***Time Value of Money: Buy vs. Rent decision* *Case analysis***

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**1. Determine the required monthly payments for the mortgage.**

The required monthly payment for the mortgage is $2,524.9. We found this out through several steps, first of which being converting the APR of 4% into a monthly effective rate which was found to be 0.3367%. The second step was to figure out the amount Rebecca would be financing. In this case, since the loan was 600,000 and she stated putting a 20% downpayment on her loan which meant that the total amount needing to be financed would be $480,000. We then used the PMT function in Excel where the monthly rate is 0.3367%, the number of periods is (25 years \* 12 payments per year = 300) and, the PV is the financed amount which is $480,000. This gave us the answer for the monthly payment of the mortgage which ended up with the value of $2,524.9.

**2. Determine the monthly additional payments required to buy versus rent.**

The monthly additional payments required to buy consist of $2,524.9 per month for the mortgage, $1,355 per month in condo fees, $300 per month in property tax, $50 per month in repairs and maintenance and, $462.82 in opportunity costs for a total cost of $4,392.9.

The monthly additional payment required to rent is $3,000.

The difference between the payment to buy or sell is $1,392.72.

**3. Determine the principal outstanding on the mortgage after:**

**a. Two years:** According to the amortization schedule we made in the spreadsheet, we calculated that the principal outstanding on the mortgage after two years which marks that there are 276 months remaining on the mortgage is $456,609.29.

**b. Five years:** The principal outstanding on the mortgage after five years which marks 240 months remaining on the mortgage is $417,858,79.

**c. Ten years:** The principal outstanding on the mortgage after ten years which marks that there are 180 months remaining on the mortgage is $342,109.01.

**4**. **Determine the Net Present Value (NPV) after two, five and ten years under the following scenarios, which Rebecca Young has determined are possible after some “due diligence” regarding future real-estate prices in the Toronto condo market:**

a. The condo price remains unchanged.

| 2 Year | 5 Year | 10 Year |
| --- | --- | --- |
| $ -58,513.34 | $ -67,365.22 | $-79,970.06 |

b.The condo price drops 10 percent over the next two years, then increases back to its purchase price by the end of five years, then increases by a total of 10 percent from the original purchase price by the end of ten years.

| 2 Year | 5 Year | 10 Year |
| --- | --- | --- |
| $ -111,172.53 | $ -67,365.22 | $ -41,610.69 |

c.The condo price increases annually by the annual rate of inflation of 2 percent per year over the next ten years.

| 2 Year | 5 Year | 10 Year |
| --- | --- | --- |
| $ -38,059,70 | $ -18,697.19 | $4,034.81 |

d.The condo price increases annually by an annual rate of 5 percent per year over the next ten years.

| 2 Year | 5 Year | 10 Year |
| --- | --- | --- |
| $ -4,537.67 | $ 61,823.63 | $ 161,269.93 |

**5. As Rebecca Young, what decision would you make? Describe any qualitative considerations that could factor into your decision.**

One of the biggest factors which need to be taken into account when making this decision is the current timing and conditioning of the market. Demand and the size of the current market are directly related to the pricing of the properties in the market. If we observe the market to be filled with many properties for sale it would in turn affect the pricing of the houses negatively and result in them falling. Now if there are very few properties in the market for sale it would result in the price of the properties to rise substantially as well as the competition to rise substantially.

In the current case we have observed two situations in which Rebecca would make a profit. The first situation in which Rebecca would make a gain from buying the new property would be if she would keep the condo for five or more years with an annual quoted inflation rate of 5% per year. The second situation in which Rebecca would make a profit would be if she ends up keeping the condo for ten or more years with an annual quoted inflation rate of 5% per year. Since Rebecca has already planned her future to move into a larger and newer property after five to ten years anyways, it would not be a wise decision for her to buy the new property so, she should continue renting the current apartment she is situated in.