BGRS

# Buy or Rent Decision Model Manual

## *Introduction*

The BUY or RENT DECISION MODEL is an interactive tool created to help the consumer determine whether it makes more financial sense to buy a home or to rent. The model, in Excel spreadsheet format, analyzes the many financial factors involved in a particular situation (e.g. house price, rent cost, cash available for a downpayment and investments, etc.) It objectively weighs the costs and benefits of both options and shows, which is best from a purely financial point of view.

With this analytical tool, financial advisors, bankers, builders and realtors can give clients excellent advice based on the individual's personal circumstances. The model can be used to guide first-time buyers and also empty-nesters who are trying to decide whether to buy down or rent. For those who decide to buy, the model can show whether it would be better to maximize their downpayment or invest most of the proceeds from the sale of their original home. It can also provide some basis for deciding whether to buy new or to renovate.

For the model to be most effective, accurate information about the user's financial situation should be input. However, the model standardizes some of the entries when information is not available. As well, the model issues warning messages when conflicting data are entered. Although the model does not evaluate the emotional side of the buy versus rent decision, it does factor in some personal choices. For example, users must answer a question about whether they would reinvest the difference between rent and shelter costs.

The model generates a net after-tax cash value for both the rent and buy decisions. Buy value is generated through the following factors:

- growth of equity as the homeowner pays off the mortgage
- house price growth
- homeowner's proportion (%) of what is invested in excess of the rent over shelter costs

Rent value is generated by:

- investment of cash in RRSPs instead of in a home purchase (the RRSP tax refund is assumed to be invested)
- any additional cash going into other investments or used for principal prepayments and renovations on the buy side
- any excess of shelter over rent costs

The two values are compared by providing a net value, i.e., the difference between the rent value over the buy value and visa versa, depending on which is highest. The values are shown in graph form over a 50-year period. As well, the model displays the value for any specific year the user chooses to see. And it is given in both current and today's dollars.
The model consists of the input page, graphs below the input page, and the logic required to complete the calculations to generate the results. The logic and calculated fields on the input page are protected to prevent tampering with the logic which would generate an incorrect result.

The author/creator of the model is not responsible for differing opinions on logic or methodology. These aspects cannot be changed through the input section of the model logic.

## *Table of Inputs*

The following pages take you through the spreadsheet step by step and describe the information you need to enter to obtain a comparison of the buy and rent options.

## Buy Decision

### Will you require an insured mortgage?

Answer "Yes" or "No."
If your answer to this question is "Yes," the model will calculate the mortgage insurance premium you will pay.

### Do you wish to add the premium to the mortgage?

Answer "Yes" or "No."

The premium is usually added to the mortgage. If you do not answer this question, the model will add the premium to the mortgage by default and provide a message that it has done so. If the premium is to be paid from available cash, the amount entered under Available Cash must be enough to cover the downpayment and premium. If not, the model displays warning messages.

**House price:** Enter the price you expect to pay for the house.

**Available cash:** Enter the amount at your disposal from any sources (e.g. savings, family, friends, another loan, etc.)

**Required house improvements:** Enter the amount you expect to pay for each type of renovation (e.g. kitchen, bathroom, etc.) This is subtracted from Available Cash.

The improvements are assumed to take place prior to moving in and add to the house value, which the model calculates. The model also shows the percentage of the expenditure that you can expect to recover on resale. (See Appendix A.) The expenditure
also affects the model's calculation of house maintenance expenses and the relative age of the house. (See Annual Expenses below.)

**Downpayment:** Enter this amount. The downpayment must be at most equal to Net Available Cash and at least equal to the minimum downpayment.

**RRSP:** Enter the amount of any additional cash you have for an RRSP.

The model assumes that the same amount of money would be available if you were renting, therefore this amount has zero impact on the buy vs rent equation. This section is useful if you are comparing house value with maximizing downpayment or minimizing downpayment and investing in RRSPs and investments. The model subtracts the Downpayment and RRSP amounts from Net Available Cash and places the remainder in the Investment category.

**Mortgage calculation:** In this section, you must enter the Amortization Period and Mortgage Rate. Enter the rate (and any other percentages throughout the spreadsheet) as a decimal figure, e.g., .05 for 5 per cent.

The model calculates the mortgage loan (house price less the downpayment plus the mortgage insurance premium, if applicable). The model also calculates the monthly mortgage payment. To keep matters simple, the model assumes that today's mortgage rate is applied to the entire amortization period. In any case, interest rate fluctuations would not affect the buy vs rent equation since changes in rates would affect the renter as much as the buyer (e.g. higher interest rates would result in higher rent.)

**Additional payments to principal: will you use an accelerated option for your mortgage?**
Answer "Yes" or "No
If the answer is "yes," the model adds one additional monthly mortgage payment to the principal in the 12th month of each year of the mortgage until it is retired. This has the impact of shortening the life of the mortgage by about five years on a 25-year amortization period.

You may also add further principal payments which are assumed to be made in the 12th month of the year the entry is made.

Both these extra payments of principal are assumed to be added as an investment in the RENT decision. The model calculates the amount of principal prepayment required to retire the mortgage.

## Annual Expenses

**Property Taxes (annual):** Enter this amount. These costs are normally factored into the rent and therefore should be included in the buy scenario.

**Heat & Electricity:** These costs are normally factored into the rent and therefore should be included in the buy scenario.

**Insurance (bldg. only):** Enter the amount you would pay to insure the house, excluding belongings.

Building insurance is normally factored into rent and therefore should be included here. It is assumed that insurance on belongings would be the same whether you rent or buy, and therefore does not affect the equation.

**NOTE:** Property Taxes, Heat & Electricity and Insurance may be entered as dollar amounts, although if this is not done the model defaults to a percentage of the house price.
Relative Age of the House: Enter the age of the house taking into account improvements that would lower this age.

If the house is 100 years old and has been recently renovated, then it is considered the same as a new house and the "relative age" may still be zero. The relative age drives the maintenance cost schedule, e.g., if the house is new, then maintenance costs will be low in the first few years.

House Maintenance Costs: No input required here, although the percentage of house price may be changed

This section calculates the costs required to maintain the value of the house. (Not to be confused with improvement projects which increase the house value.) The calculation is made as a percentage of the house price and depends on the relative age of the home. Recommended percentages are included, but you may adjust these. A house that has a relative age of, say, nine years will begin maintenance costs at the 6 to 10 year schedule and after five years jumps to the 11 to 15 cost schedule. They are inflated and have five age categories; 0 to 5, 6 to 10, 11 to 15, 16 to 20, and greater than 20 years.

**What Percentage of the Difference between Rent and Shelter Costs Will You Invest?**
Enter a percentage figure here. That is, if it costs less to buy than rent, what percentage of this difference would you invest?

The difference is assumed to accumulate in short term investments such as T-Bills and earns an after-tax return.

# Rent Decision

**Available Cash:** The model fills this in, as input above.

**RRSP:** Enter the amount of available cash you would place in RRSPs.

**"AAA" cash rebate for DND transferees:** enter the amount of this rebate you may invest. Up to $2,500 cash rebate for renters: enter the amount of this rebate you may invest.

The model places the remainder of available cash in the Investment category. In order that the advantage of an RRSP be reflected, it is assumed that in the first year the tax refund (the RRSP contribution times the tax rate) is added to Investment.

**Monthly Rent:** You may enter any rent amount here.

To ensure the most accurate calculations possible, input the appropriate rent for the property under consideration. It is also necessary to know which components such as taxes, heat and insurance are included in rent in order to adjust the Buy inputs accordingly. The model applies an inflation factor to the rent. If the rent amount is not entered, the model defaults to a percentage of house price. This percentage may be changed so as to reflect the conditions of the region under study.

**What Percentage of the Difference between Shelter and Rent Costs Will You Invest?**
Enter a percentage figure here. That is, if it costs less to rent than to buy, what percentage of this difference would you invest?

The difference is assumed to accumulate in short term investments such as T-Bills and earns an after-tax return.

# Financial & Economic Assumptions

### INVESTMENT GROWTH & TAX

**Earned on Shelter vs Rent Cost:** You must enter the rate of return that you expect to earn on the difference between the rent and shelter costs. You may wish to base the rate on short-term financial instruments such as T-Bills and commercial paper.

**Investment/RRSP Growth:** Again, enter the expected rate of return on RRSPs and investments.

**Tax:** Enter your personal tax rate here. The same tax rate is assumed over the study period.

### ESCALATORS

**Real Estate Growth:** Enter the rate at which you assume the house value will grow.

**Property Tax/ Expense Inflation:** Enter the rate of inflation you anticipate for this factor.
Rent Inflation: Enter the rate of inflation you anticipate.

### INVESTMENT PERIOD

The model generates financial information for a 50-year period. You may input any year, up to year 50, to find out the buy or rent value in current dollars and today's value at the end of the specified year

# Result as at the End of the Year

These results show the after-tax cash value for both the BUY and RENT decisions and the difference between the two (for a net rent or net buy value). The model then discounts the net value at the after-tax growth rate for RRSPs and investments to arrive at a value in today's dollars. This shows you an amount that can be related to a similar investment today. It will help determine whether the financial advantage of buying or renting is great enough to override other factors, such as personal preferences.

# *Appendix A*

## HOME IMPROVEMENT PROJECT TYPES and ASSOCIATED RETURNS TO HOUSE VALUE

Source: Appraisal Institute of Canada

### THE RENOVATIONS AND HOME VALUE SURVEY 1995

Source: Appraisal Institute of Canada's Members of Appraisal Institute who are residential specialists. The following are their choices of renovation projects having the greatest potential for dollar return at sale:

- Kitchen Renovation 25 - 125%
- Bathroom Renovation 50 - 100%
- Interior Painting and Decor 10 - 150%
- Finished Basement 10 - 100%
- Exterior Painting 10 - 125%
- Main Floor Family Room Addition 10 - 100%
- New Furnace / Heating System 0 - 100%
- Landscaping 10 - 125%
- Addition of Separate Living Unit 5 - 85%
- Energy Efficient Features 2 - 100%

The model does not include the FHLI program for a loan up to 95% of the property value because of different program rules house price ceilings vary across markets.