain employees without requiring costly calibrations of its compensation package every time the market fluctuates.[7]

Stock-based compensation promotes teamwork because it harmonizes the objectives of employees across the organization and enhances cross-functional

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[7] Paul Oyer, "Why do Firms Use Incentives That Have No Incentive Effects?" *The Journal of Finance*, 59, August 2004, 1619-1649.

cooperation that is vital to firms' success in fast-moving markets. Firms like Altera, although commonly described as "technology firms," must complement their technological assets with effective marketing, distribution and customer service in order to succeed. Stock-based compensation gives employees in different functions of the firm a common incentive—maximizing the share price—and thus encourages the cross-functional collaborations necessary for the firm's success.

Empirical research in finance strongly confirms the contributions made by stock-based compensation to incentives and firm value. Brickley, Bhagat & Lease report that the announcement of stock-based compensation programs, including ESOs, restricted stock and stock appreciation rights, significantly raise the stock price of the announcing firm in the days leading up to shareholders' approval of the plan.[8] DeFusco, Johnson and Zorn found that announcements of executive stock option plans are followed by positive stock price reactions, indicating that shareholders regard these plans as beneficial to

[8] James Brickley, Sanjai Bhagat, and Ronald Lease, "The Impact of Long-Range Managerial Compensation Plans on Shareholder Wealth," *Journal of Accounting and Economics,* Vol. 7, 1985, 115-129.

the stock price.[9] Other studies focus on operating performance consequences of stock-based compensation. Ittner, Lambert and Larcker report that among new economy firms, those with lower-than-expected grants of stock-based compensation report poorer return on assets in subsequent years.[10]

Empirical research also identifies the channels through which stock-based compensation improves corporate performance. In a survey of new economy firms conducted in 1998 and 1999, Ittner, Lambert and Larcker found that retention of employees was the most widely cited objective of companies' stock option and restricted stock programs and the scale of these programs was positively related to the expressed importance of the retention objective.[11] Lin and Sesil report that, consistent with the retention effect of ESOs, broad-based

[9] Richard Defusco, Robert Johnson, and Thomas Zorn, "The Effect of Executive Stock Option Plans on Stockholders and Bondholders," *Journal of Finance*, Vol. XL V, No. 2, June 1990, 617-627

[10] Christopher D. Ittner, Richard Lambert and David F. Larcker, "The Structure and Performance Consequences of Equity Grants to Employees of New Economy Firms," *Journal of Accounting and Economics* 34 (2003) 89–127.

[11] *Id*.

ESO plans increase the "organizational capital" of the firm, i.e. the set of internal operating, investment and innovation capabilities within a firm.[12]

Thus, both economic theory and empirical evidence strongly support the view that stock-based compensation generates significant benefits for the issuing firm and its pre-existing stockholders.

The efficacy of stock-based compensation in driving corporate performance is also evident in the extent to which firms came to rely on this compensation by the early 2000s. In a 2002 survey of multinational firms, the National Center for Employee Ownership found that 79 percent of U.S.-based multinationals had a non-executive stock option plan for their North American operations;[13] 52 percent of European-based multinational firms had a non-executive stock option plan for their North American operations.[14] The survey showed that 53 percent of production, clerical, and general employees who worked in North America for a U.S.-based multinational firm received stock

[12] Yu Peng Lin and James C. Sesil, "Do Broad-Based Stock Options Promote Organizational Capital?" *British Journal of Industrial Relations*, 49:S2 July 2011 0007–1080 pp. s402–s416.

[13] National Center for Employee Ownership & Global Equity Organization, 2002 Global Equity Compensation Benchmark & Trends Results, page. 10

[14] *Id*. page 10

options;[15] 14 percent of production, clerical, and general employees who worked in North America for a European-based multinational firm received stock options.[16] Among Silicon Valley respondents, 34.5% of ongoing stock option grants and 31.9% of new hire grants went to non-management workers.[17]

Thus, stock-based compensation was widely used by public firms, especially in technology-intensive sectors, in the years leading up to the period at issue in *Altera*. This ubiquity cannot be explained by tax arbitrage. Instead, it reflects the efficacy of ESOs in enhancing corporate performance.

In light of this evidence, there is no basis to argue that ESOs serve merely to substitute for wage compensation. It is true that absent stock-based compensation, the firm would have to pay additional wages to the extent of the value placed upon the stock-based compensation by employees. However, a wage of equivalent value to the employee would leave the employer—the firm—in a significantly worse position because it would fail to generate the incentive effects through which stock-based compensation adds significantly to

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[15] *Id*. page 14.

[16] *Id*.

[17] NCEO, *Current Practices in Stock Option Design*, 2nd Ed, 2001.

firm value. Thus, stock-based value not only substitutes for wages but also creates significant value for the firm.

### B. Stock-based compensation does not create an expense.

At the heart of *Altera* is whether unrelated firms entering into cost-sharing agreements at arm's length would agree to share a deemed cost associated with stock-based compensation. A step in addressing this question is to consider whether stock-based compensation can properly be understood as entailing a cost for the firm.

#### 1. Stock-based compensation does not create a cost to the firm.

A payment of wages requires the company to transfer resources from the firm to its employees, who are—with respect to the labor transaction generating the wages—entities external to the firm. Thus a wage payment reduces the firm's earnings. By contrast, a newly issued ESO or restricted stock grant merely redistributes ownership claims, and therefore earnings, from one group of shareholders (pre-existing shareholders) to another (new shareholders created by the grant). The firm's earnings are unaffected by the physical fact of transferring shares or options to employees. Thus, stock-based compensation is not an expense for firms.

The absence of an economic cost to firms from stock-based compensation can also be seen from a financial markets perspective. Finance theory values the assets of any firm by estimating its stream of future "free cash flows" before debt service, and discounting that stream to compute a present value of the firm's assets. Free cash flow captures the amount of cash that an unlevered firm would retain from its operations, after taking account of its corporate tax payments and investment needs.

Neither the granting nor the exercising of employee stock options reduces the value of the firm (defined either as the value of its assets or the value of its assets net of debt), unless such actions (1) reduce the expected stream of free cash flows, or (2) increase the discount rate used to value those free cash flows, or (3) increase the market value of a firm's debts more than its assets. Neither the granting nor the exercising of employee stock options would have any of these three effects.

To the contrary, because the granting of employee stock options results in enhanced incentives for managers and employees to improve free cash flows, one would expect it to increase the value of the firm rather than reduce it.

Of course, employees who receive stock-based compensation place a positive value on this compensation. Some advocates for expensing stock-based compensation in a cost-sharing arrangement contend that if stock-based compensation generates value to employees, then it must impose costs on the issuing firm. That argument is erroneous: the granting of employee stock options may create value for both the firm and its employees to the extent that the granting of options improves the firm's future free cash flows. Furthermore, even if the value to the employees of the options granted by the firm exceeds the present value of the incremental free cash flows created by their positive incentive effects, that does not result in any lost value to the firm itself, but rather to its pre-existing stockholders. Thus, the fact that employee stock options have value to employees does not imply that they are a cost to the firm that grants them.

### 2. Stock-based compensation generally does not create a ***net*** cost to pre-existing shareholders.

Those who contend that stock-based compensation grants create a cost typically focus on the perspective of the pre-existing shareholders of the firm at the time the grant is made. It is argued that although such shareholders incur no cash cost from the issuance of stock-based compensation, they reduce their share of the total ownership of the firm, and thus reduce the percentage of the firm’s earnings they can claim in the future.

However, even if it is the perspective of pre-existing shareholders rather than that of the firm that is relevant to the issues before this Court—and, as a matter of economics, we disagree with such a contention—the argument that pre-existing shareholders incur a cost from issuing stock-based compensation is incomplete in a vital respect. It fails to take into account the benefits created by stock-based compensation, which cannot be realized under an alternative form of compensation such as wages. Taking this offsetting benefit into account, pre-existing shareholders often incur no opportunity cost from the issuance of stock-based compensation.

A simple example explains this balancing of gross costs and offsetting benefits. Suppose that, in order to incentivize its employees, a firm issues stock-based compensation that is expected to increase the total number of shares outstanding by 5%. Absent any change to the firm's aggregate earnings, the grant will reduce earnings per share by 5%, resulting in a cost to pre-existing shareholders through dilution. However, if the incentive benefits of the grant cause the firm's total revenues to rise, causing in turn its earnings to rise by 7%, then earnings per share will actually rise by 2% as a result of the grant. And if the granting of stock-based compensation also permits wage expenses in the future to decline, then earnings per share will rise by even more. Pre-existing shareholders will enjoy an increase in earnings per share, not a cost arising from dilution.

The granting of employee stock options entails a *gross* cost to pre-existing shareholders because of expected dilution (although not a gross cost to the firm, as discussed in the section above). The issuance of stock-based compensation creates the likelihood that the *share* of total ownership—and therefore the share of total future earnings—claimed by pre-existing shareholders will shrink in the future. However, this gross cost to pre-existing shareholders may not entail a *net* cost, since the granting of employee stock options may have positive earnings consequences for pre-existing shareholders which more than offset the effect of dilution. Indeed, the primary purpose of granting employee stock options is to create a coincidence of interest between employees and their employers, a sharing of capital income as a means of attracting and retaining talented employees, and greater individual effort and teamwork.

When thinking about the likely net costs (if any) for pre-existing shareholders, it is useful to draw a distinction between stock-based compensation to senior executives and stock-based compensation to non-executive employees. In a well-managed firm (i.e., a firm whose management seeks to maximize the value of the firm to its pre-existing shareholders), senior executives with the authority to influence the grants of stock-based compensation will grant such compensation to management and other employees only if they expect that doing so will result in a net gain to pre-existing shareholders. However, in firms where senior management have entrenched themselves beyond the reach of corporate governance mechanisms, it is possible that excessive grants of stock-based compensation are made to senior management, which in some cases might result in a net cost to pre-existing shareholders.

However, no such net cost is likely to arise from broad-based grants of stock-based compensation to non-executive employees. The granting of such stock-based compensation should result in a net gain to pre-existing stockholders, irrespective of the motivations of managers, because the granting of options to non-executive employees cannot be motivated by the desire by senior management to take resources from their stockholders. Management does not directly benefit from the granting of options to other employees, and if the granting of those options results in a net loss to pre-existing shareholders, then managers who also own stock or options will share in that net cost. Thus, even in the presence of agency problems, managers have an incentive to grant options to non-management employees only when doing so results in a net gain to pre-existing shareholders.

The distinction between executive grants and non-executive grants of stock-based compensation is relevant because the great majority of stock option grants by U.S. corporations, and by technology firms in particular, are directed at non-executive employees. Critics of stock-based compensation, and in particular ESOs, have charged that senior executives grant excessive levels of ESOs to themselves as a form of managerial rent extraction from the firm. Even researchers who have expressed skepticism about ESOs acknowledge that a very large portion of ESO grants go to non-executive employees and are thus free from purported managerial conflicts of interest. Brian Hall and Kevin Murphy point to that fact to show that managerial agency explanations of the granting of stock options are implausible: "The managerial rent-extraction hypothesis is, at best, an explanation for the very top executives … in 2002, for example, more than 90 percent of options granted in the S&P 500 went to executives and employees below the top five. A compelling explanation for the escalation in stock option grants must be consistent with the increased use of options throughout the company."[18]

### C. The inclusion of an expense for stock-based compensation under FAS123 does not imply arm's length parties would share this expense in an arm's length cost sharing agreement.

Following the Treasury's promulgation in 2003 of the regulation at issue in this case, requiring that related participants in cost sharing agreements share expenses associated with stock-based compensation, the Financial Accounting Standards Board ("FASB") finalized FASB Statement No. 123 (Revised 2004) ("FAS123R", now referred to as ASC 718), requiring that an expense associated with stock-based compensation be included in the reported earnings of companies, justified on the grounds that the resulting accounting statements would more "faithfully represent" the issuance of stock-based compensation.[19]

FASB may require firms to compute certain metrics of cost based on the value of their ESO compensation, and include them in their financial statements, under the view that such a cost makes certain *accounting* measures of performance more meaningful. However, markets value streams of

[18] Brian J. Hall and Kevin J. Murphy, "The Trouble with Stock Options," *Journal of Economic Perspectives*, Vol. 17, No. 3, Summer 2003, pages 49-70.

[19] Financial Accounting Standards Board, *Summary of Statement No. 123 (Revised 2004)*, available at http://www.fasb.org/summary/stsum123r.shtml.

anticipated cash flows, not accounting earnings. To the extent that these accounting measures are inappropriate, imperfect or unnecessary from a valuation perspective, investors can undo the accounting calculations reported under FASB rules by backing out the imputed cost from the firm's financial statements when valuing the firm (as analysts typically do, given the non-cash nature of this "expense").

FASB's imputed cost measure is not appropriate to use for allocating costs among related parties. If this measure were included in the pool of costs to be shared, an arm's length party would have to incur an actual cash expense on the basis of the ESO values estimated by its joint venture partner. If the models or data used to value these ESOs cannot be agreed upon or mutually verified, arm's length parties would not agree to share these costs even though they are included in the firm's earnings for financial reporting purposes. Given the informational challenges involved in ascertaining whether net costs are positive or negative, much less in quantifying precisely their magnitude, it is not surprising that agreements to share stock-based costs are not observed in arm's length agreements.

## II. Parties entering into cost sharing agreements at arm's length cannot and do not share each other's employee stock option compensation.

Having addressed the economic characteristics of stock-based compensation in Part I, we now turn to the evidence on how arm's length parties would, and in practice do, deal with stock-based compensation in cost sharing arrangements. Specifically, in subsection A, we explain a number of practical reasons why unrelated parties transacting rationally would not agree to share in stock-based compensation. In subsection B, we address the empirical evidence showing that, as economic reasoning would predict, unrelated parties acting at arm's length do not in fact share this kind of compensation. In Part C, we address the contention of tax professor *amici* that despite the lack of empirical evidence, it can be assumed that unrelated parties would share in some kind of implied amounts connected with stock-based compensation.

### A. There are sound economic reasons why parties entering into arm's length agreements do not share charges associated with their stock-based compensation.

#### 1. Stock-based compensation entails no cost to the firm and likely no net cost to pre-existing shareholders.

As we explained in Part I, stock-based compensation involves no cost to the firm issuing this compensation. Therefore, firms negotiating the terms of a cost-sharing agreement have no cost to recover from their cost-sharing participants for the issuance of this compensation.

Even if a cost-sharing agreement aims to share the costs incurred by the pre-existing shareholders of each firm at the time of each grant of stock-based compensation, participants in the agreement will recognize that the expected dilution incurred by shareholders of other participating firms have to be netted against the benefits generated by stock-based compensation in terms of anticipated future output in excess of what could have been obtained from the same employees under non-contingent compensation like wages. As we discuss in Part I.B, in well-managed firms, there should be no net cost to pre-existing shareholders from stock-based compensation.

#### 2. Even if the appropriate measure of cost for stock-based compensation is the gross dilution cost to pre-existing shareholders, this cost cannot be estimated reliably.

Notwithstanding evidence to the contrary, Treasury contends that in an arm's length setting, cost sharing participants will agree to share the dilution costs incurred by each firm's pre-existing shareholders through the issuance of stock-based compensation. This claim assumes that cost-sharing participants will disregard the incentive benefits created by their own stock-based compensation and agree to share the *gross* dilution-related cost borne by shareholders on record at the time each stock-based grant is made.

We disagree with the Treasury's premise for the reasons described in Part I. However, even if cost sharing partners considered the possibility of sharing anticipated *gross* dilution costs, they would be unlikely to reach agreement on how to measure these costs because the anticipated dilution arising from a grant of stock-based compensation cannot be measured reliably.

The difficulties in valuing anticipated dilution can be illustrated by examining the valuation challenges presented by ESOs, the most widely-used form of stock-based compensation at the time the Treasury regulation at issue was finalized in 2003. In principle, the value of an ESO is the present value of the future dilution the ESO is expected to create for existing shareholders if and when the option is exercised, where this expectation is based on information available at the grant date. Thus the value of the ESO, if it can be reliably determined, is the measure of the gross cost of an ESO that the Treasury believes will be cost-shared at arm's length.

The challenges presented by this valuation begin with the valuation framework. Models for valuing options, such as the celebrated Black-Scholes option pricing formula, rely critically on the option being tradeable. ESOs are not tradeable. If an option cannot be traded, then its value is determined by the value attached to it by its holder. To estimate that value (which would be an upper bound to the purchase price for selling the option to that holder) one would have to know the utility function of the buyer, including the buyer's degree of risk aversion, which cannot be determined with any reasonable certainty. For example, for different parameter values of their model, Professors Brian Hall and Kevin Murphy calculate that the value of ESOs to their holders can range from 2.2% to 71.9% of their Black-Scholes values.[20]

Furthermore, the value of an ESO must reflect the likelihood of the option vesting and the employee's choice regarding when to exercise the option once it vests. The timing of exercise is complicated by the option's non-transferability. Since ESOs cannot be traded, the only mechanism by which employees can reduce their exposure to firm-specific risks is by exercising their options.

The probability of early exercise depends upon factors that can be difficult even to quantify, let alone analyze. The employee's aversion to risk

[20] Brian J. Hall and Kevin J. Murphy, "Stock Options for Undiversified Executives," *Journal of Accounting and Economics*, Vol. 33, 2002, pp. 3-42, Table 1 (p. 12).

plays a significant role in her early exercise decision because exercise is her only means of avoiding excessive exposure to the risks associated with her employer firm. Yet risk aversion, like most psychological attributes, is not easily measured. Various researchers have explored models of employee stock options under simplifying assumptions that allow employees' risk preferences to be represented by a single parameter.[21] However, it is difficult to measure the appropriate value for this parameter because individual risk preferences are not measurable in a direct way. They are only indirectly reflected through the decisions individuals take, which are typically contingent on many factors. The expected longevity of the employee, and the probability that the employee may have opportunities to move to another firm are other factors affecting the exercise probability, which cannot be assessed at arm's length with any reasonable certainty.

The valuation task is complicated further by the fact that the behavior of stock returns is poorly understood over the extended periods of time for which ESOs remain alive. The volatility of the stock's returns—a key input into the

[21] See, for example, Nalin Kulatilaka and Alan J. Marcus, "Valuing Employee Stock Options," *Financial Analysts Journal*, November-December 1994, pages 46-56. Rubinstein (1995) and Carpenter (1998) have also developed models with similar representations of risk preferences.

value of an option—can change over time in unforeseeable ways as market and competitive conditions change. The likelihood of extreme outcomes is greater over such horizons than under the relatively short horizons of publicly traded options. There is no consensus in the academic literature regarding the most reliable model of stock returns for long-horizon option valuation. Deviations from the Black-Scholes framework of stock returns are likely to cause substantial deviations in the values of ESOs.

In light of these challenges, there is no reliable modeling framework upon which potential cost-sharing participants can rely for valuing their respective ESOs. Even if these participants felt that a gross cost of ESOs should be shared in principle—a premise we regard as economically unsupportable—the absence of a commonly agreed framework to value these options and the reliance of any such valuation on data internal to each company would prevent the participants from reaching an agreement on computing a gross cost for ESOs.

The inability to reach an agreement on ESO expenses would not necessarily prevent a cost sharing agreement from being reached by these participants, even though it would exclude any consideration of ESO-related compensation. As long as all participants perceived sufficient expected benefits from proceeding with the agreement, it is likely that a cost-sharing agreement would be rationally agreed upon and entered into by the participants, with each entity bearing the gross cost of its own ESOs to its pre-existing shareholders.

**B. The empirical evidence demonstrates that arm's length parties do not explicitly share an expense associated with each other's stock-based compensation in joint development or joint marketing agreements involving the sharing of costs**.

The issue of whether arm's length cost-sharing participants would split expenses associated each other's stock-based compensation is not just a theoretical question. As the Tax Court has noted, a considerable amount of empirical evidence has been made public to date. The studies have been unanimous: parties at arm's length do not engage in cost-sharing agreements that share expenses associated with each other's stock-based compensation.

The Tax Court, in its ruling in *Altera*, presented this empirical evidence in detail. Therefore, we summarize it to convey the scale of the evidence developed on this issue.[22] An analysis presented to the Tax Court in *Xilinx* established that across a wide range of cost sharing or cost-reimbursement agreements between unrelated firms, encompassing activities as diverse as joint research and development, joint marketing or manufacturing and joint services,

[22] *Altera* at 7-10.

no agreement stipulated that parties would share expenses associated with their employee stock options. The American Electronics Association ("AeA") provided Treasury with a survey of its members, reporting that none of these members could identify any arm's length co-development or joint venture agreements in which they shared stock-based compensation. These findings were supported by an additional analysis conducted by AeA and the PricewaterhouseCoopers ("PwC"), reviewing cost-sharing agreements filed publicly by firms with the SEC and finding no agreements in which parties agreed to share stock-based compensation.

### C. There is no basis for concluding that arm's length parties implicitly share in some form of expense associated with each other's ESOs in cost sharing agreements.

The empirical evidence that arm's length parties do not explicitly share expenses associated with stock-based compensation in cost-sharing agreements has not been disputed by the Treasury or by *amici* writing in support of Treasury's position.[23] Instead they resuscitate an argument the Tax Court rejected in *Xilinx*. They contend that even though arm's length parties do not share expenses associated with stock-based compensation explicitly because of

[23] *Altera* at 7.

difficulties in reliably measuring these expenses, they must be doing so implicitly by adjusting other terms of the agreement to reflect their respective obligations to cover ESO expenses since "[t]o deny this would be to repeal the law of free markets".[24]

We are not aware of any evidence that this is true; nor have the proponents of this claim advanced any supporting evidence. Their argument clearly is incorrect as a matter of economic logic. In order to adjust other terms of the contract in ways that are acceptable to all parties, it is necessary that participants commonly observe the costs and benefits to each of them from the stock-based compensation arrangements. If parties could agree on a method to measure those costs and benefits, then there would be no need to make *implicit* adjustments for this "expense"; parties could agree to share costs and benefits *explicitly*. Indeed, if the information needed for "implicit" adjustments were available, an implicit adjustment would not be needed and would make no sense; the most efficient way to share any resulting costs and benefits would be

[24] Brief of *Amici Curiae* J. Richard Harvey, Leandra Lederman, Ruth Mason, Susan Morse, Stephen Shay And Bret Wells, In Support Of Respondent-Appellant, 15-16.

to do so explicitly rather than incur the additional administrative detail of negotiating implicit adjustments to other terms.

In summary, there is no economic basis to contend that if arm's length parties do not share an expense for stock-based compensation explicitly—as the empirical evidence indisputably shows—parties somehow share the costs implicitly.

## III. Arm's length evidence is relevant for determining whether ESO compensation should be shared by related parties.

The Treasury argues that even if arm's length parties do not share ESO compensation, this evidence has no bearing on whether related parties should share ESO compensation under the arm's length standard because arm's length cost-sharing agreements are inherently non-comparable to related party agreements from an economic perspective. In particular, the Treasury, and the *amici* writing in support of their position, point to the fact that unrelated parties, by definition, have different stock prices and different information on matters relating to their respective stock-based compensation grants. By contrast, they note, related parties share a common stock price and common information regarding employee exercise behavior and other details relevant to the gross cost of stock-based compensation. Therefore, the Treasury argues that incentive distortions that may arise at arm's length from sharing stock-based compensation will be absent in related party cost-sharing agreements.

Treasury's argument, if accepted, would negate the use of arm's length evidence not only in the specific instance of cost-sharing agreements but across all areas of intercompany economic activity. This argument is, in reality, a plea to undo the arm's length standard that underpins transfer pricing, and is enshrined in the Treasury's extensive regulations in Section 482. It is also based on a fundamental misunderstanding of how arm's length economic evidence can be relevant in determining prices for related party transactions.

Intercompany transactions inherently are characterized by greater coordination and information flows than arm's length transactions. However, the arm's length standard seeks to provide an objective basis for setting intercompany prices by asking how the same entities would have transacted if operating at arm's length. As a matter of economics, this question can be answered by constructing a hypothetical transaction in which the related parties, given their economic attributes, engage in a market-mediated transaction, facing in the process all the moral hazard, observability and control characteristics associated with a transaction between unrelated parties.

When placed in this hypothetical arm's length transaction, related parties no longer have the shared interest in a common stock price that Treasury cites as a disqualifier in the arm's length evidence.

Dated: September 23, 2016

Respectfully submitted,

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## CERTIFICATE OF COMPLIANCE

I hereby certify that pursuant to Fed. R. App. P. 32(a) and Ninth Circuit Rule 32-1, this brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6), because it is written in 14-point Times New Roman font in a proportionally spaced typeface using Microsoft Word 2013. This brief complies with the type-volume limitation of Fed. R. App. P. 29(d) and 32(a)(7)(B)(i) because it contains 6,943 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii). This count is based on the word-count feature of Microsoft Word 2013.

Dated: September 23, 2016

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## CERTIFICATE OF SERVICE

I hereby certify that I caused the foregoing to be electronically filed with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system on September 23, 2016.

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/EF system, with the exception of the participant listed below, whom we will serve by U.S. mail.

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