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*It's important to save. Saving allows us to set aside some of our current earnings for enjoyment at a later time. This enjoyment could take the form of going on a dream vacation, doing that long-delayed renovation or simply saving funds for retirement, a period in which our earnings may be otherwise significantly diminished.*

Whenever you are considering what to do with your current income, you essentially have two choices: you can consume the funds for current expenditures or you can save the funds for consumption at a later time. When it comes to saving, most people think of directing that savings into bonds, equities and mutual funds that are held in a Registered Retirement Savings Plan (RRSP), Tax Free Savings Account (TFSA), or non-registered account.

Yet it is often helpful to think of paying down debt as a form of savings. When funds are saved via an RRSP or TFSA, you increase your assets through the initial contribution and the accumulated future earnings on that contribution. When funds are used for debt repayment, you decrease your liabilities through the principal repayment and elimination of future interest payments. This increase in assets or decrease in liabilities results in an increase to your net worth, so paying off debt can essentially have the same effect as savings.

Perhaps no question has been discussed more in the annals of personal finance than whether, given a fixed amount of annual income, we should use those funds to save towards retirement or to pay down debt. Traditionally, this has been summarized as: which comes first, the mortgage or the RRSP? But with the introduction of the TFSA five years ago, things got a bit more complicated.

The purpose of this Report is to examine how different types of savings should be viewed and to help you prioritize, to the extent possible, which method of savings is best for you.

## **THE BENEFIT OF AN RRSP, TFSA OR DEBT REPAYMENT**

Making a debt repayment is perhaps best compared to saving via a TFSA since you use after-tax funds for either a TFSA contribution or debt repayment. Taxes do not affect future earnings in the TFSA nor do they impact the amount of interest savings upon debt repayment.<sup>1</sup> This can be contrasted with an RRSP, for which future withdrawals are impacted by your future marginal tax rate.

<sup>1</sup>For the purpose of this Report, we assume that the interest paid on debt is not tax deductible since, for most Canadians facing this dilemma, their debt is typically in the form of a mortgage on their principal residence.

### Example 1

Let's take a look at an example of saving via an RRSP, TFSA or debt repayment. Suppose Debbie has \$1,500 of excess pre-tax earnings and expects to have a 33.33% marginal effective tax rate (METR)<sup>2</sup> both today and upon withdrawal. After paying \$500 (33.33% x \$1,500) in current income tax, she will be left with \$1,000 of net after-tax cash flow that she can use to either invest in a TFSA or to make a principal repayment on her mortgage.<sup>3</sup> Alternatively, she could contribute the entire \$1,500 to her RRSP and pay no tax until the time of withdrawal. She expects to earn a 5% rate of return (ROR) on her investments and has a mortgage with a 5% interest rate.

Chart 1 calculates the amount of the increase in Debbie's net worth under each of the three options: RRSP, TFSA or debt repayment. You can see that under each option, Debbie will have the same benefit of \$1,050. It will, therefore, make no difference if she chooses to invest her pre-tax earnings of \$1,500 in an RRSP or a TFSA or makes a repayment on her mortgage.

**Chart 1: Benefit after one year from RRSP, TFSA and debt repayment**  
 (ROR = 5%, Interest rate on debt = 5%, Tax rate today and upon withdrawal = 33.33%)

	RRSP	TFSA	DEBT
Income subject to tax	\$1,500	\$1,500	\$1,500
Income tax (33.33%)	NIL	(500)	(500)
Plan contribution / debt repayment	\$1,500	\$1,000	\$1,000
Income earned / Interest saved (5%)	75	50	50
Value of benefit after one year (pre-tax)	\$1,575	\$1,050	\$1,050
Tax payable on withdrawal (33.33%)	(525)	NIL	N/A
Benefit after one year (after-tax)	\$1,050	\$1,050	\$1,050

Note that Debbie's current tax rate affected the amount that was available for either debt repayment or TFSA contribution since both such payments were made with after-tax dollars. In contrast, Debbie's current tax rate did not impact the amount of her RRSP contribution, which was made with pre-tax dollars; however, taxes did impact the amount Debbie received upon withdrawal from her RRSP.

### Conclusion 1

**When your tax rate today is the same as your expected tax rate at the time of withdrawal and the rate of return on investments is the same as the rate of interest on your debt, it makes no difference whether funds are invested in an RRSP or TFSA or used to pay down debt.**

<sup>2</sup>The marginal effective tax rate (METR) takes into account not only an individual's statutory income tax rate but also considers the impact of the loss of various income-tested benefits, such as Old Age Security or the Age Credit that are "clawed back" once income reaches various annually-indexed, legislated thresholds.

<sup>3</sup>Throughout this Report, it is assumed that there is sufficient RRSP and/or TFSA contribution room and that there are no mortgage prepayment penalties.

## TFSA VS. DEBT REPAYMENT

When it comes to deciding whether to pay down debt or contribute to a TFSA given a limited amount of excess earnings, the investment rate of return and debt interest rate are applied to the same after-tax amount. In theory, therefore, you could simply choose the “investment” (debt or TFSA) with the highest rate of return. For example, suppose your mortgage bears an interest rate of 3%. If the investments inside your TFSA are expected to earn 2%, then clearly paying down debt seems to be the way to go. If, on the other hand, you expect you could ultimately earn 6% on the investments inside your TFSA, then the TFSA may prove to be the better option.

Although the notion of comparing rates is quite straightforward, determining the rates to use in the analysis is more complex since risk and time horizon must be considered. If we were to just focus on rates alone, it would seem that a TFSA, with an expected 6% return would be the better choice than paying down low-interest mortgage debt at 3%. It’s important to realize, however, that the debt repayment is essentially a risk-free investment for the term of the mortgage when the 3% mortgage rate is locked-in for that period of time, while there is risk that a presumably equity-based TFSA investment may not actually produce the 6% expected return. A risk-averse investor may prefer to save a guaranteed 3% in mortgage interest than take a chance on getting a 6% return on the equities in a TFSA.<sup>4</sup>

A long time horizon can make it even more difficult to accurately predict the rate of return on investments within a TFSA and the rate of interest on a mortgage. For example, what if you don’t need your TFSA funds until retirement, which could be 40 years away? To properly evaluate this decision would involve effectively “locking-in” a mortgage interest rate and rate of return on investments for 40 years to accurately choose between debt repayment and a TFSA. Even then, there would still be uncertainty due to reinvestment rate risk and prepayment opportunities that could come with receiving an unexpected inheritance or perhaps a bonus.

In other words, the answer to the “debt versus TFSA” question theoretically boils down to mathematics: you should choose the “investment” with the higher rate. In reality, the answer may be far from easy.

### **Conclusion 2**

**The choice between a TFSA contribution and debt repayment, both of which are “after-tax” investments, depends solely on the rate of return on investments versus the interest rate on debt.**

**If the rate of return on investments is higher than the rate of interest on debt, a TFSA yields a higher benefit; otherwise, debt repayment is a better choice.**

**When comparing a TFSA to debt, the risk and time horizon for the rate of return on TFSA investments and debt interest rate must be equal for meaningful results.**

<sup>4</sup>Perhaps a true comparison would be to compare the yield on a risk-free asset, such as a Government of Canada bond, to the rate on your mortgage. As of February 12, 2013, the Government of Canada benchmark five year bond yielded just below 1.5%, which is substantially lower than the 3% mortgage interest rate assumed in this example.

## RRSP VS. DEBT REPAYMENT: EFFECT OF TAX RATES

When it comes to choosing between an RRSP contribution and debt repayment, the question becomes more complex because you need to take into account your tax rates, both current and anticipated. Our previous report, [Blinded by the Refund<sup>5</sup>](#), showed the effect of different tax rates in the period of contribution versus the period of withdrawal when investing in an RRSP or TFSA. We will now consider how tax rates affect the decision to invest in an RRSP or repay debt.

### Making a decision when the rate of return on RRSP investments equals the interest rate on debt

Let's start by looking at situations where the rate of return on your investments equals the interest rate on debt. This will allow us to isolate the effect of taxes on the RRSP vs. debt repayment decision.

We saw in Chart 1 that there are two points in time at which taxes affect your decision. When you choose to use current income to make a debt repayment, your tax rate determines the after-tax amount that is available. When you make a withdrawal from your RRSP, your tax rate determines the after-tax amount that you receive. We will now look at an example that illustrates what happens when your tax rate today is different from your tax rate at the time of RRSP withdrawal.

### Example 2

Suppose Sylvia has a situation similar to Debbie from Example 1. Sylvia has \$1,500 of excess pre-tax earnings to invest. She anticipates that her mortgage interest rate will be 5% and her rate of return on investments will also be 5%.

Let's assume that Sylvia does not have TFSA contribution room and therefore is deciding between an RRSP contribution and debt repayment. She currently pays tax at a rate of 33.33% so, if she chooses to direct current income towards debt repayment, she will have \$1,000 of after-tax funds available. If, on the other hand, she contributes \$1,500 to her RRSP, she won't pay any tax on the \$1,500 of current earnings when she makes her contribution. While Sylvia believes her tax rate would likely decrease to 20% in retirement when she would withdraw funds from her RRSP, there is a possibility that she may have a higher retirement tax rate, perhaps due to inherited funds that would be invested to generate taxable income.

Sylvia is wondering what would happen if her current tax rate of 33.33% were to decrease to 20%, remain at 33.33% or increase to 40% upon ultimate withdrawal from her RRSP. Calculations for each of these scenarios are illustrated in Chart 2. The first three columns of the chart show the after-tax benefit from a \$1,500 RRSP contribution using the three different tax rates upon withdrawal: 20%, 33.33% and 40%. The fourth column shows the benefit from a \$1,000 debt repayment, since she would have to pay \$500 (33.33%) of current income tax on her \$1,500 of earnings before having the after-tax funds needed to pay down her mortgage.

If Sylvia had a tax rate of 33.33% today and the same 33.33% tax rate at the time of RRSP withdrawal (as shown in the second column in Chart 2), she would have the same result as Debbie: the RRSP benefit after one year would be \$1,050 after-tax. Note that this result is also the same as a debt repayment, which would have a \$1,050 benefit. This is because when tax rates are the same today as they will be upon RRSP withdrawal, they have the same impact on the after-tax amount. Consequently, if Sylvia's tax rate remained at 33.33%, it would make no difference if she chose to invest in an RRSP or make a debt repayment.

<sup>5</sup> See: <https://www.cibc.com/ca/pdf/rrsp-versus-tfsa-report-en.pdf>

**Chart 2: Benefit over one year from debt repayment and RRSP contribution, with varying tax rates upon RRSP withdrawal**  
 (Investment rate of return and interest rate on debt = 5%)

	RRSP			Mortgage
	Withdrawal Tax Rate 20% (Lower than Current Tax Rate)	Withdrawal Tax Rate 33.33% (Same as Current Tax Rate)	Withdrawal Tax Rate 40% (Higher than Current Tax Rate)	
Pre-tax income	\$1,500	\$1,500	\$1,500	\$1,500
Tax (33.33%)	NIL	NIL	NIL	(500)
Total contribution / debt repayment	\$1,500	\$1,500	\$1,500	\$1,000
ROR (5%) / Interest rate on debt (5%)	75	75	75	50
Benefit after one year (pre-tax)	\$1,575	\$1,575	\$1,575	\$1,050
Tax payable on RRSP withdrawal (20% / 33% / 40%)	(315)	(525)	(630)	N/A
Benefit after one year (after-tax)	\$1,260	\$1,050	\$945	\$1,050

Since the amount of Sylvia’s pre-tax RRSP contribution is \$1,500 in all cases and income is earned at 5% inside her RRSP, Sylvia’s pre-tax RRSP benefit after one year is the same (\$1,575) in each of the three calculations (columns 1, 2 and 3). With differing tax rates on RRSP withdrawal, however, the after-tax amount from an RRSP also differs. If the tax rate upon RRSP withdrawal is expected to be the same as it is today, then the benefit from an RRSP and debt repayment are equal at \$1,050. If, however, Sylvia’s tax rate is 33.33% today but a lower rate of 20% is anticipated upon RRSP withdrawal, then the RRSP would yield a higher benefit (\$1,260) than debt repayment due to the lower taxes upon withdrawal. In contrast, if her tax rate were 33.33% today but a higher rate of 40% is anticipated upon RRSP withdrawal, the additional taxes on withdrawal would result in a lower RRSP benefit of \$945.

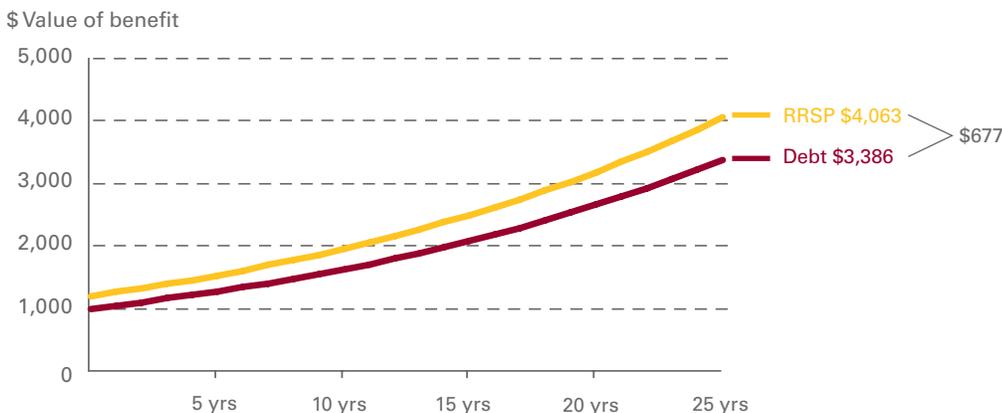
Chart 2 showed that when Sylvia’s tax rate was 33.33% today but a lower rate of 20% applied to the RRSP withdrawal, her benefit from an RRSP was \$1,260 and her benefit from debt repayment was \$1,050. In other words, the benefit from an RRSP was \$210 (\$1,260 – \$1,050) higher than the benefit from paying down debt. We can therefore conclude that in this example, after one year, making a current RRSP contribution has an advantage of \$210 over a current debt repayment.<sup>6</sup>

What if the calculations for the case where Sylvia’s future tax rate is expected to be lower were continued over a longer time horizon? Chart 3 shows graphically the value of Sylvia’s benefit from a current RRSP contribution or debt repayment over 25 years. You will notice that the benefit from an RRSP grows at a faster rate than the benefit from debt repayment. The “RRSP advantage,” which we defined as the amount by which the RRSP benefit exceeds the debt repayment benefit, is represented by the space between the lines on the graph in Chart 3. The RRSP advantage increases from \$210 (calculated after one year) to \$677 (\$4,063 - \$3,386) after 25 years.<sup>7</sup>

<sup>6</sup>This difference can be mathematically proven by calculating the future value of the pre-tax earnings after one year at 5% and multiplying the result by the difference in tax rates. In this case, [ $\$1,500 \times (1 + 5\%)$ ] x (33.33% - 20%) = \$210.

<sup>7</sup>This difference can be mathematically proven by calculating the future value of the pre-tax earnings accumulated over 25 years at 5%, and multiplying the result by the difference in tax rates. In this case, [ $\$1,500 \times (1 + 5\%)^{25}$ ] x (33.33% - 20%) = \$677.

**Chart 3: Benefit over 25 years from an RRSP contribution and debt repayment**  
(ROR = 5%; Interest Rate on Debt = 5%; Tax rate today = 33.33%; Tax rate at RRSP withdrawal = 20%)



### Conclusion 3

When the rate of return on investments in an RRSP equals the interest rate on debt:

- If your tax rate is expected to be lower in the year of RRSP withdrawal than it is today, an RRSP contribution yields a higher benefit than debt repayment (i.e. there is an "RRSP advantage"). That advantage grows the longer the funds remain in the RRSP.
- If your tax rate is expected to remain the same in the year of RRSP withdrawal as it is today, an RRSP contribution and debt repayment yield the same benefit (i.e. there is no "RRSP advantage" or "debt advantage").
- If your tax rate is expected to be higher in the year of RRSP withdrawal than it is today, debt repayment yields a higher benefit than an RRSP contribution (i.e. there is a "debt advantage"). The debt advantage increases with time.

One final note regarding the impact of tax rates on the "RRSP versus debt" decision is warranted. Just as there was risk with the mortgage interest rate and rate of return on investments, there is also risk with tax rates. Each year the federal and provincial governments release a bevy of new tax legislation that can sometimes alter our tax realities. For example, as of January 1, 2013, Quebec taxpayers with over \$100,000 of taxable income found their marginal tax rates had increased by almost two percentage points.

Even if tax laws do not change, you could find that the tax rate you have used in your analysis is not the one that will apply in reality. For example, suppose you plan to invest in an RRSP rather than pay down debt because your tax rate is expected to decline in retirement. If your tax rate ends up being higher, say because you end up with more pension income than expected, while that's certainly a good thing, the RRSP advantage may be lower than originally anticipated.

**Making a decision when the rate of return on RRSP investments *does not equal* the interest rate on debt**

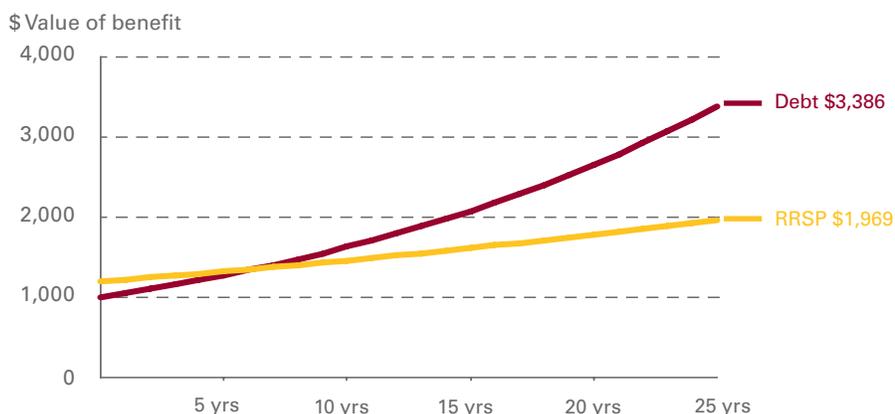
If your tax rate today is not expected to be equal to your tax rate in the future when funds are withdrawn from an RRSP and the rate of return on RRSP investments does not equal the interest rate on debt, the analysis of the “debt vs. RRSP” question is even more complex. For example, we saw earlier that when the tax rate upon RRSP withdrawal is expected to be lower than the tax rate today, RRSP contributions are more favourable than debt repayment; however, lower rates of return (in comparison to the interest rate on debt) have the opposite effect. When all of these factors are in flux over a long time horizon, it can be quite difficult to draw conclusions on the optimal savings vehicle.

**Example 3**

For example, suppose Brad has \$1,500 of pre-tax excess earnings and wants to choose between an RRSP contribution and debt repayment. He pays 5% on his mortgage but expects a lower rate of return on his investments of 2%. Brad’s tax rate today is 33.33% while his expected tax rate on RRSP withdrawal is 20%.

Chart 4 shows Brad’s projected benefits from an RRSP contribution and debt repayment over 25 years. You can see from the chart that for about the first six years, the RRSP would have a higher benefit than the debt repayment; afterwards, the opposite is true. Consequently, if Brad expected to withdraw RRSP funds within six years of contribution, there would be an advantage to making an RRSP contribution; otherwise, debt repayment would be the better option.

**Chart 4: Benefit over 25 years from an RRSP contribution or debt repayment**  
(ROR = 2%; Debt interest rate = 5%; Tax rate today = 33.33%; Tax rate at RRSP withdrawal = 20%)



**Conclusion 4**

When the rate of return on an RRSP differs from the interest rate on debt and the tax rate today differs from the tax rate on RRSP withdrawal, the choice between making an RRSP contribution and paying debt is more complex due to the interplay of these factors as well as the investment time horizon.

## SUMMARY

While all of this may sound somewhat confusing, ultimately, whether you choose to invest in an RRSP or TFSA or to repay debt, you will still be ahead of the game because you are saving for your future. You can increase the chances of maximizing the benefit by considering how the rate of return on your investments, the interest rate on your debt, your tax rates and your time horizon can impact your savings.

When tax rates today are the same as the tax rates that are expected to apply on future plan withdrawals, the decision to invest in an RRSP or TFSA, or to pay down debt boils down to a mathematical question: Can you get a higher rate of return on your investments than the interest rate on your debt, given a level of risk at which you are comfortable? If so, then investing is the better bet; otherwise, paying debt is the better choice.

When choosing between an RRSP and debt, changes in your predicted tax rates today versus the year of RRSP withdrawal must also be considered. If the rate of return on investments equals the interest rate on debt, then an RRSP will be preferable to debt repayment when your tax rate upon RRSP withdrawal is expected to be lower than it is today, and vice versa. If the rate of return on investments does not equal the interest rate on debt, the analysis may also need to consider the time horizon.

While it can be straightforward to do the comparison mathematically when the investment rate of return, mortgage interest rate, and tax rates today and in the future are known, in reality, determining the rates to use in the analysis can be very difficult. Given that you may not be able to determine these rates with certainty, you may not be able to come up with a perfect answer to the RRSP vs. debt question. The important thing, however, is to make an informed decision.

Your advisor can help you to evaluate different investment options, review debt interest rates and repayment considerations and assess the amount of income that may be available to you in retirement. Your tax advisor can also help you to understand how the amount and type of income you receive can impact your tax rates.

Whether you choose to save funds by repaying debt or making an RRSP or TFSA contribution today, you'll be one step closer to securing your future.

As with all planning strategies, you should seek the advice of a qualified tax advisor.

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