

Feasibility and Implementation of New Housing Finance Ideas in Canada



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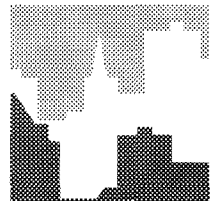
FEASIBILITY AND IMPLEMENTATION OF NEW HOUSING FINANCE IDEAS IN CANADA

AUTHOR

James E. Pesando*

***Professor of Economics and Director,
Institute for Policy Analysis, University
of Toronto. This paper is prepared as a
background document for the Canadian
Housing Finance Conference to be held
at the King Edward Hotel in Toronto on
October 31st and November 1st, 1990.**

The views expressed in this paper are those
of the author and do not necessarily reflect
those of Canada Mortgage and Housing
Corporation.



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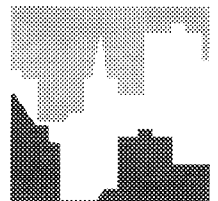
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EXECUTIVE SUMMARY

1. Two particularly difficult problems confront prospective homebuyers in the 1990's:

- (1) sharply higher prices in many markets, which make minimum down-payment requirements **and** carrying costs more onerous; and
- (2) volatile interest rates, which force buyers to speculate on the future course of interest rates and which create the risk that buyers will face sharply higher interest rates on mortgage renewal dates.

In this paper, I review recent proposals designed to solve these and related problems, and thus to improve housing accessibility.

2. To begin, I would emphasize the **divergence** in the several proposals. Some observers, for example, argue that the term to maturity of traditional mortgages must be lengthened in order to allow borrowers to lock-in "low" interest rates for a longer period of time, while others argue that adjustable rate mortgages should be promoted. Some argue that steps should be taken to insulate the mortgage market from developments in the money and capital markets, while others would harness the forces of competition in these same markets to promote both innovation and improved accessibility.

3. I review the pros and cons of **five** broad initiatives that have been proposed to improve accessibility:

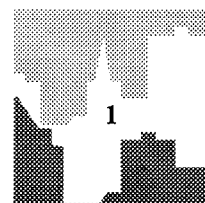
- (1) modify NHA insurance to allow 95 percent loan-to-value ratios;
- (2) expand the sources of mortgage finance, by (i) allowing buyers access to their RRSP funds, (ii) accelerating the pace of securitization, and (iii) promoting equity-sharing arrangements with non-occupant investors;

- (3) promote new mortgage instruments, such as adjustable rate mortgages (ARM's), index-linked mortgages (ILM's), and mortgages with renewal protection;
- (4) devise an institutional means to (i) insulate the mortgage market from fluctuations in the money and capital markets, or (ii) meet housing finance needs through contract savings, or (iii) allow the federal government to borrow on behalf of Canadians seeking housing finance; and
- (5) explore the possibility of land-leasing and lease-to-purchase as a means of reducing cost barriers.

4. To most economists, the mortgage market in Canada is seen as an integral part of an efficient capital market. In an efficient market, risk can be repackaged, but not eliminated. This recognition is important, for example, in assessing initiatives designed to protect homebuyers from the risk that mortgage rates might be sharply higher at mortgage renewal dates. If, for example, mortgage lenders were to provide borrowers with an option to extend the term at the original interest rate, or to place a cap on the size of any interest rate increase, lenders would need to be compensated for assuming this risk.

5. If a policy initiative involves the provision of implicit or explicit subsidies, program targeting and cost containment become more important in light of the federal government's stated policy of fiscal restraint.

6. Each proposal has both strengths and weaknesses. There is no panacea for housing accessibility problems. In my opinion, certain initiatives are particularly promising.



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- (1) Mortgage-backed securities (securitization) represent the most promising means of introducing new mortgage instruments designed to shift interest risk from the borrower to a third party, at a minimum cost to the borrower. Alternatives include, for example, a 10-year mortgage with a fixed interest rate for 5 years, with the to-be-determined interest rate for the second 5 years to be subject to a cap of (say) 2 percent in excess of the initial mortgage rate. (Just recently, Royal Trustco Ltd. introduced a 10-year mortgage which is fully open after 3 years subject to a 3-month interest penalty. This mortgage, which represents an important innovation, is to be funded through an issue of mortgage-backed securities guaranteed under the National Housing Act.)
 - (2) Allowing first-time buyers to use their RRSP funds for downpayments would improve accessibility, and is unambiguously attractive from a housing policy perspective. However, for this initiative to be workable, concerns must be resolved regarding the income security of registered retirement savings, and the parallel treatment of RRSP holders and members of employer-sponsored pension plans.
 - (3) To reduce the uncertainty regarding the future path of nominal interest rates, the "average interest rate mortgage" or AIRM may merit consideration. Instead of taking out a \$100,000 mortgage over 5 years, the borrower would take out a \$20,000 one-year mortgage at the one-year rate, a \$20,000 mortgage at the 2-year rate, and so on. The result would be to smooth the impact of volatile interest rates on the required stream of mortgage payments.
 - (4) ILM's have the potential to reduce risk, and thus to provide interest saving to the borrower. The exceptionally high (implicit) real interest rates on competing instruments, the small and uneven product flow, and the lack of a timely payment guarantee have limited the success, to date, of ILM's. Whether individual borrowers would be attracted to ILM's remains unknown, although the likelihood would increase if the existing program were improved so as to realize greater cost saving.

I THE CANADIAN SYSTEM OF HOUSING FINANCE

1. THE EFFICIENCY OF THE MORTGAGE MARKET

Over time, and helped by government initiatives and de-regulation¹, the mortgage market has become an integral part of the Canadian capital market. The capital market, in turn, is deemed by most observers to be an efficient mechanism for the allocation of financial capital. Competition among mortgage lenders, as well as competition provided by competing investment outlets, ensures that the risk-return features of mortgage loans are in line with those of the market as a whole. This may not have been true historically, but appears to be the appropriate framework in which to assess the mortgage market in the 1990s.

There are several important implications that follow from the assumption that the mortgage market is an integral part of an efficient capital market.

- (1) In an efficient market, borrowers who constitute equal risks obtain loans on the same terms. Borrowers who represent greater risks obtain loans at commensurately higher rates and/or more restrictive terms. Further, mortgage borrowers as a group are neither discriminated against nor favoured in relation to other borrowers.

An important implication, in an efficient market, is that risk can be repackaged, but not eliminated. There is no "free lunch."

Borrowers seeking to take out high-ratio mortgages will – in the

absence of a government subsidy – pay for any increase in default risk, regardless of whether they opt for mortgage insurance (at market prices) or for second or third mortgages with commensurate premiums in the mortgage rate.

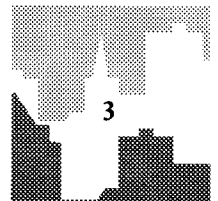
- (2) For many years, economists have drawn attention to the limitation of the equal-payment mortgage (EPM) in an inflationary climate. The graduated-payment mortgage (GPM) or the index-linked mortgage (ILM), for example, allow nominal mortgage payments to increase over time, thereby relieving the G.D.S. (gross debt service) constraint. In light of the fixed costs associated with product innovation, there **may be** an argument for the government's taking the initiative in introducing new mortgage instruments, perhaps through direct lending.

On the other hand, there has been **substantial** innovation in the mortgage instrument in response to the new environment of high and volatile interest rates². If the demand for a mortgage product exists at a **commensurate** price, the presumption of many is that the market will supply it.

Economists and policy-makers alike, for example, may have overestimated the potential demand by borrowers for deferred interest mortgages. A like concern may

¹ These include, for example, the introduction of mortgage insurance in 1954, the 1967 revisions to the Bank Act, and the 1969 revisions to the Interest Act.

² Most recently, and clearly influenced by demographic considerations, reverse annuity mortgages have been introduced in selected Canadian housing markets.



exist with regard to the government's initiative to provide mortgage interest rate insurance through the Mortgage Rate Protection Program.

- (3) Because the mortgage market is fully integrated with the capital market as a whole, shocks – including international shocks – to the overall level of interest rates or the conduct of monetary policy are quickly transmitted to the mortgage market. The mortgage market **cannot** be insulated from such shocks and remain an integral part of the Canadian capital market. In an integrated market, **all** interest rates move in tandem, as lender and borrower activities ensure that (after adjusting for risk) interest rates on competing instruments are equalized.

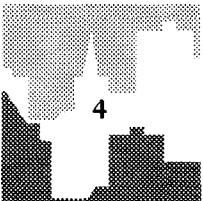
2. FEATURES OF THE MORTGAGE MARKET TODAY

The following assumptions should serve as a plausible guide to mortgage market conditions in the foreseeable future:

- (1) **real** interest rates (i.e., market rates net of inflation) will remain high;
- (2) interest rates will remain volatile (although not so volatile as in the early 1980s);
- (3) loan-to-value ratios will be lower than the levels that prevailed prior to 1982, unless there is an explicit change in government policy;
- (4) maximum G.D.S. ratios will continue to constrain potential buyers, due to sharply higher house prices;
- (5) the long-term inflation rate will average 5 percent or less over the next 10 to 15 years; and
- (6) in some markets (most notably, Toronto and Vancouver) where

real house prices have risen sharply, real prices will be vulnerable to a future decline.

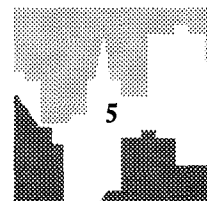
- (1) **Real interest rates** remain high by historical standards as evidenced by the data contained in Table 1. The real interest rate on 5-year conventional mortgages, at present, is around 10 percent. Further, there is no evidence to suggest that real interest rates will soon fall towards their historical average.
- (2) **Interest Rates** are likely to remain volatile relative to historical standards. The Federal Reserve Board in the United States and the Bank of Canada are unlikely to return to their pre-1979 policies of interest rate smoothing, and continued shocks to the international monetary system can be anticipated.
- (3) Historically, CMHC has sought to improve the access of qualified borrowers to homeownership by providing them with access to **high-ratio mortgage loans**. Yet CMHC stopped insuring mortgages with loan-to-value ratios in excess of 90 percent in 1982, and the reported importance of very high-ratio mortgage loans has declined sharply (Table 2).
- (4) Because of (i) high home prices and (ii) high mortgage rates, many potential buyers are constrained by the G.D.S. ratio in their ability to take on mortgage debt.
- (5) Economists cannot, of course, predict the **long-run inflation rate** with confidence. Nonetheless, the consensus view is that the inflation rate will average 5 percent or less over the next 10 to 15 years. This fact has two implications. First, when combined with the present level of nominal interest rates, it confirms that **real** mortgage rates are indeed high. Second, if house prices are likely to increase at the inflation rate, the potential for price appreciation to secure deferred interest is less than in the higher inflationary climate of the late 1970s.



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- (6) In certain markets, such as Toronto and Vancouver, real house prices have risen sharply. Although significant price corrections are occurring (thus serving as a reminder of the volatility of prices), real prices remain very high by the standards of the 1970s and 1980s. In central Toronto, for example, real house prices in 1985 were no higher than in the boom year of 1974 (Figure 1). Yet real house prices have risen dramatically since 1985, appreciating by more than 100 percent through 1989. The possibility of a decline, perhaps slowly, in the **real** level of prices in many markets must be seen as a real possibility.

3. CHARACTERISTICS OF THE RESIDENTIAL MORTGAGE MARKET THAT ARE DESIRABLE FOR THE 1990s

The residential mortgage market is an integral part of an efficient capital market. The capital market, in turn, promotes economic efficiency by ensuring that financial capital is allocated and priced in accordance with risk-return criteria. To facilitate competition among mortgage lenders, and to remove regulatory obstacles that may inhibit competition, are the objectives of public policy suggested by economic analysis.



II INITIATIVE: MODIFY N.H.A. INSURANCE TO ALLOW 95 PERCENT LOAN-TO-VALUE RATIOS

ITEM

It has been proposed that NHA lending terms be eased in order to improve accessibility. In particular, the downpayment requirement could be reduced from 10 to 5 percent, so that the loan-to-value (LTV) ratios could rise to 95 percent. This initiative would require a modest increase in the G.D.S. ratio, to accommodate the attendant increase in housing debt. If the insurance premiums for 95 percent LTV ratios have an element of potential unfunded risk within the self-financing Mortgage Insurance Fund, the scope of this initiative could be contained by targeting the programme to, say, first-time buyers of affordable homes. The latter could be defined as homes that sold for two-thirds or less of the average price.

PROS

This initiative would improve accessibility, particularly for households with relatively modest savings but with incomes sufficient to carry additional debt. If introduced, the initiative would increase the number of potential first-time buyers, and produce a one-time-only shifting forward in the aggregate effective demand for housing.

CONS

The notion that households at the margin be offered incentives to enter the owner-occupied market merits critical scrutiny. This scrutiny is particularly important at the present time, in light of the dramatic run-up in real house prices in many markets together with demographic trends that are less favourable to housing. Mortgage defaults tend to occur when housing markets are already depressed, and the "overhang" of foreclosed properties tends to exacerbate market weakness. The destabilizing role of mortgage defaults merits consideration when assessing the arguments for increasing the maximum LTV ratio.

III INITIATIVE: EXPAND THE SOURCES OF MORTGAGE FINANCE

1. ALLOW FIRST-TIME BUYERS ACCESS TO RRSP FUNDS

CMHC, the Mortgage Insurance Company of Canada (MICC) and the Canadian Real Estate Association (CREA) have all proposed that first-time buyers be allowed, in effect, to use RRSP funds as a downpayment.³ The key features of the CMHC proposal are as follows:

- (a) RRSP funds to be used as a downpayment and to be secured by a deferred-payment mortgage (DPM), to be administered by a financial institution;
- (b) the ratio of "traditional" mortgage financing to the purchase price not to exceed 90 percent – so that DPM (if the only "downpayment") would have to equal at least 10 percent of the purchase price;
- (c) the DPM to earn interest at the prevailing market rate, but with **no** periodic payments, so that interest would be fully capitalized into the principal;
- (d) the initial principal and the capitalized interest of the DPM to be insured against default; and
- (e) the DPM to be retired at the **earliest** of (1) 20 years, (2) the sale of the property, or (3) the individual's attaining age 71.

In the MICC suggestion, the RRSP funds would be blended with a traditional mortgage, with the combined loan-to-value ratio not to exceed 95 percent. The RRSP loan, again, would be non-interest accruing.

The return on the RRSP loan would be the **lesser** of (1) the accrued interest on the loan and (2) the pro rata increase in the value of the property.

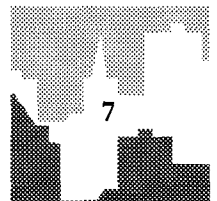
In the CREA proposal, RRSP funds would also serve as a source of mortgage finance. In this proposal, however, the homebuyer would pay interest on the RRSP loan (although interest payments might be deferred for an initial period of two years). In the CREA proposal, unlike the others, the RRSP loan would not be insured.

The CMHC and MICC proposals, in effect, allow the individual to reconfigure the time path of mortgage payments by the use of RRSP funds. Although both proposals refer to an RRSP "mortgage," the fact that no interest or amortization payments are required allows the RRSP funds to serve, in effect, as a downpayment.

There are many variants to the basic proposal. In the United States, President Bush and the Senate are considering – as part of the HOPE initiative and The National Affordable Housing Act, respectively – a proposal to permit an individual to use his/her Individual Retirement Account (IRA) to invest in a principal residence under the U.S. Internal Revenue Code. The IRA would either take on equity position in the home, or provide a loan to be used for downpayment purposes. In the former case, the return to the IRA is the pro rata increase in the price of the home. In the latter case, the loan is amortized and repaid over a fixed period of time. In both cases, the maximum amount of IRA funds that can be withdrawn is \$10,000.⁴

³ At present, self-mortgaging with RRSP funds is primarily intended to improve investment returns. If RRSP funds are invested, say, in a mortgage fund rather than the holder's own mortgage, there will be an annual investment management fee in excess of one percent. (At present, the Royal Trust "M" Fund levies an annual management fee equal to 1.5 percent.) Recent innovations, by FirstLine Trust Company with its "Partner Mortgage" (for example), have sought to expand these investment advantages to individuals who have more modest amounts in their self-directed RRSP's.

⁴ In high cost areas, the figure can be increased.



PROS

The potential advantage to prospective homebuyers is readily apparent from the following numerical example, adapted from CREA.

Suppose an individual can target \$3,000 per year of **pretax** income towards saving for a downpayment. Suppose, as well, that the individual faces a combined federal-provincial tax rate of 40 percent, and that the market interest rate is 10 percent.

If the individual saves **outside** an RRSP, he/she will save \$1,800 (i.e. 60 percent of \$3,000) of after-tax dollars each year. He/she will earn the after-tax interest rate of 6 percent. After 5 years, the accumulated saving for the downpayment will equal \$10,150.

If the individual saves **inside** an RRSP, he/she will save \$3,000 per year and will earn the before-tax interest rate of 10 percent. After 5 years, the accumulated savings for the downpayment will equal \$18,322, which is an increase of \$8,172. If these RRSP funds were used to provide a mortgage loan (a surrogate downpayment), the individual would have the opportunity to **continue** to earn the pretax interest rate, and the building of retirement security would be enhanced.

If the individual saves inside the RRSP and liquidates the RRSP in order to fund a conventional downpayment, he/she will have \$10,993 (i.e. 60 percent of \$18,322) to apply towards the purchase of a home. This represents an increase of \$843 relative to the alternative of saving outside the RRSP.

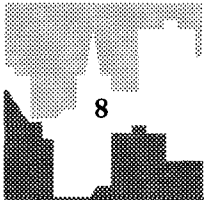
CONS

Allowing first-time buyers to use their RRSP's to fund downpayments is unambiguously attractive from the perspective of improving accessibility. The major concerns with the proposal relate to its implications for pension and tax policy. These concerns include the following:

- (1) Under the Income Tax Act, a principal residence is not a qualified RRSP

investment. Unless the Act is changed, individuals could not simply use RRSP funds as a downpayment, and set the return to the RRSP equal to the pro rata increase in the price of the home.

- (2) If the Income Tax Act were changed to allow RRSP funds to be used as a downpayment, the issue would arise as to whether the anticipated return to the RRSP is commensurate with the risk that the investment represents. If not, a trustee could not approve the investment.
- (3) If the use of RRSP funds for a self-mortgage proves to be popular, then members of employer-sponsored pension plans, **whose RRSP limits are reduced by virtue of their participation in the employer's plan**, will want a parallel opportunity.
- (4) If RRSP funds earn a beneath market rate of return (for a given level of risk), there will be a loss in tax revenues as a result of the smaller size, other things equal, of the accumulated funds at the date of annuitization, and hence the smaller size of the (taxable) annuity payments so created. This is a concern, for example, in the MICC proposal, where the return is the **lesser** of (1) the accumulated interest or (2) the pro rata increase in the price of the home.
- (5) To a maximum of 18 percent of earnings, the new schedule of RRSP ceilings is: 1990 – \$7,500; 1991 – \$11,500; 1992 – \$12,500; 1993 – \$13,500; 1994 – \$14,500; 1995 – \$15,500; 1996 – \$15,500 (indexed to average industrial wage growth). In addition, individuals can carry forward unutilized RRSP contribution room for up to 7 years, commencing in 1992. If the RRSP initiative is adopted, financial planners will undoubtedly advise first-time buyers to “top up” their RRSP's, exploiting any unused contribution room, to ensure that the individual can take out the maximum self-mortgage.



2. ACCELERATE THE PACE OF SECURITIZATION

By increasing liquidity, mortgage-backed securities (MBS) represent a vehicle for lowering mortgage rates, for a given level of risk. In addition, MBS represent a vehicle for promoting (or facilitating) innovation in the mortgage product.⁵ These potential gains, in large part, stem from the substitution of investor funds for intermediated consumer savings as a means of funding mortgages.

At present, the dollar volume of MBS outstanding is (about) \$3 billion. Proportionately, this is far smaller than the corresponding market in the United States. This is due, in large part, to the fact that traditional mortgage lending institutions in Canada do not appear anxious to securitize and then unload a significant portion of their mortgage portfolios. These institutions prefer their traditional role, which is to attract deposits and then to direct the funds so obtained into mortgages or other assets.⁶ These institutions, to date, do not appear to be attracted to the role of mortgage broker.

The theoretical benefits of MBS are likely to be realized only if the market exists on a much larger scale. The question is whether, as a matter of policy, this market should be promoted in a major way. Could the traditional mortgage market in Canada be supplemented – or even replaced – by increased reliance on mortgage brokers, who would originate and service mortgage loans that would be securitized and sold to direct investors? (The latter could include

traditional lenders!) By reaching new funding sources (investors) and by facilitating innovation, the interest cost of mortgage finance could be reduced, and the product better tailored to the needs and desires of borrowers. I leave this issue for general discussion.

3. PROMOTE EQUITY SHARING ARRANGEMENTS WITH NON-OCCUPANT INVESTORS

ITEM

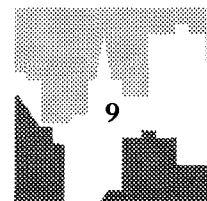
A homebuyer could enter into an agreement with a non-occupant investor in which the buyer trades away a **portion** of the future price appreciation of the home in return for an interest rate buy-down for all or part of the downpayment. A non-occupant investor might agree to buy a reduction of (say) 2 percentage points in the mortgage interest rate, in return for 50 percent of the pro rata increase in the price of the home.⁷ Alternatively, a non-occupant investor could provide all or a portion of the downpayment in return for a share of the anticipated price appreciation and perhaps other considerations.

Canadian Home Equity Limited (CHEL) has proposed that a prospective homeowner, an investor and CHEL participate in an ESL arrangement designed to improve accessibility of households with adequate income to purchase a home, but no downpayment. The investor – not the buyer – makes the downpayment, CHEL arranges the mortgage, the homebuyer

⁵ For example, MBS could be organized as derivative pass-through structures in which mortgage payments are made to investors holding tranches representing securities that differ by maturity, such that all principal payments and prepayments are directed, in sequence, to the shortest maturity class until that class is paid off. Such innovations, in theory, should lower mortgage rates, by ensuring that risks are borne by investors at the lowest price. These derivative pass-through securities, in theory, could facilitate the issuance of longer-term mortgages, by targeting prepayment risk to those investors who are most willing to bear it.

⁶ In Canada, unlike the United States, MBS are **not** needed to ensure a balance of the demand and supply for funds in different geographic markets, since many Canadian lenders serve the national market.

⁷ Consider, for example, the case in which the third party buys down the mortgage rate. Suppose that all houses appreciate at the same rate as inflation, which is **known** to be 5 percent. Suppose, as well, that the prevailing mortgage rate is equal to 14 percent. In a competitive market, a third party could buy down the mortgage rate by 2 1/2 percent in return for 50 percent of the (pro rata) capital gain. The third party could buy down the mortgage rate by 5 percent in return for 100 percent of the (pro rata) capital gain. The borrower would pay a reduced mortgage rate of 11.5 or 9 percent, as appropriate.



makes monthly payments to CHEL in **excess** of the required mortgage payments, and these excess payments are divided equally between the investor and CHEL. The homebuyer, CHEL and the investor share in the capital appreciation of the home, and the homebuyer has the option to buy the home (and refinance the purchase) at a price determined by a known formula. In its present form, young professionals would appear to be the natural target group for the CHEL initiative.

PROS

If a non-occupant investor buys down the mortgage rate or finances the downpayment, accessibility will improve. Households which have saved the requisite downpayment but which could not carry a mortgage at full market rates, and households which have adequate incomes to support a mortgage but which do not have the requisite downpayment, both could benefit from this type of initiative.

CONS

The limitation from the borrower's perspective focuses on the ownership issue. Because the third party investor shares in the anticipated capital gain, the investment rationale for ownership is compromised. This is especially important since the capital gain on a principal residence is free of tax. By transferring the proprietary rights to a portion of the anticipated capital gain to the third party (for whom the gain is presumably taxed), the tax advantage accorded the principal residence is significantly reduced. There may, in addition, be a moral hazard problem: to the extent that the owner receives only part of any capital gain, he/she may devote less effort to maintaining the dwelling, or to obtaining the best possible price in the event of sale. These considerations would be ameliorated, but not eliminated, if the owner anticipates that he/she would exercise an option to buy out the third party interests at some point in the future. In addition, as evidenced by the proposal advanced by CHEL, there may be additional intermediation costs as a result of the role played by CHEL vis-a-vis the homebuyer, the investor, and the mortgage lender.

IV INITIATIVE: PROMOTE NEW MORTGAGE INSTRUMENTS

1. ADJUSTABLE RATE MORTGAGE (ARM)

With an ARM, a homebuyer takes on mortgage debt with a floating rate. To protect against the possibility of an excessive rise in required mortgage payments as the result of a sharp rise in market interest rates, the ARM can contain an annual interest rate cap of (say) 2 percent and a lifetime cap of (say) 6 percent. (There may, in addition, be annual and lifetime floors on the size of any interest rate reduction.)

It is important to recognize that the ARM simply “repackages” interest rate risk, and does not reduce it. Suppose, for the sake of argument, that an ARM is introduced with **no** annual lifetime cap (or floor). Then, **on average**, the interest rate on the ARM will be **less** than the interest rate on a fixed rate mortgage. This is **solely** due to the fact that the term structure of interest rates, **on average**, is upward sloping: that is, investors require a higher interest rate, other things equal, the longer is the term to maturity of the debt instrument. At certain times, such as the present, the term structure is **negatively** sloped: short-term rates **exceed** longer-term rates. At such times, the ARM would carry an interest rate in **excess** of the interest rate on a fixed-term mortgage. (The ARM is, in effect, an “instant term” mortgage.)

If annual and lifetime caps on the size of any interest rate increase are added to the ARM, the lender would need to be compensated. Through competitive forces, the premium added to the interest rate on a pure

ARM would equal the amortized value of the options implicit in the annual and lifetime caps. (The development of pricing formulas for such options has become increasingly popular in recent years!) The homebuyer, in effect, pays the market price for insuring against catastrophic increases in the mortgage rate.⁸ If the ARM includes annual and lifetime floors, the lender would **compensate** the borrower. The appropriate compensation would, again, be the amortized cost of the corresponding options, adjusted downward for the value of any prepayment privileges which remain with the borrower.

If the ARM contains symmetric floors and caps, it is likely that the interest rate would be higher than the interest rate on a pure ARM. In effect, the options with respect to rate increases are likely to be more valuable than the options with respect to rate decreases. If the ARM contains only caps, this would undoubtedly be the case. In any event, the borrower bears the risk of any interest rate changes that occur within the unprotected range. It is the willingness of the borrower to bear this risk that, in effect, provides the potential cost savings relative to a fixed rate mortgage. Again, there is no “free lunch” in an efficient capital market.

In theory, there is reason to believe that the ARM could meet the preferences of **some** borrowers. Variable rate mortgages (VRM) are eligible for NHA insurance, and the ARM is simply a variant of the VRM. From this perspective, the relevant question – again – is why the market has not innovated in this direction. There is certainly no

⁸ If mortgage rate insurance were sold in competitive markets, with the same protections offered by the caps in the ARM, the insurance premium would equal the amortized price of the indicated options.

reason to **discourage** ARM's as a matter of public policy. However, it is not clear how much is gained by the borrower as the result of this repackaging of risk.

There are, of course, other mortgage designs that might – in theory – prove attractive to potential borrowers. To reduce the uncertainty regarding the future path of nominal interest rates, for example, the “average interest rate mortgage” or AIRM may merit consideration. Instead of taking out a \$100,000 mortgage over 5 years, the borrower would take out a \$20,000 one-year mortgage at the one-year rate, a \$20,000 mortgage at the 2-year rate, and so on. The result would be to smooth the impact of volatile interest rates on the required stream of mortgage payments.

2. INDEX-LINKED MORTGAGE (ILM)

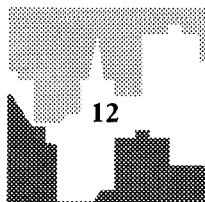
ILM's were introduced into the Canadian capital market by CMHC to finance Co-operative Housing on a 5-year trial basis in 1985. ILM's bear a real interest rate that is fixed over the 30 to 35 year life of the mortgage, and provide for payments to rise over time at the inflation rate less 2 percent (i.e., have a **real** downward tilt of 2 percent per year). The book value of principal plus accrued interest is insured by CMHC.

The ILM has two major advantages relative to other mortgage instruments. First, because the **real** interest rate is set in advance, inflation risk is **eliminated**. This eliminates any windfall gains by one party at the expense of the other. Second, the inflation adjustment – all or in part – can be capitalized into the principal, to alleviate the “tilt” problem (and thus the initial pressure on the G.D.S. ratio) of the traditional mortgage in an inflationary climate. (In view of the fact that individual house price increases and the overall inflation rate are not highly correlated in the short-run, less than full capitalization of the inflation adjustment is presumably required to contain the risk to the lender.)

Since their inception, ILM's have been issued at real interest rates that have ranged from a low of 4.6 percent to a high of 5.5 percent. These real interest rates are higher than 4.0 to 4.5 percent, which was the initial target range for the programme. Two points merit note. First, the observed real interest rates have been higher than anticipated, but so have the **implicit** real interest rates on traditional mortgage instruments. Second, the experimental nature of the initial ILM programme, together with a readily identifiable set of limitations, has served to limit the attractiveness of ILM's to the investing community. In turn, this has served to limit the extent to which the real rates on ILM's can fall relative to the **implicit** real rates on competing mortgages and debt instruments.

Between 1986 and 1989, the implicit real interest rate on 5-year conventional mortgages averaged 7.11 percent (Table 1). At present, the implicit real interest rate on 5-year conventional mortgages is about 10 percent. This is far above the real interest rate on the most recent ILM, which is 5.5 percent. Five-year conventional mortgages and ILM's are, of course, quite distinct instruments, and the implicit real interest rate on the former may be imprecisely measured. Nonetheless, the above comparisons **are** suggestive of the significant cost savings that can be anticipated on ILM's relative to traditional mortgage instruments.

ILM's were introduced on an experimental basis, for five years, in 1985. The very fact that the programme is experimental creates uncertainty, which may be especially detrimental in light of the complexity of the instrument and the concern of potential investors about the future liquidity of ILM's. To date, about \$900 million in ILM's have been issued. This is not large compared to the volume of funds that a single large pension fund would need to place in a given year. Equally important, because ILM's are project-specific, the timing and size of the issues are not regular-



ized. However, a large and regular product flow may be necessary if more (and larger) investors are to be enticed into the market.

PROS

In principle, there are substantial cost savings associated with the use of an ILM compared to a traditional mortgage. In addition, by capitalizing a portion of the inflation adjustment, the stream of mortgage payments under an ILM can be structured to rise over time, thus relieving pressure on the G.D.S. ratio.

CONS

The ILM is a quite novel instrument that requires the education of both borrower and lender alike. It is not clear that individual homebuyers would be comfortable taking out an ILM. To the extent that the anticipated cost saving with an ILM can be increased, their potential appeal will obviously rise. From a lender perspective, the capitalization of (a portion of) the inflation component represents an increase in risk. If this portion is fairly modest, however, the additional risk should prove manageable.

3. MORTGAGES WITH RENEWAL PROTECTION

In October 1979, the Federal Reserve Board in the United States decided to de-emphasize its traditional concern with the stability of interest rates. As a consequence, interest rates in the United States have become much more volatile, and this volatility has – through international linkages – been transferred to the Canadian capital and money markets.

Potential homebuyers in Canada have thus become, through no choice of their own, speculators on the future course of interest rates. A particular concern to homebuyers is the possibility that interest rates might be substantially higher on their mortgage renewal dates. Those who are lucky, and find that the renewal has declined, are envied by those who find the opposite.

There are two broad solutions to this problem. In the first, the size of any interest rate increase at the renewal date is capped, by an explicit agreement with the mortgage lender. In the second, there is no cap on any interest rate increase, but deferral (of interest) provisions are included in the mortgage contract in order to protect the borrower from too large an increase in mortgage payments.

PROS

Prospective buyers may be attracted to the possibility of insuring against an extraordinary increase in mortgage rates at their renewal dates. However, if this risk is to be shifted (say) to mortgage lenders, lenders will require appropriate compensation.⁹ In effect, interest rates on mortgages which contain the renewal cap would be higher, other things equal, to compensate for this risk-shifting. If market rates are, indeed, quite volatile, this option will have considerable value, and the interest rate premium could be significant.

The potential contribution of mortgages with deferral provisions in the event of sharp interest rate increases is also apparent. Since there is no cap on the interest rate, there is no shifting of interest rate risk and

⁹ To insulate themselves from this risk, traditional mortgage lenders would need to attract deposits with the same characteristics; that is, a fixed interest rate for a designated term, and to-be-arranged interest rate **subject to a cap** for an additional term. The interest rate premium required to attract depositors would be reflected, in turn, in the premium built into the mortgage rate. It is possible that financial intermediaries would be unable to attract such deposits. A more likely response would be for mortgages with a renewal cap to be packaged into mortgage-backed securities and sold directly to investors. The actual mortgage instrument could take the form, for example, of a mortgage with a fixed rate for 5 years and a floating rate for 5 additional years, with the latter rate subject to the indicated cap.

hence no premium required in the mortgage rate. So long as the deferral provisions did not raise the loan-to-value ratio to an unacceptably high level, lenders would not need to concern themselves with the additional default risk. Alternatively, CMHC could insure under the National Housing Act mortgages which contained "standard" deferral provisions.

CONS

The mortgage rate premium necessary to compensate the lender for capping any increase in the mortgage rate might serve as a deterrent to many – if not most – borrowers. Since the income of the typical borrower is likely to have increased between the initial date and the renewal date of the mortgage, it is likely that a ceiling of (say) 2 or 3 percent on the interest rate increase would prove satisfactory to most borrowers.

The larger is the "deductible", the smaller would be the size of the required premium for risk-shifting. One should note, however, that the response to the Mortgage Rate Protection Program has been less than overwhelming. The apparent lack of enthusiasm may suggest that borrowers are not prepared to pay the market price of shifting interest rate risk to a third party.

A similar comment applies to the mortgage with an interest deferral option. In theory, this type of mortgage could be offered by a traditional mortgage lender, if there were adequate demand. Lenders may be concerned about default risk if a significant portion of interest payments are deferred. In this context, one should note that a period of unexpectedly high interest rates may coincide with a period of pronounced weakness in the housing market.

V INITIATIVE: ALTERNATIVE HOUSING FINANCE SYSTEMS

1. SEPARATE THE MORTGAGE MARKET FROM THE CAPITAL MARKET AT LARGE

At present, the mortgage market in Canada is a fully integrated part of an efficient capital market. To an economist, this is a desired result. It ensures, at each point in time, that savings flows are allocated to their most productive ends, as evidenced by market interest rates. There is, however, an unfortunate byproduct. Since housing markets are quite sensitive to interest rate movements, the impact of a sharp increase in market interest rates is likely to fall disproportionately on the housing sector. If stability in the housing sector is made an **independent objective** of policy, then initiatives designed to insulate the mortgage market from developments in the capital market at large are worth exploring.

The insulation of the mortgage market from the effects of monetary policy would require the creation of a separate and distinct mortgage instrument, perhaps delivered through a separate and distinct institution.

In Canada, the most likely form for such an innovation would be a savings-lending contract, in which the prospective homebuyer would agree to make periodic deposits, earn a specified and beneath-market rate of interest, and then be eligible for a mortgage at beneath-market rates from the deposit-taking institution.

Frank Oberle, in **Reviving the Canadian Dream**, proposes the creation of a savings-mortgage arrangement in which prospective homebuyers would deposit specified annual

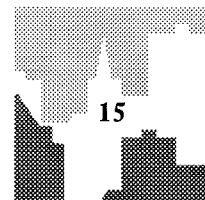
amounts over a period of 5 to 7 years, would earn **less** than the full market interest rates, and would then be eligible for a beneath-market mortgage rate from the deposit-taking institution. The deposits would be tax deductible, would accumulate free of tax, and would incur no tax liability if applied to the purchase of a principal residence.

Fund-A-Home International Inc. in Alberta has set forth a proposal based on the Bausparkassen system in West Germany. In essence, participants would make monthly deposits for four years, and earn interest at a rate of 3 percent. After four years, participants would receive their accumulated funds, **plus** a matching amount from the lender. The latter would bear a beneath-market interest rate as well, at 5 percent, and would be repaid over 7 years.¹⁰

Clearly, a financial institution could offer a contractual savings and loan programme similar to that proposed by Fund-A-Home. The participant would earn a beneath-market deposit rate, and the present value of this rate reduction would be mirrored in the beneath-market loan (mortgage) rate. Because the present value of the two interest rate reductions would be equal, there would be no (gross-of-tax) advantage to the participant. Mortgage or loan payments would be lower, but so would the interest income earned on the accumulating deposits. There is, however, an **implicit** tax subsidy. The participant would pay a reduced tax burden, to reflect the lower interest earnings on the deposit. Since the interest payments on the (beneath-market) mortgage rate are **not** tax deductible, the net result is a tax savings for the participant.¹¹

¹⁰I have not verified whether the interest rates proposed by Fund-A-Home are viable, in the sense that the present values of the two interest rate reductions are equal. The Bausparkassen system in West Germany, which focuses on savings-lending contracts at beneath-market rates, is directly subsidized by the government, so no equality of present values is required for programme stability. The subsidized savings contracts can be purchased by the parents and grandparents of prospective homebuyers, as well as by the homebuyers themselves.

¹¹This type of savings and mortgage contract, while achieving the goal of insulation, would impede the allocative function of the capital market in the following way. Suppose, for example, that the contractual deposit rate is equal to 3 percent for 4 years, and the loan rate is set at 5 percent for the ensuing 7 years. The programme is mature, so that the financial institution is paying interest on deposits while it is simultaneously earning interest on mortgage loans. Suppose that there is a sharp rise in market rates of interest. Since the mortgage rate under this programme is unaffected, funds flow through the intermediary to the mortgage borrowers, who face no incentive to curtail their demand for funds. In this sense, stability is achieved. Yet the uninterrupted flow of funds into the contractual mortgages, at a time when market interest rates have risen, indicates that financial capital – and ultimately real resources – are not being allocated to their most productive use. The latter requires that, at each point in time, financial capital is allocated to that activity which offers the highest prospective return for each level of risk.



Finally, there exists the possibility of promoting new, co-operative financial intermediaries, which would pay beneath-market rates on deposits and charge beneath-market rates on mortgage loans. As noted, this arrangement could provide some tax savings, and (possibly) some savings from a reduction in intermediation fees. Leaving aside a number of practical concerns (such as the issue of solvency regulation), it seems unlikely that such institutions would prosper, given the myriad of ways in which individuals can earn market rates of interest on their savings, unless depositors had a contractual right to a future loan at beneath-market rates. If so, the savings-loan contract would render this initiative similar to the one discussed previously.

2. STAND-ALONE SYSTEM OF CONTRACT SAVINGS

Insulating the system of mortgage finance from the effects of monetary policy is likely to involve savings and mortgage loan contracts, as described in the previous section.

As an independent initiative, there exists the possibility of promoting contract savings arrangements designed to facilitate the task of accumulating funds for a downpayment. Many have **lauded** the “forced savings” element of a mortgage loan, as a means of imposing discipline on the savings habit. Many non-owners might benefit, in a similar fashion, from discipline **imposed** on their saving, targeted for a downpayment. Financial institutions, for example, might offer special deposit accounts for non-owners, and perhaps arrange for the direct deduction of monthly contributions from the depositors’ paycheques. Financial institutions might offer special rates on these accounts, or promise mortgage loans at (slightly) beneath-market rates if the proceeds are used to fund a downpayment.

I leave this issue open to discussion.

3. FEDERAL GOVERNMENT ISSUANCE OF LONG-TERM BONDS TO FINANCE MORTGAGES

If the federal government, with its risk-free credit rating, were to borrow long-term funds and then re-lend these funds in the mortgage market, there would be scope for cost savings. The interest rate on these mortgages relative to the interest rate paid by the government could be set so as to recover the related servicing, administrative, and underwriting costs. The net result would be a reduction in mortgage rates relative to those charged by commercial lenders, but not by so dramatic an amount as suggested by the interest rates on long-term Government of Canada bonds **per se**. In essence, the cost savings would reflect the fact that there would be no normal rate of return to invested capital when the government raises funds directly. For a commercial lender, this normal rate of return would constitute an additional wedge between the borrowing and lending rates.

To the extent that mortgage rates were reduced, this initiative would have an obvious attraction.

The concerns would be as follows:

- (1) If the federal government were to raise funds in significant amounts for this purpose, would the interest rate on **all** new debt issues rise and thus increase the cost of “traditional” government borrowing?
- (2) If the mortgage rates were beneath the levels set by commercial lenders, how would these mortgages be rationed? For example, to all first-time buyers? To a limited number of first-time buyers and, if so, on what priority basis?

VI INITIATIVE: LAND-LEASING AND LEASE-TO-PURCHASE ARRANGEMENTS

Under land-leasing, a homebuyer purchases the house but leases the land. The homebuyer may, in addition, retain an option to buy the land at its market value at the expiration of the lease. Land-leasing serves to lower the overall purchase price, and hence lowers the initial downpayment and/or the initial monthly mortgage payment. In this sense, land-leasing arrangements could serve to promote accessibility.

There are two key questions: (1) the extent to which land-leasing will serve to lower the overall purchase price; and (2) the attractiveness to Canadian homebuyers of land-leasing arrangements, especially in light of the traditional investment motive underlying home ownership.

There are many possible leasehold arrangements.¹² To illustrate the cost savings *per se* (i.e., the present value of any reduced payments), rather than the potential for rearranging the time path of payments, it is useful to focus on the following example. The homebuyer rents the land at a predetermined fixed rent, has an option to buy the land at market value upon the expiration of the lease, and prepays the lease in full at the date of purchase of the home. The predetermined rent is set at **market** rates, and thus contains no subsidy. In this example, the cost saving that arises from the land-leasing arrangement is simply equal to the reversionary interest in the land. This, in turn, is equal to the present value of the anticipated price of the land at the date of the expiry of the lease. If the price of the land is assumed to remain constant in real terms, its present value at the expiry date is equal to its current price discounted by the real rate of interest.

The reversionary interest in the land, which represents the true cost savings, is determined (in the above example) solely by (1) the length of the lease and (2) the real interest rate. The initial savings, expressed as a percentage of the value of the land, of a leasehold arrangement for a variety of real interest rates and lease lengths is set out below:

Length of Lease	Real Interest Rate		
	2%	4%	6%
50 years	37.2%	14.1%	5.4%
75 years	22.6%	5.3%	1.3%
100 years	13.8%	2.0%	0.0%

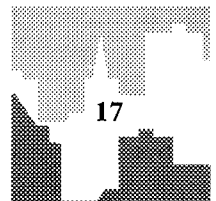
The cost savings are relatively modest. If a (low) real interest rate of 2 percent is used as the discount rate, and if the term of the lease is 50 years¹³, then the leasehold arrangement is 37.2 percent **less** expensive than outright purchase of the land. If the purchase price of the land is equal to 50 percent of the combined price of the home and the land, which is typical in high-cost areas, this initial savings translates into 18.6 percent (i.e., .5 times 37.2 percent) of the overall purchase price. Other examples, based on the figures in the above table, are readily developed. For a given ratio of the land price to the total price, all yield a **lower** estimate of the cost savings as a fraction of the total purchase price.¹⁴

Individuals have two motives when purchasing a home: (1) to consume the housing services so provided, and (2) to invest in the ownership market. The leasehold arrangement, as noted, could be structured to provide the lessee with the option to buy the land at the expiry of the lease. Nonetheless,

¹² For numerical examples of alternative arrangements and the initial cost savings associated with each, see S.W. Hamilton, **Residential Leasehold Estates**, Draft Report prepared for Canada Mortgage and Housing Corporation, May 1990.

¹³ If the initial term of the lease were less than, say, 50 years, lenders might be reluctant to extend mortgage financing. In the United States, for example, the minimum duration of a lease to be eligible for F.H.A. mortgages is 55 years.

¹⁴ If lenders are willing to grant mortgage loans on leasehold arrangements (with prepaid leases) on the same terms as ownership in fee simple, then the cost savings identified above could be realized **either** in the form of a reduced downpayment and/or a lower G.D.S. ratio. If the lease were **not** prepaid, but the predetermined path of rents were the same, the **present value** of the cost savings associated with the leasehold arrangement would be unchanged. The cash flow implication would, of course, differ. If the financing for the prepaid lease is with a traditional mortgage, the payments will be fixed until the maturity date. The annual lease payments, on the other hand, might well be structured to rise over time. In this case, the **initial** payments (mortgage plus lease) required under the annual payment lease would be **less** than those under the prepaid lease. Assuming, for simplicity, that interest rates remain the same when the mortgage is renewed, the total payments under the annual payment lease would eventually exceed those required under the terms of the prepaid lease.



and especially in light of the traditional investment motive for ownership, there remains the question of whether Canadians in large numbers would be attracted to the leasehold concept. I have no basis for disagreeing with the conclusion of S.W. Hamilton, who writes (page 105):

The desire for fee simple ownership and the institutional arrangements that support such desires are strong in Canada. Residential leaseholds are not likely to make major inroads and should, therefore, be used in specialized situations.

The situation in which the federal government releases its own land for moderate income housing might offer the most promising venue for leasing or lease-to-buy arrangements.

In 1967, the Government of Ontario – through its Home Ownership Made Easy (HOME) programme – assisted middle-

income buyers to purchase homes. The province did so by making lots available from its land banks. The typical purchase arrangements involved a 50 year lease, with payments linked to the book value of the land. The HOME programme, modified several times prior to its termination in 1978, serves to highlight a number of issues. These include: (1) the necessity, for political reasons, of ensuring that homeowners, who have the option to purchase their lots, do not reap “unfair” profits by purchasing them at beneath-market prices; and (2) the lending standards (e.g., loan-to-value ratios) applied by commercial lenders to leasehold projects.

Land-leasing arrangements, from government land banks, could presumably be useful for non-profit housing. I do not pursue this issue further, since the focus of this paper is on improved accessibility to the ownership market.

VII A PERSONAL REFLECTION

In my opinion, the following initiatives are the most attractive:

- (1) promote securitization (mortgage-backed securities), to reap the benefits of **both** lower mortgage rates and mortgage innovation;
- (2) promote the potential advantages of the average interest rate mortgage (AIRM);
- (3) explore the mechanics of allowing first-time buyers to use RRSP funds for downpayments; and
- (4) explore the applicability to the homeownership market of ILM's.

The discussions of items (1) and (2) in the text are fairly complete. I offer the following additional comments regarding items (3) and (4).

THE RRSP PROPOSAL

The following would appear to be required if this proposal is to be made workable:

- (1) To satisfy the risk-return criteria for a prudent investor, so that a parallel initiative for employer-sponsored pension plans is feasible, the DPM would have to be insured.
- (2) To contain the insurance risk, the DPM should be backed by a conventional downpayment of 5 percent.
- (3) To limit the scope for self-dealing, the interest rate on the DPM should be set equal to (say) the second mortgage rate at the financial institution that administers the DPM.
- (4) To limit the scope for strategic behaviour, and to contain the costs of any implicit subsidies, there should be (i) a ceiling of (say) \$20,000 on the maximum DPM and (ii) a requirement that funds be held in an RRSP for (say) 12 months before being eligible for use in a DPM.

- (5) To identify the potential demand for DPM's, determine (i) the size of the target population (substantial RRSP saving; relatively modest non-RRSP assets) and (ii) the attractiveness to potential homebuyers of the deferral (full capitalization) of all interest payments.
- (6) To reduce the risks borne by the insurer of the DPM, do **not** limit the insurer's collateral to the pro rata share of the value of the home. Rather, set the insurer's collateral equal to the market value of the home **net** of the first mortgage obligations.
- (7) Review the "triggering" mechanisms for the DPM, with particular attention to the cases where (i) the home is sold and there is a potential claim on the insurer and (ii) the homeowner attains age 71 and the DPM becomes due.

ILM's

The following steps should help realize the potential cost savings of ILM's:

- (1) make a long-term commitment to ILM's under the National Housing Act;
- (2) regularize and increase the size of the product flow (by expanding to encompass other NHA projects);
- (3) simplify the instrument; and
- (4) promote securitization.

The latter, in my opinion, is particularly important. Presumably, this would require a timely payment guarantee. A timely payment guarantee, in any event, would enhance the attractiveness of ILM's to many pension plan sponsors.

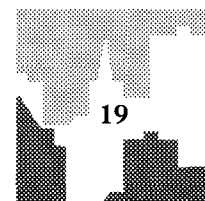


TABLE 1**HISTORICAL INTEREST RATE AND INFLATION DATA,
1954-1987**

	NOMINAL INTEREST RATES		REAL INTEREST RATES ^b		
	5-year conventional mortgage	90-day paper	Inflation ^a	5-year conventional mortgage	90-day paper
1954	6.01	—	0.62	5.39	—
1955	5.88	—	0.15	5.73	—
1956	6.22	3.73	1.49	4.73	2.24
1957	6.85	5.25	3.14	3.71	2.11
1958	6.80	3.16	2.60	4.20	0.56
1959	6.97	5.18	1.14	5.83	4.03
1960	7.18	4.00	1.26	5.91	2.73
1961	7.00	3.37	0.96	6.04	2.41
1962	6.97	4.38	1.21	5.76	3.17
1963	6.97	4.01	1.66	5.31	2.34
1964	6.96	4.20	1.82	5.15	2.38
1965	7.02	5.02	2.46	4.56	2.56
1966	7.66	6.27	3.73	3.93	2.54
1967	8.07	5.84	3.64	4.42	2.20
1968	9.07	6.83	4.02	5.05	2.81
1969	9.83	7.85	4.50	5.34	3.35
1970	10.44	7.34	3.38	7.07	3.96
1971	9.43	4.51	2.80	6.63	1.71
1972	9.21	5.10	4.82	4.39	0.28
1973	9.59	7.45	7.61	1.98	-0.16
1974	11.24	10.50	10.89	0.34	-0.38
1975	11.43	7.94	10.78	0.64	-2.85
1976	11.78	9.17	7.51	4.27	1.66
1977	10.36	7.47	8.01	2.35	-0.53
1978	10.59	8.83	8.90	1.70	-0.66
1979	11.98	12.07	9.15	2.82	2.91
1980	14.32	13.15	10.17	4.14	2.98
1981	18.15	18.33	12.47	5.68	5.87
1982	17.89	14.15	10.79	7.09	3.36
1983	13.29	9.45	5.81	7.48	3.63
1984	13.58	11.19	4.40	9.18	6.79
1985	12.04	9.56	4.00	8.04	5.56
1986	11.20	9.16	4.10	7.10	5.06
1987	11.17	8.39	4.40	6.77	3.99
1988	11.65	9.65	4.1	7.55	5.55
1989	12.05	12.20	5.0	7.05	7.20
1990	14.25	13.71	4.2	10.05	9.51

Source: Bank of Canada *Review*, various issues.

Notes: a. Inflation is measured by the year-over-year percentage change in the average level of consumer price index in each year.

b. Real interest rate is calculated simply as the difference between the nominal interest rate and the rate of inflation in that year.

TABLE 2

LOAN-TO-VALUE RATIOS. LOANS APPROVED UNDER THE NATIONAL HOUSING ACT, 1977-1987

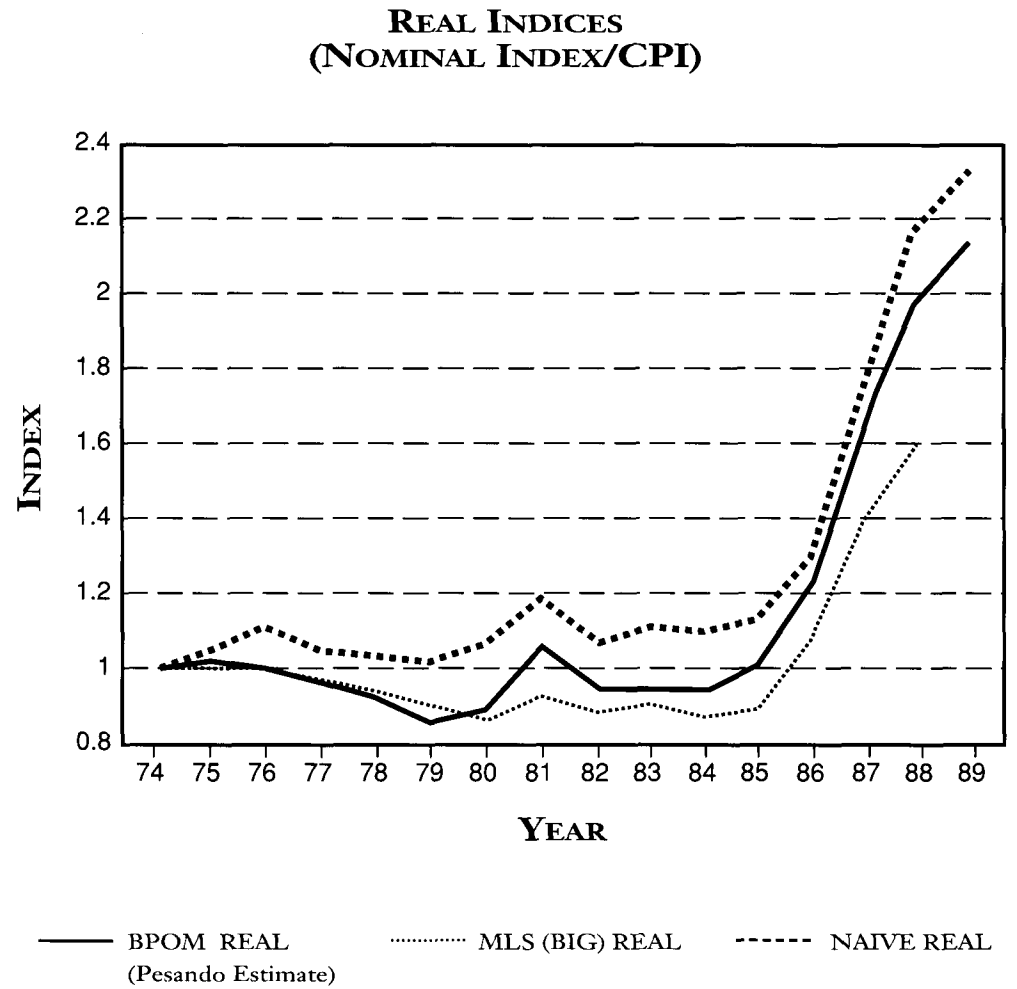
NEW HOUSING													
Loan-to-Value Ratio	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
0-75.0	9.1	6.1	6.0	9.2	23.5	22.7	15.7	16.3	9.7	7.0	8.6	8.8	11.2
75.1-80.0	3.6	2.9	4.7	3.5	6.0	7.5	7.6	7.9	6.0	5.6	5.1	6.6	7.9
80.1-85.0	5.0	4.4	6.4	9.5	13.3	16.9	19.0	15.7	15.5	16.4	14.4	14.7	16.9
85.1-90.0	7.5	8.2	22.9	29.4	18.6	38.0	56.7	57.1	67.6	70.6	71.4	69.7	62.3
90.1-95.0	72.0	76.4	58.5	47.4	37.0	13.9	0.6	2.1	0.9	0.3	0.4	0.2	1.7
95.1 +	2.8	2.0	1.5	1.0	1.6	1.0	0.4	0.9	0.3	0.1	0.1	-	-
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

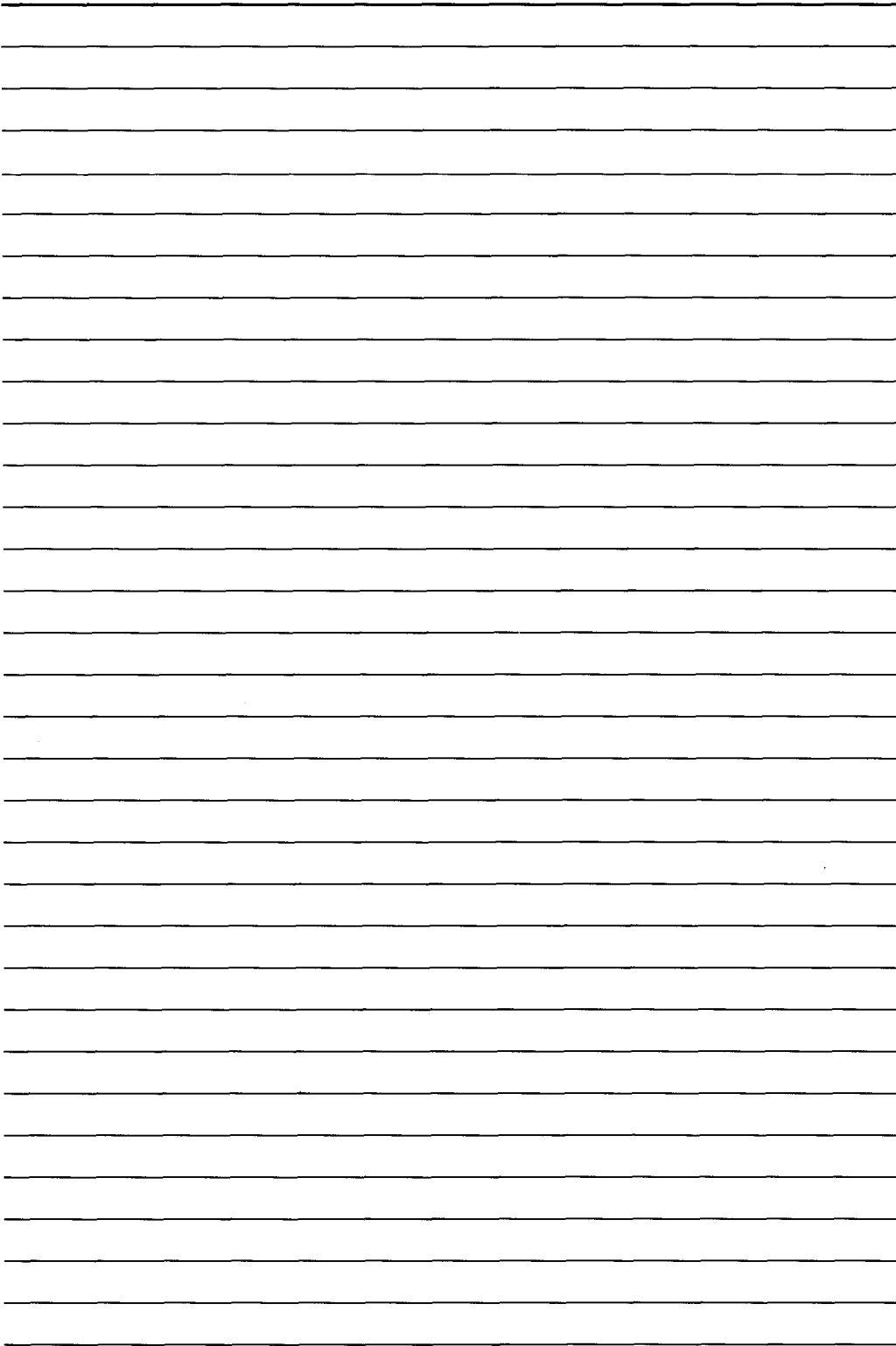
EXISTING HOUSING													
Loan-to-Value Ratio	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
0-75.0	15.4	13.4	13.5	8.4	11.7	16.8	9.1	7.0	5.5	5.4	7.2	6.2	8.3
75.1-80.0	6.6	5.1	5.2	5.3	6.2	11.9	6.4	5.4	4.5	4.1	4.6	5.1	5.4
80.1-85.0	9.9	8.2	8.5	10.1	12.1	22.4	16.0	15.1	14.5	13.8	12.1	12.5	14.3
85.1-90.0	18.2	16.3	19.9	24.1	24.5	35.2	68.0	71.4	75.2	76.6	75.9	76.1	70.0
90.1-95.0	49.6	56.5	52.6	51.8	44.4	12.6	0.4	0.8	0.2	0.1	0.1	0.1	2.0
95.1 +	0.3	0.5	0.3	0.3	1.1	1.1	0.1	0.3	0.1	-	0.1	-	-
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: CMHC, *Canadian Housing Statistics*.

FIGURE 1

**ALTERNATIVE INDEXES OF REAL HOUSE PRICES IN
CENTRAL TORONTO**





This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.