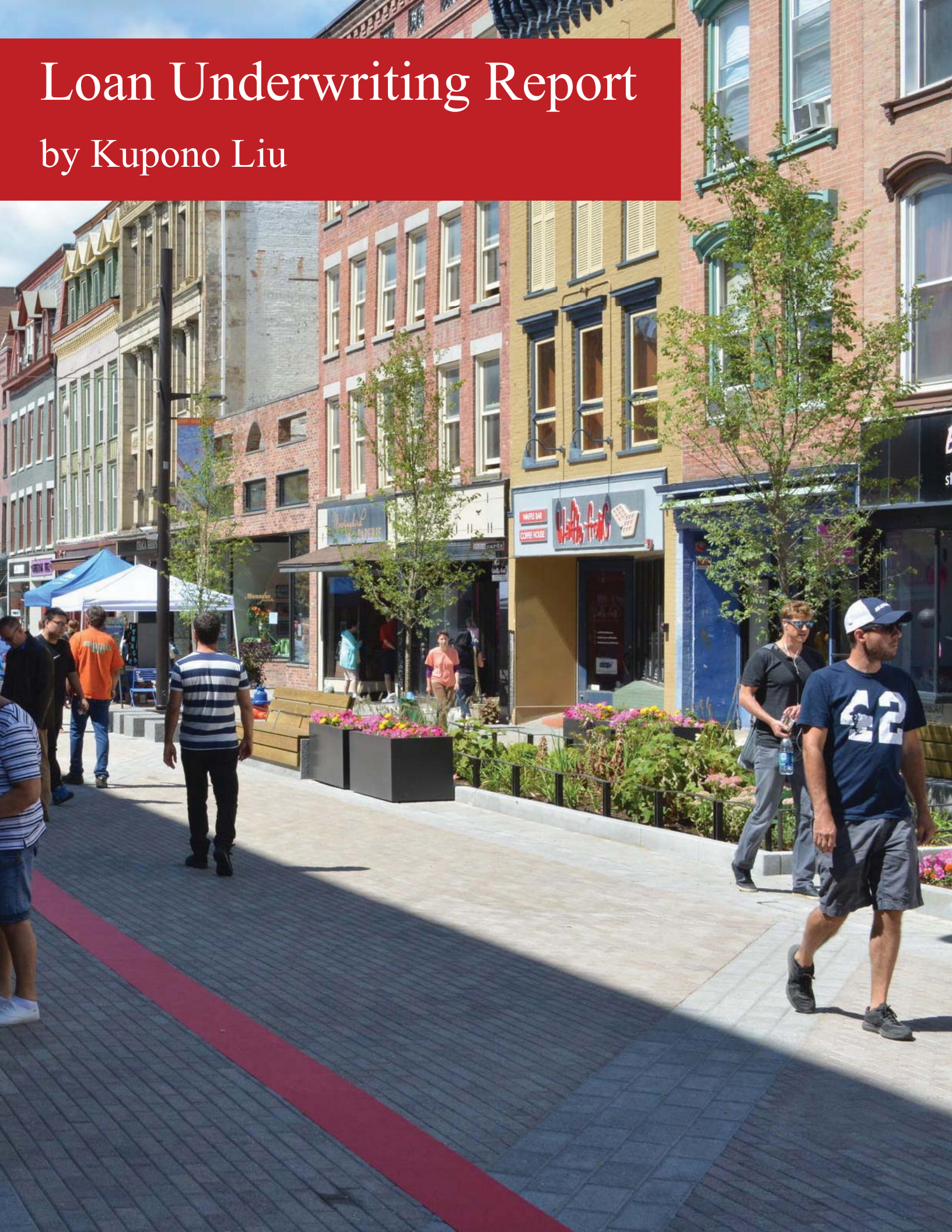
Loan Underwriting Report

by Kupono Liu



Contents

Introduction

Cornell Univerisity has recently hired Keakakona and Keakulina Smith. Keakakona is the new School of Hotel Administration professor, and Keakulina is a new lecturer. They are currently looking for a new home in Ithaca, NY. After narrowing down their search, Keakakona and Keakulina are interested in purchasing 1031 Hanshaw Road. This house is located in the neighborhood called Northeast, which is a part of the Village of Cayuga Heights and the Town of Ithaca.

This house is a convenient 5 minute drive to Cornell University and the Ithaca Mall. It's a stylish Colonial home with four bedrooms and 5 full baths. It also has a large stone patio and rolling lawns.

Keakakona and Keakulina need a mortgage that they can qualify for and need a way to close the deal on this home. They have approached our bank, First National Bank of Ithaca, to help them. The goal of this report is to find the best financing option for the Smiths and close the deal on this house.

This report will first analyze the house price determinants in all Ithaca neighborhoods. It will then look at sold prices of homes that are comparable to 1031 Hanshaw Road. This is to see how this house is priced compared to the market. Then, we will create an amortization table for a fixed rate mortgage. This mortgage will serve as our base case. We will see how much money is required by the Smiths and whether or not they qualify for this base case mortgage. In order to qualify for a mortgage at our bank, prospective homeowners cannot surpass the maximum Housing Expense-to-Gross Income Ratio of 28% and Long Term Debt-to Gross Income Ratio of 38%. Anything above these ratios is too risky for our standards.

If the Smiths don't qualify for the fixed rate mortgage, we have come up with several alternative loan structures. These include changing the purchasing price and VISA debt, creating a 5/1 Hybrid ARM and buying down the loan.

Exhibit 1: Image of 1031 Handshaw Road

since they know that buyers will try to offer a lower bid price. Once the negotiation process is completed, the actual sold price is lower than the seller's initial for sale price. This is because both the sellers and buyers will have found an agreeable price in between their offers. Given that the sold price is lower than the "for sale" price and that square footage remains constant for each house, sold price per square feet is lower than the "for sale" price per square feet.

2. Amortization Table (Base Case)

2A. Amortization Table

With a 16% down payment, a $425,000 purchase price and a 30 year fixed rate mortgage, Keakona and Keakulina make monthly debt payments of $1,751 (without PMI). Given these monthly payments, there is an APR of 4.31% (Appendix 2A).

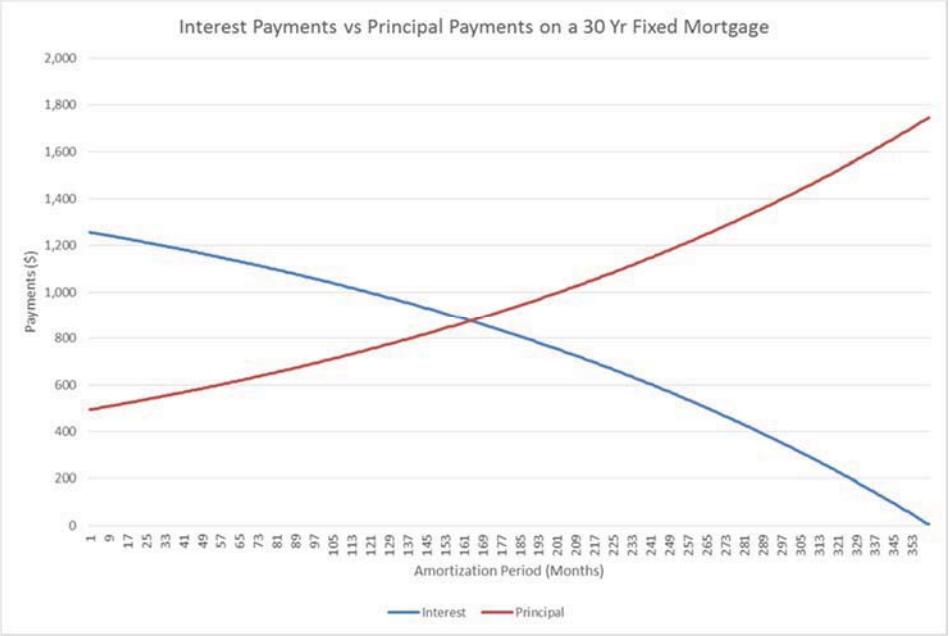
The loan to value ratio is above 80% for the first 33 weeks. Keakakona and Keakulina must make monthly private mortgage insurance payments (PMI) in addition to their monthly debt payments for the first 33 months. It should be noted that these PMI payments are not factored into the 4.31% APR.

2B. Interest Payments and Principal Payments

Over the lifetime of a mortgage, interest payments decline and principal payments increase (Exhibit 2B). For the entire amortization period, periodic debt payments remain constant (assuming constant interest rate). Periodic debt payments will remain constant since this is a fixed rate mortgage. The periodic debt payment is the sum of the periodic principal and periodic interest payments.

Given the nature of mortgages, the mortgage balance decreases at the beginning of each period by the periodic principal payment. Interest payments are calculated by multiplying the periodic interest rate and the mortgage balance at the beginning of each period. As the mortgage balance shrinks, the interest payment that can be extracted (keeping interest rate constant) also shrinks. Given that interest payments are decreasing and that the periodic debt payment will remain constant, then the periodic principal payment will increase over time {Periodic Principal Payments = Periodic Debt Payment - Periodic Interests Payment}.

Exhibit 2B: Interest Payments and Principal Payments



2C. Outstanding Mortgage Balance Over Time

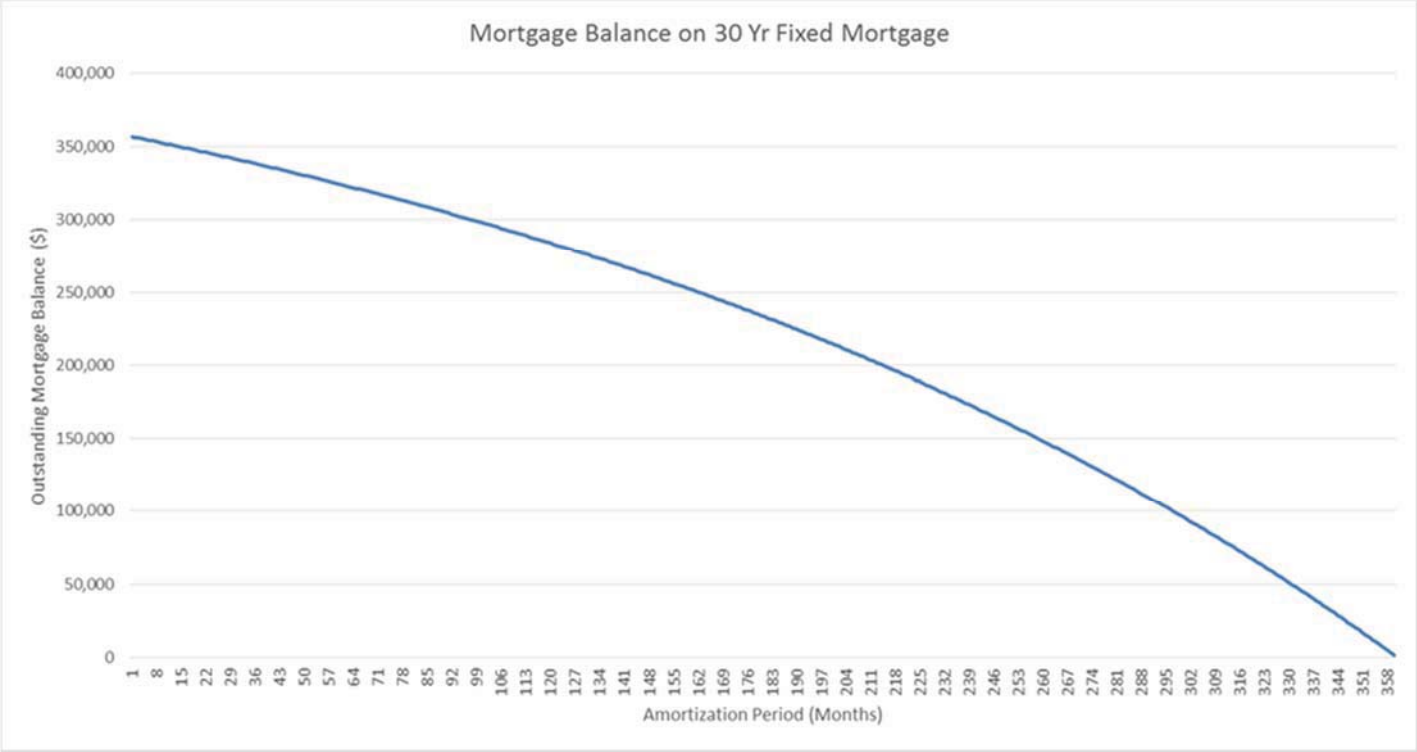
The repayment structure of a mortgage is different from that of a traditional corporate bond (Exhibit 2C). For a mortgage, the lessee will pay periodic debt payments that include interest and principal payments. The outstanding mortgage balance (loan principle) decreases every period by the periodic principal payments. Upon maturity, the mortgage balance should be zero or less than the original contract loan amount.

For traditional corporate bonds, the loan principle does not decrease every period. Instead of paying the principle down every period, the issuer will pay the entire principle amount all at once on the maturity date.

3. Amount of Money Required by Borrowers (Base Case)

Keakakona and Keakulina must come up with $83,791 worth of equity (Appendix 3). This amount of equity is equal to the sum of the house down payment ($68,000), total closing costs ($7,140) and escrow account ($8,651).

Exhibit 2C: Outstanding Mortgage Balance Over Time



4. Qualification of Buyers

The total long-term debt payments per month for Keakakona and Keakulina are $5476. {Lease Payments on Car=$1030; Visa Payments=$400; Student Loans Payments=$645.60; Alimony Payments=$1500; PMI=$149; Principal & Interest=$1751}

The monthly housing expense is $2,884. {Principal & Interest= $1,751; PMI=$149; Current Property Taxes=$807; Property & Casualty Insurance=$177}

Keakakona and Keakulina do not qualify for the mortgage (Exhibit 4). Their housing expense-to-total gross income ratio of 21.6% is acceptable since it's below our bank's maximum housing expense-to-total gross income ratio of 28%. However, their long-term debt to gross income ratio of 41.1% is over our maximum long-term debt to gross income ratio of 38%. According to our bank's standards, this means that the Smiths have too much long-term debt in relation to their gross income. Therefore, they do not qualify for the mortgage.

5. Some Deal Structuring Alternatives

Keakakona and Keakulina do not qualify for a loan based on any of these three alternatives (Appendix 5).

5A. Alternative #1

In Alternative #1, only the offer price is reduced by 5%. The housing expense to gross income is 20.8% and is below our bank's maximum housing expense to gross income ratio of 28%. However, the Smiths still have too much long term debt for our bank's standards. The Smiths have a long-term debt to gross income ratio of 40.4% which is above our bank's long-term debt to gross income ratio of 38%. The Smiths are required to pay $79,723 in order to cover the house down payment, closing costs and escrow account. Since this $79,723 amount is less than the Smith's $95,000 in savings, the Smiths have enough money to cover the down payment, closing costs and the escrow account. Out of all three alternatives, alternative #1 leaves the Smith's with the highest ending savings amount after

Exhibit 4: Qualification of Buyers

	Amount		Ratio
Keakakona Smith (Base Salary)	120,000	Housing Expense/Gross Income	21.6%
+ Keakulina Smith (Base Salary)	40,000	LT Debt/Gross Income	41.1%
Total Annual Base Salary	160,000		
Divided by: 12 Months	12		
Monthly Base Salary	13,333		
Lease Payments on Car	1,030		
+ VISA Payments	400		
+ Payments on Student Loans	646		
+ Alimony Payments	1,500		
+ Private Mortgage Insurance (PMI)	149		
+ Principal & Interest (Base Case)	1,751		
Long Term Debt Payments (**monthly**)	5,476		
Monthly Payments			
Principal & Interest (Base Case)	1,751		
+ Private Mortgage Insurance (PMI)	149		
+ Current Property Taxes	807		
+ Property & Casualty Insurance	177		
PITI (per month)	2,884		

purchasing the house. The Smiths have $15,277 left in their savings after purchasing the house.

Although the Smith's have enough money in their savings account, their long-term debt to gross income ratio is too large (over bank's 38% ratio). Therefore, they do not qualify for loan alternative #1.

5B. Alternative #2

In Alternative #2, the VISA debt is paid down by $5000 and there is no reduction in house price. The housing expense to gross income is 21.6% and is below our bank's maximum housing expense to gross income ratio of 28%. However, the Smiths' long-term debt to gross income ratio of 39.6% is larger than our bank's maximum long-term debt to gross income ratio of 38%. The Smiths have enough money to cover the down-payment, closing costs and the escrow account. The Smiths are required to pay $83,791 to cover these costs. This amount is less than their initial $95,000 savings amount, and thus they have enough money in their savings to cover these costs. Out of the three alternatives, alternative #2 leaves the Smith's with the lowest ending savings amount after purchasing the home. The Smith have $6,209 left in savings after purchasing the house.

The Smiths have enough money in their savings account. However, they do not qualify for loan alternative #2 since their long-term debt to gross income ratio is too large (over bank's 38% ratio).

5C. Alternative #3

In alternative #3, the VISA debt is paid down by $5000 and the offer price is reduced by 5%. The housing expense to gross income ratio is 20.8% and it is below our bank's maximum housing expense to gross income ratio of 28%. However, the Smith's long-term debt to gross income ratio is 38.9% and is larger than our bank's long-term debt to gross income ratio of 38%. Although this alternative provides the lowest long-term debt to gross income ratio out of the three alternatives, it is still too high for our bank's standards. Although lenders are sometimes flexible with rounding these ratios, the Smith's 38.9% ratio is too high to be rounded down to 38%. The Smiths have enough money to cover the down payment, closing costs and the escrow account. The Smiths need to pay $79,723 to cover these costs; this is less than their initial $95,000 savings amount. The Smiths have $10,277 left in their savings after purchasing the house.

The Smiths have enough money in their savings account. However, they do not qualify for loan alternative #3 since their long term debt to gross income ratio is too large (over bank's 38% ratio).

6. Creative Financing using a 5/1 Hybrid ARM

Under a 5-1 hybrid mortgage that has a 16% down payment, no price reduction and no VISA paydown, there are monthly payments of $1,598 for the first five years (Appendix 6). The total long term debt payments per month are $5,322. The monthly housing expense is $2,731. Under this mortgage, the Smiths have a total housing expense-to-gross income ratio of 20.5% which is below the maximum ratio of 28%. The Smiths have a long-term debt-to-gross income ratio of 39.9% which is above the maximum ratio of 38%. Given that the Smiths' long-term debt-to-gross income ratio is above the respective 38% threshold, they do not qualify for the mortgage.

The Smiths are required to pay $83,332 to cover the amount of down payment ($68,000), total closing costs ($7,140) and escrow account ($8,192). Given that the Smiths have $95,000 in savings, they have enough money to cover these costs.

Appendix 2A (Continued on Next Page)

Amortization Table (Base Case)

Asking Price (Listing Price)	$ 425,000.00
Down Payment	16%
Private Mortgage Insurance (PMI)	0.005
Loan Terms	
Amortization Period (years)	30
Payments per year	12
FICO Score	**675**
Interest Rate	4.23%
Points	1.00%
Origination Fees	0.00%

Contract Loan Amt	357,000
- Effective Loan Amt	353,430
Total Pts& Orig Fees	3,570
APR	4.31%

Appendix 2A continued

Amortization Table (Base Case)

Month	BegBal	Payment	Interest	Principal	EndBal	PMI	Total Pymt
0		-353,430					
1	357,000	1,751	1,257	494	356,506	149	1,900
2	356,506	1,751	1,256	496	356,010	149	1,900
3	356,010	1,751	1,254	497	355,513	148	1,900
4	355,513	1,751	1,252	499	355,014	148	1,899
5	355,014	1,751	1,250	501	354,513	148	1,899
6	354,513	1,751	1,249	503	354,010	148	1,899
7	354,010	1,751	1,247	504	353,506	148	1,899
8	353,506	1,751	1,245	506	352,999	147	1,899
9	352,999	1,751	1,243	508	352,491	147	1,898
10	352,491	1,751	1,241	510	351,982	147	1,898
11	351,982	1,751	1,240	512	351,470	147	1,898
12	351,470	1,751	1,238	513	350,956	146	1,898
13	350,956	1,751	1,236	515	350,441	146	1,898
14	350,441	1,751	1,234	517	349,924	146	1,897
15	349,924	1,751	1,232	519	349,405	146	1,897
16	349,405	1,751	1,231	521	348,885	146	1,897
17	348,885	1,751	1,229	523	348,362	145	1,897
18	348,362	1,751	1,227	524	347,838	145	1,896
19	347,838	1,751	1,225	526	347,312	145	1,896
20	347,312	1,751	1,223	528	346,783	145	1,896
21	346,783	1,751	1,221	530	346,254	144	1,896
22	346,254	1,751	1,219	532	345,722	144	1,896
23	345,722	1,751	1,218	534	345,188	144	1,895
24	345,188	1,751	1,216	536	344,653	144	1,895
25	344,653	1,751	1,214	537	344,115	144	1,895
26	344,115	1,751	1,212	539	343,576	143	1,895
27	343,576	1,751	1,210	541	343,035	143	1,894
28	343,035	1,751	1,208	543	342,491	143	1,894
29	342,491	1,751	1,206	545	341,946	143	1,894
30	341,946	1,751	1,204	547	341,399	142	1,894
31	341,399	1,751	1,202	549	340,850	142	1,894
32	340,850	1,751	1,200	551	340,300	142	1,893
33	340,300	1,751	1,199	553	339,747	142	1,893
34	339,747	1,751	1,197	555	339,192	0	1,751
35	339,192	1,751	1,195	557	338,636	0	1,751
36	338,636	1,751	1,193	559	338,077	0	1,751
37	338,077	1,751	1,191	561	337,516	0	1,751
38	337,516	1,751	1,189	563	336,954	0	1,751
39	336,954	1,751	1,187	565	336,389	0	1,751
40	336,389	1,751	1,185	567	335,823	0	1,751
41	335,823	1,751	1,183	569	335,254	0	1,751
42	335,254	1,751	1,181	571	334,684	0	1,751
351	17,178	1,751	61	1,691	15,488	0	1,751
352	15,488	1,751	55	1,697	13,791	0	1,751
353	13,791	1,751	49	1,703	12,088	0	1,751
354	12,088	1,751	43	1,709	10,379	0	1,751
355	10,379	1,751	37	1,715	8,665	0	1,751
356	8,665	1,751	31	1,721	6,944	0	1,751
357	6,944	1,751	24	1,727	5,217	0	1,751
358	5,217	1,751	18	1,733	3,484	0	1,751
359	3,484	1,751	12	1,739	1,745	0	1,751
360	1,745	1,751	6	1,745	0	0	1,751

Appendix 3

Amount of Money Required by Borrowers (Base Case)

Asking Price	425,000
Down Payment	0.16
Private Mortgage Insurance (PMI)	0.005
Loan Terms	
Amortization Period (years)	30
Payments per year	12
FICO Score	**675**
Interest Rate	4.23%
Points	1.00%
Origination Fees	0.000
Contract Loan Amount	357,000
Effective Loan Amount	353,430
Closing Costs (%)	1.00%
Total Closing Costs Excluding Points ($)	3,570
+ Loan Discount Points	3,570
Total Closing Costs	7,140
Monthly Payments	
Principal and Interest	1,751
+ Property Taxes	807
+ Property & Casualty Insurance	177
+ Private Mortgage Insurance (PMI)	149
PITI (Monthly)	2,884
* 3	3
Escrow Account (3 Mos. PITI)	$8,651
Downpayment	68,000
+ Total Closing Costs ($)	7,140
+ Escrow Account	8,651
Total Money Required by Borrower	**83,791**

Appendix 5

Some Deal Structuring Alternatives

	Don't Pay Down Any Debt	Pay Down VISA by $5,000	Pay Down VISA by $5,000
	Reduce House Price by **5%**	NO Reduction in House Price	Reduce House Price by **5%**
Reduced Price (if any)	403,750	425,000	403,750
Down Payment	0.16	0.16	0.16
Private Mortgage Insurance (PMI)	141	149	141
Loan Terms			
Amortization Period (years)	30	30	30
Payments per year	12	12	12
FICO Score	**675**	**675**	**675**
Interest Rate (%)	4.23%	4.23%	4.23%
Points (%)	1.00%	1.00%	1.00%
Origination Fees (%)	0.00%	0.00%	0.00%
Contract Loan Amt	339,150	357,000	339,150
Effective Loan Amt	335,759	353,430	335,759
Closing Costs	1.00%	1.00%	1.00%
Total Closing Costs Excluding Points ($)	3,392	3,570	3,392
+ Loan Discount Points	3,392	3,570	3,392
Total Closing Costs	6,783	7,140	6,783
Keakakona Smith (Base Salary)	120,000	120,000	120,000
+ Keakulina Smith (Base Salary)	40,000	40,000	40,000
Total Annual Base Salary	160,000	160,000	160,000
Divided by: 12 Months	12	12	12
Monthly Base Salary	13,333	13,333	13,333
Lease Payments on Car	1,030	1,030	1,030
VISA Payments	400	200	200
Payments on Student Loans	646	646	646
Alimony Payments	1,500	1,500	1,500
Private Mortgage Insurance (PMI)	141	149	141
Principal & Interest	1,664	1,751	1,664
LT Debt Payments (monthly)	5,381	5,276	5,181
Principal & Interest	1,664	1,751	1,664
Private Mortgage Insurance (PMI)	141	149	141
Property Taxes	807	807	807
Property & Casualty Insurance	168	177	168
PITI (monthly)	2,780	2,884	2,780
	Ratios	**Ratios**	**Ratios**
Housing Expense/Gross Income	0.208	0.216	0.208
LT Debt/Gross Income	0.404	0.396	0.389
Do They Qualify	Don't Qualify	Don't Qualify	Don't Qualify
Monthly Payments			
Principal and Interest	1,664	1,751	1,664
Private Mortgage Insurance (PMI)	141	149	141
Property Taxes	807	807	807
Property & Casualty Insurance	168	177	168
PITI (Monthly)	2,780	2,884	2,780
* 3	3	3	3
Escrow Account (3 Mos. PITI)	8,340	8,651	8,340
Downpayment	64,600	68,000	64,600
+ Total Closing Costs ($)	6,783	7,140	6,783
+ Escrow Account	8,340	8,651	8,340
Total Money Required by Borrower	79,723	83,791	79,723
Total Amount in Savings	**$95,000**	**$95,000**	**$95,000**
- Downpayment on House	-64,600	-68,000	-64,600
- Total Closing Costs	-6,783	-7,140	-6,783
- Escrow Account (3 mos. PITI)	-8,340	-8,651	-8,340
- Downpayment on Car	0	0	0
- Reduction in Credit Card Balance	0	-5,000	-5,000
Savings Left after House Purchase	$15,277	$6,209	$10,277
Do They Have Enough Savings	Yes	Yes	Yes