Contributions of Employee Stock Options to RRSPs and TFSAs: Valuation Issues and Policy Anomalies

Alan Macnaughton and Amin Mawani*

PRÉCIS
Les cotisations à un régime enregistré d’épargne-retraite (REER) versées en options d’achat d’actions accordées à un employé présentent des anomalies administratives sur lesquelles on ne s’est pas penché depuis de nombreuses années. Puisque les anomalies faisaient généralement en sorte que les contribuables évitaient ce type de cotisation, elles posaient problème pour les contribuables et non pour le gouvernement. Toutefois, avec l’introduction du compte d’épargne libre d’impôt (CELI), et l’ajout prévu des options d’achat d’actions accordées à des employés dans la liste des placements admissibles au CELI, ce problème est devenu celui du gouvernement. Si l’Agence du revenu du Canada (ARC) applique aux cotisations à un CELI versées en options d’achat d’actions la même méthode d’évaluation qu’elle utilise pour un REER, une valeur nulle sera attribuée à un grand nombre d’options d’achat d’actions et celles-ci n’utiliseront ainsi aucun droit de cotisation. Un grand nombre d’options d’achat d’actions pourra donc être versé dans un CELI sans que le plafond de cotisation annuel du CELI ne soit atteint.

Il est difficile pour l’ARC de modifier sa politique administrative puisque la jurisprudence limitée tend plutôt à favoriser la sous-évaluation des options d’achat d’actions et ne propose en outre aucune autre formule pour définir une méthode qui attribuerait une plus grande valeur aux options d’achat d’actions. L’ARC pourrait simplement publier des lignes directrices s’appliquant au cas par cas à l’évaluation de ces placements, mais cela ne permettrait pas d’établir des règles claires qui s’imposent pour les besoins des contribuables et des émetteurs. Du point de vue conceptuel, la valeur subjective pour l’employé est la valeur appropriée, mais s’avère difficile à administrer. Conséquemment, l’article recommande de prendre une valeur approximative en tenant compte de la moyenne entre la valeur intrinsèque et la valeur calculée par le modèle de « Black-Scholes ».

* Alan Macnaughton is of the School of Accounting and Finance, University of Waterloo, and Amin Mawani is of the Schulich School of Business, York University, Toronto. We wish to extend our thanks for helpful comments to an anonymous referee, to seminar participants at Brock University and the University of Waterloo, and to Ben Alarie, Heather Evans, Carlo Manzerra, Charles Taylor, and Yin Joanna Wei. Research assistance was provided by Nicholas Dobbek and Jonathan Farrar. Funding from the Social Sciences and Humanities Research Council of Canada is gratefully acknowledged.
ABSTRACT

The tax treatment of contributions of employee stock options to registered retirement savings plans (RRSPs) presents policy anomalies that have remained unresolved for many years. These anomalies arise in part from the current rules under the Income Tax Act and also from the valuation method applied by the Canada Revenue Agency (CRA). Thus far, the problem of valuation has been of concern to taxpayers rather than the government, and they have tended to deal with it by avoiding stock option contributions to RRSPs. However, with the introduction of tax-free savings accounts (TFSA}s) and the planned inclusion of employee stock options in the list of qualified TFSA investments, the problem has shifted to the government side. If the CRA applies the same method for valuing contributions of employee stock options to TFSA}s, many employee stock options will be determined to have zero value and hence will use up zero contribution room. As a result, taxpayers will be able to contribute any number of options to a TFSA without exhausting the annual contribution limit.

While the CRA might remedy the problem by simply changing its administrative policy, it cannot easily do this in the absence of a statutory valuation rule. The existing, and limited, case law tends to support undervaluations and provides no framework for a method that would generate higher valuations. Alternatively, the CRA could choose not to provide any guidance on valuation with respect to stock option contributions to TFSA}s, but this would not provide the clarity that taxpayers and issuers need. The Department of Finance should therefore develop legislation that provides a more realistic valuation method for contributions of employee stock options to both RRSPs and TFSA}s. Subjective value to the employee is conceptually appropriate but difficult to administer. As a result, the authors of this article recommend a method that approximates this value by using the average of the intrinsic value and the Black-Scholes value.

KEYWORDS: Stock Options ▪ Valuation ▪ Tax-Free Savings Accounts ▪ TFSA ▪ Registered Retirement Savings Plans ▪ RRSP

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INTRODUCTION

Most employee stock options have been eligible to be contributed to registered retirement savings plans (RRSPs) for many years, but this has never been popular. Taxpayers have tended to avoid making such contributions primarily because of a concern about double taxation: the benefit received on exercise is taxable as employment income and is also taxable as part of the RRSP withdrawal. This concern has distracted attention from the problem of determining the value of the employee stock option at the time of contribution, which is used to measure both the amount of the RRSP deduction and the amount of contribution room that is used up. The Canada Revenue Agency (CRA) has issued technical interpretations about the method of determining this value, and these appear to have been generally adopted by taxpayers. One of the contentions of this article is that the CRA’s method generates inappropriately low values, resulting in reduced RRSP deductions and overcontributions without penalty.

The valuation of employee stock options has now become a significant issue because of the introduction of tax-free savings accounts (TFSAs) in January 2009. While TFSAs are similar to RRSPs in that investment income on savings held inside either type of plan is sheltered (exempt) from annual taxation, there is a key difference: whereas RRSP contributions are deductible and withdrawals are taxable, TFSA contributions are non-deductible and withdrawals are non-taxable. Employee stock options are slated to become qualified investments for TFSAs, although the regulation has not been enacted at the time of writing (January 2009). They could become a popular RRSP and TFSA investment if an appropriate valuation method is developed, since stock options have become a common form of compensation. It is estimated that taxable stock option gains across Canada represent 20 to 25 percent of taxable capital gains of individuals.\(^1\)

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\(^1\) The rules governing TFSAs are contained in new part XI.01 of the Income Tax Act, RSC 1985, c. 1 (5th Supp.), as amended (herein referred to as “the Act”). Part XI.01, comprising sections 207.01 to 207.07, was added by SC 2008, c. 28, section 31(1), applicable to the 2009 and subsequent taxation years. For a description of the TFSA rules, see Ken Griffin and Louis Provenzano, “TFSA Penalties and Tax” (2009) vol. 17, no. 1 Canadian Tax Highlights 6-7; Philip Friedlan, “Tax Deferral: Old and New,” in 2008 Ontario Tax Conference (Toronto: Canadian Tax Foundation, 2008), tab 5; and Heather L. Evans and Marielle Domercq, “Policy Forum: Tax-Free Savings Accounts—A Practitioner’s Perspective” (2008) vol. 56, no. 3 Canadian Tax Journal 708-18. Unless otherwise stated, statutory references in this article are to the Act.

\(^2\) The rate for 2005 (the most recent year for which actual data are available) is 23.5 percent, calculated as $945 million (the federal revenue cost for individuals claiming a division C
Valuation is central to the efficacy of TFSSAs for government as well as taxpayers. If an asset contributed to a TFSA is undervalued, major tax advantages can be obtained because the valuation determines the contribution room used up. For example, if an asset worth $1,000 uses up only $100 of contribution room, 50 units of this asset can be contributed annually to a TFSA without exceeding the $5,000 annual contribution limit. Thus, in-kind contributions of this asset can inflate the effective TFSA limit from $5,000 to $50,000.

The purpose of this article is to analyze the policy problems raised by the contribution of employee stock options to RRSPs and TFSSAs. Relevant statute and case law is also reviewed in detail, since lack of clarity in the law is a significant issue. Prior literature has not addressed these policy issues, although the relevant statute law has been discussed for RRSPs. Although all of the discussion concerns employee stock options, the valuation issue addressed in this article would also apply to other options that are not purchased or traded publicly—for example, an option used as a payment for services to a self-employed person.

The article begins by reviewing different concepts of value for employee stock options, including market value, intrinsic value, Black-Scholes value, and subjective value. It is shown that intrinsic value, the method chosen by the CRA for valuing contributions of stock options to RRSPs, is an underestimate of the true value. In particular, options that are not in the money have zero intrinsic value, but they are far from worthless.

Rules for the contribution of employee stock options to RRSPs are then discussed, and the implications of this undervaluation are developed. This is followed by a discussion of the contribution of employee stock options to TFSSAs. It is shown that extending the use of the intrinsic value method to TFSSAs would lead to the extreme result that, in most cases, a contribution of employee stock options would use up zero contribution room. Thus, an unlimited number of options could be transferred to a TFSA without offending the annual contribution limit ($5,000 for 2009). A review of the relevant case law on options other than those covered by section 7 of the Act reveals some elements leading to undervaluation; however, it is also possible that a court faced directly with the calculation of the value of an employee

deduction for stock options) divided by $4,015 million (the federal revenue cost for the non-taxable half of capital gains): Canada, Department of Finance, Tax Expenditures and Evaluations 2008 (Ottawa: Department of Finance, 2008), 16-18. This is an underestimate to the extent that not all stock option gains are eligible for a division C deduction.


4 In the finance literature, the term “incentive options” generally refers to stock options provided for incentive and compensation purposes to employees or self-employed persons.

5 This limit has an indefinite carryforward and is indexed in $500 increments after 2009.
stock option contributed to a TFSA would choose a more reasonable method, perhaps based on the Black-Scholes value or the subjective value.

Given the lack of clarity in the law and the problematic nature of the CRA’s valuation policy on employee stock options, the article presents an analysis of alternatives available to the CRA and the Department of Finance to bring more certainty and neutrality to this area. On the basis of this analysis, a legislative solution is proposed that would provide for a new method of valuing stock option contributions to RRSPs and TFSAs, and would produce a more appropriate tax result for both taxpayers and the government.

APPROACHES TO VALUING AN EMPLOYEE STOCK OPTION

In most areas of tax law, the place to start in determining value is the market price. However, the market price is not used in valuing an employee stock option for three reasons:

1. Many firms do not have publicly traded options; 26 percent of the 100 largest firms on the Toronto Stock Exchange (TSX), and 90 percent of TSX firms as a whole, do not have options that are traded on Canada’s options exchange, the Montreal Exchange (MX).7
2. Even for firms with traded options, the observed market prices are for options that have very different terms than employee stock options. Exchange-traded options almost always mature within a year, while employee stock options normally have a holding period of at least three years.8 Exchange-traded options can be exercised at any time up to maturity, while employee stock options often may not be exercised in the first two or three years. And exchange-traded options have no counterpart to the common employee stock option rule that the period over which the option can be exercised ends prematurely if the employment is terminated (whether voluntarily or involuntarily).
3. There is an issue as to whether the market price is relevant, because the employee cannot sell his or her options.

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6 For example, market values are used in determining the taxable benefit under paragraph 15(1)(c) where specific shareholders are granted the right to purchase additional shares. According to paragraph 3 of Interpretation Bulletin IT-96R6, “Options Granted by Corporations To Acquire Shares, Bonds, or Debentures and by Trusts To Acquire Trust Units,” October 23, 1996, the taxable benefit in this situation is the greater of the intrinsic value and “the trading value of the rights received.”

7 Exchange-traded options are simple bets on the future share price of a stock arranged between third parties. In contrast, employee stock options (and warrants) are issued by the company itself. The list of TSX firms is on the Compustat database. The list of MSX firms is at http://www.m-x.ca/ego_liste_en.php#optionsAction.

8 However, an option with a longer term to maturity will have a higher value if all other factors are equal. Thus, if a market-traded option could be found that was issued at approximately the same time and had approximately the same exercise price, it could be used as a lower bound for the market value of the employee stock option.
In place of market values, employee stock options are typically valued by reference to the option’s intrinsic value, Black-Scholes value, and/or subjective value to the employee. These three approaches are described in turn below.

**Intrinsic Value**

An option is said to be “in the money” if the current market value of the shares exceeds the option’s exercise price (or strike price). This terminology derives from the fact that, in these circumstances, exercising the option and immediately selling the share would generate a net profit. Conversely, an option is “out of the money” if the current market value of the shares is less than the exercise price, since exercising the option and immediately selling the share would produce a net loss. Finally, an option is “at the money” if the market value of the shares exactly equals the exercise price.

The simplest and crudest measure of the value of a stock option is its “intrinsic value”—the amount, if any, by which the current market value of the shares exceeds the exercise price. The intrinsic value measures the amount of profit, if any, that the holder could make by immediately exercising the option and selling the share. Stock options that are in the money have a positive intrinsic value, while options that are at the money or out of the money have a zero intrinsic value. The intrinsic value cannot be negative since an option involves the right, but not the obligation, to purchase the share.

Employee stock options normally have a period after granting during which the option cannot be exercised. The time at which the option becomes exercisable is generally referred to as the time of vesting, and the period between the grant date and the time of vesting is called “the vesting period.” Restriction of the time of exercise is not considered in the above terminology for stock options. Thus, an unvested option for which the market price of the share exceeds the exercise price is considered to be in the money and therefore has a positive intrinsic value, despite the fact that this value cannot be immediately realized.\(^9\)

The problem with intrinsic value is that it neglects the contribution to value arising from possible future changes in the price of the shares. If there is any time left before the option expires, there is a possibility that the share price could change. The likelihood and size of such changes depends on the volatility of the stock, which measures the degree to which the stock price moves up or down from day to day.

Volatility has non-symmetric effects on the profit that can be made by exercising and selling the share. Since the holder has the right but not the obligation to exercise, downward movements of the share price cannot reduce this profit below zero; the holder will choose not to exercise if the share price falls below the exercise price. On the other hand, upward movements of the share price can increase this profit without limit. Thus, by neglecting volatility, intrinsic value fails to consider the

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9️⃣ A similar application of this usage is that a European option (a type of market-traded option that cannot be exercised until maturity) may be described as being in the money even before maturity.
employee’s right to defer exercise of an option that is not yet at its expiry date, on the assumption that in the meantime the share price may go up. The inaccuracy of this method is most obvious in the case of an option that is out of the money: although the intrinsic value is zero, the option is clearly not worthless if there is any chance that the share value will rise above the exercise price before the expiry date.

**Black-Scholes Value**

A common measure of the value of stock options that takes volatility into account is the Black-Scholes value (a value computed by a formula derived by Fischer Black and Myron Scholes).\(^\text{10}\) As discussed above, market values are not generally available for employee stock options; the Black-Scholes value is an estimate of this value. Table 1 provides a comparison of intrinsic values and Black-Scholes values for an option with an exercise price of $5.00 and share prices ranging from $1.00 to $15.00. This pricing information is supplemented by additional assumptions to represent a typical non-dividend-paying stock on the TSX. (Approximately 80 percent of TSX stocks do not pay dividends.\(^\text{11}\))

Columns 3 and 4 of the table show that the intrinsic value is always less than the Black-Scholes value. For example, when the share price is $15.00, the Black-Scholes value is $11.29 while the intrinsic value is only $10.00. The largest dollar difference between the two values ($2.15) occurs when the exercise price and the share price are equal, which in the example (and often in real life) occurs at the time of granting of the option. Column 5 shows that the differences between the two values are smaller in percentage terms for options that are deep in the money. For example, the difference is only 13 percent for an option that is $10.00 in the money (at a $15.00 share price) but 193 percent for an option that is just $1.00 in the money (at a $6.00 share price). Options that are at or out of the money have a zero intrinsic value but a positive Black-Scholes value. The table shows that where the share price ranges from $1.00 to $5.00, the Black-Scholes value ranges from $0.05 to $2.15, even though the intrinsic value is zero in every case.

**Subjective Value**

Recently there has been a flurry of academic activity in trying to adjust the Black-Scholes value to take into account the attitude toward risk of the option-holding

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\(^\text{10}\) Fischer Black and Myron S. Scholes, “The Pricing of Options and Corporate Liabilities” (1973) vol. 81, no. 3 *Journal of Political Economy* 637-54.

\(^\text{11}\) The Compustat database of active Canadian companies shows that only 393 out of 2,052, or 19 percent, of firms listed on the TSX in 2006 paid out dividends on their common shares in that year; by comparison, the proportion of TSX firms paying dividends on their common shares in prior years has ranged from 16 percent in 2003 to 21 percent in 2005. Employee stock options are generally linked to the underlying common shares of the employer firm, rather than preferred shares, since the growth of a corporation is generally manifested in the return on its common shares. Preferred shares, like debentures, are often designed to pay fixed returns.
TABLE 1  Comparison of Intrinsic Value and Black-Scholes Value for an Employee Stock Option at Various Share Prices

<table>
<thead>
<tr>
<th>Share price (1)</th>
<th>Exercise price (2)</th>
<th>Intrinsic value (3)</th>
<th>Black-Scholes value (4)</th>
<th>Difference between Black-Scholes value and intrinsic value (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.00$</td>
<td>$5.00$</td>
<td>$0.00$</td>
<td>$0.05$</td>
<td>Undefined</td>
</tr>
<tr>
<td>$2.00$</td>
<td>$5.00$</td>
<td>$0.00$</td>
<td>$0.31$</td>
<td>Undefined</td>
</tr>
<tr>
<td>$3.00$</td>
<td>$5.00$</td>
<td>$0.00$</td>
<td>$0.80$</td>
<td>Undefined</td>
</tr>
<tr>
<td>$4.00$</td>
<td>$5.00$</td>
<td>$0.00$</td>
<td>$1.42$</td>
<td>Undefined</td>
</tr>
<tr>
<td>$5.00$</td>
<td>$5.00$</td>
<td>$0.00$</td>
<td>$2.15$</td>
<td>Undefined</td>
</tr>
<tr>
<td>$6.00$</td>
<td>$5.00$</td>
<td>$1.00$</td>
<td>$2.93$</td>
<td>$193$</td>
</tr>
<tr>
<td>$7.00$</td>
<td>$5.00$</td>
<td>$2.00$</td>
<td>$3.78$</td>
<td>$89$</td>
</tr>
<tr>
<td>$8.00$</td>
<td>$5.00$</td>
<td>$3.00$</td>
<td>$4.66$</td>
<td>$55$</td>
</tr>
<tr>
<td>$9.00$</td>
<td>$5.00$</td>
<td>$4.00$</td>
<td>$5.57$</td>
<td>$39$</td>
</tr>
<tr>
<td>$10.00$</td>
<td>$5.00$</td>
<td>$5.00$</td>
<td>$6.49$</td>
<td>$30$</td>
</tr>
<tr>
<td>$11.00$</td>
<td>$5.00$</td>
<td>$6.00$</td>
<td>$7.44$</td>
<td>$24$</td>
</tr>
<tr>
<td>$12.00$</td>
<td>$5.00$</td>
<td>$7.00$</td>
<td>$8.40$</td>
<td>$20$</td>
</tr>
<tr>
<td>$13.00$</td>
<td>$5.00$</td>
<td>$8.00$</td>
<td>$9.36$</td>
<td>$17$</td>
</tr>
<tr>
<td>$14.00$</td>
<td>$5.00$</td>
<td>$9.00$</td>
<td>$10.32$</td>
<td>$15$</td>
</tr>
<tr>
<td>$15.00$</td>
<td>$5.00$</td>
<td>$10.00$</td>
<td>$11.29$</td>
<td>$13$</td>
</tr>
</tbody>
</table>

*Note: The Black-Scholes values are computed using Blobek AB, “Black-Scholes Analysis” (online: http://www.blobek.com/black-scholes.html). The parameters are chosen to represent current market conditions for a broad class of TSX stocks: time to maturity of five years, standard deviation of daily stock returns (volatility) of 0.40, dividend yield of zero, and interest rate of 5 percent.*

employee. The problem is to determine the minimum amount of cash that the employee would consider equal in value to an employee stock option. The so-called subjective value of an option is normally less than the Black-Scholes value because the basic Black-Scholes option pricing model does not take into account the restriction on the sale of an employee stock option. As a result of this restriction, an employee who accepts stock options as compensation cannot prevent his or her portfolio of investments and human capital from being concentrated in the equity of the employer. Since investment and financial planning advisers generally stress

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the importance of diversification, the inability to sell options has a major depressive effect on subjective value, particularly if the employee is strongly risk-averse. The precise amount by which the Black-Scholes value should be reduced depends on the economic model being used and the assumptions that are made about economic and other parameters, especially the degree of risk aversion of the employee.

The recent literature on subjective value also attempts to correct two other deficiencies of the basic Black-Scholes model: the lack of consideration of the vesting period and the possibility that the option contract may terminate early because the employment is terminated. Although these factors could be taken into account in a normal Black-Scholes model that does not recognize subjective considerations, it is useful to include all of these value-reducing issues in a single model in order to show the variation in values and to see how low the value can go.

Table 2 presents some subjective value results from a 2006 article by Jonathan Ingersoll. For an at-the-money (zero intrinsic value) employee stock option that has a Black-Scholes value of $44.83, 16 possible subjective values are shown. The values range from $4.32 to $31.52, depending on the length of the vesting period (zero or four years), the probability of termination of employment (0 percent annually or 5 percent annually), the degree to which the employee is overinvested in the employer’s stock relative to the optimal portfolio (25 percent or 75 percent excess holding), and the employee’s risk aversion (low or high). For each of these paired choices, the latter choice produces a lower subjective value; thus, the lowest value of $4.32 (less than 10 percent of the Black-Scholes value shown in the table) is applicable for an option-holding employee with a 5 percent annual probability of termination, vesting after four years, excess holding of 75 percent, and high risk aversion.

The key point to be drawn from table 2 is that intrinsic value is not only less than Black-Scholes value, as shown in table 1, but is also less than any subjective value. Because intrinsic value neglects volatility, it seriously underestimates the true value of an employee stock option. The other important point is that an option that is subject to vesting restrictions or that could end prematurely as a result of employee

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13 Employees may be able to hedge the risk associated with holding significant equity in their employer’s firm through the use of financial instruments such as zero-cost collars and equity swaps, but there is controversy about the ability of employees to do this. See Amin Mawani, “Tax Deductibility of Employee Stock Options” (2003) vol. 51, no. 3 Canadian Tax Journal 1230-58, at 1234-37; and J. Carr Bettis, John M. Bizjak, and Michael L. Lemmon, “Managerial Ownership, Incentive Contracting, and the Use of Zero-Cost Collars and Equity Swaps by Corporate Insiders” (2001) vol. 36, no. 3 Journal of Financial and Quantitative Analysis 345-70.

14 Ingersoll, supra note 12. The attractive aspect of Ingersoll’s result is that he obtains a closed-form solution, at least for the case of no vesting requirements and zero termination probability. This makes the computation of the values much simpler. However, Ingersoll makes two critical assumptions: the employee holds a constant proportion of his or her wealth in the risky stock and the rest in risk-free investments; and all of the employee’s equity holdings are in stocks, not options. Under these conditions, Ingersoll calculates the subjective value of getting one stock option.
termination still has a positive Black-Scholes value and subjective value. Such an option is not worthless by any reasonable measure, in spite of what some case law (discussed below) may suggest. Although these two conclusions are based on a specific example, they are true for all employee stock options.

## Contributing an Employee Stock Option to an RRSP

The issues raised by an in-kind contribution of an employee stock option to an RRSP are the status of the option as a qualified investment, the determination of the amount of the RRSP contribution, the tax consequences of exercising the option and selling the share, and the policy implications of the current treatment.

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### TABLE 2 Comparison of Black-Scholes Value, Intrinsic Value, and Subjective Value of an Employee Stock Option

<table>
<thead>
<tr>
<th>Valuation method</th>
<th>Probability of termination = 0% annually</th>
<th>Probability of termination = 5% annually</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immediate vesting</td>
<td>Vesting after 4 years</td>
</tr>
<tr>
<td>Black-Scholes value&lt;sup&gt;a&lt;/sup&gt;</td>
<td>44.83</td>
<td>44.83</td>
</tr>
<tr>
<td>Intrinsic value</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Employee's subjective value<sup>b</sup>**

<table>
<thead>
<tr>
<th>Excess holding in employer's equity of 25%:</th>
<th>Probability of termination = 0% annually</th>
<th>Probability of termination = 5% annually</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immediate vesting</td>
<td>Vesting after 4 years</td>
</tr>
<tr>
<td>Low risk aversion</td>
<td>31.52</td>
<td>31.34</td>
</tr>
<tr>
<td>High risk aversion</td>
<td>21.59</td>
<td>20.29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Excess holding in employer's equity of 75%:</th>
<th>Probability of termination = 0% annually</th>
<th>Probability of termination = 5% annually</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immediate vesting</td>
<td>Vesting after 4 years</td>
</tr>
<tr>
<td>Low risk aversion</td>
<td>21.33</td>
<td>20.39</td>
</tr>
<tr>
<td>High risk aversion</td>
<td>9.81</td>
<td>5.54</td>
</tr>
</tbody>
</table>

Note: The assumptions include valuation at the time of granting, a current share price of $100, an exercise price of $100, a time to expiry of 10 years, a discount rate of 5 percent, residual risk of 20 percent, a dividend yield of 1 percent, and volatility of 30 percent.

<sup>a</sup> The values shown here are taken from Ingersoll’s study, except that the Black-Scholes values in the third and fourth columns do not take into account the 5 percent annual risk of premature expiry of the option resulting from termination. Adjusting for this factor (as Ingersoll does in reporting “market values” in his table 9) would reduce the values in the last two columns from $44.83 to $36.33.

<sup>b</sup> In the calculation of these values, the excess holding is the fraction of the employee’s wealth that is invested in the company’s common stock less the stock’s representation in the market portfolio. The measure of the employee’s risk aversion is the parameter γ in the manager’s utility function employed by Ingersoll. High risk aversion is represented by γ = −4, which indicates that the employee’s relative risk aversion is 5. Low risk aversion occurs where γ = −2.

Qualified Investments

A “qualified investment” for an RRSP is defined in subsection 146(1) to include certain investments described in section 204 (which applies to deferred profit-sharing plans). Section 204 provides that a qualified investment includes securities listed on a designated stock exchange.15 The definition in subsection 146(1) also includes investments prescribed by regulation. For these purposes, among other investments described in regulation 4900, regulation 4900(1)(e) provides that an option, warrant, or similar right that gives the holder the right to acquire a qualified investment is itself a qualified investment. Thus, an option is a qualified investment for an RRSP as long as the underlying security is publicly traded, even if the option itself is not publicly traded.16

Amount of the Contribution

On contribution of the employee stock option to the RRSP, the employee is entitled to a tax deduction for the fair market value of the option at the time of contribution. The same amount is applied to determine the amount of contribution room remaining in the RRSP account after the contribution. The method to be applied in determining the fair market value of the option is not specified in the legislation. The relevant case law, which applies equally to RRSPs and TFSAs, is canvassed in the TFSA section below.

Two CRA technical interpretations, issued in 1995 and 1996, state explicitly that the fair market value of an option contributed to an RRSP is the intrinsic value at the time of contribution.17 While two more recent technical interpretations are silent on how the fair market value is to be determined,18 it appears that this does not imply a change in policy but only reflects the assumption that the CRA’s valuation method is well known. Indeed, various articles on the topic use the intrinsic value method in calculating the amount of the RRSP contribution.19

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15 Section 204, paragraph (d) of the definition of “qualified investment.” A “designated stock exchange” is defined in subsection 248(1) to be a stock exchange for which a designation by the minister of finance under section 262 is in effect. The current list, which includes the Toronto, New York, and NASDAQ exchanges (among others), is posted on the Department of Finance Web site at http://www.fin.gc.ca/news08/data/08-049_1e.html.

16 See Addison and Korn, supra note 3, at 806-7, for a discussion of the conditions under which options on shares of Canadian-controlled private corporations (CCPCs) are qualified investments.


As discussed earlier, an important characteristic of the intrinsic value method is that if the option is not in the money at the time of contribution—that is, if the share price is less than or equal to the exercise price—the value of the option is considered to be zero. Neither of the two CRA technical interpretations prescribing the use of the intrinsic value method specifically confirms this result, but it appears inevitable: if a stock option that is 1 cent into the money is valued at 1 cent, it is hard to come to any other conclusion than assigning a zero value to an option that is not in the money.

Subsequent Tax Consequences

The principal rules governing the taxation of employee stock options are set out in sections 7 and 110 of the Act. According to paragraph 7(3)(a), no income inclusion occurs at the time the employee transfers the stock option to the RRSP. Instead, taxation occurs at the time that the option held in the RRSP is exercised, if that time ever comes (since the option may simply expire out of the money). Paragraph 7(1)(c) applies at the time of exercise because the employee has disposed of the option to a person who is not at arm’s length—the employee’s RRSP. This paragraph taxes the employee on the fair market value of the shares on exercise less the exercise price.

Subsection 7(8) provides for an election to defer taxation from the time of exercise to the time of disposition of the underlying shares, for options on up to $100,000 of securities that vest in a particular year. However, it appears that this election does not apply where the stock option has been transferred to an RRSP because the election defers taxation under paragraph 7(1)(a) but not taxation under paragraph 7(1)(c). Of course, this is not an issue for the majority of employees who sell the shares immediately after exercise.

On exercise, paragraph 110(1)(d) applies to reduce the paragraph 7(1)(c) income inclusion by one-half in the appropriate circumstances, most notably where the option was not in the money at the time it was issued.

When the individual ultimately withdraws the funds from the RRSP, the full amount of the withdrawal is considered taxable income, notwithstanding any previous paragraph 7(1)(c) inclusion. Typically, the deduction received at the time of contribution does not fully eliminate this double taxation because the amount of the deduction is usually less than the paragraph 7(1)(c) inclusion. However, double taxation will not occur if the stock option is contributed prior to exercise because the inclusion and the deduction will then be equal.

20 The definition of “person” in subsection 248(1) includes an entity exempt from tax under subsection 149(1), and paragraph 149(1)(r) provides that an RRSP is such a person. The same treatment is accorded to TFSAs by paragraph 149(1)(u.2).

21 Where the underlying security is a share issued by a CCPC, the fact that the income inclusion results from paragraph 7(1)(c) rather than subsection 7(1.1) has two consequences: there is no deferral of tax in respect of the option from the time of exercise until the share is ultimately sold, and the paragraph 110(1)(d.1) deduction is not available to partially offset the income inclusion.
The following example summarizes the tax consequences of an in-kind contribution of an employee stock option to an RRSP.

Example

Assume that an employee receives an option to purchase one share of the employer company. The exercise price is $5.00, which is equal to the fair market value of the share at the time the option is granted. The employee transfers the option to his RRSP when the fair market value of the share is $6.00. Applying the intrinsic value method prescribed in the CRA technical interpretations, the employee is entitled to claim an RRSP deduction equal to $1.00.

The RRSP exercises the stock option at a time when the fair market value of the share is $15.00. Pursuant to paragraph 7(1)(c), the employee must include in his income from employment a stock option benefit of $10.00 ($15.00 minus $5.00). However, the employee is entitled to a paragraph 110(1)(d) deduction for one-half of the income inclusion in computing taxable income resulting from the exercise of the stock option.

The RRSP sells the stock at some future time. There are no tax consequences at that time, since the RRSP is exempt from tax.

When the employee eventually withdraws funds from the RRSP, comprising proceeds from the sale of the stock plus the tax-deferred earnings on those proceeds (amounting to, say, $50.00), he will be liable for tax on the full amount distributed, with no recognition of the tax paid at the time of exercise.

Policy Implications

The above example can be used to show that there are three policy problems associated with the present rules for the contribution of an employee stock option to an RRSP. For this purpose, let us assume that the Black-Scholes value is a fair value of a stock option, since the conclusions do not change qualitatively if the subjective value is used instead.

1. The rules result in an inappropriately low deduction for the contribution. In the example, the deduction permitted for contributing the stock option to the RRSP is the intrinsic value of $1.00 even though the option is worth much more—$2.93 as measured by the Black-Scholes value (from table 1, for an option with an exercise price of $5.00 and an underlying share value of $6.00).
2. The rules allow for overcontributions without penalty. The contribution room used up is the same as the deduction—the intrinsic value of $1.00—even though it too should be the $2.93 Black-Scholes value.
3. The rules provide for double taxation, as described above and noted by many commentators. The gain on exercise of the stock option ($10.00 in the

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22 This example is modified from Addison and Korn, supra note 3, at 808.

23 See ibid., at 808-9; and Cauwenbergh, supra note 3, at 33. Also see generally the other sources cited in note 19, supra. The CRA's position is that the paragraph 7(1)(c) inclusion applies even if the stock option is issued directly to the RRSP (rather than, as discussed above, first to the employee and then to the RRSP). See Richard Yasny, “Options for RRSPs” (1996) vol. 4, no. 6 Canadian Tax Highlights 45-46.
example) is at least partially taxable at that time (after taking into account the paragraph 110(1)(d) and (d.1) deductions) and yet is also taxable at the time of withdrawal of funds from the RRSP (as part of the proceeds and earnings distributed from the plan).

The source of the double taxation problem is a fundamental mixup between employment income and capital gains in the system for taxing stock options under sections 7 and 110. To see this, consider first an employee stock option that is granted and exercised in the usual way, without ever being contributed to an RRSP. If it is accepted that the Act will distinguish between employment income and capital gains as sources of income, conceptually there should be two effects from the granting and later exercise of an option: granting of the option should result in the recognition of employment income equal to the value of the stock option at that time (which, for the purposes of illustration, is assumed to be the Black-Scholes value); and exercise of the option should result in a capital gain equal to the difference between the gain on exercise (share price less exercise price) and the previously taxed amount (the Black-Scholes value). The reason for treating the second amount as a capital gain and not employment income is that it is entirely due to variation in the share price. For the same reason, the proper conceptual treatment of an employee stock option that eventually expires out of the money is an employment income inclusion for the Black-Scholes value on granting, followed by a capital loss of an equal amount when the option expires.

There is little difficulty in extending this conceptual scheme to an employee stock option that is, in sequence, granted, contributed to an RRSP, and exercised. Granting results in an employee income inclusion for the Black-Scholes value at that time, as discussed above. Contribution to the RRSP results in a disposition and a possible capital gain equal to the difference between the value of the stock option when contributed to the RRSP (presumably based on the Black-Scholes value at that time) and the Black-Scholes value on granting. Exercise results in no additional taxable income, since RRSPs are tax-sheltered until amounts are withdrawn. Applying this system to the example presented above, the tax consequences are as follows:

- The employment income amount is $2.15 (the Black-Scholes value from table 1 when the share value is $5.00). This amount is included in income and subject to tax in the year of granting.
- The capital gain recognized from the deemed disposition at the time of contribution of the stock option to the RRSP is $0.78 ($2.93 − $2.15). Using the current capital gain inclusion rate of 50 percent, the taxable amount is $0.39.
- The RRSP deduction and the RRSP contribution room used up are both $2.93 (the Black-Scholes value when the share value is $6.00). This amount corresponds to the total of the employment income inclusion and the capital gain ($2.15 + $0.78).
- No further taxation occurs at the time of exercise.
There is no deduction in respect of the employment income inclusion. (Under this system, paragraphs 110(1)(d) and (d.1) would be repealed.)

The $50.00 withdrawal of proceeds and earnings from the RRSP is fully taxable.

In summary, solving the double taxation problem requires a fundamental reform of the taxation of stock options under the Act. Employee stock options would be taxed on granting, with subsequent taxation of dispositions created by contribution to an RRSP or exercise. A 2006 study by the Organisation for Economic Co-operation and Development (OECD) indicates that only 8 of 30 OECD countries tax any employee stock options on granting.24

In the absence of such fundamental reform, the net effect of the three problems referred to at the beginning of this section is to discourage the contribution of stock options to RRSPs. This non-neutrality is perhaps not too significant on its own, but the valuation component of the non-neutrality creates serious problems with TFSAs, as discussed below.

It is interesting to note in passing that the mixup in the Act between employment income and capital gains in the current system of taxing stock options is at the root of the current policy issue of “underwater shares.” This issue arises where employees exercise stock options to acquire shares that decline sharply in value before sale. In this situation, the present statutory scheme for employee stock options is flawed since the post-exercise capital loss cannot be offset against any of the section 7 employment benefit, even though part of this benefit is a capital gain in economic terms.25 On the other hand, the analysis above shows that allowing full deductibility against the employment income amount, as is done for incentive stock options in the United States, would also be inappropriate.26 The theoretically correct solution is to tax employee stock options on granting, since the post-exercise capital loss can then be offset against the pre-exercise capital gain (the difference between the present section 7 employment amount and the Black-Scholes value at the time of contribution).

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25 For a description of this problem, see Wayne Tunney, “Underwater Stock Options Sink” (2003) vol. 11, no. 6 Canadian Tax Highlights 1-2; and the Web site of the group Canadians for Fair and Equitable Taxation: http://www.cfet.ca.

26 This is the method that appears to be applied by the underwater-share remission orders—for example, Certain Former Employees of SDL Optics, Inc. Remission Order No. 2, PC 2008-975, SI/2008-60, June 11, 2008. Only employees who do not qualify for the paragraph 110(1)(d) or (d.1) deduction appear to be covered. See the testimony of the former minister of national revenue, Gordon O’Connor, in Canada, House of Commons, Standing Committee on Finance, Evidence, 39th Parl., 2d sess., issue no. 30, March 12, 2008.
CONTRIBUTING AN EMPLOYEE STOCK OPTION TO A TFSA

For purposes of comparison, this section considers the same set of issues discussed above in the context of RRSPs—namely, the status of the option as a permissible TFSA investment, the determination of the amount of the TFSA contribution, the tax consequences of exercising the option and selling the share, and policy implications.

Qualified and Prohibited Investments

Subsection 207.01(1) contains definitions for qualified and prohibited TFSA investments. Like the definition for RRSPs, qualified investments include securities listed on a designated stock exchange (by reference to section 204) and prescribed investments. Regulation 4900(1) is to be amended so that an employee stock option (that is not a prohibited investment) should be a qualified investment for a TFSA, provided that the underlying security is a qualified investment.27

Prohibited investments are defined in subsection 207.01(1) to include a share, or a right to acquire a share, in any entity with which the holder of the TFSA is not at arm’s length28 and any entity in which the holder has a significant interest. Section 207.04 imposes a 50 percent tax on the fair market value of all prohibited investments. Thus, certain insiders are effectively prevented from contributing stock options to a TFSA.

Amount of the Contribution

To date, the CRA has not conclusively stated its position on the measurement of the contribution amount for an employee stock option contributed to a TFSA. The TFSA information posted on the CRA Web site29 does not address this question, and no

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27 This is to be accomplished by amending the preamble of regulation 4900(1) to include a reference to the definition of “qualified investment” in subsection 207.01(1), thereby extending regulation 4900(1)(e) to contributions of stock options to TFAs. (See the previous discussion of qualified RRSP investments.) It appears that, in conformity with recent practice, this amendment is to be passed by Parliament as part of a budget bill, rather than being approved by Cabinet and published in the Canada Gazette. See Canada, Department of Finance, Notice of Ways and Means Motion To Implement Certain Provisions of the Budget Tabled in Parliament on February 26, 2008, To Implement Certain Provisions of the Economic and Fiscal Statement Tabled in Parliament on November 27, 2008 and To Implement Other Fiscal and Economic Measures, November 28, 2008, subclause 88(1).

28 For example, an employee who also controlled the corporation would not be at arm’s length with it. On the other hand, in Del Grande v. The Queen, 93 DTC 133 (TCC), a person with a 25 percent interest in a corporation was considered to be at arm’s length with it. For discussion of the general concept, see Joseph N. Micallef, “‘Associated,’ ‘Affiliated,’ and ‘Related’ Transactions, Part 2: The Practical Applications of the Terms,” in Report of Proceedings of the Fifty-Seventh Tax Conference, 2005 Conference Report (Toronto: Canadian Tax Foundation, 2006), 39:1-15.

technical interpretations have been issued. Informal guidance given to TFSA issuers suggests that the intrinsic value method used for RRSPs would also apply to TFSAs.30

There are no court cases on the specific question of contributing a stock option to any of the tax-advantaged savings plans. However, there are scattered pieces of evidence drawn from interpretations of other provisions of the Act. Most of these relate to the taxation of individuals who are granted stock options in circumstances where the rules for taxing employee stock options under section 7 do not apply—because section 7 did not exist at the time, because the individual received the option as a result of shareholding rather than employment, or because the individual’s employer is not the company on whose shares the stock option is issued. These stock options have been called warrants or non-section 7 options.31

The discussion that follows highlights the relevant findings in four cases that may provide guidance on the valuation of employee stock options contributed to TFSAs, and also contributions to RRSPs.

**No. 247**

In No. 247, a case decided in 1955, before the present section 7 was enacted, the issue was to determine the employment benefit from the granting and exercise of a stock option under the general words of the Act as it read at that time. The benefit was determined to be the difference between the value of the shares at the time of granting (May 19, 1951) and the exercise price—that is, the intrinsic value of the option. The increase in share value between granting and exercise was not viewed as generating any additional taxable income, since capital gains were not subject to tax at that time. Additional options that were granted but never exercised were not included in the appeal, and thus the judgment is silent as to whether any taxable benefit would arise from them.

**Del Grande**

*Del Grande,*33 decided in 1993, concerned the benefit arising from stock options granted to an employee who was also a shareholder. Bowman J considered both the assessment of a shareholder benefit under paragraph 15(1)(c) and the assessment of a benefit from employment under subsection 7(1), and found that neither applied in the circumstances of the case. The key piece of evidence appears to have been that the corporation and not the employee-shareholder was the principal beneficiary.

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31 Carrie E. Aiken, “‘Non-Section 7 Options’: When Does the Benefit from Employment Arise?” Current Cases feature (2006) vol. 54, no. 4 *Canadian Tax Journal* 930-36 (commenting on the trial decision in the *Henley* case discussed below).

32 No. 247 v. MNR, 55 DTC 192 (TAB).

33 *Del Grande*, supra note 28.
of the options: “To say that in honouring the options the corporations conferred a taxable economic benefit on the appellant, particularly where in fact his sole reason for exercising the options when he did was to facilitate an extension of the corporate line of credit through his giving of a guarantee, is in accordance neither with economic reality nor fundamental fairness.”

In preliminary discussions in the judgment, Bowman J observed that “the value of the shares of Rust Check and Lear on January 4, 1982 [the time of granting], was nominal or nil and it follows that the value of the options at that time was nominal or nil as well.” One interpretation of this comment is that Bowman J was relying on an arbitrage argument: the economic value of an option (either Black-Scholes value or subjective value) must be less than the value of the underlying share, and hence the fact that the share price in this case was nominal or nil implied that the value of the option was also nominal or nil. To prove this argument, suppose that the option value equalled or exceeded the value of the underlying share. In this case, an individual would be better off buying the underlying share since it would be no more expensive, would not require the future payment of an exercise price, might pay a dividend, and would not expire.

An alternative interpretation of Bowman J’s comment is that he was simply referring to intrinsic value: since the market price of the share (nominal or nil) was less than the exercise price at the time of granting ($1 in this case), the option was not worth exercising at that time, and hence the intrinsic value was zero. This seems to be the intended meaning since the arbitrage interpretation would likely require some explanation for readers of the judgment and jurists deciding similar cases, and none was given. Thus, Del Grande may be considered to provide some support for the proposition that the benefit arising from the granting of employee stock options should be assessed on the basis of intrinsic value. In particular, since the Del Grande option was out of the money, the decision provides some support for valuing out-of-the-money options at zero.

A further issue, however, is what weight to give Bowman J’s comment. If a benefit would have been assessed to the taxpayer had the value at granting been other than zero, the comment would constitute a ratio decidendi. One commentator writes that Bowman J “strongly indicated” that the benefit was taxable on granting rather than exercise. However, it is also possible to take the view that the statement was only a passing comment having no relevance to the outcome of the case, and thus has the lesser weight of an obiter dictum.

34 Ibid., at 137.
35 Ibid., at 135. Had this amount been positive, Bowman J apparently would still not have assessed a taxable benefit in this case because he concluded that the stock option was received because of employment rather than shareholding.
Henley

The Tax Court of Canada’s decision in *Henley* also concerned the timing of a benefit from a non-section 7 stock option, but in this case the issue was a benefit under paragraph 6(1)(a) rather than paragraph 15(1)(c) or subsection 7(1).\(^{37}\) The issue concerned share warrants issued by Unique Broadband Systems Inc. (“UBS”) and received by Mr. Henley’s employer, Canaccord Capital, as payment for investment dealer services. Canaccord, in turn, passed the share warrants on to Mr. Henley as payment for his employment services in 1998. Mr. Henley exercised the warrants in 2000. Sheridan J decided that there was a paragraph 6(1)(a) benefit to Mr. Henley at the time the warrants (or options) were passed to him and that the amount of the benefit was the intrinsic value: “In these circumstances, I am satisfied that the value of the share warrants was quantifiable in 1998 based on the number of allocated share warrants, and the amount by which the fair market value of the UBS shares exceeded the exercise price under the share warrants.”\(^{38}\) Since the value of the shares was 32 cents and the exercise price was 31 cents, the value of each warrant was determined to be 1 cent. Thus, the Tax Court’s decision in *Henley*, more clearly than that in *Del Grande*, appears to be based on intrinsic value.

On appeal, the Federal Court of Appeal explicitly declined to comment on the choice of intrinsic value for valuation of the options, noting that the 1998 taxation year—the year Mr. Henley received the options—was not at issue in the appeal.\(^{39}\) The reason for the court’s decision to withhold comment is not clear: whether it indicates that Ryer J accepted the trial judge’s methodology, or that he was troubled by it or even disagreed with it. Thus, it is difficult to assess the view of the court on the use of intrinsic value in valuing an option.

The court did, however, devote considerable attention to another issue relevant to the valuation of options, namely, the proper timing of the income inclusion. In particular, the court’s conclusion on this point differed from the 1990 Appeal decision in the *Robertson* case,\(^ {40}\) in which the court had chosen exercise as the proper time of taxation of a benefit under paragraph 6(1)(a). The court in *Henley* distinguished *Robertson* on the basis that, in that case, the employee did not have an absolute right to acquire the shares at the time of granting, whereas Mr. Henley could exercise the options as soon as they were passed to him. Thus, the court found that this was the proper date for taxation of Mr. Henley’s options.\(^ {41}\) The *Robertson* conditions for exercise, which were carefully noted in the *Henley* Appeal decision, were that “[t]he

\(^{37}\) *Henley v. The Queen*, 2006 DTC 3431 (TCC).

\(^{38}\) Ibid., at paragraph 27.

\(^{39}\) *AG of Canada v. Henley*, 2008 DTC 6017, at paragraph 24 (FCA).

\(^{40}\) *Robertson v. The Queen*, 90 DTC 6070 (FCA).

\(^{41}\) It appears that the court considered the date on which the options passed to Mr. Henley to be equivalent to the granting date, notwithstanding that the options were originally granted by UBS to Canaccord as payment for its services.
option was to become exercisable at the rate of 500 shares per year, over the next 5 years, subject to certain conditions, the main condition being that the appellant continues his employment.\textsuperscript{42} The court in \textit{Henley} did not discuss the five-year phase-in of the right to exercise, but focused instead on the fact that Mr. Robertson had to continue his employment in order to exercise the options.\textsuperscript{43} The court concluded that Mr. Robertson did not have an absolute right to exercise until the time that he actually exercised (which was shortly before he left his employment), and until that time no paragraph 6(1)(a) benefit could be assessed.

The conditions in Mr. Robertson’s stock option agreement are fairly standard. Employees cannot exercise their stock options after they leave their employment, except possibly in the case of retirement. This is explained by the fact that, in most cases, the main purpose of employee stock options is to motivate employees to direct their efforts to increasing share value; hence, there is no reason for the company to provide this benefit after the termination of employment. Thus, if it is possible to extrapolate from the paragraph 6(1)(a) context to the valuation of an employee stock option contributed to a TFSA, one might interpret the \textit{Henley} Appeal decision as stating that a standard employee stock option has no value until the time of exercise because the employee lacks an absolute right to exercise until that time.\textsuperscript{44} Alternatively, to take a less extreme position, one could conclude that a stock option has no value until it is exercisable—that is, there are no additional vesting conditions other than that the employee continue his or her employment. As noted earlier, vesting generally occurs two or three years after the grant date. In either case, the fact that the option could be in the money and therefore would have a positive intrinsic value apparently would not prevent the option from having a zero valuation if such conditions precedent to exercise existed.

\textit{Alcatel}

The fourth and last case discussed here is somewhat removed from the TFSA context, since it did not involve the valuation of unexercised options or even the assessment of personal income tax. In \textit{Alcatel},\textsuperscript{45} the taxpayer provided a stock option program for

\begin{itemize}
\item \textsuperscript{42} \textit{Robertson}, supra note 40, at 6071. The trial judge in \textit{Robertson} did not report that the shares became exercisable at the rate of 500 shares per year. This may have led to the comment of the Court of Appeal in \textit{Henley} that a review of the two \textit{Robertson} decisions (trial court and appeal) “does not reveal an entirely clear picture of the terms of the offer”: \textit{Henley}, supra note 39, at paragraph 19.
\item \textsuperscript{43} Supra note 39, at paragraphs 20-21.
\item \textsuperscript{44} However, Mr. Henley’s own stock option was not a standard one, in that it was issued to his employer, Canaccord, by Canaccord’s client, UBS. The option was not created as an incentive for him to increase the share value of the issuer, nor was it tied to Mr. Henley’s continued employment with Canaccord. Accordingly, Mr. Henley had the absolute right to exercise as soon as the options were passed to him in 1998, even though he did not exercise that right until 2000 (at which time he was no longer employed by Canaccord).
\item \textsuperscript{45} \textit{Alcatel Canada Inc. v. The Queen}, 2005 DTC 387 (TCC).
\end{itemize}
its employees involved in scientific research and experimental development (SR & ED), and it sought to include the employment income generated by the program in its calculation of qualifying SR & ED expenditures. The case was decided on the issue of whether the sale of shares at less than the market price under a stock option program constitutes an expenditure. Both parties agreed that if the stock option program counted as a qualifying expenditure, the amount and timing of the expenditure would be the same as the employment income inclusion under subsection 7(1).

Although, on the facts, Alcatel may not seem to be relevant, it was open to Bonner J to reject the agreement of the two parties and hold that the company’s expenditure was made at the time of granting of the option. Because he did not do so, it is possible that Bonner J thought that the options had no value at that time. This would be consistent with the intrinsic value approach if, as is commonly the case, the options were not in the money at the time of grant.

**Summary of Case Law**

None of the tax cases directly concerns the valuation of a stock option contributed to a deferred income plan, and thus none can be said to face the issue squarely. No. 247 can be discounted, since it was decided under prior law and before the Black-Scholes formula was first published in 1972. The Tax Court decision in *Henley* explicitly uses an intrinsic value methodology, but it does not relate to the key issue of options for which this methodology produces a zero valuation (options that are out of the money or at the money). Moreover, the Appeal decision in *Henley* can be read as being in disagreement with that methodology, although this is not stated explicitly. The latter decision does provide the strongest argument for a low valuation for employee stock options contributed to a TFSA, since it appears to state that unvested options have a zero value (though the court was not directly presented with the issue of valuing an unvested option). Whether a court would repeat the low valuations of the two *Henley* decisions when it is directly presented with an employee stock option valuation, as in the case of an in-kind contribution of an employee stock option to a TFSA, remains to be seen.

The above review of cases suggests that tax courts are unwilling to consider Black-Scholes values or subjective values derived from variants of the Black-Scholes

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47 Amendments that would reverse the *Alcatel* decision in terms of the employer deduction have been introduced as proposed section 143.3, but they are not relevant to the valuation question raised here. See Nik Diksic and Christian Desjardins, “Tax Treatment of Transaction Costs,” in the 2006 Conference Report, supra note 46, 38:1-44; and Paul Stepak, “An Axe Instead of a Scalpel: Finance Canada’s Response to the Alcatel Decision,” Tax Topics, no. 1792 (Toronto: CCH Canadian, July 13, 2006), 1-4.
model. However, family law courts have not been so reluctant. Valuation of employee stock options is particularly significant in family law, where equalization payments are based on the value of each spouse’s net family property. It should not be surprising, then, that family law courts have generally hesitated to accept a zero value for out-of-the-money stock options (the conclusion implicit in the use of the intrinsic value method). In *Ross v. Ross*, for example, decided in 2006, the Ontario Court of Appeal strongly endorsed the Black-Scholes method of valuation:

> Although the Black-Scholes method for valuing stock options may not be perfect, it is an accepted method and one that can be adapted to take into account the various restrictions that are placed on options, particularly in the employment context. In my view, it is no answer to the valuation challenge presented by employee stock options to say that the Black-Scholes method is too complicated, too variable or better suited to publicly traded options.

Some US bankruptcy cases have introduced similar concepts, acknowledging that out-of-the-money stock options have some value and assigning a portion of them to the creditor. It is possible that courts are more willing to depart from intrinsic value when there are third parties, such as creditors or ex-spouses, with legitimate claims that would not be served by undervaluation.

**Subsequent Tax Consequences**

Where a stock option is contributed to a TFSA, no income inclusion occurs at that time. Instead, paragraph 7(1)(c) causes the income inclusion to occur at the time of exercise. This result is not changed by the subsection 7(8) election on up to $100,000 of securities that vest in a particular year, because only amounts taxable under paragraph 7(1)(a) are affected by this election.

The taxable amount on exercise is the usual employment income amount of the fair market value of the shares on exercise less the exercise price. Paragraph 110(1)(d) generally applies to reduce the paragraph 7(1)(c) income inclusion by one-half provided that the option has not been issued in the money.

The above results exactly parallel the treatment of contributions to RRSPs. The situation changes at the time of withdrawal: while RRSP withdrawals are fully taxable, TFSA withdrawals are fully tax-exempt. In addition, any amount withdrawn

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48 Commentators who have suggested the application of Black-Scholes values (and values from other option pricing models) by the courts and in tax practice include Friedman, supra note 36, and Aronshtam and Hutson, supra note 46. On the other hand, this is strongly resisted by William A. Raabe, Gerald A. Whittenburg, and Martha Doran, “Using the Black-Scholes Option Model in Tax Valuation” (2002) vol. 97, no. 9 *Tax Notes* 1187-92.

49 *Ross v. Ross* (2006), 83 OR (3d) 1, at paragraph 60 (CA).


51 However, as noted earlier, there are additional complications where the shares are issued by a CCPC: see supra note 21.
from a TFSA can be recontributed later without penalty. For example, if an individual accumulates $20,000 of assets in a TFSA and then withdraws the full amount, $20,000 is added to his or her contribution room in the taxation year following the year of withdrawal.\textsuperscript{52} Withdrawals from RRSPs do not alter the available contribution room.

**Policy Implications**

The policy problems associated with the contribution of employee stock options to TFSAs are best explained by reference to the problems for RRSPs. As discussed above, those problems are

1. inappropriately low RRSP deductions, since intrinsic value is the basis for the calculation;
2. overcontributions without penalty, since the contribution room used up is measured by intrinsic value rather than the higher Black-Scholes value or subjective value; and
3. double taxation, because the amount taxable on exercise under section 7 is also taxable on withdrawal from the RRSP.

For TFSAs, the first issue disappears because there is no deduction for TFSA contributions, and the third issue is not applicable because TFSA withdrawals are not taxable. Hence, of the three policy issues relating to RRSPs, only the problem of overcontribution without penalty applies to TFSAs.

The overcontribution problem is most obvious in the case of out-of-the-money or at-the-money options, which have a zero valuation under the intrinsic value method. In that case, an individual could contribute an unlimited number of options to a TFSA while staying within the contribution limit.\textsuperscript{53} This problem is likely to be significant, since taxpayers can generally be expected to contribute employee stock options to TFSAs immediately after granting, when the options are not in the money and thus have zero intrinsic value. Delaying the in-kind contribution until the share price was higher would increase the employment income inclusion and decrease the amount of available contribution room.

In the RRSP situation, the problem of overcontribution is not very significant because there are other disadvantages of such contributions to taxpayers, most notably the problem of double taxation. However, for TFSAs, there appear to be few such disadvantages.

\textsuperscript{52} See the definition of “unused TFSA contribution room” in subsection 207.01(1).

\textsuperscript{53} Furthermore, in the admittedly unlikely situation that an individual under the age of 18 received an employee stock option, a zero valuation would allow him or her to make TFSA contributions. In the legislation, persons under 18 are not specifically excluded from contributing to TFSAs; rather, they are simply given a zero contribution limit by the definition of “unused TFSA contribution room” in subsection 207.01(1).
The employment income inclusion might at first seem to be a problem, but this is not the case since the amount and timing are the same whether the stock option is held personally or within a TFSA.

The TFSA legislation appears to restrict stock option contributions, especially in the early years before assets have accumulated, if the TFSA will not have sufficient funds to pay the exercise price and exercise the stock options. The TFSA trust is prohibited from borrowing by paragraph 146.2(2)(f) and the annual contribution limit ($5,000 in 2009) constrains cash injections. However, this is not an issue if the shares are to be sold immediately, as is usually the case. In these circumstances, the taxpayer could use a cashless exercise, whereby the broker immediately sells the stock and issues a cheque to the employee for the intrinsic value at that date. If uncertainty in the tax treatment of this type of transaction is a concern, such cash payments could be limited to the situation where the company’s stock option plan allows the employee to elect a cash settlement in lieu of exercising. *Interpretation Bulletin IT-113R4* confirms that a paragraph 110(1)(d) deduction is available in this situation, assuming that the other conditions for application of this paragraph are satisfied.

Some taxpayers will be deterred by stock option plan rules that forbid anyone other than the employee from holding or exercising the option. It does not appear that relaxing these rules would be detrimental to the employer’s objective of motivating employees to work to increase the company’s share value; however, in some multinational companies, the terms of stock option plans may be set by the foreign head office without taking into account the particular circumstances of Canadian employees.

### POLICY ALTERNATIVES

#### The CRA’s Choices

Assuming that the proposed amendment of regulation 4900(1) becomes law so that stock options will be qualified investments for TFSAs, and also assuming that no special rules are introduced in the TFSA legislation to limit stock option contributions, the CRA might consider addressing the overcontribution problem by adopting a new approach to the valuation of such contributions. However, the choices appear to be limited. The current tax legislation does not seem to justify different treatment for TFSAs and RRSPs; nor does the case law, discussed above, provide either a sufficient rationale or a framework for developing a new administrative policy—indeed, it seems to support the undervaluation that results from the CRA’s present approach. Therefore, the CRA basically has two choices: either to continue using the intrinsic

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value method for valuation of stock options contributed to RRSPs and explicitly extend it to TFSAs; or to abandon the guidance provided in previous technical interpretations and simply state that the valuation of contributions of employee stock options depends on the particular facts and circumstances of each situation.

The facts-and-circumstances approach works against the CRA’s objective of providing clear rules for taxpayers and for issuers of TFSAs. Clarity on this issue is important to taxpayers because, if the taxpayer’s calculation of the amount of contribution room differs from the amount determined under the CRA’s administrative process or by the courts, the taxpayer could face a penalty for overcontribution. For each month that the TFSA has an excess balance, section 207.02 imposes a tax of 1 percent of the individual’s highest excess balance in that month. Clarity is also important to TFSA issuers, because they are responsible for reporting annually to the CRA the amount of total contributions and the fair market value of assets held as of December 31 for each TFSA. It appears that the reason for this reporting requirement is to assist the CRA in enforcing the tax on overcontributions, although the issuer is not required to collect the tax. TFSA issuers have been informed orally that the CRA intends to use the information to contact taxpayers directly about their overcontribution status.

As noted earlier, the CRA appears to be inclined to extend the intrinsic value method to valuing contributions of employee stock options to TFSAs. Although there could be some revenue cost associated with this approach, perhaps this issue is properly a matter of tax policy to be addressed by the Department of Finance.

**Policy Choices for the Department of Finance**

The Department of Finance might choose to pursue an administrative remedy and encourage the CRA to adopt a facts-and-circumstances approach to the valuation of stock option contributions to TFSAs (and possibly also RRSPs). It is certainly not unknown for the CRA to adjust its administrative practice in response to Finance policy concerns. Notwithstanding the drawbacks described above, a facts-and-circumstances approach might well solve the problem of overcontributions to TFSAs, either because issuers would then not permit such contributions or because taxpayers would be concerned (with good reason) that the indications of undervaluation from the jurisprudence on non-section 7 options would not hold up if subjected to a direct test in court.

Alternatively, Finance might choose to tolerate tax planning for employee stock options that could effectively increase the TFSA limit. It has been estimated that only about one-quarter of personal investment income of Canadian residents is

56 Supra note 29.
57 Supra note 30.
58 For example, in September 2005 the CRA announced that it would temporarily suspend rulings on income trusts, pending a decision by the Department of Finance on a change of policy on the tax treatment of these entities.
subject to taxation. With the consumption-tax treatment of deferred income plans and owner-occupied housing, Canada's current taxation rules are far from the model of a broad-based Haig-Simons comprehensive income tax. However, there could still be concern about the revenue cost and the inequity of overcontributions (since the opportunity to exceed the TFSA limit would only be available to individuals holding employee stock options). There are several possible ways of avoiding these problems.

Finance might think of following the US rules for individual retirement accounts (IRAs) and allow only cash contributions to TFSA. However, since this would not add any more clarity to the law on option valuation, it might still be possible for an employee to sell employee stock options to his or her TFSA at an inappropriately low price, such as intrinsic value. Since employee stock options are generally not transferable, the employer would have to include a provision in new stock option agreements permitting such a sale and amend existing agreements in the same way. The difficulty for Finance is that it is impossible to know whether the necessity of this step would be enough to deter such transactions.

A more promising alternative is to provide that stock options are not a qualified investment for TFSA. This exclusion would effectively eliminate circumvention of the TFSA limit, and it would be relatively easy to implement in the legislation, since the proposed amendment of regulation 4900(1) is still awaiting parliamentary approval. However, this solution also raises several problems. First, excluding stock options would be contrary to the general policy objective of TFSA, which is to encourage personal savings by permitting a broad range of tax-free investments. Second, excluding stock options from TFSA would leave unresolved the three policy problems associated with stock option contributions to RRSPs. Finally, excluding stock options from the list of eligible TFSA investments at this late date may cause disruption in the financial services industry. Contributions to TFSA commenced in January 2009, and the industry was led to believe that stock options would be eligible, both by the 2008 federal budget statement that eligible investments for TFSA would be generally the same as those for RRSPs and by the draft amendment to regulation 4900(1) issued in July and November 2008.

For these reasons, the better choice seems to be the development of a new valuation method that could be applied to stock option contributions to both TFSA and RRSPs. That said, it must be recognized that the formulation of a joint approach is a difficult balancing act. Any increase in the valuation (relative to the present CRA

60 Section 219(e)(1) of the Internal Revenue Code of 1986, as amended, defines a “qualified retirement contribution” as any amount paid in cash to an IRA. See also Kathryn J. Kennedy, IRAs, Tax Management Portfolio no. 367 (Washington, DC: Tax Management, 2008), A-11. A Roth IRA is similar to a TFSA.
61 Canada, Department of Finance, 2008 Budget, Budget Plan, February 26, 2008, 274.
policy) and thus in the RRSP deduction amount would increase the attractiveness of such contributions. Finding a valuation method that produces values that are neither too high nor too low would likely be important to the Department of Finance, because the latter could induce TFSA contributions and the former could induce RRSP contributions. To the extent that error is unavoidable, this consideration suggests erring on the high side, since the double taxation problem would still deter many taxpayers from contributing a stock option to an RRSP.

One approach that could jointly solve both valuation problems would be to provide that if an employee stock option is contributed to a TFSA or an RRSP, the person making the contribution is deemed to have not made the contribution at that time but instead to have madeconstituted contributions at a subsequent time—immediately before the stock option is exercised. The amount of contribution room used up (and, in the case of the RRSP, the amount of the deduction on contribution) would be equal to the normal employment income inclusion under section 7 resulting from exercise of a stock option. If the option is never exercised, no RRSP or TFSA contribution would be considered to have been made.

The advantage of this approach is that it is based on calculations for the one time at which the value of the stock option can be reliably measured—the time of exercise. At that time, all three values—intrinsic value, Black-Scholes value, and subjective value—produce the same amount, which is the net gain resulting from exercising the option and then immediately selling the shares. Furthermore, the tax result is exactly the same as if the person exercised the option outside the RRSP or TFSA, sold the shares, and then contributed the net amount to the plan. Therefore, the RRSP deduction would not be either undervalued or overvalued, and the amount of the TFSA contribution room used up would be correctly measured.

One disadvantage of this approach is that the person making the RRSP or TFSA contribution would not know the amount of the contribution until a period of time—perhaps several years—after the contribution had been made; therefore, overcontributions could occur. This problem could be addressed by providing for a time window during which the excess amount could be withdrawn without penalty. Another disadvantage is that the amount of contribution room used up is higher than it would be if the value were measured at the time the stock option was actually contributed, assuming that the share value rises in the intervening period.

A second approach is to pursue legislative amendments that would value an employee stock option contributed to an RRSP or a TFSA at some subjective value, such as the Ingersoll values specified in table 2 above. This approach would follow the family-law cases noted above, which have developed a common-law version of this rule. Probably it would be best not to specify a particular author’s subjective valuation formula, since the finance literature has not yet achieved a consensus view on this point.

The advantage of this second approach is that it allows for the important elements of the individual stock option agreement and the employee’s personal situation—annual probability of termination, vesting period, degree of excess holding of the employer’s stock, and degree of risk aversion—to be taken into account. This would
deal with the concern expressed in the *Henley Appeal* decision and in the tax literature that the termination issue and vesting requirements should be taken into account in option valuation, but it would avoid the extreme form of this doctrine that an option has no value to the extent that either of these restrictions applies. On the other hand, allowing this much freedom to the taxpayer to choose assumptions relevant to valuation might tend to lead to inappropriately low valuations. Perhaps it would be possible to implement a version of the subjective value approach that specifies in the law any parameters that would otherwise vary with the personal circumstances and preferences (such as risk aversion) of the particular employee. The problems with considering employee preferences are demonstrated by a recent court case in which a taxpayer avoided a taxable benefit from a golf club membership provided by his employer on the basis of his dislike of golf.

A third approach that allows less flexibility to the taxpayer is to specify in the legislation that the value of an employee stock option contributed to an RRSP or a TFSA is the average of the intrinsic value and the Black-Scholes value. A simple percentage discount of the Black-Scholes value (such as 85 percent) will not work because, as table 1 shows, it could produce values that are less than the intrinsic value if the option is deep in the money. For example, the at-the-money option in table 1 (share price of $5.00 and exercise price of $5.00) would have a value of $1.07, which is midway between the intrinsic value of zero and the Black-Scholes value of $2.15. Similarly, for the option in table 2, the value would be $22.41 \[\frac{1}{2} \times 0 + \frac{1}{2} \times 44.83\], which is in the middle of the values listed in the table. The reduction from the Black-Scholes value is intended to account for the fact that the Black-Scholes formula does not take into account any of the elements of the stock option agreement and the employee’s personal situation listed above. If this reduction is

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63 As discussed above, this extreme form seems to be the implication of the *Henley Appeal* decision. This policy position also appears to be supported by Daniel Sandler, “The Tax Treatment of Employee Stock Options: Generous to a Fault” (2001) vol. 49, no. 2 *Canadian Tax Journal* 259-319, at 266-67: “Thus, if there are vesting restrictions on an employee stock option, the benefit should not be taxed before the option vests because the employee has not ‘received’ a benefit until that time.”

64 *Rachfalowski v. The Queen*, 2008 DTC 3626 (TCC).

considered insufficient, the simple average could be replaced with a weighted average—for example, two-thirds of the intrinsic value plus one-third of the Black-Scholes value.

A disadvantage of this approach is that there is still some room for manipulation, since the parameters of the Black-Scholes value must be estimated statistically by the taxpayer. For example, Mawani and Reid\(^{66}\) note that a taxpayer who wishes to produce lower valuations may choose periods for statistical estimation that produce a lower number for the volatility parameter. The potential for manipulation could be reduced by specifying either a specific value or a range for the volatility parameter in the law. Overall, this approach seems to be the best legislative choice because it is simpler than the alternatives but complex enough to capture the main features of the problem.

The second and third approaches are similar in several ways. Neither implies any change in the present rules for taxing employee stock options held outside RRSPs and TFSAs; the normal employment income inclusions and division C deductions could continue. In addition, both involve the use of an option pricing model and statistical estimation. While this methodology might seem radical in the context of tax accounting, and it undeniably involves some complexity, it has been adopted for financial reporting under both Canadian and US generally accepted accounting principles, and well as international financial reporting standards.\(^{67}\)

**CONCLUSION**

This article demonstrates that the current rules governing the tax consequences of contributing a stock option to an RRSP give rise to three problems. One of these is double taxation, which cannot be solved without a major overhaul of the taxation of stock options under section 7 of the Act. The other two problems, the inadequate RRSP deduction provided under CRA rules and the toleration of excessive RRSP contributions, are more tractable since they can be traced to the CRA’s use of intrinsic value (the excess, if any, of the share price over the exercise price) as the method of valuation.

\(^{66}\) Mawani and Reid, supra note 65, at 617.

The issue of valuation is cast into bold relief with the introduction of TFSAs and the proposed inclusion of employee stock options in the list of qualified investments for TFSAs. Since contributions to TFSAs are non-deductible and withdrawals are non-taxable, the first and second of the problems present with stock option contributions to RRSPs do not arise for TFSAs. However, if the CRA extends the intrinsic value method of valuation to TFSAs, the problem of excessive contributions will remain. Large numbers of employee stock options could be contributed to a TFSA while staying under the annual contribution limit because the options will be given little, if any, value for this purpose if they are contributed soon after being granted.

Relevant case law drawn from the taxation of stock options to which section 7 does not apply does not provide a basis for a new CRA administrative policy for two reasons: it is insufficiently definitive, and it shares the undervaluation problem of the existing policy. The only alternative open to the CRA, of simply disavowing the present valuation formula and leaving the valuation completely up to taxpayers and the courts, would not provide the clarity that both taxpayers and issuers need.

The preferred solution would be a legislative remedy provided by the Department of Finance. The TFSA problem could be solved on its own by simply ensuring that employee stock options never become qualified investments for TFSAs. The preferred solution, however, is to prescribe a valuation formula providing a higher value for an employee stock option transferred into either an RRSP or a TFSA. This article has presented a number of alternatives, but the best would be to provide that this value is an average of the intrinsic value and the Black-Scholes value.