

Mortgage Financing: Should You Still Float? Four Answers

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Approximately three years ago, in late March of 2001, I wrote a widely cited research report entitled: *Mortgage Financing: Floating Your Way to Prosperity*¹ in which I argued that Canadian consumers were better-off financing their mortgage at a *floating* or variable rate of interest, compared to the traditional choice of a 5-year *fixed* rate. This brief article is a follow-up to that report.

At the time, the quoted annual percentage rate on a typical variable rate mortgage (VRM) was 6.5% – which was also the prime rate of interest at the end of March 2001 -- and the average 5-year fixed rate was 7.5%. This modest spread of 100 basis points represented an immediate monthly saving of \$60 per month on a \$100,000 loan that was amortized over 20 years for those who selected the floating route. And, while this number might not have seemed very meaningful at the time, as variable rates dropped from 6.5% to the current neighborhood of 3.5 to 4.0%, the difference compounded to quite a substantial sum.

Exhibit #1 and #2 (in the appendix) display the precise (historically accurate) savings from having followed this advice during the last three years. It assumes two individuals, Linda Long and Shelly Short who each borrowed \$100,000 in early April 2001 to finance the purchase of a house. Linda fixed her mortgage at the 5-year 7.5% rate, which led to monthly payments of \$799. Shelly borrowed at the floating rate which was 6.5% at the

¹ The original report was funded by a research grant from *Manulife Financial* and is currently available on the website of The IFID Centre at www.ifid.ca. The report was also summarized in a short article entitled "Go with the float: Fixed rate mortgages offer piece of mind, but not much else" in the April 2001 issue of the *National Post Magazine* (page 41).

time, but decided to make monthly payments of \$799, *identical* to Linda's. Note that Shelly's interest clock was ticking at the variable (prime rate), so as rates fell from 6.5% to the current 4.0%, her debt was declining and being paid back at a faster rate compared to Linda's. In fact, at the end of 3 years – i.e. in early April 2004 – the principal outstanding on Linda's mortgage is \$92,644 compared to Shelly's \$84,424, *even though they both made the exact same monthly mortgage payments!* Note that Shelly paid a total \$13,173 in interest payments during the last three years, which is \$8,221 or 40% less than Linda's \$21,394 in interest payments. They both paid a total of \$28,749 but the split between interest and principal was different. And, if you borrowed \$200,000 or \$400,000 at a variable rate in April 2001, you saved 2 to 4 times \$8,221.

Furthermore, if you (or Shelly) selected the VRM and left this mortgage *open*, you gained the additional benefit of being able to pay down your mortgage with extra cash at anytime, without penalty. This particular feature is hard to quantify, but extremely valuable over the long-run.

Even if you did not follow Shelly's precise strategy of making artificially higher mortgage payments, and instead you made payments based on the fluctuating variable rate applicable for that month, the effective present value (on April 1, 2004) of your savings was \$8,221 per \$100,000 of mortgage principal. In addition, if you were able to negotiate a loan at prime minus 75 basis points – which was not uncommon for those who *closed* their mortgage over the term – I estimate that your current outstanding balance is approximately \$82,000 and your savings from floating was closer to \$10,000. Anyone who took Shelly's lead during the last three years gained handsomely.

Against this backdrop, on April 13, the Bank of Canada (BoC) lowered the target for the overnight rate to an unprecedented 2%. In the press release announcing the 0.25% cut, the BoC claimed that from a macro-economic perspective, the “risks to the outlook now appear balanced.” Most financial commentators have interpreted these remarks to imply that we have reached the bottom of the interest rate cycle and the next inevitable move will be up. Understandably, I have received quite a number of inquiries asking whether it

is now finally time to lock in a mortgage. After all, they ask, “*How much lower can mortgage rates go?*”

Well, the technical answer to this question is that interest rates can only go two more percentage points lower before some very odd and unpleasant things start to happen to our economy. And, despite Japan’s well publicized counterexample where interest rates actually hit zero a few years ago, there are a number of structural reasons why it is highly unlikely we will ever test such levels in Canada. Yet, despite the “nowhere to go but up” view, I still think that variable rate mortgages have their merits. Let me explain.

First, a common mistake made by many mortgage borrowers – although not necessarily the avid readers of the financial press – is that there is only one interest rate to be considered, one which goes either up or down based on the Bank of Canada’s actions. This is not true. In fact, quite distinct from the price of gold or the USD exchange rate, there is an entire collection of different interest rates (called a yield curve) which can move in very different directions on any given day. For example, on Monday short-term (money market, T.Bill) rates can decline while long-term bond yields can increase, and *vice versa* on Tuesday. These rates correspond to different terms on a loan. If you borrow money for one year you might pay 3% per year, but if you borrow for 10 years it will be 6%. What this also means is that *even* if current short-term (variable, prime) rates remain at a historical low, there is no reason why long-term (5-year fixed) rates can not decline further. Also, remember that back in April 2002 the BoC initiated tightening of interest rates, but then made an about face a year later. So, even the assumption that short-term interest rates are about to head up is a questionable one.

On a deeper level, the question “*Is it now time to lock in?*” reveals a misunderstanding of the fundamental reasons I originally advocated floating versus fixing. Indeed, as much as I would like to take credit for helping what is estimated to be 25% of Canadian homeowners going floating, the fact is I had absolutely no idea rates would drop this low. Going forward, I don’t know whether interest rates will stay at current levels, in which case you certainly don’t lose from floating your mortgage, or if they will decline

further (which is even better) or if they will only start to increase in 12 to 18 months. What I do know is as follows. Lenders prefer to make loans for shorter periods of time, while borrowers favor longer term commitments. Thus, in order to induce lenders to give up their precious funds for longer, the 'equilibrium' interest rates on longer-term loans tends to be higher to compensate for the longer 'lock up'. Ergo, borrowers who are willing to accommodate the banks desire to retain control of the funds and agree to shorter term loans, will gain an edge in the long-run. This is similar to investors who are willing to take financial (equity market) risk in exchange for higher expected – but more volatile – returns. This tradeoff is just as true in today's low interest rate and low inflation rate environment where lenders are even more reluctant to make longer term commitments.

More importantly, in April 2001, my "floating" thesis was based primarily on risk management principles, rather than any crystal ball projections. The same concept applies today.

Let me explain by focusing on the current mortgage environment. Right now you can probably negotiate a 5-year fixed rate (closed) mortgages at 5.0%, but get 3.5% on a generic VRM. Of course, these numbers change daily and also depend on your negotiating ability. As you can see from Exhibit #3 (in the appendix), these inputs lead to monthly payments of \$657 on a 5-year fixed rate mortgage and \$579 on the VRM, assuming you amortize \$100,000 over 20 years (i.e. 240 months). A floating mortgage will save you about \$78.5 per month, give or take. As I argued in the April 2001 study, I like to think of \$78.5 per month as insurance. It is insurance against your mortgage payments increasing. Or, alternatively, it is the premium you pay the bank for lending you money (against their natural inclination) for a longer period of time. Interestingly, this spread or premium is actually higher than what it was back in April 2001, even though the level of interest rates is currently lower, which is related to the shape of the yield-curve and long-term bond yields. Of course, the \$78.5 in monthly savings will evaporate if interest rates start to move up. The real question is, *how bad can things get and how will it impact my bottom line?*

Exhibit #4 displays what I like to call the mortgage risk management matrix. It computes hypothetical monthly mortgage payments assuming interest rates change at a future date to a given level. The column on the right represents new levels of interest rates, while the top row indicates the date at which changes occur. If VRM rates stay at 3.5%, the mortgage payment will remain at \$579.

But, for example, if interest rates were to increase by 200 basis points to 5.5% in six months, your payments would increase to approximately \$682 per month. This number is calculated by amortizing the then outstanding loan principal at the new 5.5% interest rate for the remaining 234 months. If the same interest rate increase takes place in 24 months instead of within 6 months, your payments would increase to \$675 per month. Note that although rates have gone up the same 2%, the mortgage payments increase by less, compared to if this event takes place in six months.

The point is as follows. You should examine the range of possible payments displayed in Exhibit #4 and decide whether you can live with the risk. This is called *scenario analysis* which is the bread & butter of corporate risk management strategies. Can you afford to pay \$200 to \$300 more per month in a worse case scenario? Is there enough slack in your monthly budget to cut-out discretionary expenses and make up for the shortfall? Do you perhaps have other investments that might increase in value if interest rates increase? The decision of whether to go long (fixed) or short (floating) should depend on your tolerance for risk as well as your ability to withstand increases in mortgage payments. You can always expect a financial reward for going with the float, although the precise magnitude will ebb and flow depending on the economic environment.

Where does this leave home-owners who seek practical advice and are wondering what to do? Well, this depends on the type of homeowner you are. I see four distinct financial personalities.

1. **The first-time homebuyer** and especially those who placed minimal initial down payments with high leverage ratios, are the ideal candidates for long-term fixed rate mortgages. These folks should not be taking any chances with a fluctuating interest rate. In fact, they might be hit with a double whammy if the value of their (overpriced) house declines leaving them with negative equity. To them I say, "count your blessings, don't be greedy and lock-in at a fixed rate."
2. **The risk-averse worrywart** who is constantly looking at interest rates and wondering if 'now' is the time, should do what all risk-averse investors do: *diversify*. Indeed, there is a strong argument to be made for diversifying your mortgage debt, similar to the prudent strategy with your investment portfolio. Now, in general, diversifying your debts is a silly idea since you should put all your eggs in the one basket with the lowest interest rate. But, I do agree that split rate mortgages make some sense in today's ultra-low environment. The ideal strategy is to partition your mortgage in two halves, one linked to a variable rate and the other closed for a longer period of time.
3. **The seasoned veteran**, possibly with two stable breadwinners in the family and with a substantial amount of built-up equity in the house should still follow Shelly Short's strategy. They can afford the risk and continue with a variable rate mortgage, making payments based on a high fixed rate schedule. This is an easy way to (think you) *have your cake and eat it too*. From a purely psychological point of view -- as long as you pick the payment rate to be 1% to 2% above the initial floating rate -- if and when interest rates do start to increase, it should have no noticeable impact on your monthly budget.
4. **The financially savvy arbitrageur** can do even better. Most banks allow you to pre-approve a fixed rate mortgage for between 90 and 120 days. You are guaranteed the pre-approved rate regardless of what happens to mortgage rates over the next 3- 4 months. This is the closest thing to a free lunch (actually, call option on interest rates) you will ever get from a Canadian bank. If you have a floating (open) rate mortgage that allows you to pre-pay any amount anytime without penalty, then walk across the street to your bank's competitor and ask for a pre-approval on a 5-year fixed rate mortgage. Then, keep a close eye on the

Bank of Canada and the bond market. If rates increase *tomorrow*, exercise your free option and move your mortgage across the street, at *yesterday's* rate. Otherwise, do nothing and start the process over in a few months. Understandably, the branch manager might get a bit weary of your constant requests for pre-approval...

Ah yes, one last thing for the record. I currently have an (open) variable rate mortgage, and I have absolutely no intention of locking-in.

Exhibit #1					
Assume You Took-out a Fixed Rate Mortgage in April 2001					
	Rate of Interest (s.a.)			7.500%	
	Periodic Rate (monthly)			0.6155%	
	Mortgage Principal			\$ 100,000	
	Amortization Period (years)			20	
	Monthly Payment:			\$ 798.60	
Month	Owing (start)	Interest (plus)	Payment (minus)	Owing (end)	Interest Ratio
1	\$ 100,000	\$ 615	\$ 799	\$ 99,817	77.1%
2	\$ 99,817	\$ 614	\$ 799	\$ 99,633	76.9%
3	\$ 99,633	\$ 613	\$ 799	\$ 99,447	76.8%
4	\$ 99,447	\$ 612	\$ 799	\$ 99,261	76.6%
5	\$ 99,261	\$ 611	\$ 799	\$ 99,073	76.5%
6	\$ 99,073	\$ 610	\$ 799	\$ 98,884	76.4%
7	\$ 98,884	\$ 609	\$ 799	\$ 98,694	76.2%
8	\$ 98,694	\$ 607	\$ 799	\$ 98,503	76.1%
9	\$ 98,503	\$ 606	\$ 799	\$ 98,310	75.9%
10	\$ 98,310	\$ 605	\$ 799	\$ 98,117	75.8%
11	\$ 98,117	\$ 604	\$ 799	\$ 97,922	75.6%
12	\$ 97,922	\$ 603	\$ 799	\$ 97,726	75.5%
13	\$ 97,726	\$ 601	\$ 799	\$ 97,529	75.3%
14	\$ 97,529	\$ 600	\$ 799	\$ 97,331	75.2%
15	\$ 97,331	\$ 599	\$ 799	\$ 97,131	75.0%
16	\$ 97,131	\$ 598	\$ 799	\$ 96,930	74.9%
17	\$ 96,930	\$ 597	\$ 799	\$ 96,728	74.7%
18	\$ 96,728	\$ 595	\$ 799	\$ 96,525	74.5%
19	\$ 96,525	\$ 594	\$ 799	\$ 96,321	74.4%
20	\$ 96,321	\$ 593	\$ 799	\$ 96,115	74.2%
21	\$ 96,115	\$ 592	\$ 799	\$ 95,908	74.1%
22	\$ 95,908	\$ 590	\$ 799	\$ 95,699	73.9%
23	\$ 95,699	\$ 589	\$ 799	\$ 95,490	73.8%
24	\$ 95,490	\$ 588	\$ 799	\$ 95,279	73.6%
25	\$ 95,279	\$ 586	\$ 799	\$ 95,067	73.4%
26	\$ 95,067	\$ 585	\$ 799	\$ 94,853	73.3%
27	\$ 94,853	\$ 584	\$ 799	\$ 94,638	73.1%
28	\$ 94,638	\$ 582	\$ 799	\$ 94,422	72.9%
29	\$ 94,422	\$ 581	\$ 799	\$ 94,205	72.8%
30	\$ 94,205	\$ 580	\$ 799	\$ 93,986	72.6%
31	\$ 93,986	\$ 578	\$ 799	\$ 93,766	72.4%
32	\$ 93,766	\$ 577	\$ 799	\$ 93,544	72.3%
33	\$ 93,544	\$ 576	\$ 799	\$ 93,321	72.1%
34	\$ 93,321	\$ 574	\$ 799	\$ 93,097	71.9%
35	\$ 93,097	\$ 573	\$ 799	\$ 92,871	71.7%
36	\$ 92,871	\$ 572	\$ 799	\$ 92,644	71.6%
		Interest Paid	Toal Payments	Debt Reduction	Int. Rat.
	Total:	\$ 21,394.00	\$ 28,749.68	\$ 7,355.68	74.4%

Exhibit #2							
Assume You Took-out a Variable Rate Mortgage in April 2001, But Made Fixed Monthly Payments Based on the 5-year Fixed Rate:							
Payment Based on Interest Rate (s.a.)			7.500%				
Periodic Rate (monthly)			0.6155%				
Mortgage Principal			\$ 100,000				
Amortization Period (years)			20				
Monthly Payment:			\$ 798.60				
Date	VRM Rate	Month	Owing (start)	Interest (plus)	Payment (minus)	Owing (end)	Interest Ratio
Apr-01	6.50%	1	\$ 100,000	\$ 550	\$ 799	\$ 99,752	68.9%
May-01	6.25%	2	\$ 99,752	\$ 528	\$ 799	\$ 99,481	66.1%
Jun-01	6.25%	3	\$ 99,481	\$ 526	\$ 799	\$ 99,209	65.9%
Jul-01	6.00%	4	\$ 99,209	\$ 503	\$ 799	\$ 98,913	63.0%
Aug-01	5.75%	5	\$ 98,913	\$ 481	\$ 799	\$ 98,596	60.2%
Sep-01	5.25%	6	\$ 98,596	\$ 437	\$ 799	\$ 98,234	54.7%
Oct-01	4.50%	7	\$ 98,234	\$ 373	\$ 799	\$ 97,808	46.6%
Nov-01	4.00%	8	\$ 97,808	\$ 329	\$ 799	\$ 97,339	41.2%
Dec-01	4.00%	9	\$ 97,339	\$ 328	\$ 799	\$ 96,868	41.0%
Jan-02	3.75%	10	\$ 96,868	\$ 306	\$ 799	\$ 96,375	38.3%
Feb-02	3.75%	11	\$ 96,375	\$ 304	\$ 799	\$ 95,880	38.1%
Mar-02	3.75%	12	\$ 95,880	\$ 302	\$ 799	\$ 95,384	37.9%
Apr-02	4.00%	13	\$ 95,384	\$ 321	\$ 799	\$ 94,906	40.2%
May-02	4.00%	14	\$ 94,906	\$ 320	\$ 799	\$ 94,427	40.0%
Jun-02	4.25%	15	\$ 94,427	\$ 338	\$ 799	\$ 93,967	42.3%
Jul-02	4.50%	16	\$ 93,967	\$ 356	\$ 799	\$ 93,524	44.6%
Aug-02	4.50%	17	\$ 93,524	\$ 355	\$ 799	\$ 93,081	44.4%
Sep-02	4.50%	18	\$ 93,081	\$ 353	\$ 799	\$ 92,635	44.2%
Oct-02	4.50%	19	\$ 92,635	\$ 351	\$ 799	\$ 92,188	44.0%
Nov-02	4.50%	20	\$ 92,188	\$ 350	\$ 799	\$ 91,739	43.8%
Dec-02	4.50%	21	\$ 91,739	\$ 348	\$ 799	\$ 91,288	43.6%
Jan-03	4.50%	22	\$ 91,288	\$ 346	\$ 799	\$ 90,835	43.3%
Feb-03	4.50%	23	\$ 90,835	\$ 344	\$ 799	\$ 90,381	43.1%
Mar-03	4.75%	24	\$ 90,381	\$ 362	\$ 799	\$ 89,945	45.3%
Apr-03	5.00%	25	\$ 89,945	\$ 379	\$ 799	\$ 89,526	47.5%
May-03	5.00%	26	\$ 89,526	\$ 378	\$ 799	\$ 89,105	47.3%
Jun-03	5.00%	27	\$ 89,105	\$ 376	\$ 799	\$ 88,682	47.1%
Jul-03	4.75%	28	\$ 88,682	\$ 355	\$ 799	\$ 88,239	44.5%
Aug-03	4.75%	29	\$ 88,239	\$ 353	\$ 799	\$ 87,793	44.3%
Sep-03	4.50%	30	\$ 87,793	\$ 333	\$ 799	\$ 87,328	41.7%
Oct-03	4.50%	31	\$ 87,328	\$ 331	\$ 799	\$ 86,860	41.5%
Nov-03	4.50%	32	\$ 86,860	\$ 329	\$ 799	\$ 86,391	41.2%
Dec-03	4.50%	33	\$ 86,391	\$ 328	\$ 799	\$ 85,920	41.0%
Jan-04	4.25%	34	\$ 85,920	\$ 308	\$ 799	\$ 85,429	38.5%
Feb-04	4.25%	35	\$ 85,429	\$ 306	\$ 799	\$ 84,936	38.3%
Mar-04	4.00%	36	\$ 84,936	\$ 286	\$ 799	\$ 84,424	35.8%
Total:				Interest Paid	Total Payments	Debt Reduction	Int. Ratio
				\$ 13,173.18	\$ 28,749.68	\$ 15,576.49	45.8%

Exhibit #3						
	Original Mortgage Principal:	\$	100,000			
	Term of Mortgage, in months:		240			
	5-year Fixed Interest Rate:		5.0%			
	Current Variable Interest Rate:		3.5%			
	Fixed Monthly Payment:		\$657.1			
	Current Variable Monthly Payment:		\$578.7			
	Current Savings: Floating over Fixed:		\$78.5			

Exhibit #4						
Current VRM at 3.5% leads to \$579 p/m on a \$100,000 mortgage. What will VRM payment be if the variable interest rate jumps to a higher level after the following number of months?						
	6	12	24	36	48	60
3.5%	\$578.7	\$578.7	\$578.7	\$578.7	\$578.7	\$578.7
4.5%	\$629.3	\$628.1	\$625.8	\$623.4	\$621.0	\$618.6
5.5%	\$682.0	\$679.6	\$674.8	\$669.8	\$664.9	\$659.9
6.5%	\$736.8	\$733.1	\$725.5	\$717.9	\$710.3	\$702.5
7.5%	\$793.5	\$788.4	\$778.0	\$767.6	\$757.0	\$746.4
8.5%	\$852.0	\$845.4	\$832.1	\$818.7	\$805.2	\$791.5
Note: We assume the original amortization period remains the same.						