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Decision Models

# Guide to Excel File for Screening

# Real Estate Investments in the Montreal Area

## 1. “BP Background” tab

This tab is shows three graphics that were sent to us by Ryan Ludlow, a real estate investor in Montreal who has done several sixplex renovation/condo conversion projects. The charts were created by one of his employees for his most recent project and, after being adjusted for errors (e.g. underestimation of time to get renovation permit), were used to inform our theoretical base project.

## 2. “Base Project” tab

This tab consists of a project management chart on the left, with all the dependencies correctly interlinked. For example, Insulation cannot be started (E14) until the Exterior Doors and Windows (F10), HVAC (F11) Electricals (F12), and Plumbing/piping (F13) are completed. The time taken for each of these are normally distributed with a standard deviation that seems appropriate from experience with these types of projects. Additionally, three potential week long delays have a 50% chance of occurring. On the far right, the materials costs, which are fixed, are organized by category and totaled.

These results feed into a profit and loss statement in the middle. While we have looked for Crystal Ball forecasts for Net Present Value ("NPV"), Renovation Costs, and Renovation Time, only the latter two are used for the rest of the model. Both of these fit to Beta curves. The NPV was used to verify that our model could approximate real life profits on the actual project undertaken by Ryan Ludlow. The model seems consistent with reality. This project was below average and the model captured his approximate return.

Note that renovation wages are not paid during the Initial Inspection and Design & Planning stages.

## 3. “Base Output” tab

This is the Crystal Ball output for the previous tab.

## 4. “Purchase Filtering” tab

This tab is the core of the model. On top, the assumptions and constants are defined into the model while underneath, our MLS database of available projects are present along with our calculations that lead to the cells that we would like Crystal Ball to forecast.

Rows 1 through 9 are constants taken from either the “Base Project” tab or experience in Montreal’s residential real estate market. Our WACC and the market’s WACC are identical. Rows 11 through 17 have our Crystal Ball Assumptions. Note that E11 and E12 simply take the output of the “Base Project” tab rather than try to recreate the distribution as a new Crystal Ball assumption.

Beginning on row 20, from columns A to G, we have the spreadsheet provided by our agent using the MLS database. Row H is an approximation of interior square footage, which uses the building footprint (multiplied by 10.7 in cases where these are given in square meters rather than square feet to convert from metric to imperial), the number of floors (always 2 or 3), and a factor of 0.9 (10% is lost due to walls and stairwells).

Carrying costs per week (column J) are simply the base case carrying costs adjusted for changes in municipal taxes, which are directly proportional to the purchase price and represent approximately 20% of the carrying costs in the base case. A similar formula is used for adjusting the renovation cost and time. The renovation factor (column K) approximates the economies of scale with renovations. A building with twice the square footage as our base project will only cost 85% more time and money, not 100% more.

Condo costs (column N) and Rental costs (column S) sum up the relevant costs net of rental income, where appropriate. The price per square foot when selling condos (column O) is a simple Vlookup function that matches the area to the expected sales price per square foot. Columns P, T, and W calculate the revenue minus agents fees for each scenario (using a multiple of square footage for subdivided and undivided condos or perpetuity formula for rentals) and brings it back to present value. For each scenario, gross profit and net profit (profit net of capital gains taxes) are calculated. These are all present value, as costs were assumed to be immediate and revenues were brought back to present value. Capital gains losses can be carried forward, so the tax rate applies even on losing projects.

Column Z decides, using the base case information, whether or not each project is a rental (output = 1) or a condo conversion project using the expected return for each, ignoring risk. If it decides to do a condo conversion, there is a chance that it will be subdivided (output = 3) and a chance that it will be undivided (output = 2). Note that, as the simulation runs, this decision may change for buildings where both strategies have nearly identical expected returns. All buildings near the efficient frontier were clearly condo conversions or rentals.

Profit (column AA) selects the net profit achieved by the chosen strategy while column AB takes this number and divides it by the total costs for that strategy to find a present value return on investment ("ROI") for the project. Investment Strategy, Profit, and ROI are all forecasted by Crystal Ball.

## 5. “Sales Price per Square Foot by Locale” tab

This is the table used for our Vlookup function in the previous tab. Notes to the user are included for parts of each area that do not correspond to the prices of the rest of the area. As a note, the granular nature of this table (18 items rather than, say, 350), is the most notable source of error for our model.

## 6. “PF Output” tab

This tab contains screenshots of our Crystal Ball setup for the “Purchase Filtering” tab.

## 7. “Data Sheet” tab

This tab contains the Crystal Ball output for the final run of our finished model.

## 8. “%ROI” tab and 9. “Profit” tab

These are the tabs where we sorted our "Data Sheet" output in order to create the efficient frontiers and highlight the best investment opportunities based on ROI and Profit. Those in yellow are on the efficient frontier and those in orange are near the efficient frontier. There is an almost perfect overlap between properties highlighted by each of the methods.

The results were combined in the “%ROI” tab and comments were added by looking at the listings and crosschecking opinions with another investor. The ten highlighted properties were taken to the "Best" tab.

## 10. “Best” tab

This is it, the information that we were trying to produce all along. These are the 10 best sixplex investments in Montreal according to our model. Investor comments were added on the right side.