

Mortgage Financing and Liability Allocation

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In late March 2001 I wrote a widely cited 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. With more than three years since that report, and thousands of Canadians who have since taken variable rate mortgages, it seems this was a good call.

But with the Bank of Canada poised to raise rates in the near future it is time to revisit the ideas behind variable rate mortgages and how they can be applied to your client. More importantly, I will take this opportunity to introduce the concept of *liability allocation* which is the symmetric counter-part to *asset allocation* on your client's personal financial balance sheet.

First, some historical background. In March 2001, 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 -- 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.

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).

Exhibit #1 and #2 display the savings from having followed this advice during the last three years. It assumes two hypothetical clients, Linda Long and Shelly Short who each borrowed \$100,000 in early April 2001 to finance the purchase of 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 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 was \$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 they borrowed \$200,000 or \$400,000 at a variable rate in April 2001, they saved 2 to 4 times \$8,221 between then and the early summer of 2004.

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

Even if your client did not follow Shelly's precise strategy of making artificially higher mortgage payments, and instead made payments based on the fluctuating variable rate applicable for that month, the effective present value of her savings was \$8,221 per \$100,000 of mortgage principal. In addition, if she were able to negotiate a loan at prime minus 75 basis points – which was not uncommon for those who *closed* their floating mortgage over the term – I estimate the current outstanding balance is approximately \$82,000 and the savings from floating was closer to \$10,000. Without a doubt, anyone who took Shelly's lead during the last three years gained handsomely.

Against this backdrop, most financial commentators have interpreted recent remarks by the Bank of Canada to imply that we have reached the bottom of the interest rate cycle and the next inevitable move will be up. Quite likely a number of your clients have asked YOU whether it is now time to lock in a mortgage, since it is estimated that over 30% of Canadian have VRMs. And while you might feel that your mandate lies on the *asset* – and not *liability* – side of their balance sheet, I believe this is a great opportunity to implement total asset allocation with your client and provide some guidance and valuable education on prudent debt management.

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 they borrow money for one year they might pay 3% per year, but if they borrow for 10 years it will be 6%.

Lenders prefer to issue loans that are re-negotiated over shorter periods of time, while borrowers favor extended commitments. Thus, in order to induce these reluctant lenders to give-up their precious funds for longer, the interest rates (or rent) on longer-term loans is usually higher, to compensate for the longer lock-up. Ergo, borrowers who are willing to accommodate the lender's natural desire to keep the money on a short leash, and who agree to shorter term loans, will gain a financial edge in the long-run. I believe this to be true, even in today's low interest rate and low inflation rate environment, since I would expect lenders are even more reluctant to make longer term (nominal, i.e. non-inflation adjusted) commitments. But like all things financial, *risk and return* are inseparable partners.

Therefore, advocating a variable rate mortgage is not predicated by, or based on, a speculative (bearish) bet on interest rates. Indeed, going forward, I don't know whether the prime rate of interest will stay at its current levels for the next 3 – 6 months, in which case you certainly don't lose from floating your mortgage, or if it will decline further (unlikely, but even better) or if it will only start to increase in 6 to 12 months. Rather, the point is as that when contemplating a mortgage strategy, your client should examine the range of possible payments – likely computed and displayed by you, their financial advisor -- and they should decide whether they can live with the risk.

Questions you should be asking them are. Can they afford to pay \$200 to \$300 more per month in a worse case scenario? Is there enough slack in their monthly budget to cut-out discretionary expenses and make up the shortfall? Do they perhaps have other investments that might increase in value if interest rate increase? The decision of whether to long (fixed) or short (floating) should depend on their tolerance for risk – the same concept used in traditional asset allocation -- and their ability to withstand increases in mortgage payments. I believe that they can still expect a financial reward for going with the float, although the precise magnitude will ebb and flow depending on the economic environment. Remember, you and they are not smarter than the billion dollar bond market.

Ok. So, where does this leave your client who seeks practical advice and is asking you what to do? Well, this depends on the type of homeowner they are. I see four distinct financial personalities, each of which should be doing something slightly different.

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. People in this category 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 you should say, “count your blessing, don't be greedy and lock-in 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. I am willing to concede that split rate mortgages have some merit in today's ultra-low environment. This is true *debt allocation* and the ideal strategy is to partition the mortgage in two parts, one linked to a variable rate and the other closed for a longer period of time. The exact ratio should depend on cash-flow assessment and the odds on whether your client will have any cash sitting in your bank account that can be used to pay down your mortgage.
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 they pick the payment rate to be 2% to 3% above the initial floating rate -- if and when interest rates do (finally) start to increase, it should have no noticeable impact on the 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. They 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 they have a floating (open) rate mortgage that allows them to pre-pay any amount anytime without penalty, then encourage them to walk across the street to their 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*, they should exercise their free option and move your mortgage across the street, at *yesterday's* rate. Otherwise, they should do nothing and start the

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process over in a few months. Understandably, the branch manager might get a bit weary...

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, *at least for now*....But, I'll keep you updated...

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%
				Interest Paid	Total Payments	Debt Reduction	Int. Ratio
Total:				\$ 13,173.18	\$ 28,749.68	\$ 15,576.49	45.8%