Dutch house prices and tax reform

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Abstract
This paper discusses the likely impact of tax reform, in particular the removal of home mortgage interest deductibility, on Dutch house prices in the context of recent local and global house price developments. We analyse three aspects: first whether there is a house price bubble in the Netherlands ready to burst; secondly, whether Dutch house prices will decline in response to the global credit crisis; and finally, in this context, what impact would the reform of income tax treatment of home owners – in particular reduction of the advantage of home mortgage interest deductibility – be on Dutch house prices. We conclude that prices were already under pressure before the credit crunch started affecting the housing market and that changing the fiscal treatment of home owners in this context would cause a further decline in house prices. This would be unfortunate timing for such a reform, especially because the global credit crunch also seems to have started to have an effect on the Dutch housing market.

7.1 Introduction
One year after the start of the global credit crisis in the US, rising interest rates and tightening mortgage markets had led to falling house prices in a number of countries, including the United Kingdom and Spain, but not as yet in the Netherlands (DNB, 2008). This paper analyses whether house prices will start falling in the Netherlands at the end of 2008 and the beginning of 2009 and the potential impact of tax reform on house prices. We first explore whether a house price bubble exists in the Netherlands that is ready to burst and whether house prices are likely to decrease in response to the credit crisis. We then examine the likelihood of a fall in Dutch house prices in response to modelled changes that would reduce the favourable income tax treatment of home owners. To address these aspects, we analyse the literature.

Section 7.2 contains a general discussion of underlying determinants affecting the movement of house prices, including both psychological and non-psychological effects, and the factors that contribute to the phenomenon of house price bubbles. Section 7.3 summarises the general theory and evidence as to the relationship between house prices and income taxation of home ownership. Section 7.4 discusses the possibility of a house price bubble bursting and the anticipated reaction of house prices to the credit crunch in the Netherlands. Section 7.5 examines the impact of income tax treatment of home owners on house prices in the Dutch situation, in particular in light of various proposals (not yet enacted) to reduce or remove the tax benefit of home mortgage interest deductibility. We begin by setting out the context and describing the relevant income tax rules. We then present the outcomes of two Dutch models that predict the movement of house prices following restrictions to the tax treatment of the owner-occupied dwelling.

7.2 Underlying determinants of house prices and causes of housing bubbles
In a competitive market, house prices are the result of interacting demand and supply (Girouard et al., 2006; Chen, 1998). Factors, or ‘drivers’, influencing demand and supply are usually called fundamentals or the underlying determinants. Factors such as disposable income, interest rates and demographic development influence demand, while factors affecting supply, such as the price of land and the level of building costs, influence the availability of dwellings. These drivers may influence the house price in the short-term, the medium-term and the long-term.

On the demand side, an argument analogous to the one underlying the general theory of price can be made: the demand for goods is a function of (household) income and of the price of the good or service relative to those of other goods or services (Fair, 1972). Various studies demonstrate that in the long-term, house price and income level are indeed in equilibrium (e.g., Muellbauer & Murphy, 1997).

In addition, access to capital and the conditions under which households can borrow money can play an important role. Meen (1998) draws the conclusion that in the United Kingdom and the US, access to capital has affected house prices in the past. Since the 1980s, however, financial markets have largely been liberalised and restrictive rules on eligibility for mortgages have lost much of their impact. In response, the influence of exogenous factors such as the development of income and interest rates has increased (e.g., Muellbauer & Murphy, 1997).

On the supply side, neoclassical economic theory predicts that the housing market operates as a supply market (Boelhouwer, 2005). This means that the long-term price development of dwellings will be determined by the development of construction costs (Muth, 1960; see also Shiller, 2007). When scarcity of dwellings causes prices to rise, the supply of newly built dwellings will increase, causing prices to fall to a new equilibrium price. Econometric studies carried out for the US demonstrate a significant relation between the

1 Gallin (2006) suggests, however, that the co-integration relationship between house price and income that is commonly assumed in the literature may be inappropriate.
Evidence of the effect on house prices of changing the tax treatment of home ownership

A separate discussion of the fiscal treatment of home ownership is warranted here, as one of our aims is to analyse how house prices may develop when the income tax treatment of home ownership impacts on the development of house prices. Capozza et al.’s results for the US support the hypothesis that income tax advantages are fully capitalised into house prices. Bourassa & Grigsby (2000) argue that such a result requires a fully inelastic long-term supply. Indeed, 85 percent of home owners are purchasing their homes with a mortgage debt and so the home mortgage interest deduction has a significant effect on the cost of this mortgage debt. The idea that housing is a great investment—which accompanies speculative-bubble thinking—seems actually to be caused by the bubble itself. Shiller argues that ‘boom psychology’ helps to spread such thinking (2007: 7).

In the Netherlands, a lower proportion of households live in a home that they own or are purchasing than in some other countries (54 percent of about 7 million Dutch households are home owners). Of these, however, the majority are purchasing their homes with a mortgage and so the home mortgage interest deduction has a significant effect on the cost of this mortgage debt. However, according to Boelhouwer et al. (2005: 67-68) quote Stigler’s definition of a bubble (1990): “[I]f the reason that the price is high today is only because investors believe that the price is going to be higher tomorrow, then a bubble exists.” They continue (p. 68): “We think of a bubble as a situation in which the price is high today because investors expect unrealistically high housing prices for houses today because they expect unrealistically high house prices in the future. If the bubble is high today because people believe that house prices will rapidly become unaffordable and in order to prevent this, they will act swiftly to purchase a house (Case & Shiller, 2003).” House prices could still fall when people realise that constantly rising prices in the future will not justify such a price—then a bubble exists. However, according to Bourassa & Grigsby (2000), the degree to which changes in the tax treatment of home ownership impact on the development of house prices will depend greatly on the extent to which the existing tax advantage is capitalised into house prices. In this context, for the Netherlands, Boelhouwer & Neuboom (2009) estimate an average loan-to-income-ratio (LIR) of 0.52 as of 1 January 2006 (Haffner 2008).

The reverse effect would be the story fuelled by pessimistic expectations of the possible duration of a recession and how far house prices might fall enforcing these expectations. In a downturn situation, the consumer may also postpone the decision to buy for as long as possible in order to avoid incurring capital loss. Such speculative behavior may force prices to decline further (Bourassa et al., 2004; Levin & Wright, 1997).
Table 7.1 Main policy changes in personal income tax treatment of home ownership in selected European countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Policy change</th>
</tr>
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<tbody>
<tr>
<td>Belgium</td>
<td>1989</td>
<td>System change: reduction of highest tax rate affecting mortgage interest deduction</td>
</tr>
<tr>
<td>France</td>
<td>1992</td>
<td>Mortgage interest deduction extended</td>
</tr>
<tr>
<td>Germany</td>
<td>1997</td>
<td>Mortgage interest deduction abolished for new homes</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2001</td>
<td>Mortgage interest deduction reduced to 10 years</td>
</tr>
<tr>
<td>Norway</td>
<td>2002</td>
<td>Mortgage interest deduction abolished for purchase and improvement</td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td>Mortgage interest tax relief phased out</td>
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Observed relation to house price change

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Policy change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>1987</td>
<td>System change: reduction of highest tax rate affecting mortgage interest deduction</td>
</tr>
<tr>
<td>Sweden</td>
<td>1989</td>
<td>Imputed rent abolished and replaced by property tax</td>
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Note: Capital gains taxation is excluded from the table.

Source: Boelhouwer et al. (2004)

a considerable average capitalisation rate of almost three-quarters of the home mortgage interest tax deduction to households. For first-time buyers, this share, at almost 96 percent, is calculated to be bigger than average. This suggests that first-time buyers are translating most of the expected mortgage interest tax deduction into their house price bid. In contrast, for a home owner who is moving house, the share of capitalisation is estimated to be far lower, at 57 percent. This is because such home movers usually need a smaller mortgage loan than first-time buyers as they have some equity in their first home.

Previous capitalisation of tax benefits allows for house price falls when the tax benefits are restricted. Bourassa & Grigsby (2000) cite on the one hand calculations that place the capital losses at between 10 to 20 percent or more, depending on market conditions and other factors. On the other hand, using a simulation model which integrates short term and long-term impacts of tax reform on the housing market, Bruce & Holtz-Eakin (1999) find only a slight decline in house prices of a little over 1 percent in the short term after a tax reform.

Capozza et al. (1998) with their model find a decline of house prices of 14 percent with an average LTV of 0.41 in the US in 1992 when they include only the repeal of the home mortgage interest deduction. If the LTV were assumed to be 0.25 on average, the price decline is estimated at almost 10 percent, running from almost 13 to 20 percent and more. They find that the greatest losses would occur in expensive cities such as Honolulu and San Francisco.

If house prices do fall after such a change in the tax system, the question becomes: when does the decline begin? This depends on how households behave when they become aware of proposals for a tax reform. Vandell (2000) argues that households will take action in anticipation of the change in policy. Åsberg & Asbrink (1994) have attempted to model such proactive behavior. They estimated the effects of income tax reform, all other things being equal, on house prices in Sweden. In their estimates they distinguish between home owners’ reactions to both an expected and an unexpected revision in the tax code. If home owners expect the revision, then a further distinction is made in the reaction, taking into account the timing of the announcement (1989) and the time at which the revision actually came into force (1991). In all three situations, the researchers expected to see the house prices decline by less than 10 percent (6.7 percent to 5.9 percent) with inflation running at 2 percent. They predicted that an unexpected revision in the tax code would lead to the greatest decline in house prices (6.9 percent). This was also the case when inflation was assumed to be 6 percent. In that event, the expected decline amounted to between 23.3 and 25.4 percent.

However, in reality, the actual development of Swedish house prices proved that no house price response occurred when the reform of the tax system was announced; instead, the house price decline only set in after the tax reform had been implemented in 1991. At that time, selling prices dropped quickly – by 26 percent between 1991 and 1993 at inflation rates of 10.3 percent in 1991, 2.2 percent in 1992, and 5.7 percent in 1993 (Eurostat, Economic Outlook). A ‘lagged’ response such as this raises questions as to whether the owner-occupiers were actually able to understand the tax changes adequately and in good time. It should be noted that in the Swedish case, the changes in tax treatment of home ownership were combined with an overall reduction in tax rates. The economic recession that commenced soon after may also have obscured the evaluation of owner-occupiers about effects of the housing tax reform measures.

More generally, however, a comparative descriptive study (Boelhouwer et al., 2004) found that in many countries, there was no observed house price impact from housing tax reform. This study observed whether a change in average house price could be detected after a change in the income tax treatment of home owners in eight countries: Belgium, England, Denmark, Finland, France, Germany, the Netherlands and Sweden. The reforms to income tax that were studied, and whether there was any observed house price change, are summarised in Table 7.1.

This broad comparison also revealed that the means and timing of the implementation of the tax reform largely determines the impact on the development of house prices. Only in Denmark and Sweden (see above) could an annual decline in house price be observed to take place in the four years after the year of the change in income tax treatment. In the other countries studied, the effects of the changes were either too small to be traceable (e.g., Belgium, England, France and Germany) or were compensated for by general...
tax measures (the Netherlands and Norway).

It must also be noted that changes were introduced more gradually in some countries, in particular in the United Kingdom (see also Gale, 1997) and in the Netherlands and Norway, compared to both Denmark and Sweden. The latter two countries also had the misfortune that the tax reforms coincided with a recession. This manifested in various ways, including high unemployment and inflation alongside a recession in the housing market. In Norway, in contrast, the tax reform carried out in 1992 made a positive contribution to economic recovery. On balance, home owners were better off – in terms of purchasing power – even though the mortgage interest deduction for home owners was reduced as a result of the reduction of the highest individual marginal tax rate.

7.4 Dutch house price development and expectations

In this section, we discuss the expectations of various researchers about the movement of house prices in the Netherlands. The International Monetary Fund (IMF) has suggested that in 2007 there may have been a house price bubble in the Netherlands (IMF, 2008). Dutch models, however, draw different conclusions about current house price trends.

Dutch house price developments over the past three decades are illustrated in Figure 7.1. In the 1970s, house price development was characterised by steep price rises shortly before the second oil crisis, followed by equally steep price decreases in the period from 1978 to 1983 (Boelhouwer & De Vries, 2001). This is the starting point for Figure 7.1. Prices then rose for more than 2 decades (see also Girouard et al., 2006), until the third quarter of 2008, with the exception being a fall in the first half of 1990 (the time of the Gulf War). This relatively long period of price rises was brought about by favorable economic conditions combining rising household incomes and falling interest rates. In addition, mortgage requirements eased during this time. For example, in 1993, a second household income was allowed to be included when determining eligibility for a home loan. Increasingly, mortgage loans were developed in which the full amount of income-tax-deductible interest was paid during the loan term, in first ‘endowment loans’ and later, interest-only mortgages. These new mortgage products maximised the benefit of the home mortgage interest deduction for households. As a result, house prices could rise without generating liquidity problems for households, whose monthly housing or mortgage expenses remained affordable.

During the period 1991 to 2000, house prices increased substantially, with average yearly growth rates of 9.7 percent in nominal terms and 7.1 percent in real terms. From 2001 to 2007, house price increases were more moder-
The global financial crisis that began in the US in the summer of 2007 had far-reaching effects on the Dutch housing market. The long-run trend of rising house prices with a heightened risk of default (Zebec et al., 2007) and the underlying determinants warned that the housing market was out of equilibrium longer – from 2000 to the first half of 2007 – than the IMF would have expected. The 30 percent gap in house prices referred to by the IMF (IMF, 2008) as a possible bubble was already present in the Netherlands.

De Vries and Boelhouwer (2009) concluded that in 2007, house prices can be explained by the fundamentals and as from 2008, the growth of real prices was predicted to be zero.

In summary, calculations based on two models for Dutch house prices, De Vries and Boelhouwer (2009) showed with their model that house prices had been out of equilibrium longer than the IMF would have expected. This was caused particularly by decreasing interest rates and increasing income levels, both of which had more than likely supported the creation of the house price bubble. As interest rates began rising again, the Dutch housing market began adjusting. However, it will take time for the market to return to normal levels of affordability.
Tsatsaronis & Zhu (2004) also show that house prices are more sensitive to short-term interest rates in countries where floating mortgage rates are used.

Third, as discussed further in Section 7.5, there is a significant tax effect in the Netherlands because of the relatively high share of mortgage interest that is deductible for income tax (maximum tax rate of 52 percent). As a result, increases in the mortgage interest rate are mitigated more than in most other countries where home mortgage interest deductions are more limited or do not exist (Haffner, 2002). Affordability of mortgage expenditure will thus be changed at a slower rate.

Fourth, DNB argued that in countries where house production and the number of building permits has been relatively high in the past decade, the drop in demand may hit harder, especially when house buys are fed by the speculative expectation that house prices will keep on rising (compare IMF, 2008), the Netherlands is not one of those countries, as house building has been decreasing for several years of this century and has not regained the higher levels of production that were achieved in the past century.6

According to DNB, overall, these factors contribute to a smaller risk of a downward house price correction in the Netherlands, even if mortgage credits becomes scarcer and economic growth perspectives are less optimistic than in the recent past.

However, some more recent data may suggest otherwise. Although it is still too early to establish a statistical relationship between the global credit crunch and the Dutch housing market, Figure 7.3 illustrates that the number of sales of newly built dwellings fell sharply in the fourth quarter of 2008.5

The decline in number of transactions that started in the second half of 2006 (more than 195,000) intensified in 2008 (from less than 180,000 to less than 161,000). Figure 7.3 also shows that the real house price seems to have started decreasing at that time, but is volatile.

Statistics like these have not been seen for the Dutch housing market in decades; nor were they expected (De Vries et al., 2008). It was assumed that in the period 2008-09, house prices would at least follow inflation because the fundamentals were expected to show a favorable development in both years. For 2009, both a decline in interest rate and an increase in disposable household income through tax measures were taken into account.

It seems that a negative short-run effect, possibly caused by the credit crunch, has 'infected' the housing market in the fourth quarter of 2008. This negative psychological effect determines some 50 percent of price developments in the Dutch housing market according to De Vries and Bolhouswer (2009). Figure 7.4 shows that psychology seems to have started playing a role in the owner-occupied market as early as the second quarter in 2007 when the news about the start of the problems on the financial markets became known, even before the Vereniging Eigen Huis (association for owner-occupiers) indicator for consumer confidence in the owner-occupied housing market started falling.

The question remains whether the presumably positive influence of economic fundamentals can neutralise the current negative sentiment in the housing market. If an economic downturn affects the fundamental drivers, especially the income situation of households, then house prices as well as the number of transactions may decrease further. This is not an unrealistic scenario, as De Jong et al. (2008) forecast a 0.75 percent shrinkage of the Dutch economy in 2009. Unemployment has also started rising for the first time in

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6 House production expressed as investment reached almost 6 percent of GDP in 2007 versus e.g., more than 8 percent respectively in Spain and Ireland. The number of building permits reached 6 per 1,000 inhabitants in 2006 versus e.g., more than 19 in Spain and 6 also in Ireland, but for 2001.

5 The number of sales of newly built dwellings fell 50 percent in comparison to a year earlier according to the database Monitor Nieuwe Woningen.
more than 3 years in the fourth quarter of 2008 (CBS, 2009). What may seem ‘only’ psychological effects for the moment may fall into line with changing fundamentals of house prices in the near future.

On the other hand, the continually lagging supply of new dwellings (illustrated in Figure 7.1) has brought about a situation of scarcity in dwellings on the housing market, a situation which will counterbalance the threat of a price decrease. If the sharp decline in new construction and backlog orders continues, another offset to house price decreases may be at work. In total, Van Hoek (2008) expects that the production of dwellings will decrease by 20 percent in 2009 and 2010.

7.5 Tax reform and house prices in the Netherlands

In this section, we discuss the potential impact on house prices of tax reform that would reduce the favourable tax treatment of home ownership in the Netherlands. In particular, we examine the potential impact of reduction or repeal of the Dutch home mortgage interest deduction.

6 Dutch newspapers also mention regularly that banks have tightened up their lending policy.
7 The policy aim is to reduce scarcity on the housing market by 2010 to 1.5 percent of housing stock (Ministere van VROM, 2004-05).
8 The backlog of orders for new dwellings continued to fall from ten months to less than eight months in September 2008 (Van Hoek, 2008).

7.5.1 Tax treatment of home ownership

As a matter of policy, in an ‘ideal’ income tax, two ‘pure’ options can be chosen for taxation of home ownership, or owner-occupied housing (Haffner, 2002). In the first option, the home is treated solely as a durable consumption good. Neither the imputed rent of the owner-occupied dwelling nor any capital gain is taxed and no income tax deductions are available for expenses associated with the home. In the second option, the home is treated as an asset or investment good. In this case, imputed rent and capital gain are taxed to the home owner as income and the costs incurred to produce that income are deductible.

Historically, the investment approach was taken when the Dutch income tax was first designed in 1914 (Bijvoet, 2001). That is, the owner-occupied home was treated like an investment good. This policy choice was not illogical if one considers the roots of income taxation in the aftermath of the Industrial Revolution. At that time, most dwellings were for rent. The treatment of owner-occupied dwellings probably was a simple adaptation of the way in which rental dwellings were taxed: the taxation of profit being the difference between rental income and maintenance and other costs (there was...
In the course of inconsistencies in treatment of owner-occupied dwellings, in comparison with other investments, the estimated budgetary importance of the outstanding balance of mortgage debt in 2000 to 2005, Table 7.2 also shows that the net tax deduction per home owner is markedly different from income tax systems in most other countries.

From the standpoint of providing neutral treatment of individual owners of dwellings, one would expect to find the owner-occupied home in Box 3. However, in fact, the net imputed income from the owner-occupied dwelling was treated in the same way as income from work and taxed in the new Box 1 against a progressive rate with a maximum of 52 percent. This is consistent with the treatment of second home and landlord-owned dwellings, which are included in Box 1. However, this treatment of owner-occupied dwellings, in which the net imputed income from the owner-occupied dwelling is treated in the same way as income from work and taxed in the new Box 1 against a progressive rate with a maximum of 52 percent, and the tax deduction for mortgage interest paid (Table 7.2) rose from 1.5 percent of GNP in 2000 to 2 percent of GNP in 2005. Table 7.2 also shows that the net tax deduction per home owner is markedly different from income tax systems in most other countries.
7.5.2 Is reform of the Dutch home mortgage interest deduction likely?

There are a number of external factors that may influence the Dutch government's decision to reform the home mortgage interest deduction. These factors include:

1. Economic climate: Policymakers may be concerned about the economic climate and the need to stimulate growth.
2. International influences: The influence of international organizations such as the European Union and the Organization for Economic Cooperation and Development (OECD) may affect Dutch policy making.
3. Public opinion: The views of the public and interest groups may influence government decisions.
4. Political climate: The political environment, including the composition of the government and the platform of political parties, may also play a role.

Despite the agreed policy standstill, it is not unnatural to expect future changes in the tax treatment of home ownership. Countless in-depth arguments are forcing political parties and lobbyists to take a stand on this issue. Various national and international organizations, including the IMF and the OECD, have called for changes to the imbalanced situation in the housing and labor markets. The OECD (2004) called for the phasing out of the deduction when interest rates change. The Mortgage Interest Deduction (MID) is a general tax advantage that leads to an expected increase in inflation and labor market distortions. The MID also reduces the rate of return on savings, making it less attractive for individuals to save. A reduction in the MID can be seen as a way to encourage households to save more and invest in other assets, such as stocks and bonds. This could have positive effects on aggregate demand and economic growth.

What is the modelled impact of tax reform on house prices?

Despite the agreed policy standstill, it is not unnatural to expect future changes in the tax treatment of home ownership. Countless in-depth arguments are forcing political parties and lobbyists to take a stand on this issue. Various national and international organizations, including the IMF and the OECD, have called for changes to the imbalanced situation in the housing and labor markets. The OECD (2004) called for the phasing out of the deduction when interest rates change. The Mortgage Interest Deduction (MID) is a general tax advantage that leads to an expected increase in inflation and labor market distortions. The MID also reduces the rate of return on savings, making it less attractive for individuals to save. A reduction in the MID can be seen as a way to encourage households to save more and invest in other assets, such as stocks and bonds. This could have positive effects on aggregate demand and economic growth.

The main scenario dealt with an annual phasing out of 5 percent of the home mortgage interest deduction, leading ultimately to the abolition of the deduction for home owners in 20 years' time. 'Tax proceeds would be 'returned' to all households as a general tax advantage (a reduction in the tax rate). The nominal interest rate was assumed to be 4.5 percent throughout the 20-year period. Despite the agreed policy standstill, it is not unnatural to expect future changes in the tax treatment of home ownership. Countless in-depth arguments are forcing political parties and lobbyists to take a stand on this issue, leading to the abolition of the deduction for home owners in 20 years' time.
The basic assumptions in the De Vries and Boelhouwer's\textsuperscript{10} macroeconomic model differ from those in the microeconomic model by Koning et al. (2006). De Vries and Boelhouwer's model assumes that in the long-term, housing expenses will develop in much the same way as income (same housing expenditure to income ratio) whereby an increase in housing expenditure through a change in tax treatment leads to a decrease in house price. This model is also based on the assumption of an extremely inelastic supply of dwellings. As a result, the change in tax treatment would return largely as a price effect.

The model by Koning et al. (2006) assumes that house buyers, in their role as investors, take into account a required market yield on the dwelling that should balance the costs and financial risks that accompany big investments. In addition, it includes the effect of a change in housing supply, emphasising gradual modification because such changes do take time. The starting position is a supply elasticity of 0.65 whereby the change in the tax treatment of the owner-occupied dwelling will return partly as a price reduction and partly as a decrease in supply. In this model, most of this effect is processed directly in the first year. The supply elasticity of 0.65 in the Koning model is, in particular, a point of discussion because most of the house price models are based on the assumption of an inelastic supply between 0.2 and 0.4 (see also Vermeulen & Rouwendal, 2007; Swank et al., 2002).

Although the assumptions are different, one may conclude from both model calculations that any reduction of the tax advantage for home owners will have a negative effect on house prices. The speed at which this effect appears is not easy to model. Calculations based on the De Vries and Boelhouwer model (De Vries, 2007) result in a large total price effect (real and nominal) of in total 23 percent over the period of 20 years, compared to the no-change situation. Partly because this model assumes a housing supply elasticity of zero, this effect may to a certain extent be considered the maximum expected price effect (or worst case scenario).

Koning et al. (2006) also find a house price decline but expect a much smaller total price effect of a reduction in 4.4 percent in house prices over a period of 20 years, compared to the no-change situation, with about two-thirds of this price effect occurring in the first year. A volume effect of negative 3.5 percent will also occur because their calculations are based on a price elasticity of 0.65. However, if the model of Koning et al. (2006) were to incorporate De Vries and Boelhouwer's assumptions concerning inelasticity and, apart from interest costs, no capital expenditure, then the estimated decrease in the house price will be greater as well (an estimated negative 9.7 percent).

### 7.6 Conclusion

In this chapter, we examined whether house prices in the Dutch owner-occupied market may decline in the near future as a result, first, of a price bubble that is ready to burst; second, in response to the global credit crisis; or, third, in response to potential tax reform that would reduce the home mortgage interest deduction in the Dutch income tax system. Each aspect was analysed on the basis of a literature study using Dutch house price models.

The IMF issued a cautious warning of the possible existence of a Dutch house price bubble in 2007. However, calculations based on two models of Dutch house prices counteract this warning. Any bubble that may have existed prior to 2007 had burst by that year as a result of the moderate house price developments in the years before 2007. In 2007 house prices were in accordance with fundamentals.

We conclude that a psychological effect, possibly resulting from the global credit crisis, is causing the downturn in 2008 in the number of housing transactions, construction orders and house prices in 2008. The effect of possible credit restrictions applied by financial institutions is not clear, as there is no hard evidence. This 2008 downturn may be temporary, unless it is reinforced by a downturn in the real economy of which the first signs are being foreshadowed in terms of increasing unemployment and forecasted shrinkage of the economy.

Third, we addressed whether it is likely that house prices will fall as a result of changes to the tax treatment of home owners. As the Dutch form of taxation of owner-occupied dwellings is relatively unique, the expectation is that in due course the Dutch government will be unable to stand alone on this matter and so it is likely at some point to reduce the benefits of the home mortgage interest deduction. The Dutch models predict that house prices will decline if the income tax treatment of owner-occupiers is phased out over a 20 year period, even if the savings are returned to taxpayers as a general reduction in tax rates. The extent of the decline will depend on supply elasticity.

The outcomes of the models predicted that even without tax reform, prices in the Dutch housing market are expected to come under pressure in the sense that, contrary to the previous decades, the growth of real house prices is predicted to be zero. If tax reform were to be carried out that reduces the benefit of the mortgage interest deduction, this would make housing more expensive. The models indicate that this will decrease demand and that house prices will respond with a decrease of between ten and 25 percent over a period of twenty years. The effect of housing becoming more expensive will have been mitigated by the general tax relief provided and the scarcity of dwellings on the Dutch housing market. It is important to realize that these effects are first-order effects that will change as households adapt their

\textsuperscript{10} This was the model used by Boelhouwer et al. (2004) and updated by De Vries (2007) and De Vries & Boelhouwer (2008).
behavior to the new situation. Also, the housing market will never be in equilibrium but is always moving towards an equilibrium with many opportunities to react to new stimuli.

As house price growth in the Netherlands has already been slowing down since 2000 and has become negative since the fourth quarter of 2008 because of the effects of the global financial crisis, a tax reform that would have the effect of making owner-occupied housing more expensive at the current time may be unfortunate.

References


Brounen D. & P. Neuteboom (2008), De effectiviteit van hypotheekrenteaftrek, ESB 93 (8529), pp. 120-121.


CBS (2009), Werkloosheid begint op te lopen, persbericht 22 januari, Heerlen: CBS.


DNB (2008), Kentering op de Europese woningmarkten, DNB Kwartaalbericht, september, pp. 41-46.


Koning, Martin, Rafael Saitua Nistal & Jos Ebregt (2006), Woningmarkteffecten van aanpassing fiscale behandeling eigen woning, Document No. 128, Den Haag: CPB.


Kamer.
