Employee Stock Options and the *Xilinx* Case

by Thomas Horst

taxanalysts®

SPECIAL REPORTS

Employee Stock Options and the *Xilinx* Case

by Thomas Horst

Thomas Horst is a managing director of Horst Frisch Inc. in Washington.

This article addresses the economic and tax administrative aspects of the Tax Court's August 2005 opinion in *Xilinx, Inc. and Consolidated Subsidiaries, Petitioner, v. Commissioner of Internal Revenue, Respondent*, Tax Court No. 702-03 (*Xilinx*). The principal issue addressed in *Xilinx* was whether the cost of employee stock options (ESOs) that Xilinx Inc. granted to its research and development-related employees were properly included in total R&D costs under an intangible property development cost-sharing agreement between Xilinx Inc. and its wholly owned subsidiary, Xilinx Ireland.

The Tax Court ruled against the IRS and agreed with Xilinx Inc. that including R&D-related ESO costs was contrary to the arm's-length standard. In June 2009, the Ninth Circuit of the U.S. Court of Appeals rendered a split opinion in which the majority upheld the IRS's appeal of the Tax Court's 2005 opinion. The principal issue before the Court of Appeals was whether under the section 482 regulations, related parties could be required to include R&D-related ESO costs, *even when companies operating at arm's-length would not have done so*. That is to say, the issue before the Ninth Circuit was whether the Tax Court had correctly applied the ambiguous wording of the section 482 regulations. What was *not* at issue was whether the Tax Court was correct in its factual conclusion that including R&D-related ESO costs in total costs to be shared under an R&D cost-sharing agreement was contrary to the arm's-length standard.

In my view, the principal issue addressed by the Ninth Circuit is legal, not economic, and so does not invite further economic analysis. Rather, my article addresses two issues that were *not* addressed by the Ninth Circuit:

- whether the Tax Court was correct on the factual issue of how the arm's-length standard should be applied to Xilinx's ESO costs under an R&D cost-sharing agreement; and

- the implications of the Tax Court opinion for the IRS's administration of section 482.

I. Background Facts and Analyses

A. Xilinx Inc. and Its ESOs

Xilinx Inc. was in the business of researching, marketing, and selling field programmable logic devices, other integrated circuits, and other software systems. Xilinx Inc.[1] used unrelated contract manufacturers to fabricate and assemble its wafers into integrated circuit devices.

Like many other high-tech companies, Xilinx Inc. used ESOs to attract, retain, and motivate employees and align employee and employer goals. Broadly speaking, an ESO grants the employee the right to buy a specified number of shares at a fixed price (the strike

---

[1]Xilinx Inc. was (and is) the U.S. parent company, and Xilinx Ireland was its wholly owned Irish subsidiary. By ''Xilinx,'' I mean the affiliated group of companies (including Xilinx Ireland) of which Xilinx Inc. was the parent.

price) over a term of years, both of which are stipulated in the option agreement. The strike price under virtually all ESOs is the market price on the grant date. The result is that the employee gains if the stock price appreciates before it is exercised but loses nothing if the stock price falls (because the option will not be exercised when the market price is less than the strike price). In most cases, the employee's rights to exercise the options vest over time. For example, an employee might have the right to exercise 20 percent of the options after one year of employment, 40 percent after two years of employment, and so forth.

B. U.S. Tax Treatment of ESOs

Under U.S. tax law, a company recognizes no tax deduction and an employee recognizes no taxable income at the time an ESO is granted or during the period when the option is outstanding, but unexercised. When an employee exercises a stock option for a publicly traded stock (as Xilinx Inc.'s stock was during the years at issue):

- The company generally claims a tax deduction, and the employee recognizes ordinary income, equal to the gain as of the exercise date (that is, the number of shares times the excess of the market price of the stock on the exercise date over the strike price). If the employee does not actually sell the stock on the exercise date, any further gain or loss on the subsequent sale of the stock is capital gain or loss to the employee and has no impact on the company's taxable income.

- For stock options (incentive stock options or ISOs) that met certain restrictions at the time they were issued, if the employee does not sell the stock within the first year after exercising the option, the company claims no tax deduction, and the employee recognizes no ordinary income at the time the option is exercised. Long-term capital gain or loss would be recognized when the stock is sold based on the excess of the sales price over the strike-price cost of the stock.

- In addition to claiming a tax deduction when employees exercised stock options (as explained above), the company could include the expense of stock options granted to its R&D employees in calculating its R&D tax credit.[2]

C. Intercompany Agreements

Xilinx Ireland was established in 1994 to manufacture field programmable logic devices and to increase Xilinx's European market share. Xilinx Ireland manufactured, marketed, and sold Xilinx's principal product, field programmable logic devices, primarily to customers in Europe, and conducted some R&D.

---

[2]*Xilinx*, 6157-6158 and footnote 3.

1. R&D Cost-Sharing Agreement

On April 2, 1995, Xilinx Inc. and Xilinx entered into a Technology Cost and Risk Sharing Agreement. Under the terms of that intercompany agreement:

- all new technology developed on or after the date of the agreement would be jointly owned;

- each party was required to pay a percentage of the parties' combined R&D costs based on the relative anticipated future benefits of the new technology;

- R&D costs generally included direct costs, indirect costs, and the costs of intellectual property rights acquired from third parties (for example, technology royalties paid to unrelated licensors):
  — direct costs included salaries, bonuses, and other payroll costs relating to R&D; and
  — indirect costs included overhead expenses for administrative, legal, accounting, and insurance; and

- no costs relating to any stock options granted to Xilinx's R&D employees were reflected in Xilinx's calculation of the R&D cost-sharing payment to be made by Xilinx Ireland.

Table 1. R&D Cost Sharing vs. R&D Employment Xilinx Inc. vs. Xilinx Ireland

	FY 1997	FY 1998	FY 1999
R&D Cost-Sharing Percentages			
Xilinx Inc.	73.6%	73.4%	65.1%
Xilinx Ireland	26.4%	26.6%	34.9%
Total	100.0%	100.0%	100.0%
R&D Employees			
Xilinx Inc.	338	343	394
Xilinx Ireland	6	10	16
Total	344	353	410
Xilinx Ireland	1.7%	2.8%	3.9%

2. Stock Option Cost Reimbursement

Separate from the Xilinx R&D cost-sharing agreement, some employees of Xilinx Ireland qualified for Xilinx Inc. ESOs, and Xilinx Inc. granted those stock options. Under a separate Stock Option Intercompany Agreement of 1996, Xilinx Ireland agreed to reimburse Xilinx Inc. for the expense Xilinx Inc. incurred regarding Xilinx Ireland's employees. The reimbursed expense equaled the gain realized by Xilinx Ireland's employees on the exercise of their Xilinx Inc. stock options.

D. The Economic Cost of ESOs

1. Opportunity Cost vs. Cash Cost

From a company's perspective, stock options have no cash cost either at the time they are granted or when they are exercised (ignoring any redemption of the employee's stock by the company). Stock options do have what economists refer to as an opportunity cost, which is based on the fair market value foregone by the company. A familiar example of opportunity cost is the cost of a company's own equity capital based on the return it would have expected to earn if it had invested in other assets of comparable risk, rather than the actual use of its equity capital. Most companies take the opportunity cost of equity capital into account in deciding what long-term capital investments they should or should not make. For example, some companies may compare the internal rate of return on the projected cash flow from a new investment to a hurdle rate that reflects the opportunity cost of capital. Other companies may calculate the net present value of the projected cash flow from a new investment using a discount rate equal to the opportunity cost of capital. That is to say, companies and their investors can and generally do take opportunity costs, not just cash costs, into account when making informed investment decisions.

The opportunity cost of stock *options* can be illustrated by a simple example.

Suppose an equity investor could invest $10,000 (100 shares at $100 per share) in a risky venture that had a 50 percent probability of being worth $23,000 after one year and a 50 percent probability of becoming worthless. The expected total return (in the probabilistic sense of that term) would be $11,500, so the expected rate of return would be 15 percent per annum.[3]

Now suppose the same facts, but also that an employee (who is not the owner) of the company had been granted (with immediate vesting) the option at the outset to buy 10 shares at the strike price of $100 per share.

- If the company becomes worthless, the employee declines the option.

- If the company becomes worth $23,000, the employee exercises the option to buy 10 shares at $100 per share. The total assets of the company would then be worth $24,000,[4] which equals $218.18 per share based on the 110 shares outstanding.[5]

- Because of the stock options granted to the employee, the expected value of the original shareholder's stock at the end of the first year is $109.19,[6] so the expected rate of return for the original investor equals 9.2 percent per annum.

The opportunity cost of ESOs arises because a stock option dilutes the per-share value of the stock when the stock appreciates, but does not affect the shareholders' loss when the stock depreciates.[7]

2. Black-Scholes Formula

The value of a stock option at the time it is exercised is easy to compute and requires no speculation: It equals (1) the excess of the market price on the date the option is exercised over the strike price stipulated in the option contract, multiplied by (2) the number of shares stipulated in the option contract. By contrast, the value of a stock option at the time it is granted is difficult to compute and requires speculation about the probabilities and rates of future stock price appreciation.

In 1973 Fischer Black and Myron Scholes published an article that provided a mathematical formula for valuing all types of options, including stock options. This remarkable analysis won the Nobel Prize in Economics in 1997. Under the Black-Scholes formula, the value of a stock option before its exercise depended on five input values:

1) the current market price of the stock (+)[8];

2) the exercise (or strike) price under the option contract (-);

3) the risk-free interest rate (+);

4) the variability of the future stock price around its expected value (+); and
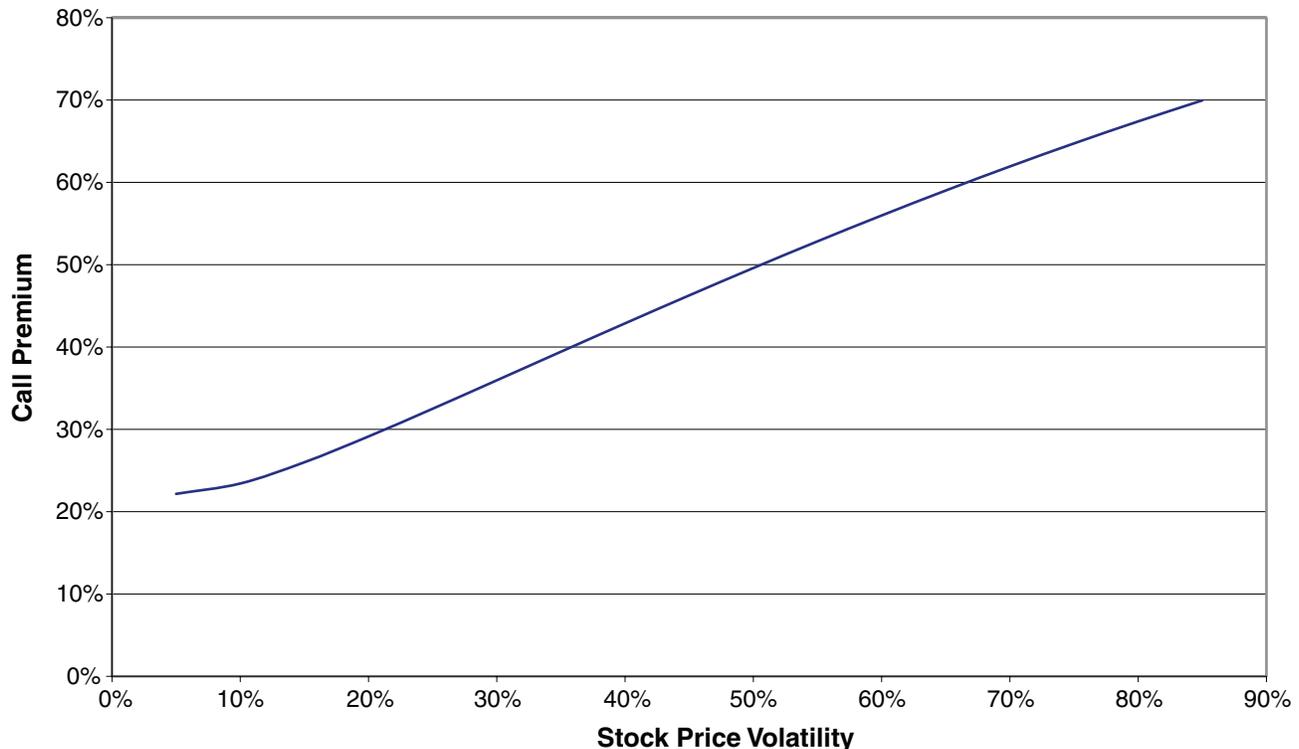
5) the term of the option agreement (+).

As explained below, the fair value method of accounting for ESOs is based on the value of the Black-Scholes formula at the time options are granted. In most cases, the strike price (value number 2) equals the market price at the time the option is granted (value number 1). The value of the risk-free interest rate (value number 3) is usually based on the current yield on U.S. Treasury bonds with the same maturity as the option contract. Accordingly, the two key inputs in applying the Black-Scholes formula to ESOs on the grant

---

[3]($11,500 - $10,000)/$10,000 = 15 percent per annum.

[4]The sum of the $23,000 value of the company's original investment + the $1,000 proceeds from the sale to the employee of 10 shares at $100 per share = $24,000.

[5]$24,000/the 110 shares outstanding = $218.18.

[6]((50 percent of $218.18) + (50 percent of $0)) = $109.19.

[7]These numerical examples illustrate the opportunity cost of ESOs. More generally, I would assume that a company grants ESOs only if the company expects that the benefit (that is, by inducing better employee job performance and/or by reducing cash compensation costs) of the stock option will outweigh its cost.

[8]The (+) or (-) indicates the impact of the input value on the Black-Scholes formula value of an option to buy a stock (a call option), *all other input values being held constant*.

**Figure 1. Black-Scholes Option Pricing Method
Call Premium vs. Stock Price Volatility**

date are the expected variability of the future stock price (value number 4) and the term of the option agreement (value number 5).

Variability in stock prices is generally measured by the standard deviation of the percentage change in an actual stock price around its expected value. The Black-Scholes formula was derived under the assumption that stock price changes would have a bell-shaped normal distribution. Under a normal distribution, in approximately two years out of every three the actual price change, positive or negative, is expected to be within one standard deviation of the expected value. For example, if the stock price were expected to appreciate by, say, 8 percent per annum and the standard deviation around that rate was 12 percent per annum, then in two years out of every three the actual change is expected to be no more than 20 percent (that is, 8 percent plus 12 percent) and no less than minus 4 percent (that is, 8 percent minus 12 percent). In one year out of three, the change is expected to be greater than 20 percent or less than minus 4 percent (with both of those outcomes being equally likely).

In figures 1 and 2, I have shown how the two key inputs — the variability of stock prices and the term of

the options contract — affect the value of an ESO on the grant date under the Black-Scholes formula.

Figure 1 shows that the value of an ESO on the grant date increases in direct proportion to the standard deviation of the change in the price of the stock to which the option applies. Intuitively, the variability in the stock price increases the value of the option because the greater the potential increase in the stock price is, the greater the potential payoff to the option holder. (Because the option is not exercised if the stock price goes down, the value of the option is unaffected by the potential downside risk.)

Figure 2 shows that the value of an ESO on the grant date also increases in direct proportion to the term of the option agreement. Because stock price volatility (the previous factor) is measured by the potential deviation in the *annual* rate of price appreciation from its expected value, the longer the option remains outstanding, the greater the potential gain during the option period.

3. Black-Scholes Formulary Cost vs. Actual Cost

A clear appreciation of the difference between the Black-Scholes *estimated* value of a stock option on the

Figure 2. Black-Scholes Option Pricing Method
Call Premium vs. Term of Option
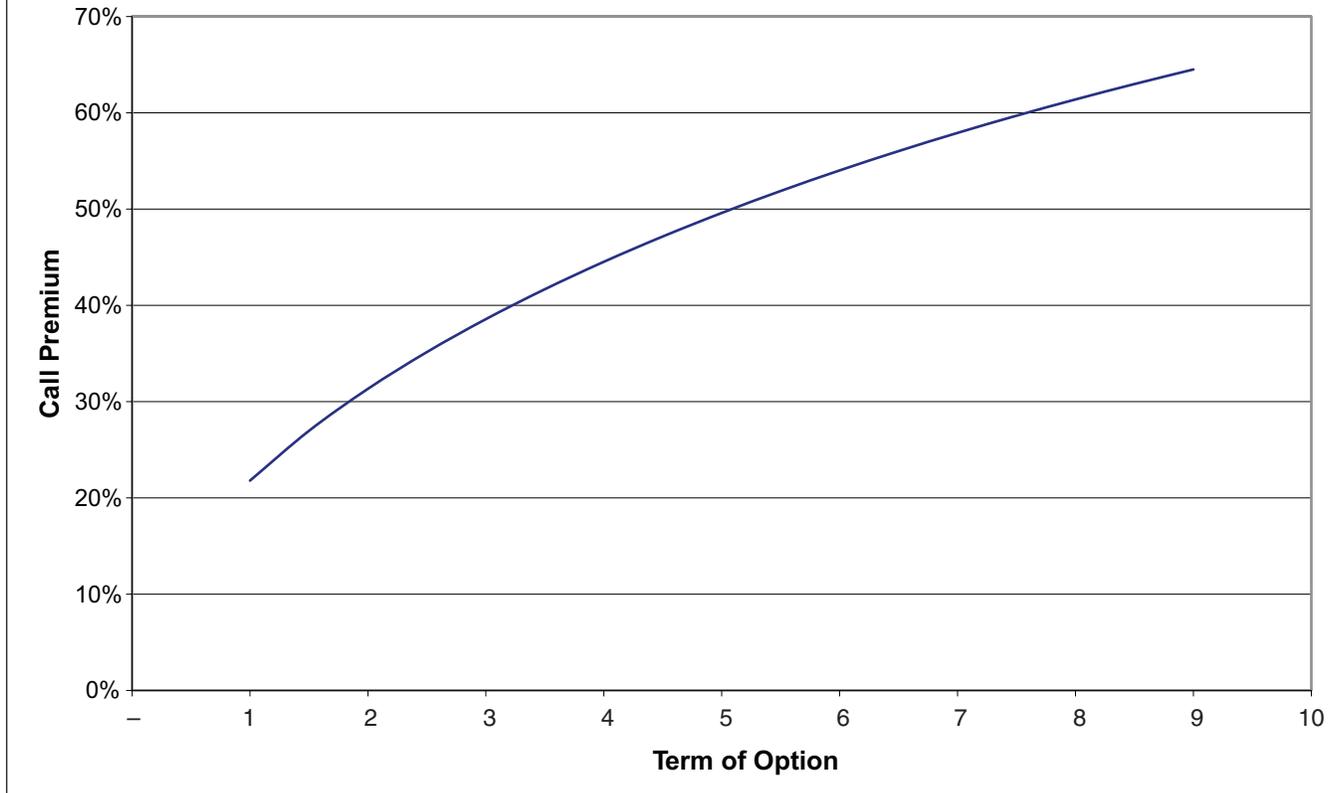
grant date and the *actual* value on the exercise (or abandonment) date is important. At the time an option is exercised or abandoned, its actual value is both certain and easily calculated — it is the excess, if any, of the current market price over the strike price multiplied by the stipulated number of shares.[9]

By contrast, the Black-Scholes formula yields the *present* value of the *expected* future value of the stock option.[10] The future value of the stock option is uncertain because both future stock prices and the future time of exercise or abandonment are uncertain. By definition, the expected value is the probability weighted average of all possible values. The many issues raised in applying the Black-Scholes formula to a company's ESOs result from the need to estimate the market value of those ESOs on the date they are

———————————

[9]The Tax Court opinion noted below refers to this amount as the spread.

[10]The Tax Court opinion noted below refers to the Black-Scholes formula result as the grant date value.

granted, rather than being able to defer the valuation to the future when the ESOs are exercised or abandoned.

E. Financial Accounting for the Cost of ESOs

Accounting Principles Board Opinion 25 (APB 25) of the Financial Accounting Standards Board governed companies' financial reporting of ESO costs from 1972 to 1995. APB 25 required an ''intrinsic value'' method under which the reported ESO cost was based on the excess, if any, of the market price of the stock over the strike price under the ESO contract on the grant date. Because the strike price under most ESOs was equal to the market price on the grant date, companies generally reported no costs relating to ESOs.

Under FASB's initial proposal, Statement of Financial Accounting Standards No. 123 (SFAS 123) would have replaced the intrinsic value method of APB 25 with a fair value method under which:

• The fair value of the ESO on the grant date would be estimated using the Black-Scholes formula described above.

- The fair value cost of an ESO would be amortized over the ESO vesting period of the grant.[11]

- If an ESO contract was terminated (because the employment was terminated or the strike price exceeded the market price), a company would restore to income any previously amortized expenses.

- A company would *not* true up previously reported ESO costs to reflect either subsequent changes in the market price of the stock or the actual cost of the ESO when it is exercised.

Venture capitalists and industry groups that advocated the status quo of APB 25 heavily criticized the FASB's proposed fair value method. In October 1995, FASB promulgated SFAS 123 under which the fair value method was stated to be the preferred method, but companies could (and most companies, including Xilinx Inc., did) continue to apply the intrinsic value method of APB 25. A company that applied the intrinsic value method was required to disclose in a note to its financial statements what its ESO costs would have been under the fair value method.

F. Tax Court

1. Parties' Positions

In filing tax returns for its fiscal years ending near March 31, 1996, through 1999, Xilinx Inc. took the position that it was not obligated to include in its R&D cost-sharing payments any ESO costs because its ESOs had no cost under the intrinsic value method of APB 25. In its Notices of Deficiency, the IRS applied section 482 to increase total R&D costs (and, thus, Xilinx Ireland's obligation to reimburse its assigned share of total R&D costs) to include the portion of Xilinx Inc.'s tax deduction (under IRC section 83) for ESO costs attributable to Xilinx's R&D employees' exercise of stock options during the four years at issue.

In June 2004, approximately six weeks before the Tax Court trial began, the Tax Court granted an IRS motion to amend its position and base its section 482 adjustment to reflect R&D-related ESO costs based on the Black-Scholes estimate of the fair value method of SFAS 123. My understanding is that the IRS did not disclaim its initial assessment based on the spread, but rather asserted that the grant date value could be used in the alternative to the spread.

2. Expert Testimony — Bajaj

At trial, Xilinx Inc. called an economic expert, Mukesh Bajaj, who addressed whether parties dealing at arm's length entered into R&D cost-sharing agree-

ments that provided for sharing or reimbursing one or both parties' R&D-related ESO costs. Bajaj ultimately identified 11 agreements that met *all* of the four following conditions:

- one or both parties were engaged in conducting R&D using preexisting intangibles;

- one or both parties shared in the cost of the underlying R&D;

- one or both parties obtained the rights to the intangibles developed under the agreement; and

- both parties to the agreement were publicly held companies and had granted ESOs to their employees in the year of the agreement.

Bajaj concluded that none of the 11 agreements provided for sharing of stock option costs. Given the volatility of the stock prices of the companies that were party to these agreements, the appreciation in the market price of a company's stock between the date the ESO was granted and the date it was exercised could be very large and would have been very unpredictable. According to Bajaj, if parties had intended to share the potentially large and very uncertain costs of their ESOs, they would have provided explicitly for that result in their agreements. Because he found no such provisions in actual R&D cost-sharing agreements, Bajaj concluded that the parties did not intend to share those costs.

3. Expert Testimony — Newlon

In his primary report, Scott Newlon,[12] the IRS's economic expert in the case, testified that ESOs had economic value to employees and an economic (opportunity) cost for Xilinx and other employers and would not have been assigned a zero value in arm's-length dealings. In Newlon's view, either the actual cost on the exercise date or the accounting cost under the fair value method on the grant date could reasonably be treated as the cost for purposes of the section 1.482-7 cost-sharing regulations. Given that Xilinx applied the actual cost on the exercise date in its Stock Option Intercompany Agreement, Newlon concluded that the actual cost on the exercise date was the better choice under the facts and circumstances of *Xilinx*.

In his rebuttal report, Newlon explained his disagreement with Bajaj's conclusions. In summary, Newlon focused on the differences between (1) the R&D cost-sharing method provided by section 1.482-7 of the IRS regulations (on which Xilinx and Xilinx

---

[11]For example, if an employee had the right to exercise 20 percent of the stock options after one year, 40 percent after two years, and so forth, the company would recognize 20 percent of the fair value of the option in each year for the five years following the option grant.

[12]Newlon is my colleague at Horst Frisch Inc. and my good friend. Given confidentiality of taxpayer information and the general procedure at Horst Frisch, Newlon did not seek my views in preparing his expert reports in 2006. In July 2009, I requested and reviewed for the first time his primary and rebuttal reports from the *Xilinx* case. I have also asked him to clarify specific points, but I have not asked him to review or comment on my article before submitting it for publication.

SPECIAL REPORTS

Ireland had relied) and (2) the 11 third-party agreements that Bajaj analyzed in Part II of his expert report. According to Newlon, the cost-sharing method provided by section 1.482-7 requires:

- a determination of the relative benefits the cost-sharing participants expect to receive from the intangibles resulting from the current R&D and from contributed preexisting intangibles;

- a buy-in payment based on expected benefits to compensate for the value of preexisting intangibles contributed by the respective cost-sharing participants; and

- a sharing of current total R&D costs based on the relative benefits the cost-sharing participants expect to receive.

Newlon then evaluated the 11 agreements presented by Bajaj and concluded that each of those agreements differed in material respects from the R&D cost-sharing method provided by section 1.482-7 of the IRS regulations. Attached as Table 2 of this article is Table 1 from Newlon's rebuttal report. In that table, Newlon indicated specific points on which each agreement conformed to the section 1.482-7 method (as indicated by a ✔), differed from the section 1.482-7 method (as indicated by an X), or no inference could be drawn from the information provided (as indicated by a ?). Referring to that table, Newlon concluded:

> What is immediately apparent from the predominance of "X" and "?" marks in the table is that most of these agreements differ from a section 1.482-7 cost-sharing arrangement along many dimensions that would be important for determining whether stock option compensation was treated as costless by the parties to these transactions. In every case, there is, at the very least, substantial information missing about a key feature such as the expected benefit shares, the value of intangibles contributed by the parties, how costs are defined (if at all), and how costs are shared (if at all), and what the parties' costs are. We cannot hope to determine whether a cost that is not explicitly shared or reimbursed is instead implicitly compensated for in the terms of the transaction unless we have complete information on all these factors.[13]

4. Other Xilinx Claims

In addition to the arguments noted above, Xilinx made other arguments to support its conclusion that ESO costs of R&D employees should not be reflected in its cost-sharing calculations:

- stock option costs were not cash costs;

- stock option costs were borne by Xilinx Inc.'s shareholders, not the company itself; and

- stock option costs of Xilinx's R&D employees did not contribute to development of the intangibles covered by its cost-sharing agreement.

5. Tax Court Opinion

Judge Maurice B. Foley's opinion ultimately adopted many, if not all, of the claims made by Xilinx Inc. and rejected the IRS's claims. After reviewing the IRS and Xilinx arguments about whether either the spread or the grant date value could be considered costs as that term was used in regulation section 1.482-7(d), Judge Foley stated, "Assuming *arguendo* that the spread and the grant date value are costs for purposes of section 1.482-7(d), Income Tax Regs., we conclude that [the IRS's] allocations fail to meet the requirements of section 1.482-1(b)." Section 1.482-1(b) provides that in determining true taxable income, "the standard to be applied in every case is that of a taxpayer dealing at arm's length with an uncontrolled taxpayer." Regarding the IRS's allocation of income equal to the spread on R&D-related ESOs, Judge Foley concluded:

> Unrelated parties would not share the spread because it is difficult to estimate, unpredictable, and potentially large in amount. [Xilinx's] uncontradicted evidence established that certainty and control are of paramount importance to unrelated parties involved in cost-sharing arrangements. Yet, the size of the spread is affected by a variety of factors, many of which are not within the control of the contracting parties. More specifically, the size of the spread is based on the exercise price and the stock price on the exercise date. It is indisputable that changes in stock prices are frequent and unpredictable, and that a wide variety of external factors may influence such prices.

Regarding the alternative allocation of income based on the grant date value, Judge Foley concluded:

> [The IRS], who had the burden of proof with respect to the grant date theory, presented no evidence that unrelated parties would, pursuant to the [fair value method], make a cost-sharing allocation of at-the-money options or ESPP [employee stock purchase plan] purchase rights. To the contrary, [Xilinx's] uncontradicted evidence established that in determining cost allocations unrelated parties would not include any cost related to the issuance of ESOs. In essence, [the IRS] contends that [Xilinx] was required to allocate, and thereby sustain tangible economic consequences relating to, an amount that unrelated parties do not treat as an expense for tax or financial accounting purposes.* Accordingly, [the IRS's] allocation relating to the grant date value

---

[13]Newlon rebuttal report, p. 26.

Table 2. Table 1 From Dr. Newlon's Rebuttal Report in the *Xilinx* Tax Court Case

Table 1. Comparison of Bajaj 'R&D Cost Sharing Agreements' and Section 1.482-7 Cost Sharing

	Benefits	Buy-in		Development Costs				Payments Not Based on Costs		Other Important Features		
	\<a\>	\<b\>	\<c\>	\<d\>	\<e\>	\<f\>	\<g\>	\<h\>	\<i\>	\<j\>	\<k\>	\<l\>
Agreement	Share of Benefits Determinable	Explicit Payment	Based on Benefit Shares and Intangible Value	Any Development Costs Taken into Account	Cost Excluded	Explicit Cost Shares	Cost Shares Explicitly Linked to Benefits	Upfront/Contingent/Milestone	Royalties/License Fees	Side Agreement	Embedded Option Provisions	Both Parties Contribute Employee Services
1 Advanced Mirco Devices/Motorola	X	X	X	✓	X	✓	X	✓	X	✓	✓	X
2 Pfizer/Gensia	X	?	X	?	?	?	?	X	X	X	✓	X
3 American Superconductor/Inco Alloys	X	X	X	?	?	✓	?	X	✓	✓	X	X
4 American Home Products/ViroPharma	X	?	X	✓	X	✓	X	X	X	X	✓	X
5 Synopsis/IBM	X	X	X	X	X	X	X	X	X	✓	✓	X
6 USA Video Interactive/Vianet Technologies	?	X	X	✓	?	✓	?	✓	?	X	✓	X
7 Hoechst Marion Roussel/Amylin Pharmaceuticals	X	X	X	✓	X	✓	✓	X	X	X	X	X
8 AT&T/Triquint Semiconductor	X	X	X	X	X	X	X	X	X	X	X	X
9 InVision Technologies/EG&G Astrophysics	X	X	X	✓	?	✓	X	✓	✓	X	✓	X
10 Pall Corporation/V.I. Technologies	?	X	X	✓	?	✓	✓	✓	✓	✓	✓	X
11 Bayer Corporation/Curagen Corporation	X	X	X	✓	X	✓	?	✓	X	X	X	X

fails to meet the arm's-length standard mandated by section 1.482-1(b), Income Tax Regs.

*ESOs generally do not have an ascertainable fair market value on the grant date for purposes of sec. 1.83-7(b)(3), Income Tax Regs. Thus, the grant date value is not a tax expense pursuant to sec. 83. During the years in issue, most companies used the [intrinsic value method], and thus, were not required, for financial accounting purposes, to record an expense relating to options issued at-the-money and certain ESPP purchase rights.

G. Court of Appeals June 2009 Opinion

As noted in the introduction to this article, in June 2009 the Ninth Circuit of the U.S. Court of Appeals rendered a split opinion in which the majority sustained the IRS's appeal of the Tax Court's 2006 opinion. The issue before the Court of Appeals was whether under the section 482 regulations, related parties could be required to include R&D-related ESO costs in calculating the total costs to be shared under an R&D cost-sharing agreement, *even when companies operating at arm's length would not have done so*. That is to say, the Tax Court's factual conclusion that including R&D-related ESO costs in total costs to be shared under an R&D cost-sharing agreement was contrary to the arm's-length standard was *not* disputed:

> The [IRS] does not dispute the tax court's factual finding that unrelated parties would not share ESOs as a cost. Instead, the [IRS] maintains ESOs are a cost that must be shared under [section] 1.482-7(d)(1), even if unrelated parties would not share them. [Pages 6158-6159.]

The issue addressed by the Ninth Circuit was the purely legal issue of how an apparent contradiction in the requirements of the section 482 regulations should be resolved:

> Section 1.482-1(b)(1) specifies that the true taxable income of controlled parties is calculated based on how parties operating at arm's length would behave. The language is unequivocal: this arm's length standard is to be applied "in every case." In the context of cost sharing agreements, this would require controlled parties to share only those costs uncontrolled parties would share. By implication, costs that uncontrolled parties would not share need not be shared. In contrast, [section] 1.482-7(d)(1) specifies that controlled parties in a cost sharing agreement must share all "costs . . . related to the intangible development area," and that phrase is explicitly defined to include virtually all expenses not included in the cost of goods. The plain language does not permit any exceptions, even for costs that unrelated parties would not share. Each provision's plain language mandates a different result. Accordingly, we conclude the two provisions establish distinct

and irreconcilable standards for determining which costs must be shared between controlled parties in cost sharing agreements specifically related to intangible product development.

The majority opinion was not persuaded by either party's attempt to harmonize these two provisions and ultimately concluded that under the canons of construction, the more specific requirements of the cost-sharing regulation section 1.482-7(d)(1) trumped the more general requirement of section 1.482-1(b)(1) that "the standard to be applied in every case is that of a taxpayer dealing at arm's length with an uncontrolled taxpayer." That is to say, the all costs requirement of section 1.482-7(d)(1) was an exception to the general rule of section 1.482-1(b)(1) that the arm's-length standard be applied in every case.

II. Treatment of ESOs

For many companies, the treatment of ESO costs under an intangible cost-sharing agreement is irrelevant or immaterial. However, for many high-tech companies (such as Xilinx), ESO costs are significant, intangible cost-sharing agreements are widely used, and the share of the total benefit accruing to foreign subsidiaries in low-tax countries is substantial. As a result, the treatment of ESO costs under intangible cost-sharing agreements may have a significant impact on a company's reported financial results.

> **The treatment of ESO costs under intangible cost-sharing agreements may have a significant impact on a company's reported financial results.**

Figure 3 is a stacked-bar chart that attempts to put the issues in *Xilinx* in an economic context:

- The total height of the three bars in Figure 3 is Xilinx's operating income *before* R&D expense as reported on the Forms 10-K Xilinx filed with the U.S. Securities and Exchange Commission for its fiscal years 1997, 1998, and 1999, respectively.[14]

- The top segment of the bar reflects Xilinx's *reported* R&D expense for a year. Having elected to continue to apply the intrinsic value method,

---

[14]Xilinx's 52/53 week fiscal years end on the Saturday closest to March 31 of each year.

Xilinx's reported R&D costs would *not* include any R&D-related ESO costs.

- The sum of the bottom three segments of Figure 3 reflects Xilinx's *reported* operating income for that year.

- To estimate the actual cost of ESOs that were exercised in each fiscal year, I multiplied (1) the number of ESOs exercised during the year by (2) the estimated average stock market price for that year[15] over the average strike price for options exercised during that year.[16]

- I have assumed that Xilinx's R&D-related employees accounted for 50 percent of total options exercised (with non-R&D employees accounting for the remaining 50 percent of total options exercised).[17] As a result, the middle two segments of the bars in Figure 3 reflect the cost of ESOs exercised by R&D and non-R&D employees, respectively.

The conclusion that I draw from Figure 3 is that Xilinx's ESO costs were significant in comparison to both its reported R&D costs and its reported operating income during the years at issue. Consequently, an apportionment of R&D-related ESO costs to Xilinx Ireland had a material impact on Xilinx Inc.'s reported U.S. tax liability for those years.

III. Analysis

A. Issues Addressed

As indicated above, the purpose of this article is not to address the purely legal issue addressed by the Ninth Circuit in its June 2009 opinions. Rather my main purpose is to explain why I believe the 2006 opinion of the Tax Court erred in concluding that including the actual cost of R&D-related ESOs in the total costs to be shared was contrary to the arm's-length standard. My second purpose is to explain the broader significance for the IRS's administration of section 482 of the difference between my understanding of what is

---

[15]I assumed that average stock market price for ESOs exercised during a year was the same as the average strike price of newly granted ESOs for a year. This assumption seems reasonable to me because new ESOs are always granted at the current market price.

[16]Information about Xilinx's ESOs for the years at issue is provided in the notes to Xilinx's financial statements for those years included with its SEC Forms 10-K.

[17]I believe this assumption has not overstated total R&D-related ESO costs because the cumulative result over the three years is notably less than the comparable amount that I estimated by grossing up (1) the initial deficiency in income for a year calculated by the IRS (based on Xilinx Ireland's share of R&D-related ESOs exercised during the year) by (2) Xilinx Ireland's share of R&D costs under the Xilinx cost-sharing agreement.

meant by the arm's-length standard and the Tax Court's understanding of that standard in *Xilinx*.

B. ESO Costs and the Arm's-Length Standard

1. Actual ESO Costs When Options Are Exercised

Was the Tax Court correct in concluding that, as a factual matter, including R&D-related ESO costs in the total costs to be apportioned between Xilinx Ireland and Xilinx Inc. was contrary to the arm's-length standard? I think not, even though I agree with Bajaj's conclusion that third-party agreements (for example, the agreement between Advanced Micro Devices and Motorola described in Bajaj's primary expert report) generally do not provide for the reimbursement or sharing of the parties' *actual* ESO costs. The reasons for this result are easy to understand. Each company seeks to maximize its own profits and provides ESOs to its own employees to achieve that result. When two unrelated companies enter into a cost-sharing agreement to develop jointly beneficial intangibles, the scope of those agreements is typically limited in scope and falls well short of a total merger of the companies' combined interests. Because the two companies' interests overlap only regarding the subject of their cost-sharing agreement, the price of one company's stock may appreciate, while the price of the other company's stock depreciates. Accordingly, to avoid a risk that is largely unrelated to the joint development of intangibles, third-party agreements do not expose one company to the risk of the other company's stock price fluctuations.

2. Expected ESO Costs Based on Black-Scholes Formula

Whether two unrelated companies would agree to share *expected* ESO costs based on the Black-Scholes formula as of the grant date, as opposed to the *actual* ESO costs as of the exercise date, is less clear now than it was during the years at issue (FY 1997 to FY 1999) in *Xilinx*. As explained above, SFAS 123 concluded that fair value was the preferred method of accounting for ESO costs, but nonetheless continued to allow companies to employ the intrinsic value method of APB 25. Because Xilinx and most other companies elected the intrinsic value method, which recognized no cost for ESOs having a strike price equal to the market price on the grant date, the Tax Court concluded that companies dealing at arm's length would impute no cost to R&D-related ESOs in an R&D cost-sharing agreement.

However, in 2005 the FASB issued SFAS 123-R, which eliminated companies' option of employing the intrinsic value method and mandated the fair value method in all cases. In applying SFAS 123-R, companies include ESO costs for the current year with other costs in the same functional categories — for example, R&D-related ESO costs are included with other R&D costs. For example, Figure 4 shows the impact of ESO costs calculated under the fair value method on Xilinx's reported cost of revenues, R&D costs, SG&A

Figure 3. Reported R&D, Actual Cost of ESOs Exercised, and Adjusted Operating Income — Xilinx, Inc., FY 1997-FY 1999 (Million $)
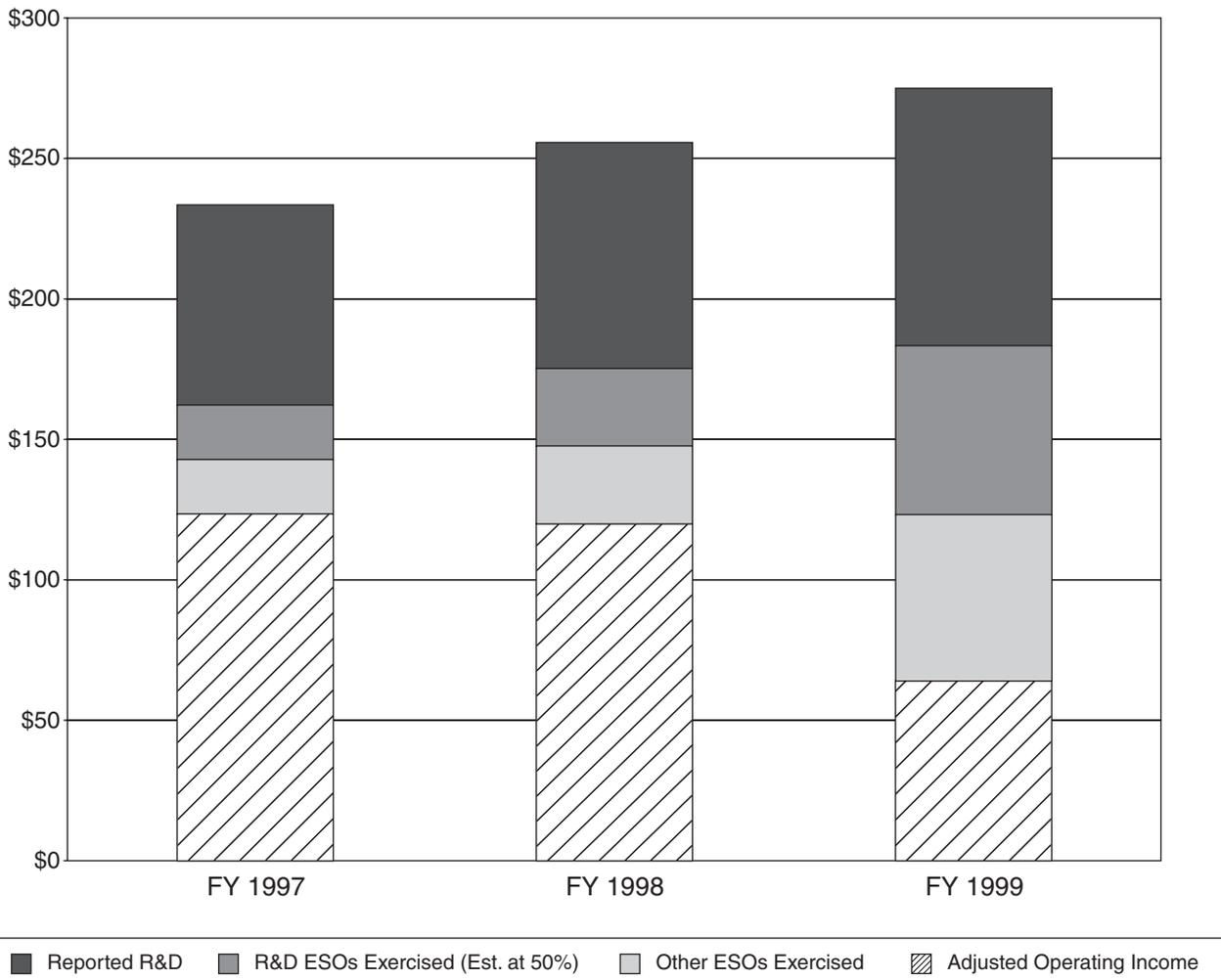
costs,[18] and operating income, respectively, for its FY 2007, the first fiscal year affected by SFAS 123-R. Broadly speaking, ESO costs calculated under the fair value method increased Xilinx's reported R&D costs and its reported SG&A costs by approximately 12 percent. Those increases in reported R&D and SG&A costs plus a smaller increase in Xilinx's cost of rev-

enues resulted in a reduction in Xilinx's reported operating income for FY 2007 of approximately 21 percent.[19]

The SFAS 123-R requirement that companies apply the fair value method means that including R&D-related ESO costs in total R&D costs is now in full

---

[18]SG&A refers to selling, general, and administrative costs (and other costs included in operating expense).

[19]Note that Figure 4 reflects the fair value of ESO costs on the grant date, while Figure 3 reflects the actual value of ESO costs exercised during the years at issue.

Figure 4. Impact of Fair-Value ESO Costs on Xilinx's P&L, FY 2007
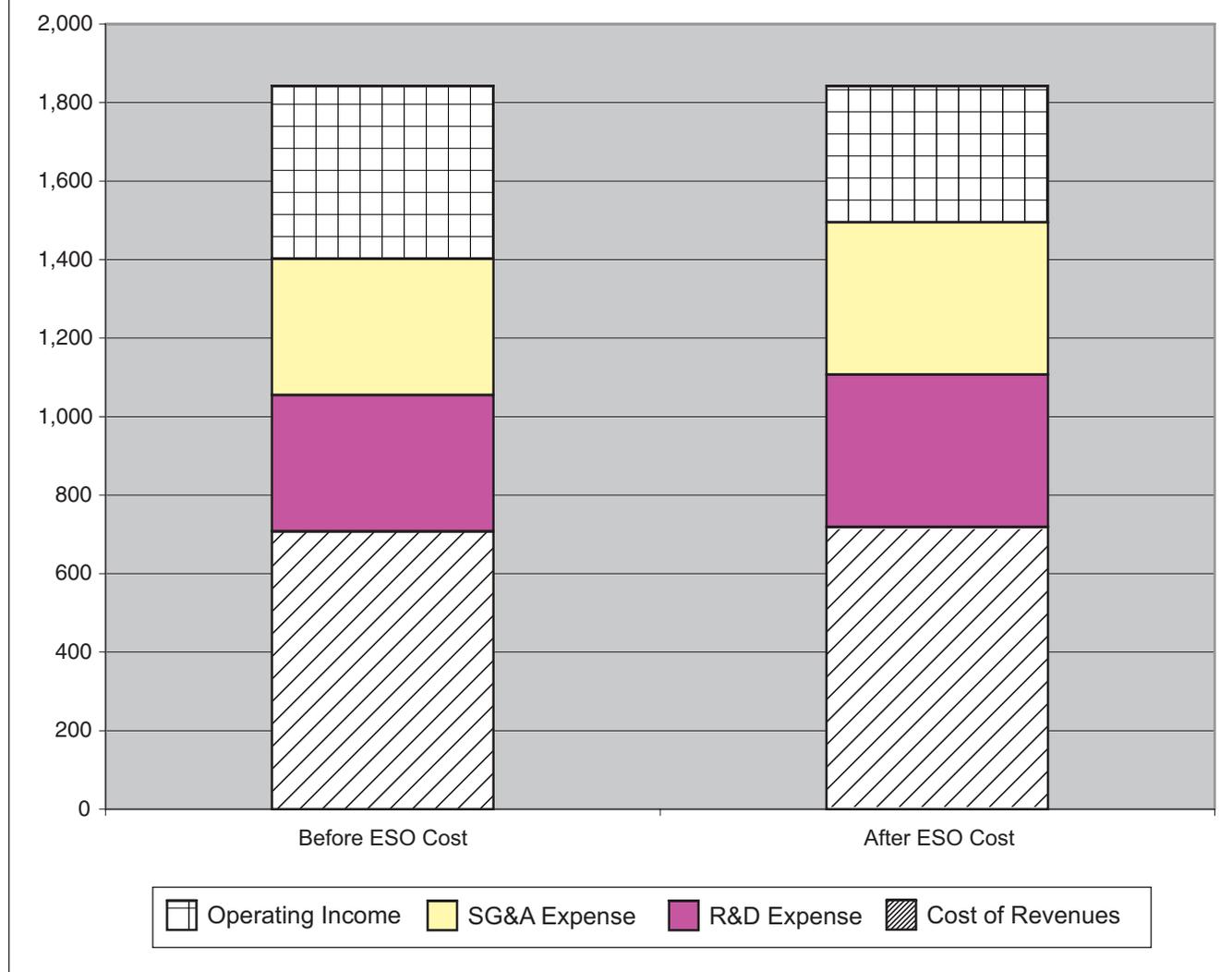
accordance with U.S. generally accepted accounting principles and applied by all public U.S. companies. In rejecting the IRS's alternative claim based on R&D-related ESO costs calculated under the fair value method, the Tax Court's opinion in *Xilinx* relied mainly on its finding that companies (including Xilinx) were not required, and generally did not elect, to use the fair value method. Given the promulgation of SFAS 123-R in 2005, the Tax Court's reasoning in *Xilinx* would seem to support the IRS's alternative claim for fiscal years starting after December 31, 2004.

3. Inherent Differences

My main criticism of the Tax Court's finding in *Xilinx* does not focus on how companies account for ESO costs. Rather, I believe the Tax Court's finding

did not take into account a significant economic difference between the nature of the ESOs at issue in an intercompany R&D cost-sharing agreement and the nature of the ESOs pertinent to third-party agreements like those considered in Bajaj's expert report.

As explained above, given the limited scope of third-party R&D cost-sharing agreements, the stock prices of the two unrelated parties do not move in tandem. Neither company's stock price fluctuates based mainly on the success or failure of their joint R&D activity. By contrast, while Xilinx Inc. and Xilinx Ireland may be separate legal entities, Xilinx Inc.'s publicly traded stock reflected the consolidated financial results of both companies, not the separate financial results of just the U.S. parent company. Their common

financial destiny is manifest in the ESOs that Xilinx Inc. granted options on its stock to Xilinx Ireland's eligible employees under its 1996 Xilinx Ireland/Xilinx Inc. Stock Option Intercompany Agreement. In effect, the options granted to the employees of Xilinx Ireland were not for the stock of a separate, unrelated company, but for the stock of a *joint venture* between Xilinx Inc. and Xilinx Ireland.

By contrast, I am not aware of any third-party agreement in which one party granted options on its own stock to employees of the other party. The fact that Xilinx Inc. granted stock options to Xilinx Ireland's employees, but Advanced Micro Devices would never consider granting stock options to Motorola's employees, indicates to me that the arm's-length standard should allow a different treatment of R&D-related ESO costs in an intercompany cost-sharing agreement from the universal practice in third-party agreements. That is, the result would be different because the facts and circumstances are different.

The purpose of a R&D cost-sharing agreement is to allow the participants to share both the costs and the benefits of their R&D. If the R&D employees of both cost-sharing participants qualify for options of the stock of what is in effect a joint venture company, R&D-related ESO costs should be shared in the same way all other R&D costs are shared.

It also seems logical to me that if the value of the ESOs reflected the success or failure of the jointly funded R&D, two cost-sharing participants would want to share the *actual* cost of ESOs at the time they were exercised, rather than the estimated present value of ESO costs at the time they were granted. From Xilinx Ireland's perspective, if Xilinx's R&D were successful, Xilinx Ireland would have higher profits to compensate it for the higher cost of reimbursing Xilinx Inc. for the stock options granted to Xilinx Inc.'s R&D-related employees. Conversely, if the R&D were unsuccessful, Xilinx Ireland's profits would be reduced, but so too would be the ESO cost reimbursements payable to Xilinx Inc. That is to say, sharing the actual cost of ESOs at the time of exercise is *less risky* from Xilinx Ireland's perspective than sharing the expected cost of the ESOs at the time they are granted — the exact opposite of the result for ESOs in a third-party agreement. Accordingly, I would conclude that in the Xilinx Inc.-Xilinx Ireland context, the arm's-length result would be for Xilinx Ireland to reimburse Xilinx Inc. for the actual cost of the ESOs granted to Xilinx Ireland's employees when and if those options were exercised.

Reimbursement of actual cost, not expected cost, was, of course, exactly the conclusion that Xilinx itself reached when it concluded the Xilinx Ireland/Xilinx

Inc. Stock Option Intercompany Agreement in 1996.[20] The only mystery for me is why the straightforward logic of the 1996 Xilinx Ireland/Xilinx Inc. Stock Option Intercompany Agreement did not extend to Xilinx's 1995 Technology Cost and Risk Sharing Agreement. If Xilinx Ireland would be willing to reimburse Xilinx Inc. for the actual cost of Xilinx stock options granted to Xilinx Ireland's employees, why would Xilinx Ireland come to a different conclusion about the stock options granted to Xilinx Inc.'s R&D-related employees? After all, under an R&D cost-sharing agreement, why would it matter whether the grantee was an employee of Xilinx Ireland or Xilinx Inc.?

> **The IRS appears to have acquiesced to a significant narrowing of its broad authority under section 482.**

In summary, I conclude that the Tax Court's opinion in *Xilinx* did not reach an arm's-length result because it failed to take into account the difference in the nature of the ESOs involved in Xilinx's intercompany agreement from the nature of the ESOs involved in third-party agreements. My conclusion is supported not only by economic logic, but also by the fact that Xilinx Inc. granted ESOs to employees of, and was reimbursed for the actual cost of those ESOs by, Xilinx Ireland.

C. The Arm's-Length Standard

A second purpose of this article is to explain the potential significance of the Tax Court opinion in *Xilinx* for the IRS's administration of section 482. In broad terms, the language of section 482 gives the secretary of the Treasury (and by delegation the IRS) broad authority to allocate gross income and deductions among entities under common ownership or control in order to prevent the evasion of taxes or clearly to reflect income. The statutory language makes no reference to the arm's-length standard. However, the IRS has stated in its regulation section 1.482-1(b) that ''the standard to be applied in every case is that of a taxpayer dealing at arm's length with an uncontrolled taxpayer.''

---

[20]In my experience, reimbursement of a U.S. parent company's actual cost of ESOs granted to a foreign subsidiary's own employees is common practice and not peculiar to Xilinx.

As explained above, in *Xilinx* the Tax Court found that the unrefuted evidence presented by the taxpayer was that unrelated parties participating in R&D cost-sharing agreements do not agree to share the cost of R&D-related ESOs. The Court therefore concluded that the IRS's reallocation of ESO costs was inconsistent with the arm's-length standard. On appeal, the majority opinion of the Ninth Circuit Court of Appeals stated:

> The [IRS] does not dispute the tax court's factual finding that unrelated parties would not share ESOs as a cost. Instead, the [IRS] maintains ESOs are a cost that must be shared under [section] 1.482-7(d)(1), even if unrelated parties would not share them. [Pages 6158-6159.]

Accordingly, the Ninth Circuit addressed the purely legal issue of reconciling the conflicting requirements of the section 482 regulations that:

- the arm's-length standard was to apply in all cases; and
- an R&D cost-sharing agreement must include all R&D costs.

Regardless of which opinion of the Ninth Circuit ultimately prevails, the IRS appears to have acquiesced to a significant narrowing of its broad authority under section 482. For example, I would have assumed that if Xilinx Inc. had claimed a tax deduction under section 83 for the cost of ESOs granted to Xilinx Ireland's employees, the IRS would have had the authority under section 482 ''clearly to reflect income'' by reallocating that deduction from Xilinx Inc. to Xilinx Ireland. The tax policy principle of matching of income and expense, not evidence of what parties do when dealing with unrelated parties, supports this result. As evidenced by its Stock Option Intercompany Agreement of 1996, Xilinx apparently agreed that a charge-back of ESO costs to Xilinx Ireland was appropriate. But the evidence Xilinx presented to the Tax Court regarding the R&D cost-sharing agreement might have been used to prove that the ESO costs of Xilinx Ireland's employees did not have to be charged back because such costs are not charged back in third-party agreements.[21] Absent the language of section 1.482-1(b) at issue in

the IRS appeal of *Xilinx* to the Ninth Circuit, the IRS's authority to make section 482 allocations clearly to reflect income might not have turned exclusively on what unrelated parties do in actual third-party transactions.

More generally, one could speculate about other provisions of the existing section 482 regulations that might be successfully challenged based on the type of evidence adduced in *Xilinx*. Rather than taking that risk (which in *Xilinx* has taken more than a decade to resolve), the Treasury Department and the IRS may wish to reconsider the sentence in section 1.482-1(b)(1) that declares the arm's-length standard must be applied ''in every case.'' The root of the problem laid bare by *Xilinx* is the inherent ambiguity of the arm's-length standard in cases when neither the comparable uncontrolled price method nor the comparable uncontrolled transaction method can be applied.[22]

As is widely understood, a multinational corporation often structures intercompany transactions differently from the ways unrelated companies deal with one another. *Xilinx* provides ample evidence to support this generalization.

- Xilinx Inc. granted stock options to employees of its subsidiary, Xilinx Ireland, a transaction that does not occur in third-party dealings.
- Xilinx adduced extensive evidence that third-party R&D cost-sharing agreements do not provide for reimbursement of R&D-related ESO costs. But Xilinx did not structure its own intercompany agreement to resemble any of the third-party agreements it cites, thereby precluding any application of the CUT method based on those agreements to its own intercompany arrangement.

My recommendation is that the clear priority stated in the existing regulations for transfer prices based on the CUP or CUT method be retained. But in other cases when such a method cannot reasonably be employed, the default should be to the statutory requirement ''to prevent evasion of taxes or clearly to reflect the income,'' not the frequently ambiguous arm's-length standard. ◆

---

[21]Since the charge-back for ESO costs of Xilinx Ireland's employees would presumably have been covered by the provisions of the regulations pertaining to intercompany services, the specific exception from the all cases rule for the cost-sharing regulations allowed by the majority opinion of the Ninth Circuit would not apply.

[22]In my understanding, the CUP or CUT method is based on the price or rate charged in a comparable *transaction* between unrelated parties. In general, the CUP or CUT method does *not* include other transfer pricing methods such as the intangible development cost-sharing method (section 1.482-7), the residual profit-split method (section 1.482-6(c)(3)), or the comparable profits method (section 1.482-5).