

Mortgage and Home Equity Insurances for Home Owners and Rent Insurance for Tenants

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Abstract

Households face many different kinds of risks that are related to ownership and tenancy. For instance, home owners face both financial and capital risk, whereas tenants face risks related to rent level. The present paper focuses on mortgage and home equity insurance instruments for home owners, and rent insurance instruments for tenants. Mortgage and home equity insurances might improve both households' as well as lenders possibilities to manage risks related to home purchases, financial commitments and lending. Mortgage insurance instruments aims at mitigating the risk of mortgage default and loan losses resulting from a foreclosure process, while home equity insurance provide protection against capital losses. Furthermore, these insurance instruments might also be usable for expanding home ownership for low-income households. This paper also discusses a rental insurance policy as an alternative to traditional rent regulation. A main feature of this policy is that landlords are supposed to be obliged to offer tenants rental insurance against strong increases in market rents.

Keywords: Home ownership, low-income housing, mortgage insurance, housing policy, home equity insurance, rent insurance

1. Introduction

The word “sustainability” has become a popular and important word in economic policy making, especially when macroeconomic growth with generational and environmental considerations is discussed. From an economic point of view, sustainability can be interpreted as “the possibility that the things we value in the present will continue to exist in the future” (Harris and Goodwin 2003). Sustainable owner occupation and tenancy may from this point of view imply that a home owner or a tenant have enough means to stay in their existing home, even during (temporal) periods of harsh economic circumstances. Indeed, the question of sustainable owner occupation and tenancy plays a prominent part in the current housing policy debate in some countries. For instance, the last eight years of British housing policy debate concerns sustainable owner occupation (see Ford *et al.* 2001; Ford and Burrows 1999; Ford and Wilcox 1998).

The background to the British debate can be traced back to the structural changes on the British housing market, financial market, labour market and household structures as well as the 1995 changes on the state-provided mortgage safety net (see below). The structural changes have resulted in more households facing higher degree of income uncertainties, high debt-income ratios as well as high loan-to-value ratios. These structural changes are not characteristic for Britain only, but also for a large number of other European countries. To maintain sustainable owner occupation and tenancy in a risky society (e.g. a society where many households face volatile incomes, rent increases and equity values), and thus to increase the households’ utility and well-being, the presence of effective insurance devices that can neutralize, or at least mitigate, some of the most important risks, may be of great importance.

Indeed, if a person is risk averse, which most people probably are, he or she will be willing to pay to avoid risk. This is the basis for all insurance. The purpose of this report is to describe a selection of insurance instruments that households can buy to reduce risks they face as home owners or tenants. I also discuss mortgage insurance products that protect lenders (owners or investors of a loan) if the borrower defaults. A special treatment of risks related to condominiums are left out in this paper since some of the risks that households living in condominiums face are rather similar to those that house-owners are exposed to (e.g. capital risk).

Households face many different kinds of risks that are related to ownership and tenancy. For instance, Lind (1999a) describes risks related to owner-occupation (expenditure risks and capital risk) as well as risks related to tenancy (e.g. risks related to rent level, renewal of rental contracts and maintenance). In addition to those risks, Lind reflects over political risks on the housing market, especially risks concerning the uncertainty related to government regulations and subsidies.

The present paper focuses on mortgage and home equity insurance devices for home owners, and rent insurance instruments for tenants. These devices are probably most interesting to discuss from a Swedish perspective. The text about mortgage and home equity insurance policies is based on published literature that analyses and discusses the experiences from the British and the US housing markets. On the other hand, the discussion about rent insurance is based upon a hypothetical case, in which a insurance policy has replaced a rent regulation system. The idea of substituting rent regulation for more sophisticated contracts like rent insurance devices is developed in Lind (1999b) and the purpose here is to develop a

framework of how such rent insurance devices can be shaped in a little bit more detail. In a forthcoming paper, I will discuss how such rent insurances can be priced. To keep this paper within limits, any detailed specification of rules, conditions and prices regarding the insurance objects are omitted.

This paper is organized as follows. Section 2 presents and discusses two types of mortgage insurance instruments; mortgage insurance for the US housing financing markets, and mortgage insurance that is a part of the residential housing policy environment in UK. Another type of insurance device for the home ownership market, home equity insurance, is presented and discussed in section 3. Section 4 presents a rent insurance instrument that could be an alternative to rent regulation. Finally, section 5 concludes this paper.

2. Mortgage insurances

It can be argued that the theory of credit rationing and imperfect information (see Stiglitz and Weiss 1981) is the theoretical basis for the existence of mortgage insurances. Lenders ration mortgage credit to potential home buyers in mainly two ways: they limit access to credit only to those who make an enough large down payment; and second, they limit eligibility for credit to those able to satisfy lender-imposed payment-to-income constraints (Buckley *et al.* 2003).

In this paper, two different categories of mortgage insurances are presented. The first category refers to insurances that protect mortgage *borrowers* (and indirectly lenders) from mortgage foreclosure caused by income losses due to accident, sickness or unemployment. The second category concerns insurances that protect *lenders* against losses that result from defaults on home mortgages (i.e. if the borrower does not repay the loan).¹

The main difference from a borrower's perspective between the two categories is that whereas insurances that protect borrowers are aiming at helping borrowers to stay in their house during periods of income losses (e.g. due to involuntary unemployment), insurances that protect lenders are aiming at helping households with no or little wealth to get access to low down payment mortgage solutions.² But this distinction between the two categories is perhaps a bit exaggerated, since it should be easier for a household to obtain a mortgage loan when lenders expect that the household's ability to pay interest and amortization is sufficient.

Mortgage insurances that protect lenders play an active role in the US housing financing markets, while the second category of mortgage insurances is a part of the residential housing policy environment in UK. In the sections that follow, we will describe and discuss the two categories of mortgage insurances that exist in Britain and the US respectively.

2.1 Mortgage insurances that protects borrowers (Britain)

The UK housing policy has been characterized by promotion of building houses for owner occupation, transforming rental housing to owner-occupation, and by obtaining sustainable owner occupation. Indeed, home-ownership has been promoted as the preferred tenure by both the big political parties (Conservative and Labour) in the post-war period (e.g. see Pryce and Keoghan 2002). But the growth of home ownership in Britain, from 29 percent 1945 to 68 percent 1990 (Angel 2000), resulting in an extension of homeownership down the socio-economic scale, in combination with the deregulation of the financial markets and higher house prices, has considerably increased the risk for mortgage arrears and possessions. A growing insecurity on the labour market and a high rate of relationship breakdowns, resulting in an increase in household income risk, has further increased the risk of mortgage default. Indeed, Ford and Wilcox (1998) state a number of interrelated characteristics of sustainable home ownership in the UK: long term credit contract, which requires secure and continuous employment or equivalent secure (replacement) income from public or private safety net, income that can adjust to increasing mortgage interest rates, enough income to cover home

¹ Another mortgage insurance is the mortgage *life* insurance, which pays off a mortgage if the borrower dies or becomes disabled.

² Atterhög and Song (2003) present public policy solutions that provide tax subsidy savings schemes to help potential home buyers to overcome lender-imposed down-payment constraints. This paper only discusses insurance solutions.

maintenance expenses and costs for insurance premium (including mortgage payment insurance or income maintenance insurance) and finally two income households.

The changes in the labour market are thus a potential threat against sustainable home ownership. Ford and Wilcox (1998) discuss three aspects of changing labour market structures and their impact on sustainable home ownership: the growth of employment instabilities, the rising incidence of unemployment and the growth of low paid employment. They argue that the impact of the changes in the labour market may result in badly maintained houses and financial difficulties resulting in mortgage arrears and possessions. To avoid an increase in the number of households facing financial difficulties, the presence and effectiveness of safety-nets to provide support with mortgage (and eventually interest) payments due to considerable income losses is thus a key policy issue.

There is a large and growing literature on safety net provision provided in Britain covering different aspects of the safety-nets. Two related key issues that are debated intensively is whether the safety-nets are effective in helping borrowers in economic distress, and if those households that most need a safety-net have access to it (see e.g. Kemp and Pryce 2002; Pryce and Keoghan 2002). Here I will summarize the debate regarding the two issues. But first, I present a very brief overview over the two safety-net accessible on the housing market.

2.1.1 Brief overview over MPPI and ISMI

Mortgage Payment Protection Insurance (MPPI) is a private insurance system as opposed to the Income Support for Mortgage Interest (ISMI), which is provided by the state. ISMI was first introduced into the Britain in 1948, while MPPI has been available in the UK since the late 1970s. The insurance policies cover a mortgagor's monthly mortgage repayments if he or she is unable to work because of unemployment, accident, or sickness. MPPI covers both interest payments and amortisation, while ISMI covers only interest payments (Pryce and Keoghan 2002). There are also some other differences, for instance, while MPPI covers single parents following a relationship breakdown or death of a partner, ISMI does not regard relationship breakdown as an eligible criterion. Another difference is that ISMI takes into account a household's savings, while MPPI payouts are independent of a household's financial resources (Ford *et al.* 1999). Only low-income mortgagors with no income (all members of the household must be unemployed) or no ability to work and small savings have access to state support. In February 1999, about 320 000 households in Britain were receiving ISMI (Ford and Quilgars 2001).

2.1.2 Are the ISMI and MPPI safety nets effective?

The mortgage insurance debate in UK is mainly concerned with the effectiveness of ISMI and MPPI. This is true about MPPI in particular and the focus on MPPI can be seen in the light of the October 1995 ISMI reform that restricted the state-provided safety net for mortgagors in several important ways.³ A major aim for the reduction in the state safety net was to shift responsibility for mortgage payment protection from the state to the mortgagor. That is, current Government policy expects that mortgage borrowers rely on private MPPI to a much greater extent after the 1995 reform of ISMI, instead of relying on the state safety net. An attendant question is whether private insurance is a good enough substitute for the state-provided protection, especially among low-income groups.

³ Details about the 1995 changes and the underlying causes to the changes can be found in Kemp and Pryce (2002) and Pryce (2002).

There are several researchers that conclude that the actual take-up of MPPI is below expectations in general, and particularly that those who are most in need for a protection are uninsured to a greater extent. They also conclude that MPPI is not a good enough substitute for ISMI, especially for low-income households. For instance, Pryce and Keoghan (2002) conclude that “neither those in the riskiest categories of employment, nor those with the least financial resources, have the highest rates of MPPI take-up” (p. 87). Also Ford and Quilgars (2001) and Kempson *et al.* (1999) find that low-income mortgagors are least likely to buy MPPI. In case they have access to it, they are less likely than better off borrowers to claim MPPI successfully in order to avoid arrears.

Since low-income borrowers are the most vulnerable to financial risks associated with home ownership,⁴ access to MPPI is thus, at least in theory, something that should be very appropriate for low-income borrowers. Indeed the theory of adverse selection tells us that “only bad risks apply”, i.e. the tendency of those belonging to more risky categories to get insurance. But the take-up of MPPI among low-income borrowers is significantly below that of higher-income borrowers - mostly good risks apply for MPPI. In other words, favourable selection is prevailing, and this is quite the contrary of what the theory of adverse selection predicts. Why then is MPPI take-up so low, especially among those most in need? A number of causes can provide evidence for the low take-up rate and the most important of them are probably: affordability of MPPI, coverage and effectiveness of MPPI.

Affordability is probably an important factor that can determine MPPI take-up rates. Low-income borrowers spend in general a higher share of their incomes on housing costs compared to high-income households and thus they are less likely to afford to buy MPPI. For instance, low-income borrowers, especially defined as those having access to state support, have very limited amount of liquidity (after that other household's basic expenses have been paid for) and savings to pay MPPI insurance premium.

Pryce and Keoghan (2002) find that households with a larger number of children relative to the number of adults (and thus have a higher ratio of expenses to incomes) have significantly lower MPPI take-up rates. But it is unclear whether number of children in a household affects MPPI take-up rates in a significant way. The complex relationship between MPPI take-up rates and explanatory variables, problems with measurement errors, omitted variables and problems with access to data, may cause ambiguous results. For instance, Pryce and Keoghan (2001) find that number of children in a household has no statistical significant effect on MPPI-take up, as opposed to the findings of Pryce and Keoghan (2002).

It is argued that less favourable coverage and restrictive clauses of MPPI influence take-up in a negative way. This is especially true if it is known among borrowers that the insurance policy does not cover the most relevant risks. For instance, Ford and Quilgars (2001) find that a significant proportion of low-income borrowers with MPPI were unable to claim on the policy on becoming unemployed.

A large number of households are probably in the erroneous belief that MPPI covers much larger number of different circumstances than it actually does. Ford (2000) lists a number of

⁴ For instance, low-income borrowers face the highest risk of unemployment (Walker *et al.*, 1995) and highest risk of finding a job with lower salary than their previous employment (White and Forth, 1998). On the other hand, a higher income person is more likely to find another employment with less effort (Gregg and Wadsworth, 1995).

causes for MPPI claims being rejected, based on a survey of MPPI claimants.⁵ While some of the rejections were in line with the insurance policy, surprisingly many of the rejections were open to interpretation and thus a contentious issue.

The fact that insurance companies put restrictive clauses on the MPPI policies may be based on the theory of adverse selection. In order to avoid claims based on events of frequent occurrence, insurance companies screen out bad risks, or charge high insurance premiums to prevent MPPI take-up among low-income groups (with highest risk of being unemployed). Indeed, researchers have found that insured mortgagors do not face significantly higher unemployment risks than those uninsured, indicating that insurers have been successful in avoiding overrepresentation of bad risks. Indeed, a large number of mortgagors have in fact developed arrears for reasons not covered by MPPI. There are thus strong reasons to believe that many important employment risks are not covered by MPPI because insurers have systematically screened out certain risks (Pryce and Keoghan 2002).

As mentioned above, Pryce and Keoghan (2002) argue that there may be incentive mechanisms that result in favourable selection of risks (i.e. MPPI take-up rate is lower among those facing the highest risks of being unemployed or sick). They argue that MPPI policy holders may have the opportunity to exercise an option during the twelve months of MPPI cover, to deny job offers below the expected wage. The value of the option is much higher for mortgagors with high education and lot of working experience than mortgagors with less education and working experience. There is thus a moral hazard effect: insured mortgagors, with large stock of human capital, have less incentive to accept a job offered during the insured period than if one did not have MPPI.⁶ The value of the option to wait should be lower for less skilled low-income mortgagors, and this may explain why take-up is lower among those mortgagors: this mechanism result in favourable selection.

The effectiveness of MPPI can be measured as to which extent successful claimants avoid mortgage arrears and mortgage possessions. Based on a MPPI survey, Ford (2000) and Ford and Quilgars (2001) find that about 22 percent of successful claimants (irrespective of income level) did develop arrears. But almost one third of low-income claimants developed arrears. Ford (2000) reports a number of reasons for arrears among successful MPPI claimants. For instance, successful MPPI claimants faced arrears while waiting for payments from the policy and/or because of shortfall in payments from MPPI.

The effectiveness of the diminished ISMI has also become lower after the 1995 changes, resulting in a high number of arrears (about 40 percent) among claimants (Kempson *et al.* 1999) and a large majority (about 80 percent) facing shortfall on their interest payments (Ford and Quilgars 2001). A number of causes to the lower effectiveness of ISMI have been proposed. Two of the most important contributors to the lower efficiency of ISMI can be found in the new ISMI rules introduced in connection with the 1995 changes: the longer waiting period (the ISMI gap) and the use of standard interest rates (the ISMI shortfall).

The changes of the 1995 reform had great impact on the waiting period before any assistance is paid out. The changes in the state safety-net distinguished between pre-October 1995 and post-October 1995 borrowers. The waiting period for those borrowers who took their loan

⁵ Some common reasons: applicant had been fired or had left job voluntarily, or had ended a temporary job, or had a history of ill-health when policy taken out.

⁶ A longer period of unemployment may result in a depreciation of human capital and thus offset the moral hazard effect (Keoghan and Pryce 2002).

before October 1995 is eight weeks. For the next 18 weeks, borrowers only receive up to 50 percent of their eligible interest, and then full eligible interest. The most noticeable 1995 change is the nine month waiting period for post-October 1995 borrowers: a claimant receives no help with interest payments for the first 39 weeks and full eligible interest is paid thereafter. To mitigate the effects of the nine-month waiting period for mortgagors aged 60 or over (or have a partner over 60), full eligible mortgage interest is paid to them. Based on a survey, Ford and Quilgars (2001) show that a significant number of ISMI claimants had difficulties to meet mortgage payments and they conclude that the extension of the ISMI wait period has had a considerable effect on the level of arrears.

The introduction of “standard interest rate” is yet another major reason for the increase in shortfall in payments that many mortgagors face (Ford and Quilgars 2001). Because of the use of standard rates, borrowers may end up receiving less than the full mortgage interest they have to pay to their lenders.⁷ Indeed, both Ford & Quilgars (2001) and Kempson *et al.* (1999) report that the use of standard interest rate has contributed to almost half of all those with shortfalls. Even if many of the households that faced shortfalls in payments did actually manage to fulfil their payments, and thus avoided arrears, a considerable minority developed arrears. Especially low-income claimants that were dependent on ISMI only and with few or no other financial resources (e.g. no saving, no relatives and friends with enough financial resources to help) were likely to face severe difficulties in making full payments.

2.2 Mortgage insurance that protects lenders (US market)

A high home ownership rate has been an important housing policy objective in the US for several years, and although home ownership rates have increased over the 1990s (from 64% to an historic high of 67%), there is still a policy interest in further expanding access to homeownership (Barakova *et al.* 2003). But the increase in home ownership has been unequally distributed among different ethnic groups and to increase homeownership opportunities for groups historically considered underserved, participants in the mortgage lending industry, such as conventional lenders, government sponsored enterprises (GSEs), and private mortgage insurers (PMIs) have made efforts to make borrowing more accessible and affordable to lower income and minority populations, for example by introducing more flexible mortgage products than the traditional loan products (Quercia *et al.* 2003). These efforts have been referred to as affordable lending.

To reach the stated goals of high home ownership rates, the role of large institutions like the Federal Housing Administration (FHA) and the two government sponsored enterprises (GSE), the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Association (Freddie Mac) are important. The core mission of FHA is among other things to maintain and expand affordable home ownership, contribute to building and preserving healthy neighbourhoods and communities and to stabilize credit markets in times of economic disruption. The missions of the two government sponsored enterprises are similar to that of FHA; to expand homeownership opportunities by creating financial products, services and technologies that help more families achieve homeownership (Fannie Mae) and to stabilize the mortgage markets and expand opportunities for homeownership and affordable rental housing (Freddie Mac).⁸

⁷ In case a claimant’s interest rate due to a loan is lower than the standard rate paid by ISMI, (s)he will actually make a gain.

⁸ Sources: www.hud.gov/offices/hsg/hsgabout.cfm, www.fanniemae.com/aboutfm/understanding/mission.jhtml,

Several articles have throughout the years demonstrated the negative effect of a number of financial barriers, especially income and down payment constraints, on home ownership opportunities.⁹ Researchers have especially found that down payment constraints are much more likely to obstruct home ownership than income constraints. While earlier studies mostly have studied income and wealth (i.e. down payment) constraints, Barakova *et al.* (2003) also study the effect of poor credit quality on home ownership. They find that wealth and credit constraints are the key financial barriers to home ownership whereas the income effect is of less importance. Indeed they cannot find that the income constraint is statistically significant for any of the years studied (1989, 1995 and 1998).

They also report that the importances of credit quality and income and wealth constraints on home ownership have changed since the late 1980s and they give some arguments that can explain that development. For instance, the low impact of income constraints on ownership take-up compared to earlier findings, can be explained by the development of adjustable rate mortgages during the period studied.¹⁰ On the other hand, the influence of credit quality based constraints has increased during the 1990s. This development reflects above all the increase in the number of households with impaired credit quality but probably also the increased use of credit scoring by mortgage lenders during this time period. The wealth constraint, which has the largest impact on home ownership, shows a declining effect between 1989 and 1998. One plausible argument for the diminishing wealth-effect over the period studied may be the introduction of more flexible mortgage instruments with no or little down payment requirements at that time.

Thus one way to help households and particularly first-time home buyers with no or little savings (wealth) to enter ownership, is to lower the down payment requirement, i.e. to increase the permitted loan-to-value (LTV) ratio. Mortgage insurance is usually not required as long as a borrower makes a down payment of more than 20 percent. But if the LTV ratio is above 80 percent borrowers are typically required to get mortgage insurance. Many lenders do accept a LTV ratio of 90 percent without mortgage insurance but not higher, since Federal regulations require that residential mortgage cannot be made in excess of 90 percent LTV ratio without mortgage insurance (Brueggeman and Fisher 1997). In order to reach the mission of increasing home ownership among households with little or no capital to meet the down payment requirements, FHA and the GSEs have developed mortgage solutions that allow very high LTV ratios, even up to 100 percent. In other words, mortgage insurance is a device used to increase the opportunities to achieve the goals stated in the missions above.

Both private mortgage insurance (PMI) companies and the government owned FHA provide mortgage insurance. PMI companies operate by collecting insurance premiums from borrowers based on the incremental risk being assumed as loan amounts rise above 80 percent. PMI usually covers the amount of loan in excess of 80 percent of the property value at the time of loan origination. Unlike PMI, the FHA mortgage insurance insures the lender completely against any default losses in the event of default and foreclosure. In the following

www.freddiemac.com/corporate/whoweare/.

⁹ Barakova *et al.* (2003) refer to Rosenthal (2002) for an overview in this literature.

¹⁰ With Adjustable Rate Mortgages (ARMs), lenders and borrowers share the risk of interest changes. Lenders can match changes in interest costs with changes in interest revenues in a way that is more efficient compared to Fixed Interest Mortgages (FRMs), and thus provide borrowers with potentially lower interest costs (Brueggeman and Fisher, 1997).

section, I will discuss previous studies on the FHA mortgage insurance program and its effect on ownership rates among low- and moderate income households.

2.2.1 Does FHA mortgage insurance and PMI increase ownership?

The mission of the FHA is to increase home ownership rates among low- and moderate income households by insuring mortgages with high LTV ratios, and thus one of the most interesting questions to ask is whether FHA mortgage insurance activities in fact lead to higher ownership rates. Another important question adherent to the first one is if there is a need for both FHA and PMI.

At its inception in 1934, the FHA was conceived as a program to complement the private mortgage sector (Pennington-Cross and Yezer 2000) and to brace up a decimated housing industry by encouraging new credit flows (Capone Jr. 2000). In spite of the fact the Congress repeatedly has stated that FHA shall complement and not compete with the PMI industry and conventional lending,¹¹ it is today obvious that FHA not only interacts and complements but also competes with conventional lenders (Pennington-Cross and Yezer 2000). Anyway, there exist major differences between FHA mortgage insurance products and PMI, not only because of the stated purpose of the FHA but also because of the growth and maturation of the PMI industry from 1970 to 1990.

The differences in the insurance policies have resulted in different risk profiles. For instance, FHA is more focused on high-risk and low-equity loans making FHA's risk exposure higher than that of PMI companies. Capone Jr. (2000) and Goodman and Nichols (1997) state a number of concrete reasons that can explain the higher risk level of the outstanding FHA mortgage insurances. For instance, FHA allows higher LTV ratios, higher payment-to-income ratios and FHA is less strict when evaluating credit histories than the PMI companies. Although FHA has more lenient down payment and credit ranking requirements than PMI companies, it is more restricted when it comes to maximum loan amounts whereas PMI in general has no such restrictions.¹² The higher risk profile of FHA insured mortgages is usually reflected in higher insurance premiums charged by FHA compared to PMI premiums.

Thus one argument that can explain the need for both FHA and PMI is that the maximum loan amount regulation placed on FHA insured mortgage loans restricts purchase of higher-priced houses with high LTV ratios (Brueggeman and Fisher 1997). Hence, borrowers who can afford to buy more expensive houses with low down payment prefer PMI because the loan amount can be greater than the maximum loan available under FHA. On the other hand, low income borrowers who may not qualify for PMI conventional loans are probably more likely to buy houses in price ranges that are below the maximum loan amount set by FHA.

There exist some empirical studies that have examined the relationship between FHA-insured mortgage loans and home ownership. Some of them conclude that many households become homeowners thanks to FHA mortgage insurance programs. For instance, Secura Group (1995) find that at least 150,000 households would not have been able to buy their own house in 1994 if FHA insurance programs had not existed. Other findings indicate that the FHA insurance programs do not increase home ownership. For instance, Goodman and Nicols (1997) argue against the conclusion that is drawn in Secura Group (1995); "...this conclusion

¹¹ Mortgage loans in US are usually classified as either conventional mortgages with or without PMI, FHA insured mortgages and VA guaranteed mortgage loans.

¹² For a more detailed treatment of the PMI and FHA requirements, see Goodman and Nichols (1997).

is too strong because many of these 150,000 borrowers were buying more than a modest starter home and could have qualified for conventional financing if they had been purchasing a less expensive house” (p. 187). In fact, by studying the dynamic aspects of eligibility and selection of home mortgage financing, Goodman and Nicols (1997) show that households that are eligible for FHA insured loans become eligible for conventional loans within a few years. In other words, they conclude that FHA at most accelerates home purchase but does not enable it among households that otherwise would never be able to buy their own house. Lafayette *et al.* (1995) simulate how much the homeownership rate declines when FHA is no longer available. They find that disappearance of FHA would lower ownership rate by as little as 0.1 to 0.2 percentage points. In other words, the FHA mortgage insurance program is estimated to increase homeownership by about 0.1 to 0.2 percentage points. Yet another study that point out the small effect of FHA on ownership rate is Önder (2001). He concludes that the FHA insurance program has a limited effect in increasing home ownership in distressed and low-income census tracts and MSAs.¹³

It is important to notice that all the empirical results must be interpreted with caution. Önder (2001) states several motives that can give rise to questionable results, for instance problems with unavailability of data.

Even if several empirical results from the last 10 years indicate that FHA has a limited effect on home ownership rates, there is no doubt that federal government intervention in the housing market through FHA in the first 20 years (about 1934 to 1944) increased home ownership in a significant way (Vandell 1995). As we have seen above, it is difficult to stipulate whether FHA mortgage insurance activities have increased ownership the last decades or not.

The future of FHA has been discussed lively the last ten years (e.g. see Vandell 1995; Pennington-Cross and Yezer 2000). The difficulty of establishing the effect of FHA activities on ownership, especially among low- and moderate income households and the decline of FHA market share¹⁴ are two major considerations in the ongoing debate.

PMI does most likely help to increase home ownership opportunities, especially among low-income and wealth-constrained households. Bostic and Surette (2001) and Quercia *et al.* (2003), provide evidence that affordable lending efforts the last two decades have contributed to an increase in homeownership rates in US. Especially low down payment mortgage products (e.g. Freddie Mac’s Affordable Gold program and Fannie Mae’s affordable lending products) are likely to have high impact on increasing homeownership opportunities for underserved households (Quercia *et al.* 2003). Since such lending products require that borrowers take out PMI, it can be argued that PMI improves opportunities for low-income low-wealth households to enter home ownership.

¹³ Metropolitan Statistical Areas, see www.census.gov/population/www/estimates/metroarea.html.

¹⁴ The decline in FHA market share is among other things related to competition from PMI, the focus on high-risk and high LTV ratio loans. See Vandell (1995) for a discussion about the causes of the decline in FHA market shares.

2.3 Improved MPPI – a Swedish perspective

Many developed countries have experienced an increase in home ownership since the end of World War II and this may indicate that home ownership is the preferred tenure. Angel (2000) report that among 20 industrialized countries, ownership rates grew by on average one-third, from 43 percent 1945 to 59 percent in 1990. We have seen that private and government mortgage insurance solutions that protect lenders (who offer very low down payment mortgages) in case a borrower defaults might help first-time home buyers to overcome lender-imposed down payment constraints. Next step is to promote sustainable home ownership. But there exist threats against sustainable ownership. Ford and Wilcox (1998) conclude that the combination of structural changes on the labor market (e.g. the growth of more temporarily forms of employment, self-employment and low paid work), an increasing number of relationships breakdowns and a larger proportion of low-income home owners has resulted in a rising (but cyclical) trend in number of mortgage arrears and in number of borrowers facing payment difficulties in Britain. These threats against sustainable ownership are probably typical for other developed countries too, especially in countries with many low-income home owners with high mortgage loans.

We have seen that it may be justified to promote the existence of insurance devices in order to reach higher rates of owner occupancy and sustainable ownership. But the overview of the two different categories of mortgage insurance policies that exist in Britain and the US respectively has shown that neither of the two countries’ mortgage insurance solutions suffices to attain those goals. For instance, whereas nobody denies the fact that private MPPI and state-provided ISMI do sustain home ownership in many cases (Ford and Quilgars 2001), the researchers have also shown that both MPPI and ISMI are ineffective, especially for low-income mortgages, i.e. those who are most in need. In the same manner, research has not yet been able to establish the effectiveness of FHA mortgage insurance activities on ownership rates in the US housing market, particularly for those households with low or moderate incomes the last decades. But still, mortgage insurance may be able to play an important role in housing finance, especially in order to help households with low incomes and low wealth to reach sustainable ownership. The lessons learned from the US and British experiences with mortgage insurance devices may thus provide a useful backdrop for countries who consider implementing such solutions.

For countries with relatively low house ownership rates, (e.g. Sweden), the existence of efficient mortgage insurance protection that can mitigate some mortgage-related risks, may still be good instruments to expand home ownership. This can be especially true if the goal is to increase opportunities for low-income and/or low-wealth households living in rental apartments to buy their first own home and to enjoy sustainable living. Table 2.1 below summarizes the available insurance alternatives discussed above that can play important roles in promoting both a higher rate of ownership and sustainable ownership.

Table 2.1. A classification of mortgage insurance devices used in Britain and US

	<i>State provided insurance</i>	<i>Private insurance</i>
<i>Payment to borrower</i>	ISMI (Britain)	MPPI (Britain)
<i>Payment to lender</i>	FHA (US)	PMI (US)

However, it is from a Swedish perspective outside the scope of this paper to discuss all the different mortgage insurance instruments that protect both borrowers and lenders. This holds particularly for fiscal policies that affect housing. But currently, some major Swedish lenders offer borrowers to take out insurance policy that protects the repayment of mortgages in case of involuntary unemployment, inability to work due to sickness/accident or death. It may thus be suitable to start a Swedish mortgage insurance discussion based on how private mortgage payment insurance aiming at mitigating mortgage-related risks due to income losses can be improved. This discussion is based on the British MPPI experiences.¹⁵

The British debate regarding the effectiveness of both the state-provided ISMI and the private alternative MPPI concerns to a large extent if MPPI is a good enough substitute for the state-provided protection. A starting point for this debate is the large October 1995 cuts in ISMI (see above). In reducing the state-provided insurance, government policy is that mortgagors are expected to find protection against mortgage-related risks due to unemployment, sickness and accident in the private insurance market. Indeed, the government's aim has been to advocate the take-up of MPPI, since it is argued that MPPI is more extensive than ISMI because it covers both interest payments and amortization. But researchers have found that neither those with the lowest incomes, nor those with the least liquid wealth have the highest rates of MPPI take-up (see above). In other words, it is not very likely that those mortgagors who choose to not buy private mortgage insurance, do so because they are in stable employment, or have enough liquid wealth to cover periods of income losses, e.g. due to unemployment.

Why has the performance of MPPI been so ineffective? That is, why are there problems with low take-up rates, especially among those at greatest risks,¹⁶ high number of both rejected claims and successful claims resulting in arrears? Some plausible explanations can be found in the literature. For instance, Pryce and Keoghan (2002) argue that those belonging to the riskiest categories and who choose to remain uninsured do so because their risks are not covered by the insurance policies and/or that they cannot afford such policies. Ford (2000) argues that inadequate knowledge and information, attitudinal (e.g. negative attitudes to insurance in general) and psycho-social influences have a negative impact on take-up rates.

In order to improve the efficiency of different insurance devices, two questions need to be answered; first, how can the efficiency of market solutions be improved, and second, what government contributions can be required.

The first step is to find out how market solutions alone shall be capable to provide adequate mortgage insurance coverage. To obtain this we must require an insurance policy to fulfill at least three requirements: high take-up rates, especially among those most in need; minimum number of rejected claims; minimum number of successful claims resulting in arrears. In order to fulfill these requirements, several aspects regarding the insurance policy must be addressed. To keep the discussion within limits, I will briefly discuss two issues below: information and education; pricing and coverage. Other aspects of importance (e.g. efficient

¹⁵ It is not known to me whether it exists any research done on this subject (i.e. on Swedish mortgage insurance solutions).

¹⁶ Defined in terms of the risk of unemployment, reduced or low wages or those with potential access to ISMI (see Ford 2000).

handling of claims in order to minimize turnover times and lender forbearance) are left out in this discussion.

2.3.1 Information and knowledge

Studies have shown that a large number of claims are being rejected. For instance, Ford (2000) reports that about a third of claims were rejected between 1995 and 2000, with a higher proportion of claims for unemployment rejected than for accident or sickness. Hence many borrowers have bought MPPI with wrong expectation on the policy. This high rejection rate can most likely be explained by the low level of awareness of the terms and conditions of such policies (Kempson *et al.* 1999). This problem thus implies considerable information and knowledge problems.

To overcome these problems, both those who sell the insurance policy and those who borrow must achieve a firm knowledge about the insurance product. For instance, sellers must make efforts to learn all the relevant facts that belong to the insurance policy. But they also have to be trained at explaining facts and consequences in a pedagogical way, asking suitable questions. Further, it is of ethical importance that sellers refuse insurance demanded by households if the insurance cover is inappropriate.

Pre-purchase home ownership counseling may in the first place be the most important way to educate potential home owners. For instance, Hirad and Zorn (2001) find that classroom or individual setting (as opposed to home study and telephone counseling), have a significant effect at reducing delinquency rates in the US. They also conclude that such counseling can play a crucial role in expanding affordable home ownership opportunities. Thus, potential home buyers can gain necessary knowledge about mortgage insurance products by participating in counseling programs. If such counseling is not available, or inadequately provided, sellers of mortgage insurances must take on the responsibility for providing critical knowledge to borrowers.

The rising rate of mortgage defaults and foreclosure in the US has lead to a discussion concerning the provision of home ownership sustainability training aiming at preventing households from experiencing mortgage repayments problems. For instance, Wiranovski (2003) advocates post-purchase education and counseling to existing home owners as a complement to pre-purchase counseling. Above all, he recommends that the education and counseling shall be both integrated into the business models of financial services and other industries and comprehensive over the timeline of the mortgage. Such education and counseling may include budgeting and repair, analysis of current and future financial position, and information concerning updated eligibility criteria for mortgage insurance policies.

2.3.2 Pricing and coverage

With better informed borrowers, the number of inappropriate sales and refused claims could be much reduced. But still, many households with low or unstable incomes and low savings, i.e. those most vulnerable to changing economic circumstances, may not choose to purchase mortgage insurance. Research on MPPI has shown that there exist a poor match between those who take out such insurance and those that most need it. High insurance premiums and/or bad coverage may be two explanations why there exists such a poor match. Particularly low income mortgagors may have disincentives to take-up mortgage insurance due to high insurance premiums. Since private insurance companies (or private lenders providing mortgage insurance) require that insurance premiums be high enough to provide

competitive return, it can be very difficult to solve the problem with the poor match in the absence of state intervention. Thus, while education and counseling may lower the number of refused claims, it is uncertain whether high-risk groups can have access to insurance products due to high costs and/or bad coverage. This sad fact can possibly to a large extent be explained by the theory of economics of imperfect (e.g. asymmetric) information.

Indeed, the economics of imperfect information may help to explore how insurance markets operate and why perfect insurance markets do not exist. Particularly, adverse selection and moral hazard are two basic insurance problems that originate from imperfect information.¹⁷ The problem of adverse selection arises if potential insurance buyers have more information than insurance companies about which risk category they belong to. If an insurance company must charge a single premium that reflects the average risk of those who take up the policy, because the insurer cannot distinguish between high-risk and low-risk individuals, more high-risk individuals will be attracted to the policy (i.e. adverse selection of customers), making it unprofitable to sell insurance. Because private insurance companies are aiming at maximizing profitability, they try to mitigate the effects of adverse selection.

Research on MPPI take-up has shown that insured borrowers do not have significantly higher unemployment risks than uninsured borrowers (see above). This may be indicative of the success that insurance companies have managed to screen out bad risks and identify a profitable niche market (Pryce and Keoghan 2002). For instance, MPPI contracts are surrounded with many clauses precluding certain categories of claims, and especially those who have more insecure forms of employment are excluded from protection (for a list of exclusion clauses, see Ford and Kempson 1997). If the effects of adverse selection result in an inadequate protection for high-risk persons, then Government regulation (e.g. forcing all mortgagors to buy insurance; forcing insurers to cover more risks) or state-provision may be requisite policy.

There exists evidence that households commit insurance fraud in order to collect payments from insurance companies and from social security systems. Insurance fraud is an extreme form of moral hazard (the effect of insurance on behavior). More “normal” forms of moral hazard can be that insured persons have less incentives to avoid losses (ex-ante moral hazard) or that insured persons have no or small incentives to mitigate further losses after a loss have occurred (ex-post moral hazard, see Skipper 1998). The latter form of moral hazard may result in favorable selection of risks (see above). This means that high-skilled insured workers have more incentives than low-income, lower-skilled workers to purchase mortgage insurance. Since there exist evidence that lower skilled mortgagors with low-paid employments have higher risks of being unemployed (or sick), this again result in an inadequate protection for high-risk persons. If insurance companies offer better insurance coverage (e.g. due to competition or on statutory basis), problems with moral hazard may increase.

To conclude, the efficiency of mortgage insurance (defined as rate of successful claims) may be increased by education a counseling, but there is no easy solution to the problem of adverse selection and moral hazard. Thus market failure may prevail in a market for mortgage insurances leaving the households that most need protection uninsured. An important question left out in this paper is whether the private insurance sector actually prices risks correctly, or

¹⁷ The concept of moral hazard was introduced in the economics literature by Arrow (1963), and the concept of adverse selection was first introduced by Akerlof (1970). The original analysis of insurance markets under imperfect information and adverse selection is treated in Rothschild and Stiglitz (1976).

if risks are overestimated for certain household groups. This should indeed be an interesting future field of research.

3 Home equity insurance

Choosing to own a home is both a consumption decision and an investment decision and typically, an investment in a house result in a heavily unbalanced and leveraged portfolio. Home equity may especially for low-income households' be the dominant form of wealth. Thus, the house price risk that particularly low-income owners may be exposed to cannot be diversified away because of wealth constraints.

Several studies show that price risks reduce the desirability to buy a home (e.g. Caplin *et al.* 2003; Turner 2000; Robst *et al.* 1999). Different proposals have been put forth to reduce the price risk a homeowner faces. Caplin *et al.* (1997) propose the development of a new "partnership market", in which would-be home owners can exercise an option of owning part of a house. The other part would be financed with an institutional investor. This way, home owners can share the price risk with an institutional investor. Case *et al.* (1993) propose an opening of futures and option markets on real estate to better allow diversification and hedging. Shiller and Weiss (1999) propose some alternatives for the design of home equity insurance policies, including pass-through futures and options, and a life-event-triggered insurance policy. Using a rich source of data on housing prices in Stockholm, Sweden, Englund *et al.* (2000) argue that homeowners can actually gain from improved hedging opportunities of their investments in housing, for instance by taking positions in a price index for owner-occupied housing.

However, neither of these proposals has been implemented in practice with success so far. For instance, most homeowners are unsophisticated financial managers and certainly inexperienced using derivatives like futures and options (Case *et al.* 1995), while implementing a housing partnership market would imply a fundamentally new set of market institutions (Caplin *et al.* 1997). Yet another problem is that the attractiveness of a derivatives market in housing index futures depends on the quality and integrity of the indexes (Englund *et al.*, 2000). In other words, the absence of hedging and housing partnership markets might be explained by knowledge, legal and practical problems.

One risk-reducing instrument that actually is currently being tested is home equity insurance, in which insurance payouts are based on changes in a house price index. The pilot project is located to Syracuse, New York, and a brief summary of the insurance program is presented in the next section.

The development and implementation of the home equity insurance pilot project in Syracuse, New York, are documented in Goetzmann *et al.* (2003)¹⁸. The equity insurance product is called "Home Equity Protection" (HEP), since it cannot be classified as an insurance product under the local (State of New York) insurance regulatory law (for instance, homeowners can decide when to sell the home, while an insurer must pay money only on the happening of a fortuitous event). The program started July 1, 2002 and in the end of July the first HEP product was sold to a homeowner.

18 The paper can be downloaded from the Social Science Research Network Electronic Paper Collection: http://ssrn.com/abstract_id=410141. "Frequently Asked Questions" about the HEP program can be downloaded from www.nw.org/network/comstrat/homeEquity/default.asp.

The basic idea behind the HEP product is the following: when a homeowner signs up for the HEP, he or she actually buys a put option. The put option gives the owner the right to sell a futures contract at a price pegged to average home prices in his or her ZIP-code¹⁹. When the house owner sells the home, and if the house prices then have dropped in the home owner's ZIP-code, the owner will exercise the put option and receive money from the insurer, no matter what the size of the actual selling price is. The owner will not exercise the option if home prices have increased. The homeowner can choose the size of the protection, the so called Protected Value, and typically it should be close to the current value of the home.

Since the index (repeat sales house price index) is supposed to reflect the average price changes in an area defined by a ZIP-code, some households will experience losses that are either greater or smaller than the percentage change in the index. A home owner who will sell his or her house with a profit, will receive a HEP payment if the local index has declined even if the homeowner makes a profit. Thus, one advantage of founding insurance payouts on the changes of a local house price index, instead of changes in the price of individual homes, is that homeowners can be insured against changes in local prices, but still have incentives to invest in keeping their own house in good condition. Thus, founding HEP payments on changes in price index solves an important moral hazard problem.

According to Goetzmann *et al.* (2003), a fundamental question in developing the insurance product in Syracuse, is how to best construct an index for the insurance purposes. They argue that while homeowner mobility, that determines the volume of insurance claims, has important impacts on the costs of insurance, the dominant determinant of payouts is the dynamic pattern of ZIP-code indices. Their choice of the ZIP-code index is based on several different criteria. For instance, coverage (how well actual losses are covered), efficiency (measures whether or not an index unintentionally pays out funds to those who actually have not suffered losses) and payout ratio (actual payout costs for an index). Given the results of their computations using different indices and geographic definitions, they proposed that the ZIP-code index should be used in developing the insurance product in Syracuse. But still, the ZIP-code index may not be optimal and since the reliance on the price index is of crucial importance, they conclude that there is a profound need for additional research on index design.

The insurance has a lifetime of 30 years and it is only available after a three-year waiting period from the time of enrolment. The size of the insurance premium is settled to 1.5 percent of the Protected Value of the home. This is a one-time fee covering the thirty-year life of the insurance product and it is supposed to equate insurance premiums to expected payouts (including administrative costs). The argument for choosing a one-time fee instead of using an annual fee, is based on the basic pooling required for the insurance to be efficient. Thus, to avoid a situation in which the pool only exists of those with high risk (adverse selection problem), the use of a one-time fee is appropriate.

¹⁹ In general, a futures contract is an agreement to buy or sell an asset at a certain time in the future at a predetermined price. Option on futures gives the buyer the right (but not the obligation) to buy or sell a futures contract at a later date at a price agreed upon today.

4. Rental insurance policy for tenants

Not all households consider ownership as the preferred tenure or do have enough means to enter home ownership. To obtain sustainable tenancy should thus be regarded as important as obtaining sustainable home ownership. Some type of rent insurance instrument for tenants could thus play an important role. Though, in the presentation that follows, I will not discuss the type of insurance instrument that aims at mitigating the risk for a tenant of being evicted due to income losses, and hence inability to fulfil rental payment obligations (i.e. a “rental version” of the mortgage payment protection insurance discussed above; “Rental Payment Protection Insurance”). This kind of income protection is traditionally given by the public system of social insurance. The starting point for the discussion here is instead how a rent insurance instrument can be designed in order to limit the risk for a tenant to be forced to move due to major increases in market rents.

Traditionally, different forms of tenancy rent regulations have been applied for many years in order to reduce such rent risks. But there exist downsides of rent controls. For instance, there is a widespread agreement that rent control systems discourage new construction (if the rents are lower than the market rent), cause abandonment, retard maintenance, reduce mobility, generate mismatch between housing units and tenants, create black markets, exacerbate discrimination in rental housing, encourage the conversion of rental to owner-occupied housing, and generally short-circuit the market mechanism for housing (Arnott, 1995). Some types of rent control systems may though give rise to more severe negative effects than others do. For instance, Lind (2001) identifies five different types of rent regulation systems (A-E). While two of these systems (A and B) only protect sitting tenants, the three other systems (C-E) also cover the rent in contracts with new tenants (see appendix A for further explanation of the various types of categories). Given this classification, it is very most likely that the most severe criticism of rent regulation system can be levelled against rent systems that belong to any of the last three categories.

As a specific example, consider the Swedish rent regulation system. According to Lind (2001), the current system of rent regulation in Sweden belongs the type E, i.e. a system that protects a sitting tenant against rents higher than the market rent, and that also aims at keeping rents in new contracts below the market level. Ellingsen and Englund (2003) point out that this system has caused rent levels to be far below clearing levels in most of Stockholm and central parts of other major cities in Sweden, and this in turn has caused negative effects like illegal key money, a flourishing market for second-hand contracts, rapid conversion of rental apartment buildings into housing cooperatives, tenants locked into sub-optimal housing arrangements etc.

In spite of the fact that different types of rent control policies create more or less severe drawbacks, it may still not be desirable to carry through a far-reaching reform that will result in total absence of specific regulations concerning rental contracts and rent protection mechanisms. One reason not to introduce a rental market that only relies on general contract law is that sitting tenants may have high transaction costs of moving, but also weak bargaining power. Therefore, in order to mitigate the negative effects of regulated rents, as well as to avoid undesirable effects that may occur if there exist no specific rules for the rental market at all besides general contract law, it is of interest to find other ways of protecting at least sitting tenants against major increases in market rents.

Furthermore, Ellingsen and Englund (2003) argue that equity and efficiency goals that can be obtained through traditional rent control can be obtained more efficiently either through voluntary contracting or through some other cheaper intervention. Indeed, it is of particular interest nowadays to discuss the implementation of “market solutions” based on individual and voluntary contracting when risk reducing devices on the market are both more developed and well known, compared to the time period when rent control policies were introduced (Lind 1999a). Therefore, it might be of interest to consider a regulatory reform that aims at finding some kind of market solution that may serve as a substitute for a regulatory system.²⁰

Lind (1999a) and Lind (1999b) propose the use of more sophisticated lease agreements and in particular some type of “rental option” contracts, where tenants pay directly some kind of an insurance premium to obtain a protection against high rent increases. Such a “market based” risk-mitigating instrument can indeed be an attractive alternative to traditional rent regulation policies. The proposed option policy may also increase the possibility to find acceptance for letting rents in vacant apartments be set so they reflect supply and demand.

There also exist other arguments in favour of market solution. For instance, with market solutions, adaptation to individual desires can be obtained in a better way. Furthermore, the political risk might be reduced, i.e. the risk that the protection given by rent regulation suddenly disappears due to a change in the political majority.

It is therefore of interest to study other methods than rent regulation that aims at protecting tenants against major rent increases, and consequently, the proposed insurance policy might be an interesting alternative to tenancy rent regulation policies. Moreover, the insurance policy might also increase the possibility to find acceptance for letting rents in vacant apartments to be set so they reflect supply and demand. The purpose of this paper is to discuss how the proposed rent insurance instrument might be designed.

4.1 The design of the rental insurance policy

The aim of the proposed rental insurance policy is to develop a more market based system that gives a protection similar to rent regulation of type B, i.e. to provide sitting tenants with protection against sharp increases in market rent, due to increases in demand.

A rent insurance policy could be offered by freestanding insurance companies as well as by landlords. In this paper, we suggest that the landlord shall be obliged to offer his tenants rent insurance. A motive for this is that the insurance policy can be regarded as a substitute for rent regulation., and if as - in Sweden - we start from a situation with a rent regulation, it can be seen as “trade” where rents are at least partly deregulated at the same time as the landlords are obliged to offer rent insurance. Furthermore, a regime in which landlords are obliged to offer tenants rental insurance contracts is probably easier to impose than forcing freestanding insurance companies to offer tenants rent insurances.

²⁰ Another way for households to reduce rent risks is to enter ownership. But not all households have enough economic mean to enter ownership (for instance enough liquidity to meet down payment requirements, see Atterhög and Song 2003). Yet another way is to enter long-term lease agreements.

Thus the two starting points for this article are that rents on new leases shall be based on the prevailing market rent levels, and that landlords must offer his tenants rent insurance contracts. Tenants who do not purchase insurance contracts are supposed to pay the market rent after the next rent review. On the other hand, the reviewed rent will for insured tenants be set to the market rent or the strike rent, whichever is lower at the time of the next rent review.

4.1.1 Features of the insurance policy

The main instrument of the insurance policy is the rental option. It is a call option in the sense that a tenant who owns this option has the right, but not the obligation, to reside in the current apartment after the next rent review, paying a rent that is the lower of the market rent and the strike price (or strike rent). In other words, a tenant who owns this option will only exercise it if the market rent exceeds the strike price at the time of the rent review (the maturity date). On the other hand, the tenant will not exercise this option if the market rent ends up below the strike price, since he or she can pay the lower market rent for the following rental period. While a tenant who owns an option has a right to exercise it, the landlord is always obliged to fulfil his part of the option agreement as soon as a tenant chooses to exercise the option. These option-like features in the insurance policy imply that the tenant should pay the landlord an insurance (or option) premium (section 4.1.3 below discusses some pricing issues).²¹

But the rental option does not alone automatically give tenant a long-term protection against strong increases in market rents, which indeed is the main object of the proposed insurance policy. The rental option contract only states the rent for the period after the next rent review will be set to the strike rent or the market rent, whichever is lower. But if rents are reviewed at short time intervals of one or two years, long-time protection will not be achieved. Of course, if rents are reviewed annually, then a tenant could buy a new option every year in order to “wheel forward” a protection. But this form of yearly renewals might not be desirable from both tenant’s and landlord’s points of view. For instance, landlords will suffer from large administrative costs, and probably also from difficulties with long-term budget and maintenance planning. In the same manner, tenants might find it difficult to decide every year whether to buy an option or not. Moreover, the option premium may vary from one year to another depending on for instance changing market conditions, thus being a risk parameter itself.

One possible solution could be to introduce rental options that cover several rent reviews, i.e. multiple rent review. But such options will probably cause other complications. For instance, valuing the rental income a multiple family house generates over a period, which includes several rent review dates, should be more complex (see Booth and Walsh 2001b). In the same manner, establishing a “fair” or “correct” insurance premium for individual contracts with multiple reviews ought also to be more complicated. Furthermore, it is probably easier to market the insurance policy by initially introducing only single review options. It might also be advantageously from a legal point of view to restrict the insurance policy to only concern single review contracts (again at least initially).

Therefore, long-term lease periods between rent reviews should be an attractive alternative. Such leases should make it possible for tenants to enjoy long-term protection against strong increases in market rents without running into a situation with complicated multiple rent review contracts, or a situation with frequent renewals of option contracts. Note that we do not mean that long-term lease periods are time limited in the sense that the “whole” rental

contract expires at the end of the lease period. Instead, what we mean with long-term lease periods is simply that the rent is more or less fixed for several years (e.g. five years) until the next rent review (see also footnote 21).

Typically, the rent in a long-term lease could either be fixed during the whole period (the term), be escalated yearly with some fixed amount, or follow some index until the date of the rent review.²¹ The initial market rent for each of these three alternatives will probably differ. For instance, the initial market rent is likely to be lower for the two last alternatives compared with the first alternative (where of course the initial rent equals the final rent). Furthermore, the market rent level for different terms should differ and thus, it should be possible to construct the term structure of rents in analogy with the term structure of interest rates (see Englund *et al.* (2004), and references given in that article for studies on term structures of existing commercial rental contracts). It is outside the scope of this paper to further discuss the term structure of rents, but we note that this should indeed be an interesting research area in the future (given that there will exist observable short-term and long-term lease rent levels based on demand and supply).

4.1.2 The insured period

Based on the discussion above, we see that the insurance policy proposed in this paper should be understood as combining long-term leases with a rental option, and that these two types of contracts together define the length of the insured period. With one rent review, the insured period simply equals to the sum of the lengths of the two long-term lease periods that occur before and after the rent review.

To clarify this, consider following example. A tenant signs a new rental contract today at market rent. The rental contract states that the rent will be reviewed five years from today. Until that day, the rent will be adjusted with respect to yearly changes in some index (e.g. the consumer price index). At the same time, he or she also buys a rental option with a maturity date that is equal to the date for the next rent review. Then, at the time of the rent review, the rent will either be set to the strike rent or the market rent, whichever is lower. The reviewed rent will after the review again be adjusted according to the changes in the underlying index for yet another five years. Thus the sitting tenant will enjoy a protection against strong rent increases for a period of ten years.

We have mentioned above that the proposed rental insurance policy presupposes that landlords shall be obliged to offer his tenants i insurance against major rent increases. Furthermore, we have above established that the landlord shall be obliged to offer his tenants single rent review insurances, with rental options that matures on the date of the rent review. In addition to these compulsory elements of the insurance policy, we now also establish that the landlord must offer his tenants at least two different insurance period alternatives initially, say five and ten years. Of course, nothing prevents a landlord to offer longer or shorter insured periods, as long as he fulfills the minimum requirement.

One argument for giving tenants a right to buy insurance contracts with relatively long insured periods is that the market for rental apartments can be viewed as an alternative for those who aim at living in the same rental apartment for a long period of time, without being

²¹ With an indexed rent tied to a broad index like the CPI, the yearly changes in the indexed rent should be sufficiently foreseeable, since price stability is a comprehensive goal for Swedish central bank as well as for many other central banks in developed countries.

forced to move because of strong increases in market rents (Lind 1999b). Indeed, a survey among households living in Gävle (Sweden) shows that about one third of the households had lived five years or more in the same housing area, and that many households had stayed more than ten years in the same area (Magnusson & Berger 1996).

The case is similar to the market for housing loans. Some households prefer adjustable rate mortgage loans with floating interest rates while other households prefer fixed rate mortgage loans. The point is that tenants, in conformity with homeowners with mortgage loans, should have the possibility to choose the length of the insured period that fits him or her best.

4.1.3 The insurance premium and the strike rent

The option-like features of the insurance policy implies that an insured tenant only chooses to exercise the option if the market rent ends up above the strike rent at the date of the rent review. In this case, the payoff of the option equals an amount of market rent minus the strike rent. On the other hand, the tenant will naturally not exercise the option if the market rent ends up below the strike rent, since he or she can reside in the apartment paying the (lower) market rent. The payoff of the option will in this case amount to zero (but it can never be negative). Because the option gives an insured tenant the right to enjoy a future payoff that can never be negative for sure but positive with some positive probability, the expected value of the payoff will be positive as well. This implies that tenants should be willing to pay some amount for the insurance.

In theory, risk-averse tenants are willing to pay an insurance premium that equals to the expected payoff of the option plus a risk premium. It is therefore important that landlords offer insurances at a price that risk-averse tenants are willing to pay. Moreover, a major object of the proposed insurance policy is that tenants should know that there always would exist a possibility to buy insurance against strong rent increases at a reasonable price. Because of that, the legislator should limit the maximum premium that can be charged.

The choice of strike rent is besides the dynamics of the market rent, the element that should affect the size of the insurance premium most. The strike rent can be determined in several different ways. Following three different alternatives of determining the strike rent for commercial leases with embedded options can be found in the literature (see e.g. Buetow and Albert 1998; Booth and Walsh 2001a and 2001b; Clapham 2003):

1. Fixed strike rent (strike rent fixed at the time the option contract is written).
2. Indexed strike rent (strike rent fixed at the time of the rent review).
3. Strike rent as a function of the market rent (strike rent fixed at the time of the rent review).

While the first alternative implies that both the tenant and the landlord know the maximum initial rent for second rental period, the other two alternatives imply that the maximum initial rent for second rental period is unknown until the date of the rent review. The last alternative is probably the least interesting while the other two are of equal interest. In fact, the fixed strike rent and indexed strike rent alternatives can be perceived as being almost identical, if indexed strike rent is based on the CPI (which could be expected to grow with 2% yearly). The uncertainty about the future rent level can thus be very limited, even with an indexed strike rent. From a marketing point of view, it is probably better to only offer tenants one

strike price alternative. Subsequently, more alternatives could be introduced. In a forthcoming paper I will discuss how the insurance can be priced in more detail.

4.1.4 How to establish the market rent

When time has come to fix a new rent level for the period after the rent review, it is necessary to determine a comparable rent level for the specific apartment, whether the rent is insured or not. Typically, the market rent for the subject must be estimated based on some kind of rent comparison approach, which aims at determining the most probable rent for the subject.

The quality of an estimate of the most probable rent when using a rent comparison approach is highly dependent on the availability of relevant market information, i.e. access to rents and other important terms of rental contracts for comparable apartments is essential. Both Lind (Lind 2000) and Fastighetsägarna Stockholm (Stockholm Property Association) (Fastighetsägarna Stockholm 2002) have come up with a proposal to keep a public register of rental apartments to meet the needs of information. In brief, the suggestions recommend that updated information on rents, standard and other relevant facts shall be recorded regularly. All property owners shall be obliged to provide the register with information and both property owners and tenants should have access to the register. It is likely that the proposed register could be a determining factor when estimating the most probable rent for a specific apartment.

4.2 Conclusions

For many households living in rental apartments, rental expenses account for a substantial share of their disposable incomes. In particular, low income households with narrow economic margins might have small means to meet high increases in market rents. Furthermore, households that are forced to move to cheaper housing units because of their incapacity to meet strong increases in market rent levels, might face high transaction costs of moving. Moreover, most people are probably more or less risk-averse, and therefore strive for having command over their economic situation. The points above are examples of arguments for having some kind of protection against strong upward movements in market rents. As mentioned in the introduction above, traditional rent regulation systems that aim at giving this kind of protection cause different kinds of negative side effects. The rental insurance policy proposed in this paper might therefore be an attractive alternative to traditional rent regulation.

The purpose of the proposed rental insurance instrument is thus to protect tenants against unexpectedly strong rent increases due to sharp increases in the demand for rental apartments in some housing area. Given that households are in general risk averse, and therefore willing to pay a premium to obtain insurance cover, there should indeed exist a demand for a rental insurance instrument (assuming there is no traditional rent regulation). But there is a risk that a system with rental insurance instruments becomes inefficient, in the sense that there will be a poor match between those who take out the insurance and those that most need it, as is the case with the mortgage insurance system in United Kingdom (see section 2.1.2 above). In particular, low income tenants might have disincentives to take up a rental insurance if the insurance premium charged by the landlord will be too high. It may therefore be needed to enforce a rule that maximizes the size of the premium. Such a rule could e.g. say that the maximum insurance premium should not exceed 5 percent of the current rent a tenant pays, in order to avoid a situation similar to the UK mortgage insurance experience with inadequate

protection for high-risk persons. In a forthcoming paper, I will show that such a level might be reasonable also from the perspective of what is a "correct" price of the option.

5. Conclusions

The word “risk” derives from the early Italian *risicare*, which means “to dare”. In this sense, risk is a choice rather than a fate (Bernstein 1998). Accordingly, a household that chooses to become a home owner also deliberately chooses to involve in a more or less risky long-term financial commitment, since most people need a mortgage to be able to buy a home. The lender also chooses to take a risk when lending money to the home buyer; the risk that the borrower defaults which could result in loan losses in the foreclosure process. Indeed one of the most important risks associated with mortgage loans is that the home owner will default on his or her commitment in some way. Furthermore, a home owner also exposes him- or herself to expenditure risks (e.g. due to sudden maintenance or repair works) as well as capital risks in connection of a house sale.

Why then do people choose to expose themselves to such risks? One possible answer could for instance be ignorance of risks related to home ownership and mortgage commitment. Another explanation might also be that households are less risk-averse than one might imagine. But perhaps is the existence of insurance in its many varieties the most important factor that could explain home owners’ willingness to involve in risky home purchases. Indeed, most households should have a decent ability to identify and evaluate possible outcomes associated with home ownership, and ability to evaluate different insurances that can deal with the identified risks.

Thus insurances make it possible for households to manage risks related to home ownership and financial commitments. In the same manner, mortgage lenders engage in risk management by utilizing different insurance devices. The two types of mortgage insurance instruments discussed in this paper aims at mitigating the risk of mortgage default and loan losses resulting from a foreclosure process, while home equity insurance provide protection against capital losses. Furthermore, these insurance instruments might also be usable for expanding home ownership for low-income households.

In Sweden, real house prices have increased sharply since 1996. Many home buyers that have bought their homes the last years have therefore paid large amounts. Furthermore, the increase in house prices has been accompanied with a declining trend in lending rates during the same time period. The combination of high house prices and low mortgage rates has resulted in many home owners being highly leveraged. The high house prices have also made it even more difficult for households with low liquidity to meet lender-imposed down payment requirements. Moreover, if house prices start to decline of some reason, many households could end up with negative equity. Thus, from a Swedish perspective (as well as for many other countries who have experienced similar developments on their housing markets), mortgage and home equity insurances could be interesting instruments to mitigate different financial risks that are related to home ownership. In that case, the lessons that can be learned from the other housing markets with different insurance instruments for the housing market might be valuable.

It is though important to analyze the need and the design of different kind of mortgage and equity insurances in relationship to other already existing insurances and housing allowances as well. In particular, most Western countries have extensive government-administered social security schemes that provide for instance sickness and unemployment benefits. Furthermore, employers may provide extra income protection due to for instance sickness and parental

leave. Insurances are in these cases provided by private companies. But still, many individuals do only have access to state provided unemployment benefit, hence implying that there might still be a need for mortgage payment protection insurances. Moreover, the structural changes in the demography with an increasing share of retired people will likely make it more difficult for governments to provide good enough income protection in the future. Therefore, the relative importance of (new) private insurance instruments may increase in the future.

This paper also discusses rent risks related to tenancy. In particular, here we discuss a rental insurance policy as an alternative to traditional rent regulation, in which a landlord is supposed to be obliged to offer his tenants rental insurance. See further section 4.2 above, which concludes the discussion about the proposed rental insurance policy.

The purpose of this paper is to provide an overview and discussion of some risk mitigating devices for both home owners and tenants. Indeed, the point made here is that both home owners and tenants should have equal possibilities to protect themselves against some of the major (monetary) risks associated with ownership and tenancy respectively. Given this, it could for instance be motivated to impose a ceiling on increases in property tax payments due to sudden and large increases in market values. Therefore, the method used in California, which is based on the purchase value, could be an interesting alternative. In short, the tax base, which is based on the purchase value, is adjusted with the change in the rate of inflation, however not more than with 2 percent per year, as long as the same owner owns the house.

Finally, in line with what we just said, it is important that more general support systems, like housing allowances and economic support provided by social authorities, should be tenure neutral. But, as Atterhög *et al.* (2003) point out, special rules and regulations might create problems. For instance, they find that the Swedish system of housing allowances only count as housing costs parts of the housing expenditures home owners have, and therefore might reduce the housing allowance for owners considerably compared to renters.

References

- Akerlof, G. A. (1970). The Market for Lemons: Quality Uncertainty and the Market Mechanism. *Quarterly Journal of Economics* 84: 488-500.
- Angel, S. (2000). *Housing policy matters: A global analysis*. Oxford University Press.
- Arnott, R. (1995). Time for revisionism on rent control. *Journal of Economic Perspectives* 9(1): 99-20.
- Arrow, K. J. (1963). *Uncertainty and the Welfare Economics of Medical Care*. American Economic Review 53: 941-73.
- Avery, R., R. Bostic, P. Calem and G. Canner (1996). Credit risk, credit scoring, and the performance of home mortgages. *Federal Reserve Bulletin* 82(July): 621-664.
- Atterhög, M., A. Hellström, H. Lind and H-S Song (2003). *Är det motiverat att underlätta för hushåll med låga inkomster att äga sin bostad - och hur ska det i så fall göras?* Uppsats 29. Division of Building and Real Estate Economics. Stockholm, KTH,
- Atterhög, M. and H-S Song (2003). *Policies to increase access to home ownership for low-income households*. Licentiate paper.
- Barakova, I., R. W. Bostic, P. S. Calem and S. M. Wachter (2003). Does credit quality matter for homeownership. *Journal of Housing Economics* 12(4): 318-336
- Bernstein, P. L. (1998). *Against the Gods. The Remarkable Story of Risk*. John Wiley & Song, Inc.
- Booth, P.M. and D.E. Walsh (2001a). The application of financial theory to the valuation of upward only rent reviews. *Journal of Property Research* 18(1): 69-83.
- Booth, P.M. and D.E. Walsh (2001b). An option pricing approach to valuing upward only rent review with multiple reviews. *Insurance: Mathematics and Economics* 28: 151-71.
- Bostic, R. W. and B. J. Surette (2001). Have the doors opened wider? Trends in homeownership rates by race and income. *Journal of Real Estate Finance and Economics* 23(3): 411-434.
- Brueggeman, W. B. and J. D. Fisher (1997). *Real estate finance and investments*. IRWIN.
- Buckley, R., G. Karaguishiyeva, R. Van Order and L. Vecvagare (2003). *Comparing Mortgage Credit Risk Policies: An Options Based Approach*. World Bank Policy Research Working Paper 3047.
- Buetow G. and J. Albert (1998). The Pricing of Embedded Options in Real Estate Lease Contracts. *Journal of Real Estate Research* 15(3): 253-65.
- Burrows, R., S. Nettleton and J. Seavers (1999). *Losing the Family Home: understanding the social consequences of mortgage repossession*. York: Joseph Rowntree Foundation

- Burrows, R. and S. Wilcox (2000). *Half the Poor: Homeowners with Low Incomes*. Council of Mortgage Lenders, London.
- Caplin, A., S. Chan, C. Freeman and J. Tracy (1997). *Housing Partnerships: A New Approach to a Market at a Crossroads*. The MIT Press. Cambridge, Massachusetts.
- Capone Jr., C. A. (2000). Credit Risk, Capital, and Federal Housing Administration Mortgage Insurance. *Journal of Housing Research* 11(2): 373-401
- Capozza, D., R. Green and P. Hendershott (1997). *Income Taxes and House Prices*. Working Paper Series no. 97-16. Charles A Dice Center for Research in Financial Economics, Ohio State University.
- Case, K. E., R. J. Shiller and A. N. Weiss (1993). Index-Based Futures and Options Markets in Real Estate. *Journal of Portfolio Management* 19(2): 83-92.
- Case, K. E., Shiller R. J. and A. N. Weiss (1995). Mortgage Default Risk and Real Estate Prices: The use of Index-based Futures and Options in Real Estate. Working Paper No. 5078. National Bureau of Economic Research. Cambridge, Massachusetts.
- Clapham, E. (2003). A note on embedded lease option. *Journal of Real Estate Research* 25(3): 347-60.
- Ellingsen, T. and P. Engund (2003). Rent regulation: An introduction. *Swedish Economic Policy Review* 10: 3-9.
- Engelhardt, G. V. (1994). House Prices and the Decision to Save for Down Payments. *Journal of Urban Economics* 36(2): 209-237.
- Englund P., Å. Gunnelin, M. Hoesli and B. Söderberg (2004). Implicit Forward Rents as Predictors of Future rents. *Journal of Real Estate Economics* 32(2): 183-215.
- Englund P., M. Hwang and J. Quigley (2000). *Hedging Housing Risk*. Working Paper W00-007, Fisher Center for Real Estate and Urban Economics, University of California, Berkeley.
- Fastighetsägarna Stockholm. (2002). *Räddningsplan för den privata hyresrätten. En idéskiss för en balanserad hyresmarknad*. Stockholm: SNS Förlag.
- Follain, J. and L. Sturman Melamed (1998). The False Messiah of Tax Policy: What Elimination of the Home Mortgage Interest Deduction Promises and a Careful Look at What It Delivers. *Journal of Housing Research* 9(2): 179-199.
- Ford, J. (2000). *MPPI take-up and Retention: Evidence from Existing Research*. Council of Mortgage Lenders, London.
- Ford, J., and Burrows, R. (1999). The costs of unsustainable home ownership in Britain. *Journal of Social Policy* 28(2).
- Ford, J., R. Burrows and S. Nettleton (2001). *Home ownership in a risk society*. The Policy Press, Bristol, United Kingdom.

Ford, J. and E. Kempson. 1997. *Bridging the Gap? Safety Nets for Mortgage Borrowers*. University of York: Centre for Housing Policy.

Ford, J., E. Kempson and D. Quilgars (1999). *Unsafe safety-nets*. Centre for Housing Policy, University of York. York.

Ford, J. and D. Quilgars (2001). Failing Home Owners? The effectiveness of Public and Private Safety-nets. *Housing Studies* 16(2): 147–162.

Ford, J. & Wilcox, S. (1998) Owner occupation, employment and welfare: the impact of changing relationships on sustainable home ownership. *Housing Studies* 13(5): 623–638.

Gates, S. W., V. G. Perry, and P. M. Zorn (2002). Automated underwriting in mortgage lending: Good news for the underserved? *Housing Policy Debate* 13(2).

Glaeser, E. and J. Shapiro (2002). *The Benefits of the Home Mortgage Interest Deduction*. Discussion paper no. 1979. Harvard university, Massachusetts.

Goetzmann, W. and M. Spiegel (2001). *The Policy Implications of Portfolio Choice in Underserved Mortgage Markets*. Working Paper LIHO-01.8. Joint Center for Housing Studies, Harvard University.

Goetzmann, W. N., A. Caplin, E. Hangen, B. Nalebuff, E. Prentice, J. Rodkin, M.I. Spiegel and T. Skinner (2003). *Home Equity Insurance: A Pilot Project*. Yale ICF Working Paper No. 03-12. International Center for Finance, Yale School of Management, New Haven, USA.

Goldberg, G.M. and J.P Harding (2003). Investment characteristics of low- and moderate-income mortgage loans. *Journal of Housing Economics* 12(3): 151-180.

Goodman, J.L. and J.B. Nichols (1997). Does FHA Increase Home Ownership or Just Accelerate It? *Journal of Housing Economics* 6(2): 184-202.

Harris, J. M and N. R. Goodwin (2003). *Reconciling Growth and Environment*. In Harris, J. M. and N. R. Goodwin. (Eds.). *New thinkings in macroeconomics. Social, institutional and environmental perspectives*. Edward Elgar Publishing limited, UK.

Hendershott, P. and M. White (2000). The Rise and Fall of Homeownership's Favored Investment Status. *Journal of Housing Research* 11(2): 257-275.

Hirad, A. and P. M. Zorn (2001). *A Little Knowledge Is a Good Thing: Empirical Evidence of the Effectiveness of Pre-Purchase Homeownership Counseling*. Low-Income Homeownership Working Paper Series. Joint Center For Housing Studies of Harvard University.

Kemp, P. A. and G. Pryce (2002). *Evaluation the mortgage safety net*. Council of Mortgage Lenders, London.

Kempson, E., Ford, J. and Quilgars, D. (1999). *Unsafe safety nets*. York: Centre for Housing Policy.

- Kendig, H. (1984). Housing Careers, Life Cycles and Residential Mobility: Implications for the Housing Market. *Urban Studies* 21(2): 271-283.
- Lafayette, W. C., H. Donald and P. Hendershott. (1995). *Endogenous Mortgage Choice, Borrowing Constraints, and the Tenure Decision*. NBER Working Paper 5074, 1995.
- Lind, H. (1999a). *Risk allocation on the housing market*. Division of Building and Real Estate Economics. Stockholm, KTH.
- Lind, H. (1999b). *Mer sofistikerade hyreskontrakt som ett alternativ till hyresreglering*. Division of Building and Real Estate Economics. Stockholm, KTH.
- Lind, H. (2000). *Bostadshyrorna och rimligheten - om behovet av en ny hyresreglering*. Stockholm: Agora.
- Lind, H. (2001). Rent regulation: A conceptual and comparative analysis. *European Journal of Housing Policy* 1: 41-57.
- Lind, H. (2001a). *Vad händer mer hyrorna om det blir mer konkurrens på bostadshyresmarknaden*. Division of Building and Real Estate Economics. Stockholm, KTH.
- Lind, H. (2001b). Hyressättning enligt Bruksvärdesystemet. Hur var det egentligen tänkt på 60-talet? Division of Building and Real Estate Economics. Stockholm, KTH.
- Magnusson, L. and T. Berger. (1996). *Hyressättning på de boendes villkor*. Gävle. Meyers.
- Metzhak, D. (2001). *Methods Used Abroad to Support Access to Homeownership: A Research Survey*. Canada Mortgage and Housing Corporation.
- Pennington-Cross, A. and A. M. Yezer. (2000). The Federal Housing Administration in the new Millennium. *Journal of Housing Research* 11(2): 357 – 72.
- Pryce, G. (2002). *Theory and estimation of the mortgage payment protection insurance decision*. Scottish Journal of Political Economy 49(2).
- Pryce, G. and M. Keoghan. (2001). *Mortgage payment protection insurance: do those who need it most take it out*. Economics and Finance of Property and Housing Research Group. Discussion paper no. 3. University of Glasgow, Glasgow.
- Pryce, G. and M. Keoghan. (2002). Unemployment Insurance for Mortgage Borrowers: Is it viable and does it cover those most in need? *European Journal of Housing Policy* 2(1): 87-114.
- Quercia R. G., G. W. McCarthy and S. M. Wachter (2003). The impacts of affordable lending efforts on homeownership rates. *Journal of Housing Economics* 12, 29-59.
- Robst, J., R. Deitz and K. McGoldrick (1999). *Income variability, uncertainty and housing tenure choice*. Regional and Urban Economics 29(2): 219-229

- Rothschild M. and J. E. Stiglitz (1976). Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information. *Quarterly Journal of Economics* 90: 629-50.
- Rosenthal, S.S. (2002). *Eliminating credit barriers: how far can we go?* In: Retsinas, N.P., Belsky, E.S. (Eds.), *Low-Income Homeownership*. pp. 111–145.
- Schiller, R. and A. Weiss (1999). Home Equity Insurance. *Real Estate Finance and Economics* 19(1): 21-47.
- Schiller, R. and A. Weiss (2000). Moral Hazard in Home Equity Conversion. *Real Estate Economics* 28(1): 1-31.
- Skipper, H D. (1998). *International Risk and Insurance. An Environmental-Managerial Approach*. Boston, Massachusetts. Irwin MacGraw-Hill.
- Stiglitz, J. E. and A. Weiss (1981). Credit Rationing in Markets with Imperfect Information. *The American Economic Review* 71(3).
- Tiwari, P. (2001). Home Mortgage Risk: A case for Insurance in India. *International Real Estate Review* 4(1): 57-59.
- Tomann, H. (1996). Private Home-ownership Finance for Low-income Households. *Urban Studies*. 33(10):1 879-1889.
- Turner, T. M. (2000). *Does Investment Risk Affect the Housing Decisions of Families?* Manuscript, UC Davis.
- Vandell, K. D. (1995). FHA Restructuring Proposals: Alternatives and Implications. *Housing Policy Debate* 6: 299–393.
- Walker, R., Shaw, A. & Hull, L. (1995). *Responding to the risk of unemployment. M. Boleat (Ed.) Risk, Insurance and Welfare* (London, Association of British Insurers).
- White, M. & Forth, J. (1998). *Pathways through Unemployment: The Effects of a Flexible Labour Market* (York, York Publishing Services).
- Wiranowski, M. (2003). *Sustaining Home Ownership Through Education and Counseling. Neighborhood Reinvestment Corporation*. Joint Center for Housing Studies of Harvard University.
- Yates, J. and C. Whitehead (2001). Introduction to the Focus Issue. *Housing Studies* 16(2): 141-146.
- Zorn, P. M. (1989). Mobility-Tenure Decisions and Financial Credit: Do Mortgage Qualification Requirements Constrain Homeownership? *Journal of the American Real Estate and Urban Economics Association* 17(1):1-16.
- Önder, Z. (2001). Homeownership and FHA Mortgage Activity in Neighborhoods and Metropolitan Areas. *Journal of Housing Economics* 11(2): 152-181.

Appendix A

Arnott (1995) distinguishes between first and second generation rent control. Lind (2001) argues that this distinction is too crude to be useful. Instead, Lind (2001) identifies five types of rent regulation (A-E). While the two first types (A-B) covers sitting tenants, the three other types (C-E) cover all tenants, both new tenants and sitting tenants. A very short summary of each of the five types of rent regulation is presented below. For a full discussion, see Lind (2001).

Type A is called “weak transaction cost-related rent regulation” and protects a sitting tenant against rents higher than the market rent.

Type B is called “strong transaction cost-related rent regulation” and protects a sitting tenant against certain types of increases in market rents.

Type C is called “monopoly-related rent regulation” and protects all tenants against rents higher than the market rent.

Type D is called “overshooting-related rent control” and aims at smoothing changes in rents.

Type E is called “segregation-related rent control” and aims at keeping the rents for all tenants below the market rent level in certain areas.