Version 1 (DRAFT, Section 4 and Box 3 still to be included)

THE OVERVALUED HOUSING MARKET IN THE NETHERLANDS: A CONSPIRACY OF SILENCE

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ABSTRACT

The Dutch owner-occupier housing market is currently characterized by very high price levels in real terms. In February 2010, the IMF released its most recent financial and economic assessment of the Netherlands. As regards the housing sector, the IMF concluded that the market was broadly in line with fundamentals. We review this IMF analysis. We conclude that the IMF's interpretation of the Dutch housing market as fundamentally healthy, stable and sustainable, is flawed and misguided. Adopting a methodologically sound household life-cycle perspective, and using official data and statistics on relevant variables, our analysis shows that Dutch *real house prices* are now at broadly *twice the level which corresponds with long-term sustainability*. In other words, currently the housing market for owner-occupiers in the Netherlands is *overvalued by around 100%.* We highlight the major inherent risks which this poses for the structural economic and financial stability in the country. We conclude with a number of fundamental policy measures which aim to deflate this house price bubble in a rapid and controlled manner, and which will ensure and maintain the long-term sustainability of the Dutch housing market.

SUMMARY

The Dutch housing market for owner-occupiers is currently characterized by very high price levels in real terms*. In February 2010, the IMF released its most recent financial and economic assessment of the Netherlands. As regards the housing sector, the IMF concluded that the market was broadly in line with fundamentals.

In section 1 of this report we critically assess the concept of "a market aligned with fundamentals". Against this background we review the IMF analysis. We conclude that the *IMF's interpretation of the Dutch housing market as fundamentally healthy, stable and sustainable*, is *flawed and misguided*. We demonstrate that the IMF shows a lack of insight into the nature of the Dutch housing market, and that it overlooks key signals in the data.

In this section 1, we pay special attention in particular to the *supply side of the housing market*, reviewing key results from recent in-depth research. It turns out that market supply is, in fact, highly inelastic. Supply in the housing market is found to be very largely a government policy outcome, rather than a predominant result of the interplay between market forces. If such government policy is not responsive to market forces, then the outcome may be a dysfunctional and fundamentally misaligned market. Specifically, for a household, a home is very much an economic necessity. If government policy creates inelastic supply conditions in the face of ongoing demand, then price formation may easily result in structurally non-sustainable excessive price levels.

To address and explore this issue of price formation and the long-term structural sustainability of current price levels in the face of institutionally enforced inelastic supply conditions, we next focus on the *demand side of the market*.

For a household, an own home can be seen as an expensive durable consumer good. Buying

* Note that in this report we shall be concerned with the owner-occupier housing market in the Netherlands. We shall only deal with the rented housing sector insofar as this is relevant in the context of our analysis and discussion.

into the market usually requires up-front financing, commonly in the form of a mortgage loan. At the same time, if well-maintained, an own home is also a store of accumulated wealth for the household. Further, from an economic perspective, a housing market is a dynamic flow market. During their life cycle, buyers buy and sell properties, moving into, through and, temporarily or permanently, out of the market. Understanding the true fundamentals of the demand side of a housing market requires due consideration of such market characteristics. Methodologically, in particular, assessing the long-term stability and sustainability of such a market in the context of the observed inelastic supply conditions, necessitates the adoption of a household life-cycle perspective.

In section 2, using existing official government sources of data and statistics, we assemble the basic statistics on relevant demand-side variables. And, in order to quantify matters within a methodologically sound conceptual framework, in section 3, we develop a household life cycle-based operational measure of fundamental sustainability for the Dutch housing market.

In section 4 we present our findings and our policy recommendations. Contrary to the flawed assessment by the IMF, we show that the long-run trajectory in house prices since the 1980s is, in fact, not sustainable. Specifically, the analysis shows that Dutch *real house prices* are now at broadly *twice the level which corresponds with long-term sustainability* of the housing market. In other words, currently the Dutch housing market is *overvalued by around 100%*.

In addition, and closely related to this, *mortgage-related household debt* in the Netherlands is on a steep upward trend, and is already *well in excess of 100% of GNP*. It now easily exceeds the much-criticized Mediterranean sovereign debt levels by a very large margin. This excessive level of accumulated household debt is a major difference compared with the late 1970s, when the Netherlands, too, faced excessively inflated real house price levels, and witnessed a severe uncontrolled price correction.

The recession which followed the 2007-2008 global financial crisis, has led to a minor cooling down of the market in terms of price levels, downward by a little over 5% on a year-on-year basis but already moderating. However, importantly, there are no signs yet of the sharp downward price correction, in the order of 50%, which is necessary to bring housing market prices back in line with levels that are sustainable in the long term.

Yet, even in the face of the evidence of the long-term systemic vulnerabilities in the housing market and of the associated inherent risks for economic, financial and social stability, there is little or no public debate in the Netherlands on the key issue of the excessive price levels in the housing market. Asymmetric market power of the agents involved in the market and fear of negative market sentiment are the most likely causes which prevent a broad national debate on the matter.

However, in section 4, we also highlight that any uncontrolled bursting of this house price bubble, either as a price crash or as a prolonged slide in prices, will inevitably have major, wide-ranging and long-lasting negative and destabilizing consequences for the Dutch economy, for the Dutch financial sector, and for Dutch society. Significant structural damage is likely. In order to avoid such an undesirable scenario, this, therefore, calls for adequate and timely preparedness.

We note that Eurozone monetary policy is targeted at managing and controlling consumer

price inflation, but not at effectively combating any individual asset or commodity price bubbles, such as a national house price bubble. Consequently, to address any such bubbles, a complementary discretionary policy response is required, tailored specifically to meet the challenge in hand.

To meet this challenge, we conclude section 4 by develop an innovative, rational and effective set of policy responses which will result in a *rapid, transparent and fully-controlled deflation of the price bubble in the Dutch housing market down to levels in line with long-term market stability and sustainability*, and with minimal negative side effects.

The engineered deflation policy itself is expressly designed as a *short-term one-off temporary measure*. But the *remainder of the set of policies* developed in section 4 are designed to be of a *structural nature*, offering the policy instruments which are both *necessary and sufficient to ensure that house prices in the Netherlands remain broadly aligned with sustainable housing market fundamentals in the long run*.

The set of complementary policies proposed is deliberately intended to be thought provoking, and aimed at stimulating a national debate on the issue.

NOTE TO THE READER

Readers wishing to avoid background information and context, technical discussion and data issues, and deliberation and explanation, may choose to skip direct to the *main findings* and the *policy recommendations* presented in section 4.

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PREAMBLE

An *asset price bubble*, such as a housing price bubble, may be described as an economic condition where the appreciation over time of real price levels of a given type of asset (*asset price inflation*, such as house price inflation) continues to be *very significantly in excess of* the general appreciation of real price and wage levels in the broader economy (*general inflation*). The development of an asset price bubble in itself can have seriously dislocating, destabilizing and damaging consequences, both for the real economy and for the monetary and financial economy. In addition, any asset price bubble always harbours the risk of a monetary, financial and economic shock: The eventuality of an uncontrolled asset price crash or of an uncontrolled sustained steep slide in asset price levels remains ever present. Even the mere uncertainty as regards whether or not such a shock might be imminent, is damaging per se by undermining and destabilizing economic confidence and market sentiment.

Asset (and commodity) price bubbles tend to reflect a *structural mismatch between supply and demand*, *real or perceived* and *current or anticipated*, which endures for a period of time or even indefinitely. There may be many different underlying causes, some more incidental and other ones of a more structural nature. Examples of such causes include, amongst others, a structurally inelastic supply in the face of unremittingly rising demand; hoarding in the face of uncertainty about future events, blind herd-like demand behaviour; demand-side fear of not going to be served in the case of perceived economic necessities and anticipated tight supply-side conditions; supply-side monopolistic, oligopolistic and cartel conditions; market cornering in conditions of asymmetric market power; financial speculation, in particular when excess liquidity in the financial markets is channelled into the real economy generating temporary real or phantom additional demand; and so on. In any particular case, multiple such causes may be acting simultaneously in a complementary fashion. Often, even only minor perceived conditions of current or anticipated relative supply tightness or marginal shortage can be enough to trigger a demand-side process of mutual outbidding, which can rapidly push up real price levels.

Given the highly undesirable consequences of an asset price bubble, both for the real economy and for the monetary and financial economy, an adequate and timely response of policy makers and regulators is called for. This requires both (1) *timely awareness* and

(2) *adequate preparedness* in terms of policies and operational (that is, applied practical) policy instruments. As we are dealing with a form of price inflation, a monetary policy response, aimed at cooling the market, might at first sight seem an obvious approach. However, in actual monetary policy practice in many economies, such a response is not generally suitable and appropriate when dealing with the excessive price inflation of any one given specific type of asset, such as a house price bubble.

In most mature economies, conducting *monetary policy* is the prerogative of the central bank system. A core objective of monetary policy is the maintenance of an orderly, stable and sustainable monetary and financial system which serves to facilitate and promote growth and prosperity in the real economy. While this is a very broad and encompassing general policy objective, in many of the major global economies, including in the Eurozone, the key operational (that is, applied practical) focus of monetary policy in recent years has been on *CPI-based* (consumer price index-based) *inflation targeting*. This operational focus severely limits the scope and narrows down the effective range of monetary policy to one specific well-defined area. Within this approach to monetary policy, one particular unresolved issue is, how adequately to address the systemic risks associated with specific *asset* (and also with *commodity*) *price bubbles*.

Asset price developments in particular are not directly captured by CPIs. At the very best, their effect on the CPI is partial, indirect and/or time-lagged. Yet, as we just saw, substantial structural misalignments of trends in asset prices relative to broader economic fundamentals, and any eventually resulting shocks, can seriously upset monetary, financial and economic stability.

Effectively, this operational focus of monetary policy places the onus of dealing with any excessive asset price inflation beyond the realm of monetary policy itself. It substantially *leaves it* to policy makers, regulators and supervisory bodies *outside the central bank system to address* this issue of *excessive asset price inflation* as an when it occurs.

In particular in respect of classes of assets which have structural systemic significance, the latter parties are therefore faced with four key and mutually interdependent tasks which are of the essence to handle any such excessive asset price inflation:

(**Task 1**) <u>Data Collection, Measurement and Surveillance</u>
Systematically collecting and monitoring data and statistics on system-relevant factors, leading indicators and trends, both in the real economy and in the monetary and financial economy

(**Task 2**) <u>Insight and Awareness</u>
(2.1) Understanding the true nature of the fundamentals underlying these factors and indicators and their dynamics
(2.2) Interpreting the data and statistics in this light; given such interpretation, the identification of micro and macro vulnerabilities and risks; the timely raising of awareness; and the production of timely and adequate policy-relevant information

(**Task 3**) <u>Policy Formulation and Implementation</u>
(3.1) The development of appropriately targeted fiscal, economic and/or other

policies, and of operational policy and regulatory instruments
(3.2) The implementation of policy and regulation

(**Task 4**) Monitoring and Assessment
The assessment of the quality, effectiveness and efficiency of policy and of policy and regulatory instruments; and the routine continuous monitoring and assessment of policy and regulatory implementation

The specific challenge of such *policies* (task 3) then is: To identify and to address any structural and incidental problems, and in particular those problems which have the potential to pose a systemic risk, in timely, effective and efficient manners, and with minimal collateral damage. Problems to be addressed may include any fundamental asset price misalignments per se, but they may also need to include relevant related aspects, such as, for example, the taking on of excessive debt, or the taking of excessive risk. The parsimony principle, the notion that no intervention be greater than necessary and sufficient to achieve the stated policy objectives, is elementary in the conduct of task 3.

However, importantly, policy formulation and implementation are only task 3. They are necessarily preceded by the -- literally -- fundamental tasks 1 and 2: *information*. Any policies lacking a sound evidence base are arbitrary and without falsifiable or verifiable merit or justification.

Further, policies and their implementation must be routinely and continuously *monitored and assessed* (task 4), thereby providing essential feedback, adjustment and correction mechanisms. Self-evidently, any such monitoring and assessment, too, can be carried out only in the presence of adequate and timely *information*.

In this report we focus on the *housing market for owner occupiers in the Netherlands*. This housing market is a key pillar of the Dutch economy, both of the *real economy*, for instance in terms of construction, maintenance, renovation and demolition, and of the *financial economy*, most importantly in terms of providing home loans and related financial services. However, clearly, a structurally healthy housing market also has a much broader economic and social significance. For example, an efficient labour market is in part dependent on efficient residential mobility, and therefore on a healthy and dynamic housing market. And the ability of households efficiently to adjust housing conditions to reflect household life cycle developments is an important social good.

Since the mid-1980s, and as compared to the general development in price and wage levels in the broader Dutch economy, house prices have experienced a prolonged period of rapid increase in real terms. In the wake of the 2007-2008 financial crisis and the subsequent recession, house prices have shown only moderate signs of cooling down. However, there is no evidence of any significant structural realignment of real house price levels.

This raises the important *question* whether, after this recent minor adjustment, prices are broadly in line with fundamentals in the Dutch economy, or whether they are perhaps overvalued. If indeed house prices turn out to be overvalued, then the *further question* is, to what extent: is it a matter of a few percentage points, or is the degree of price misalignment

so large that it is reasonable to speak of a house price bubble. If the latter proves to be the case, then the obvious *final question* is one of policy, namely, how then to handle any such asset price misalignment. *Section 4* of this report deals with the *answers to these questions*.

However, in order to obtain any such answers, the *first three sections* of this report deal with *information*, that is, with tasks 1 and 2 identified above. Compiling adequate and timely information on any housing market, not just in the Netherlands, is a particular challenge for policy makers.

A housing market is essentially a *longitudinal* (*cohort-specific* and *time-dynamic*) *flow market*, with households entering, moving through, and (temporarily or permanently) departing the diverse and changing stock of supply. It is *impossible to assess* the *structural health and long-term sustainability* of such a market *without explicitly accounting for* these *flow dynamics* and the corresponding *life-cycle events of households*. In addition, at any point in the life cycle of a household, an own home, if well maintained, not just a durable consumer good, it is also an investment, that is, it is also a store of accumulated wealth. This, too, represents a cohort-specific and a time-dynamic process. In a common scenario of upfront financing through a mortgage loan, any periodic repayment of mortgage principal (loan amortization) converts funds from the household income stream into further wealth.

In all such aspects, a housing market is a complex and multi-faceted system. Obtaining adequate and timely policy information on the structural health, on systemic micro and macro risks and vulnerabilities, and on the long-term economic and financial sustainability of such a market, is by no means easy.

Importantly, the usual *cross-sectional statistics* [1] compiled to characterize a housing market -- such as, for example, average house price levels, average income levels, average price-to-income ratios, average debt burdens, average periodic financing costs relative to incomes, average periodic living costs relative to incomes, and so on -- are both methodologically and substantively *fundamentally insufficient* to assess long-term housing market health and sustainability. While such cross-sectional statistics, if properly interpreted, may serve some useful purposes in providing selected partial insights, they can, in fact, be highly misleading. This even applies if such statistics are routinely compiled periodically, such as monthly, quarterly or annually, and assembled in a time series framework of analysis [2].

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1 Such statistics are also called period statistics or time-point statistics. They characterize the housing market at any one single point in time. Sequences of such statistics, pertaining to a succession of points in time, are often used in time-series modelling of housing markets.

2 To give just one example, periodic house financing costs for a household with a mortgage loan are based on historical house price levels, pertaining to the point in time in the past when the purchase was originally made and the loan was taken out. In an era of rapidly rising real house price levels, starters on the housing market will, for many decades in the future, be faced with significantly higher periodic financing costs than households which made a purchase several years earlier. However, in a mature housing market, most owner-occupier households are not starters or recent entrants. So, while the *average* financing burden relative to incomes may appear modest, displaying only a gentle upward trend in a time series analysis, this burden may, in fact, be stifling for recent entrants to the market, and even prohibitive for prospective new entrants. Thus, in this case we have, in effect, a housing market which throttles entry, and whose long-term sustainability is under serious threat. The usual *cross-sectional average statistics* employed to characterize a housing market disguise the very essence of such a development. It, instead, requires a *longitudinal cohort analysis* to be able to properly ascertain such true underlying long-term fundamental characteristics and trends.

The Netherlands is in a fortunate position in that it possesses rich and comparatively complete and accurate *sources of raw longitudinal and cohort data* on the nature and dynamics of the housing market, in particular in administrative systems. This covers both supply-side and demand-side aspects. It includes, for example, detailed sources on the nature and composition of housing stock, its dynamics and price levels, and detailed sources on households, household incomes and house financing. Two notable key sources are the Kadaster (Cadastre or Land Registry) and the Belastingdienst (Tax Administration or Inland Revenue). Such administrative systems are now highly automated, and they are increasingly designed to, and capable of, effective systems linking, and micro-level data interchange and exchange is becoming increasingly routine. However, *data* and *information* are *not one and the same*.

There are two issues, here. First, *administrative systems* are *not* in the first instance *designed and operated* with a view *to routinely providing data for an effective and efficient evidence-based policy making framework*. Traditionally, at best, this is a by-product. Although there are modest but promising beginnings in the Netherlands, it will require a change in culture fully and routinely to exploit such systems in their value-added role as unique and rich sources of micro-data, such as on the housing market and its financing.

Second, one key lesson to be learned from, for example, the 2007-2008 global financial crisis is that, in various ways and to various degrees, national and international players, supervisors and regulators have been shown wanting in terms of all four key tasks which we identified above. *Advance warning*, *adequate and timely information*, and *operational preparedness* to deal with events before the crisis actually broke as well as in its aftermath, all proved lacking. As regards the *Dutch housing market*, in ways very similar, the *current very high price levels in real terms* are *conspicuously absent from* the *policy agenda* and from *public debate* [3].

This calls in particular for *greater openness and transparency with respect to available information sources*. At present, the amply-sufficient available longitudinal micro-data required for, for instance, a proper assessment of the health and long-term sustainability of the Dutch housing market, by and large remain inside government institutions, and, at least in their full richness, locked away from independent research.

As in the case of the 2007-2008 global financial crisis, there is always the possibility that those authorities in the Netherlands which are primarily, or at least in the first instance, responsible for the four key tasks identified above, simply fail in their duties.

Routinely making properly anonymized longitudinal micro-data available for independent outside research and for the production of relevant information, is an elementary contribution to a *transparent system of checks and balances* in modern civil society which is essential to maintaining the health, stability and long-term sustainability of a mature economy and society.

3 Since the June 2010 general elections, there is now some debate about the unlimited income tax relief which is still granted on all mortgage interest payments. However, while contributing to facilitating the recent steep rise in real house prices, this income tax relief is effectively a subsidiary topic, albeit an important one, and not the heart of the matter. As we shall see in the remaining sections of this report, the health and long-term sustainability of the Dutch housing market is, in fact, a very much broader question, involving a wide range of interrelated policy issues.

1 The Misguided IMF Assessment, Fundamentals and the Supply Side

In particular during the 1990s, price levels of owner-occupied residential properties in the Netherlands have increased at a very rapid rate in real terms. While the rate of increase slowed down somewhat in the first decade of the new millennium, house price appreciation in real terms only finally came to a halt during 2008.

The question is, whether the current house price levels remain properly aligned with underlying conditions in the broader Dutch economy, or whether they are overvalued, and if so, to what extent. In the latter case, logical further questions then are whether market forces will likely generate an orderly correction, and if any policy intervention is indicated to guide the process of correcting any such price misalignment.

Periodically, the International Monetary Fund (IMF) assesses the health of the Dutch economy and its financial sector, and related government policy, in a routine in-depth procedure, called an "Article IV Consultation". The findings of the most recent 2009 IMF consultation are reported in IMF (2010). This 2010 report contains a special topical section (Igan, 2010), which specifically addresses the issue of a possible Dutch housing market bubble.

In this section on the housing market, Igan reviews selected earlier studies on the topic, and she reruns and reappraises these studies with a unified and up-to-date database covering the period 1970 to 2009, using multi-variate explanatory time series analysis. Figure 1, below, presents key results in graphical format.

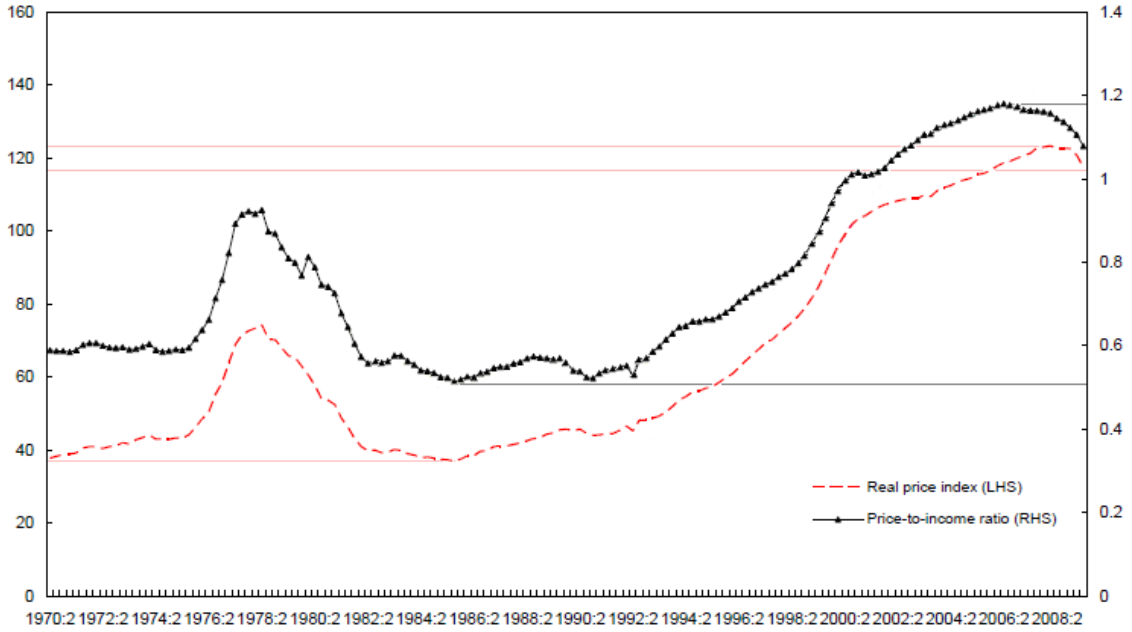
Before continuing to summarize Igan's 2010 conclusions, it is interesting to note that the analysis of the Dutch housing market conducted only slightly earlier by Igan and Loungani, and reported in IMF (2009)[4], still saw scope for a significant downward adjustment of Dutch

4 See in particular Box 1.4, "*Risks from Real Estate Markets*", on p 20-26 of IMF (2009). Usefully, in addition, Chapter 3, "*Lessons for Monetary Policy from Asset Price Fluctuations*", on p 93-120 of IMF (2009), deals with the broader matter of asset bubbles from a monetary policy perspective.

house prices.

However, in something of an analytical or political about-turn, in her contribution to the 2009 IMF Article IV Consultation, Igan concludes, to the contrary, that *Dutch house prices appear to be broadly in line with long-term fundamentals although declines (implying a period of undervaluation) cannot be ruled out in the short run*.

Figure 1 The Netherlands: Real House Prices and Price-to-Income Ratios, 1970-2009



Source: Igan (2010), using OECD data

It is important to note two specific aspects of this conclusion. First, the identified possibility of any short-term declines in house price levels is qualified by Igan as resulting in a period of *undervaluation*, that is, a price level below what one would reasonably expect as an equilibrium outcome in the Dutch housing market. It would signal a buyers' market where houses are at a discount relative to their underlying true real market value. The second implication of Igan's conclusion is, that *any declines in house price levels* in the Dutch housing market are *not in line with long-term fundamentals*.

Logically, in the light of this conclusion, IMF (2010) does not recommend any specific policy development or intervention aimed at cooling down an overvalued Dutch housing market. Quite to the contrary, in fact: The policy focus recommended by Igan (2010), instead, is on any negative impacts of a possible further decline in property values.

A key element of Igan's conclusion is the notion of the *alignment of market prices with long-term fundamentals*. This is a frequently-used but a richly vague concept, and before assessing the IMF analysis and conclusions, it is useful to review this notion (see box 1, below).

Box 1 Market Fundamentals and Price Formation

The expression "*prices in line with fundamentals*" is frequently used as a benchmark when dealing with the question of whether or not *asset markets* or *commodity markets* are undervalued or overvalued. All too often, unfortunately, "market fundamentals" is used as an ill-defined concept in this context [5]. Weakly-defined notions bear significant dangers of misinterpretation of empirical data and of derived statistics.

Implicitly, the expression "the market prices are aligned with fundamentals" appears to refer to the fact that actual observed price levels in the market in question properly reflect some notion of a real and true intrinsic equilibrium value which one would theoretically expect to arise given the *deeper fundamental characteristics* of that market. Semantically, reference to price alignment with market fundamentals in this context often goes further, extending to a *quality judgement* of the market and its price formation and suggesting solidity in the sense of sound price levels, market stability and sustainability, and market health.

Crucially, the expression leaves unanswered what exactly the *nature and quality of the underlying market fundamentals* in fact are, and it makes even less of an attempt to *quantify* matters in some sort of objective operational (measurable) framework. This places both the *notion itself* of price level alignment with market fundamentals, and the *associated value judgement*, on shaky grounds, theoretically, methodologically, as well as empirically. To illustrate this, let us consider the following three examples:

(1) For example, if we have a market characterized by a monopoly of supply, then the event of the emergence of excessively extortionate market price levels could adequately be described as price levels aligned with market fundamentals. However, economically we clearly have an undesirable market structure.

Further, it is unclear whether market fundamentals must be seen in a narrow sense, focusing purely on market supply and demand conditions per se, or whether they must also be interpreted in the context of the broader economy.

(2) Consider, for instance, highly inelastic conditions of supply of an economically vital commodity and structural conditions of steadily increasing demand. Then the resulting steeply rising price levels would be in line with market fundamentals. However, these rapidly increasing price levels may well have highly destabilizing consequences for the wider economy.

5 Note that we refer here to price levels in markets, not to fundamental analysis of an individual business, of an individual asset, and similar. Fundamental analysis in the latter sense is a well-established approach in financial investment practice. The use of the term fundamentals to characterize markets appears to have been absorbed more recently from financial investment practice into economic analysis.

In addition, as regards associated value judgements, we also note that market stability and sustainability, on the one hand, and market health, on the other, are not one and the same.

(3) For example, consider a market where conditions of supply are strongly influenced by a supplier cartel. Such a market may be stable and sustainable in the long run. However, no economist would qualify such a market as healthy.

Economically, perhaps the only truly healthy market is the ideal model of a perfectly competitive market. However, as economics as an applied discipline narrowly limits its domain and scope, and as it tends to exclude externalities, even an economically healthy market may be less than healthy in other respects, such as, for instance, socially, technically or environmentally. And even in a narrow economic sense itself, the qualifier healthy is, at least in real-world practical reality, dependent on the time frame adopted, such as short-term, medium-term or long-term.

Clearly, the conclusion must therefore be that a simple statement that price levels are in line with market fundamentals, *without elaborating and specifying the definition* of these fundamentals in the empirical case under study, is scientifically without much merit. Consequently, too, such a statement has little or no practical actionable value, such as within an evidence-based policy-making or decision-making framework.

However, this, of course, still leaves the key matter of *judging market price levels* in any particular given empirical context, unresolved. To address the issue, that is, to make the notion of market fundamentals explicit in order to provide a framework in which price levels can be rationally assessed, one could, for example, follow a two-step procedure.

One might start with an idealized objective mental experiment, formulating a working hypothesis of a perfectly competitive market, *as a benchmark point of departure for further analysis*. As a mental frame of reference, this model usefully embodies and unifies the essential interplay between a supply-side and a demand-side interpretation of the market in question [6].

The *key challenge*, step two, for the economist in assessing any given real empirical market in terms of its fundamental characteristics then, of course, is to *identify where the market in question deviates from the idealized model*. First and foremost, this requires a thorough insight in and understanding of the actual market under study. See in particular also task 2 as defined in the preamble, above.

Only such an in-depth market assessment can provide a context in which the analyst is properly able to evaluate issues such as, for example, (1) whether the market is stable

6 This mental model immediately results in a corresponding definition of price levels which are in line with market fundamentals, namely, the market clearing price in a perfectly competitive equilibrium. This allows a direct interpretation of any non-alignment: Any short-term market price deviations from this equilibrium price are imperfections (mispricing) which will be self-corrected in the longer run by market forces. Consequently, longer-term price trends may therefore be interpreted as reflecting market fundamentals. And any systemic perturbations resulting in empirical price levels structurally at a premium relative to market fundamentals are indicative of overvaluation in the market, or, if more severe, of market overheating, and in yet more extreme cases, of a market price bubble. Systemic perturbations resulting in empirically observed price levels structurally at a discount, signal the opposite.

and sustainable; (2) whether the market is healthy; (3) whether observed price formation in the market is rational and in line with market fundamentals; and (4) to what extent actual market price levels are under- or overvalued from the perspective of healthy and long-term sustainable market conditions.

The discussion of market fundamentals and of price formation in box 1 goes a long way to explain why the *analysis and interpretation of the Dutch housing market by the IMF* in its most recent country assessment of the Netherlands, is *fundamentally flawed*.

Importantly, it is not because of data availability or quality [7]. In the preamble, we have indeed highlighted ways further to improve housing market data matters, especially in the light of the longitudinal flow nature of a housing market system. However, by any international standards, the Netherlands is already a country with a quite comprehensive and a high-quality system of official data collection and statistics.

Instead, the approach of the IMF is problematic in particular because of a *failure explicitly to explore the true fundamental nature of the Dutch housing market*, and adequately to account for this in the analysis and interpretation of the data. This relates directly to the issue which we have identified as key task 2 in the preamble, above.

As a logical inference, the conclusions drawn by the IMF miss a solid scientific foundation, and they are therefore without adequate merit. And obviously, as a result, the clear danger is that any policies and any actions or any omissions to act based on these IMF conclusions, will be misguided [8].

In order to be able to assess the quality of the conclusion of Igan in IMF (2010) with greater precision, let us briefly review some of the key fundamental characteristics of the Dutch owner-occupier housing market, following the line of thinking developed in box 1. As this is also relevant for the subsequent sections of this report, in doing so we shall pay particular attention to the supply side of this markets.

Specifically, first, in economic terms, housing markets, especially mature ones, are special markets in several respects [9]. For example, in the Netherlands, both the owner-occupied sector and the rented sector have been very tight for many decades, essentially without significant interruption since World War II. The housing stock also grows relatively little year on year through new construction, on average in the Netherlands only by some 2% per

7 See task 1 which we identified earlier in the preamble, above.
8 This concerns the execution of key task 3 identified in the preamble.
9 We have, for instance, already highlighted that a housing market has uniquely important longitudinal household life cycle-related characteristics. And we have also discussed already, that while an own home may be interpreted as a durable consumer good, it may also, if well-maintained, be seen as a long-term investment, as a vehicle for converting a stream of income into a store of accumulating wealth.

year over the past four decades. In addition, due to current high price levels, market entry for first-time buyers is severely restricted.

Consequently, most buyers in the owner-occupier market are also suppliers at the same time. In other words, the market is predominantly a swap market where an owner-occupier household exchanges one house for another (sell-buy decisions). This distorts the normal elementary market assumption on price formation that, other things equal, suppliers seek to maximize prices while buyers seek to minimize prices.

In addition, the common economic assumption is, that private home ownership encourages saving and capital formation. However, in practice in the Netherlands today, very little of these investments is ever actually monetized [10]. Other things equal, this would either require trading down on the housing market or exiting the market altogether. Voluntarily trading down is unusual, except to some degree in old age. Exiting to monetize is rare in the absence of any slack in the rented sector, which remains very tightly government regulated and highly inelastic. From the home owner's point of view, the accumulated savings tend to remain locked up in the residential property, and they are more virtual than real [11].

Importantly, furthermore, the Dutch housing market has very little in common with the model notion of perfect competition. This is most pronounced on the supply side. Housing supply in the Netherlands is framed within and constrained by a tight and comprehensive national, provincial and municipal zoning system. This system is highly centrally planned in a rigid and micro-managed top-down approach. Further, new construction is not driven primarily by market forces and associated price mechanisms. Instead, it is principally governed by policy-based allocation mechanisms based on the assessment of perceived needs and demographic projections.

Specifically, *housing demand* is *defined* by policy makers *as housing need*. This need is estimated on the basis of *stated preferences*, measured in household survey research, and of *demographic modelling*. The residual between existing stock and need is defined as the housing shortage. The policy objective then is to resolve this shortage by planning new construction [12]. In other words, *housing supply* is a *policy outcome* rather than the outcome of economic processes [13].

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10 The opportunity, which existed in the past, to use any positive equity as collateral for an increased mortgage loan or for a second mortgage loan to be used to finance private household consumption, has largely been made impossible through government regulation specifically aimed at preventing this.

11 We shall return to this issue of home ownership as a vehicle for accumulating wealth in the policy recommendations in section 4 of this report.

12 While the Netherlands is generally perceived as a modern mixed economy, by design the housing market is one of the least free markets in the country. The concept of "needs" as a central mechanism in the allocation of scarce resources is better known from the command economies of former socialist countries such as the USSR and PR China. Referring to "a higher phase of the communist society", that is, to a post-socialist society as envisioned by him, it was Karl Marx (1875, p 567) who famously wrote: "Jeder nach seinen Fähigkeiten, Jedem nach seinen Bedürfnissen!" ("Each according to their abilities, to each according to their needs!"). In practice, use of the concept of needs as a key economic allocating mechanism in the command economies of these countries led to significant inefficiencies, resource misallocation, and scarcity and shortages borne out by rationing and queuing. Not surprisingly perhaps, albeit cushioned by economic wealth, similar features are also characteristic of the Dutch housing market.

13 In planning procedures and contracts for new construction, for example, land markets are manipulated. The price of new residential land is arbitrarily assessed: Namely, simply as the remaining residual between the

Overall, the housing market in the Netherlands is surrounded by and embedded in an intricate and much broader normative government policy and regulatory nexus. This broader framework is characterized by frequent policy shifts and by repeated and cumulative palliative patching aimed at counteracting unintended undesirable side effects, resulting in a process akin to Geertzian involution [14]. It aims to reconcile a variety of very diverse and often contradictory policy paradigms, objectives and priorities. These include not only housing policies and urban and regional planning policies per se, but also, for example, income, income distribution and social welfare policies, economic and employment policies, fiscal and budgetary policies, immigrant and other minority integration policies, inner-city regeneration policies, transport policies, environmental policies, archaeological, landscape and heritage conservation policies, water management policies, infrastructure policies, and so on [15].

Interestingly, Vermeulen and Rouwendal (2007) find a strong connection between this overall government policy framework and the dramatic increase in real house prices over recent decades [16]. We already saw that housing supply in the Netherlands is essentially a policy outcome. The findings of Vermeulen and Rouwendal suggest that, fundamentally but indirectly, *price formation*, *too*, is *in large measure a policy outcome*.

Clearly, therefore, simply interpreting the Dutch housing market in terms of a market in the traditional sense as understood by economists -- even if we relax many of the strict assumptions underlying the theoretical notion of perfect competition -- offers ample scope for fundamentally misjudging the true message contained in empirical data and statistics.

Furthermore, within the remaining free space for market parties to act within this comprehensive government framework of policies and regulation, there are *many agents* which *successfully strive for market power and price making ability*. And this, too, has

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planned house sale prices and the costs of construction. Essentially, this constitutes an implicit municipal tax, which is used to finance local public goods and services as well as to subsidize the rented sector at the expense of the owner-occupied sector.

14 See Geertz, 1963.

15 The shifting nature of government policy paradigms is, for instance, clearly in evidence in the comprehensive national, provincial and municipal zoning plans. Post World War II, the emphasis was on reconstruction and the high density expansion of towns and cities to alleviate the severe housing shortage. In the 1960s and 1970s, the policy changed to one of clustered deconcentration and the spatial separation of residential and industrial functions. (This was, in fact, a policy which, for example, the capital city of Amsterdam had already developed before the war into a master plan for its own urban growth and expansion.). The policy resulted in residential new towns highly dependent on individual motorization. From the 1980s, the emphasis shifted to a policy favouring more compact larger cities. And in the 1990s, residential planning policy changed once again to one of large-scale development on the fringes of selected cities.

16 The authors analyse the supply side of the housing market in the Netherlands over the period 1970-2005. They find that several explanatory variables commonly associated with housing supply appear to be almost fully inelastic with respect to house prices in the short to medium term. Their analysis shows that conventional models of competitive land and housing markets cannot account for these findings. Thus, we have conditions where supply is practically not responsive to prices. They attribute this price inelasticity of housing supply to government interventions in land and housing markets. The authors further observe the substantial rise in housing demand of recent decades, associated with rising incomes, falling interest rates and demographic developments. They note that a failure of supply to respond to rising demand generates upward momentum on prices. And they conclude that this appears to explain the long-run trend in real house prices in the Netherlands -- which have grown much stronger than in many other countries -- and the current high price levels.

fundamental implications for the process of price formation in the housing market in the Netherlands.

For example, *existing home owners* have a vested interest in seeing the real value of their homes improve over time. In this context it is important to realize that, as in any mature housing market, existing home owners far outnumber new market entrants. Rising real price levels provide windfall wealth gains and a cushion against any interest rate rises, they contribute to avoiding the event of negative equity and they ensure the continued ability to remain active in the housing market. Only when owner-occupiers choose to trade up on the housing market do they feel the burden of any trend of real house price appreciation, but then only marginally so, namely, on the difference in value between the property sold and the higher quality property bought. The interests of existing home owners are also promoted by an influential national owners association.

The important and influential *construction industry* obviously, too, benefits from high and rising house price levels. In addition, it derives significantly higher premiums from the construction of more expensive properties. This tends to bias the new construction supply mix in favour of houses which command higher prices, such as more spacious and detached properties. The latter also occupy more land.

Municipalities are another party with strong market power and a vested interest in high and rising price levels in the housing market. Municipal taxes, for instance, are directly based on the market value of properties. In addition, the important financial benefits which municipalities can gain from land sales for new construction are positively related to property sale prices [17]. As a result, the higher-quality properties preferred by developers are also to the advantage of municipal finances, both directly through the land sale mechanism and in the long term due to an increased stream of municipal tax revenue. The *national government* also has a direct interest in high price levels in the housing market. It imposes the standard 19% VAT rate on the sale of newly constructed properties, and subsequently a 6% transaction tax on every sale of an existing property. *Estate agent* fees and *notary* fees are traditionally also a function of transaction prices.

Another key party with significant price formation market power is the important *financial sector*. Here, too, structural upward pressures on price levels have been the result. On aggregate and other things equal, increasing sale prices in the housing market are reflected in higher loan advances, and correspondingly higher income streams from mortgage interest payments. And a rising trend in real price levels ensures that the value of the security underlying the loan assets of mortgage lenders, remains secure. However, the role of the financial sector is also closely intertwined with government policy and regulation. This has made mortgage loans in the Netherlands a very attractive asset for the financial sector [18].

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17 See also the earlier footnote on the mechanism of land market manipulation by municipalities.

18 Irrespective of government policy, home loans are already an attractive form of lending. For example, as mortgage loan contracts in the Netherlands involve long loan terms, typically 30 years, for the lending institution a mortgage loan involves both long-term certainty and very low overheads (risk assessment, processing costs, ongoing administrative costs, and so on) when compared to lending to the business sector. Mortgage loans on private homes also involve a much larger degree of routine than business loans. This is further facilitated by the increased use of valuations directly based on the national system of property valuation for tax purposes (the WOZ valuation system).

First, under Dutch legislation and regulation and through insurance against default, Dutch mortgage loans are a very nearly risk-free asset for lenders. This encourages the tendency to maximize loan advances relative to incomes, creating upward pressure on house price levels through the availability of ample liquidity in the market. In addition, regulatory credit restrictions have been eased over the years, against only limited tightening more recently. The most significant policy move has been a key regulatory change in the early 1990s, which widened the basis for extending mortgage loans from head of household income to total household income. This immediately resulted in the opportunity for larger mortgage advances and improved income streams for the lenders. The resulting increased liquidity in the market directly generated renewed scope for rising house prices. Finally, the Netherlands government still grants universal and effectively unlimited income tax relief on mortgage interest payments [19]. This in itself directly eases liquidity conditions in the housing market. However, the financial sector has exploited this further by very successfully introducing non-amortizing (non-repayment, interest-only) mortgage loan constructions. Thus, the periodic payments by the home owner consist only of interest. This directly increases the revenue stream for the financial sector in three ways: The full monthly payment is interest only. Mortgage loans can be higher because of the greater amount of income tax relief generated. And because there are no periodic down-payments on the loan principal, interest received on the loan does not decline over the years. But, at the same time, of course, liquidity in the housing market is eased yet further by such non-amortizing loan constructions, providing yet more scope for real house price appreciation.

At the opposite end of the spectrum, market parties with an interest in moderating price levels are few, and they are lacking in market power and in political and lobby-group representation. They are primarily *first-time buyers* and *existing owner-occupier households which split due to separation or divorce*. Unless they own significant other sources of capital, such as through inheritance, they increasingly face the prospect of having to fall back on the rented sector due to the high price levels which currently characterize the owner-occupied sector. However, this is a seriously problematic option, because the rented sector itself is highly regulated, very tight and even more supply inelastic than the owner-occupied sector.

In summary, from the point of view of price formation, the Dutch owner-occupied housing market is characterized by a perverse *fundamental asymmetric systemic structure of policies, regulation, interest groups, conditions and practices* which continue to provide *powerful structural stimuli and momentum to increase real market price levels*, with only *few and comparatively weak counterbalancing checks and controls*.

Effectively, between 1982 and 2009, and in round numbers, average house prices in the Netherlands have risen by over 5% annually, whereas average incomes have grown by 3% per

19 With the long-standing trend among moderate left-of-centre political parties also to embrace middle-income home-owning constituencies, the mere discussion of income tax relief on mortgage interest payments has long been widely assumed to be politically near-suicidal. However, in the weak economic and fiscal conditions following the 2007-2008 global financial crisis and in the face of general elections, the issue has now emerged on the agenda in centre-left policy circles in the country. Even so, it remains a highly delicate subject in Dutch politics where many conflicting interests need to be reconciled. And as a result, any policy changes currently suggested are at best very gradual and for the very long term, so as not to upset housing market sentiment and to protect the interests of current home owners.

year. This is also borne out by the strong upward trend in price-to-income ratios seen in figure 1, above. Yet, in spite of this, there is no serious debate in the country about the question whether current house prices might perhaps be overvalued.

Let us now return to the analysis and interpretation of the Dutch housing market by Igan (2010), which informed the most recent IMF assessment of the Dutch economy and of Dutch policy on the issue. As we saw, on the basis of her analysis, she concluded that current market prices are by and large in line with fundamentals. However, this analysis is simply based on explanatory multivariate time series analysis. There are two key issues, here.

First, the variables considered by Igan (2010) are some of the common standard supply and demand variables typically used to characterize housing markets which operate as markets in an economic sense. As we have seen, in the case of the Dutch housing market, this is simplistic, and it *ignores* the essential *true and real context and systemic modus operandi* of the Dutch housing market.

Second, Igan demonstrates that the explanatory supply and demand variables taken into consideration *continue to describe the observed trend in house prices well*. And then, by simply implicitly *defining or interpreting* the model's endogenous explanatory variables *as fundamentals*, the conclusion is that fundamentals explain the current trend in house prices in the country. This conclusion, in turn, logically suggests health, stability and sustainability of the Dutch housing market. However, capturing a trend in terms of correlates is neither explaining nor understanding in the true sense[20]. And key matters such as any predictive validity or any policy relevance in terms of instrumental variables, remain entirely unproven.

To reiterate, as we have just seen in our review of key aspects of the housing market in the Netherlands and the context within which this market functions, the selected traditional explanatory supply and demand variables are neither the core nor the complete fundamentals of the Dutch housing market[21]. They are merely independent variables in a multivariate econometric trend model. It is not just these standard economic housing market variables and their time-series interactions which contribute to shaping the market: Their effect is substantially modified by the powerful special and asymmetric conditions prevailing in the

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20 Use of the expression "explanatory variable" to denote an independent variable is a traditional convention in statistical and econometric modelling. However, methodologically, in the context of interpreting associations (statistical relationships) in terms of causation, and thus in the context of explanation and understanding, finding a good fit is at best a necessary condition, but never a sufficient condition. Furthermore, the simple event of finding a well-fitting statistical or econometric model per se leaves the more fundamental issue of the actual validity of model specification itself unassessed. Model specification precisely relates to a pivotal topic around which this section 1 revolves, namely our discussion of what, in fact, the fundamentals of the Dutch housing market are. Note, also, that there are direct parallels here with the distinction between technical analysis and fundamental analysis in financial investment practice. Scientifically, acting on technical analysis alone when making even slightly longer-term investment decisions, has very weak foundations in terms of verifiable or falsifiable prospective validity, both on theoretical grounds and on empirical grounds. This applies, mutatis mutandis, to policy decisions regarding the housing market, where the identification of adequate, effective and efficient operational policy instruments is of the essence. See also the discussion in the preamble concerning policy making and policy implementation.

21 See also the discussion in box 1, above, as regards how operationally to approach the concept of market fundamentals in any specific applied empirical context. It is in the elementary second step identified in box 1 where the analysis which underlies the IMF assessment of the Dutch housing market, fatally stumbles.

country and which govern, direct and influence housing market behaviour.

Importantly, the IMF misses a key warning signal which is borne out by Igan's time series analysis, and which, in fact, points to the long-term unsustainability of the empirically observed trend in house prices:

While the author, of course, has access to her full quantitative results, unfortunately she does not report her equations, denying readers the opportunity critically to assess her quantitative findings. However, one of the studies which she revisits is Verbruggen at al (2005) and its update with more recent data, Kranendonk and Verbruggen (2008), and the authors of these latter two studies do report their findings more completely. Amongst others, they specify their equation which captures the observed long-term structural trend in house prices.

Specifically, they find an elasticity of real house prices with respect to real household disposable labour income of 1.33 over 1980-2003, and of 1.53 over 1980-2007. The elasticities with respect to real household net financial assets or wealth (excluding share capital) over the two periods are found to be 0.71 and 1.63, respectively.

In other words, the long-term trend in real house prices is structurally out of sync with growth in real incomes, and, comparing the 1980-2003 time series with the 1980-2007 time series, increasingly so. And while any real household wealth growth still outpaced real house price growth over 1980-2003, with a real house price elasticity of 1.63 over 1980-2007, this relation, too, has now reversed.

Such elasticities in the order of 1.5 -- that is, a 1.5% house price increase if household incomes or wealth increase by only 1% -- are characteristic of economic necessities in tight supply conditions, and they are indicative of an inadequate market supply response. They are, of course, simply unsustainable in the long run.

A 1% increase in real household incomes, for example, cannot indefinitely sustain a 1.5% increase in real house prices. Long-term sustained growth of household incomes and wealth are both economically and socially desirable aims. Necessarily, if current trends reflect ongoing fundamentals, then the implication is that, under conditions of sustained economic growth, house prices would ultimately consume all household income and wealth.

Easing supply responsiveness through facilitating an increased rate of net new construction may, of course, alleviate this situation. In Verbruggen at al (2005), the authors report an elasticity of real house prices with respect to housing stock of -1.44. Using the more up-to-date time series, Kranendonk and Verbruggen (2008) find that this elasticity has markedly improved to -2.83, underlining the increased importance of new construction on house price levels. However, as observed, housing supply in the Netherlands is not a market response, but a policy outcome.

Currently, for many owner-occupier households, direct periodic housing costs, in round figures on average at around 25% of disposable household income [22], remain quite acceptable. However, there is a fundamental time lag effect: The financing component of this financial

22 See section 2 and further for more details on housing costs relative to disposable household incomes.

burden, currently on average at around 16% of disposable household income [23], is, of course, based on historical house prices at the time when current owners originally bought their house and took out finance. And the downward effect of historical house price levels on average periodic housing costs is reinforced by a relatively low Dutch propensity to move. In addition, as repeat buyers are normally also sellers, the real impact of the observed diverging trend between household incomes and house prices is felt to the full extent only by those market participants who enter or re-enter the market without adequate starting capital. This includes in particular first-time buyers (starters on the housing market). But it also includes, for example, existing owner-occupier households which separate or divorce and whose partners each re-enter the housing market with only a share of the net equity (net accumulated capital) in the previous home. This time lag effect can take several years yet to have a significant visible impact on the average periodic ownership costs. Consequently, such current average statistics computed over all owner-occupier households fail to do justice to the actual real and increasingly difficult conditions at market entry and re-entry. We shall return to this issue in some more depth in section 2.

The Dutch housing market is, however, vulnerable in other ways, too. Very high and rapidly rising levels of household indebtedness, in particular, are a very significant systemic risk. Consequently, one circumstance, for example, which could rapidly trigger the onset of an uncontrolled housing market crisis, is a substantial decline in average real disposable incomes, resulting in an increasingly unmanageable financial burden of ownership among existing home owners [24]. The economic recession which was triggered by the 2007-2008 global financial crisis usefully serves as a reminder of the possible occurrence such an event.

Clearly, if indeed the housing market is significantly overvalued, then any uncontrolled price correction can have serious consequences. The experience in the period from 1978, when house prices nearly halved in real terms over a 4-year period [25], underlines that the Netherlands is not immune to such events. Many existing home owners will be faced with a considerable negative equity position, that is, a situation where a sale of the property would produce insufficient revenue to redeem the remaining outstanding principal on the existing mortgage loan. As a result, they will effectively be frozen in their properties until prices have sufficiently recovered. This is, because a sale and purchase decision commonly requires the redemption of any existing mortgage loan, which is impossible under negative equity conditions. In addition, the matter is worsened because the transaction costs involved in a sell-buy decision, which in the Netherlands on average amount to some 12% of the purchase price [26], will be prohibitive under those circumstances. Consequently, the functioning of the housing market will be seriously impaired, affecting, as we have seen, many third parties who

23 The figure of 16% is *after* receiving income tax relief on mortgage interest payments.

24 Igan (2010) rightly points to the fact that household balance sheets in the Netherlands are highly leveraged. Household indebtedness has been increasing fast. While outstanding mortgages and consumer credit equalled 100% of GDP in 1998, by 2008, only ten years later, they had grown to 185% of GDP. Home-owning households, in particular, tend to be highly leveraged with elevated loan-to-value ratio mortgages. The problem is exacerbated significantly by the rapidly increasing trend, discussed earlier, to buy non-amortizing mortgage loan products so as to maximize interest payments, since these mortgage interest payments are deductible for income tax purposes without any practical limit.

25 Overall, from peak to trough, the 1978 crash lasted slightly over seven years, from the second quarter of 1978 until the third quarter of 1985. The major contraction in real prices, however, took place during the first 4 years of that period. Figure 1 clearly illustrates these events.

26 Verbruggen et al (2005), p 17.

are directly and indirectly involved, as well. Through existing macro-economic and macro-financial linkages, this would likely have a very significant recessionary impact on the broader Dutch economy, with important repercussions for the financial sector, as well.

One may surmise that, if anything, it is especially the fear of precisely such an uncontrolled event which explains the evident broad reluctance in the country to enter into a substantive national debate about the current high price levels in real terms in the housing market. In the real world of asset and many other markets, even the mere raising of the awareness of some deep structural vulnerability of a market can be sufficient to tip market sentiment, triggering an uncontrolled downturn.

At the same time, a failure to touch an important issue such as the fundamental health and sustainability of the housing market, is also a policy decision, albeit perhaps an implicit one. The consequence may well be an avoidable lack of adequate and timely information, insight and understanding, and a reckless lack of adequate and timely awareness, anticipation and preparedness.

Let us summarize our findings thus far. It will be clear that, although the findings by the IMF as regards the state of health of the Dutch housing market may sound reassuring, the IMF fails to provide the necessary and sufficient evidence to substantiate these findings.

In its analysis, the IMF merely observes that house prices are on a consistent trend. However, as we have seen from the observed divergence between the long-term trends in real household incomes and in real house prices, there is clear evidence that, at least in the long run, current trend developments cannot actually be expected to remain sustainable. To use a metaphor, the IMF notes that the clock of the Dutch housing market continues to tick as designed, but it fails to observe that this clock is wired to a potential time bomb, albeit one on a slow fuse.

Thus far, however, it is unclear whether on the trend we are still in sustainable territory, or whether a critical point is already on the horizon. Therefore, the question of whether or not current of house price levels are, in fact, still in line with a long-term healthy market, needs addressing in some depth and with a reasonable measure of quantitative precision. And, if indeed it turns out that matters in the Dutch housing market are fundamentally unhealthy already, clearly putting stability and sustainability at risk, then there is the pressing issue of an adequate policy response, aimed at avoiding the scenario of an uncontrolled busting of a house price bubble.

Building on our analytical framework and findings thus far, we shall continue our exploration of these issues in the next section 2 by assembling and assessing key financial statistics characterizing the demand side of the housing market.

2 Financial Statistics Characterizing the Demand Side

In section 1 of this report, we have seen that empirical evidence unambiguously points to the fact that price levels in the Dutch owner-occupier housing market are on a trajectory towards long-term unsustainability. However, so far, we are unsure whether or not such conditions of unsustainability have yet been reached. Our key concern in the remainder of this report, therefore, is the question whether there is, in fact, already any significant price misalignment in the current market. In the case where we indeed detect a significant price misalignment, then the obvious next two questions are, first, can we quantify the extent of this misalignment, and, second, how can we rebalance this market so as to regain a state of long-term systemic health, stability and sustainability. These latter two questions will be the subject of section 4.

As we have seen, the *supply side* of the housing market in the Netherlands is in large measure an outcome of government policy. In addition, we have observed that the supply side must be characterized as structurally inelastic, non-responsive to common market mechanisms, factors and stimuli. Further, we found market power and price formation mechanisms in the housing market to be highly asymmetric, with powerful systemic momentum and stimuli generating structural upward price pressures.

For a household, housing can be described as very much a necessity in economic terms. Demographic conditions and an ongoing trend of steadily diminishing average household sizes together contribute to continuously rising demand. The rented sector in the Netherlands is structurally inelastic, highly regulated and very tight indeed, offering very limited scope as a substitute. Consequently, we have a set of fundamental conditions where *growing demand chases a non-responsive supply*. This offers every scope for steadily rising price levels in the owner-occupier housing market, with, over time, households newly entering the market having to allocate higher and higher proportions of disposable household income so as to be able to meet their periodic house financing costs. For existing owner-occupiers, this effect is strongly mitigated: It is felt only marginally when trading up on the housing market, namely, on the price difference between the sale price and the purchase price.

Thus, in order to assess whether the housing market can, at present, still be described as healthy, a key aspect to consider is the demand side, and in particular the effectively existing *opportunity and scope for housing demand to translate into actual market participation*.

Essentially, the economically ultimately limiting demand-side factor here is the financial room for manoeuvre for households. Exploring the current state of this room for manoeuvre requires that we explore two issues, namely, *which cost components are associated with home ownership*, and *what are their sizes relative to disposable household income*.

While, as discussed in the preamble, the Netherlands has potentially very rich and complete sources of data on the housing market both at household and at house level, including on financial aspects, in practice these resources are not yet exploited to their full potential. And even those micro-data which are available or could readily be made available, remain largely restricted, even in anonymized form. This effectively precludes the detailed study of the many sources of variation in the housing market, such as by region and location, by household income categories, by other relevant household characteristics, by housing type and housing quality, and so on. It also precludes a full household life cycle analysis, tracing households during their life-time experience as far as completed in the housing market, as they enter, move through, perhaps temporarily depart and re-enter, and, finally, permanently depart, while maybe reconstituting in the process due to causes such as separation and divorce. For these same data reasons, any interactions with the rented sector are also beyond study.

Consequently, in developing objective measures of the opportunity and scope for demand to translate into actual housing market participation, we must necessarily limit ourselves to a global approach of the Dutch housing market. And specifically in terms of the longitudinal household life cycle perspective of the market, we shall adopt a longitudinal conceptual model framework based on a more limited subset of the complete but unavailable empirical observation set. The details of latter framework, of its operationalization and of the establishment of its parameter values, will be the special subject of section 3 of this report.

However, even under these data limitations, we shall, in fact, already be able to derive *amply sufficient information and insight* for the purpose of *answering our central questions*.

A recent study by Haffner et al (2008), in particular sections 3 and 5, is helpful in obtaining several of the key financial statistics characterizing the demand side. This study was commissioned by the Ministry of Housing, Urban and Regional Planning, and Environment (VROM). It is based on an in-depth analysis of, and comparison between, two recent national housing surveys, best known by their acronyms WBO 2002 and WoON 2006. These large-scale and frequent periodic sample surveys provide data which in several other countries are still collected in the complete decennial or quinquennial housing census, but in their questioning the surveys go into considerable depth and detail. In addition, the income data of respondents are now derived from the more reliable records of the national tax administration, which annually assesses individual incomes and associated tax liabilities. The ministry of Housing uses definitions which in details may be quite specific. Therefore, as regards the financial statistics of interest, we shall be more concerned with orders of magnitude and their interpretation, rather than with single Euros and cents. Furthermore, we note that the national housing surveys in the Netherlands, including the ones used here, have always been designed as independent, rather than as longitudinal (panel) surveys. And the unit of analysis in the design are categories, not individual households. Consequently, any trends at the level of households over 2002 - 2006 cannot be established. With the increased use of register-based data in future such surveys, this problem may be mitigated in the future. Finally, we note that the latest national housing survey, WoON 2009, was conducted in 2009. First findings are

reported by Blijie et al (2010). These recent but more limited findings confirm the results obtained earlier by the more in-depth analysis of financial housing statistics reported by Haffner et al (2008).

The costs of living in an owner occupied property can be broken down into five components. They are, respectively:

(1) *Net financing costs*, commonly in the form of gross mortgage obligations, reduced by associated tax benefits
(2) *Additional periodic expenses*, such as property tax, land lease payments, mandatory services levies, gas, electricity, and water
(3) Costs associated with *depreciation* of the property
(4) Costs associated with *residential mobility*
(5) Costs associated with *improvement and enhancement* of the property

Haffner et all (2008) present average statistics for Dutch households on the first two of these cost components. First, there are the *net financing costs*. Commonly, these are the costs of the periodic mortgage payments, that is, the interest charges and any periodic down-payments on the loan principal, minus the tax benefit on the mortgage interest charges paid. For 2006, these net financing costs (usually, therefore, net mortgage costs) are calculated by Haffner et al (2008, p 24, table 3.2) to be on average 16.1% of disposable household income. It is useful to add some perspective to this statistic. The tax benefit which is received by owner-occupiers on mortgage interest payments is calculated at the effective marginal personal income tax rate. Currently, this rate ranges up to 52% of taxable income. The tax benefit on mortgage interest payments is not capped. However, since 2001 it has been term-limited to a maximum of 30 years. Haffner et al (2008, p 4, table 3.2) calculate this tax benefit to amount on average to 27.6% of total mortgage payments in 2002, rising to 28.7% in 2006. This rise reflects, amongst other things, an increasing trend towards non-amortizing (non-repayment, interest-only) mortgage constructions. They also note (p 22) that in 2006 only 13% of owner-occupiers had no financing cost. These households had either paid off their mortgage debts or they never obtained a loan to finance their property.

Second, there are the *additional periodic expenses*. They include items such as property tax, any land lease payments, any mandatory services levies, gas (which is almost universally also used for heating), electricity, and water. Haffner et al (2008, p 2) find that, on average for all owner-occupiers, these additional expenses were in the order of half of the average net financing cost, but on a significantly rising trend between 2002 and 2006. This rapidly rising trend is explained principally by rising energy costs within this second cost component. Combined, net financing costs and additional periodic expenses together are found to amount on average to 25.0% of disposable household income.

Third, there are the *costs associated with depreciation*. Most durable consumer goods require maintenance during their life time. However, depreciation due to wear and tear, ageing, decay, obsolescence, and similar, is normally accepted, and ultimately the item is written off, disposed of and replaced. An owner-occupied property, is somewhat different, however. It traditionally also serves to convert a stream of household income into full and unencumbered ownership of an asset, in a process of capital accumulation. And, at least in practice, the life time of this asset is regarded, both by the household and by the mortgage lender, as unlimited

and to be protected in itself against depreciation, rather than to be written off, disposed of and replaced [27]. Thus, maintenance and upkeep in order to protect the value of the investment in the house and any grounds against depreciation are an essential cost component of home ownership.

Haffner et al (2008) do not consider these essential costs. However, a reasonable ball-park lowest estimate might be obtained as follows: Consider a simple accounting framework using straight-line depreciation, fully writing off a property over, say, 75 years [28], and assuming a land value component in the purchase price of, say, 20%. Then, this cost charge must be budgeted annually at nearly 1.1% of the purchase price [29]. At 2006 average household income and house price levels, this works out at an average amount of around 8% of disposable household income, a sum very nearly equal to the average additional periodic expenses.

In the owner-occupied sector, there are two further cost components beyond these first three. The fourth cost component comprises the significant costs involved in *residential mobility*, that is, in a decision by a household to move house (a sell-buy decision). Verbruggen et al (2005, p 17) report that these costs amount on average to around 12% of the purchase price. This includes a 6% special transaction tax levied by the central government on the purchase of an existing property [30]. Moving house therefore adds a significant further amount to the costs of living in an owner-occupied property. Expressed as a periodic payment at 2006 market price and income levels, for a household moving, say, once every 10 years, it too is, in fact, of a same order of magnitude as the additional periodic expenses, that is, on average about 8% of disposable household income.

There is, however a complication in interpreting this statistic. For an average property, whose price in 2010 is around € 240,000, the one-off costs of a sell-buy decision would now be € 28,800, to be paid at the time of the purchase. Given the large size of this amount, it has become common practice to add most of these costs to the mortgage loan. In this way, periodic smaller payments after the fact are substituted for a single large up-front payment. Consequently, in practice the amount is hidden within the net financing costs [31]. But this practice also has another important consequence. When financed in this way, the sum in question now also commands interest, and this, in effect, substantially increases the total amount which is ultimately paid as costs directly associated with residential mobility: Depending on the mortgage construction and on interest rate levels, in the case of, for

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27 From an accounting perspective, the manner in which one implements a provision for the depreciation of a durable, whether by writing off, disposing and replacing or by investing to maintain the real in situ value, is in effect less material, at least under conditions of stable real market price levels.

28 One may equivalently interpret this as writing down the value of the asset over a shorter period of time but then with a corresponding non-zero residual value.

29 In practical reality, the true amount will, of course, be more a function of actual current price levels and trends in the building and maintenance sectors of the economy, rather than a function of the market value of the property at the time when the property in question was originally purchased. In conditions of rapidly rising real price levels, this can make an important difference. As a more reasonable approximation, one may therefore instead use the 1.1% not of the original purchase price, but of the current market value of the property. For the results of our subsequent analysis, however, the distinction is not important given the nature of the analytical framework developed in section 3.

30 In the case of a newly-built house, the standard VAT rate of 19% is levied, instead.

31 In our subsequent analysis, we shall keep cost components 1 and 4 separate, however. This is possible, because as we shall see in our analytical framework of section 3, we shall treat the financing costs not as a given independent variable, but as a dependent variable whose quantitative value we wish to find.

example, a single move and a 30-year mortgage loan term, financing residential mobility costs can easily result in a total amount ultimately paid which is *double the 12%*.

Finally, we have a fifth cost component associated with household home ownership: The owner-occupiers may choose to invest in *improvement and enhancement* of the property. Typical examples are converting an attic to living space, adding an extension, adding a garage, and similar. Such structural improvements have become increasingly common in the Netherlands. Mortgage loans to finance such improvements are fiscally treated as regular home loans and they attract similar income tax relief on the interest payments. From a housing market perspective, structural home improvements can be seen as what we may call in situ residential mobility, that is, a substitute for moving up the housing ladder by physically moving home. Arguably, this behaviour is in large part a response to a supply-inelastic housing market and to the high costs associated with a sell-buy transaction. However, of course, any such additional investments in an owner-occupied property are both beyond maintenance and at the full discretion of the household. Therefore, they are not directly relevant to our discussion of market price levels and the current state of health of the housing market, and we shall not further consider this cost component 5.

Summarizing our findings as regards household financial housing statistics in round figures, for 2006 we have empirically observed average net financing costs equal to 16.1% of disposable household income, or fractionally less when costs of residential mobility are separated out; average additional periodic expenses of over 8% and on a significantly rising trend; average maintenance costs of another 8%; and, if considered separately, average costs of residential mobility at yet another 8%, but, of course, fully depending on the frequency of moving house.

In respect of these four shares of disposable household income, a household has discretion only in terms of cost component 4, the costs associated with residential mobility. It can reduce this cost component by reducing its mobility in the housing market. Developments over recent decades in residential mobility in the Dutch housing market, in fact, reflect deeper fundamental housing market issues and constraints which deserve special attention. Box 2, below, places a number of key structural developments in context.

BOX 2 RESIDENTIAL MOBILITY AND GOVERNMENT POLICY IN THE NETHERLANDS

Overall, for example by US standards, the Dutch housing market is not very dynamic. While residential mobility does not show signs of stagnation, the qualification of the Dutch housing market as *sticky* is certainly appropriate. And the market is characterized by *systemic characteristics and developments* which *tend to reduce such mobility*. This has important broader economic implications. For example, rigidity in residential mobility (a low household propensity to move) has direct consequences for the flexible and efficient functioning of the national labour market. Other things equal, the lower the propensity of households to move, then the more localized and the less nationally

integrated regional labour markets tend to become. The issue is not simply the result of the very high real costs faced by a household when it decides to make a sell-buy decision, that is, when it decides to move home. The matter is compounded by *three more fundamental factors* affecting the Dutch housing market.

First, ever since World War II, net new *house building* in the country, both in the rented sector and in the owner-occupied sector, has *structurally failed to keep up with demand*, both in terms of volumes and in terms characteristics under changing socio-economic and demographic conditions. Limited choice directly forms a barrier which reduces the opportunity in a given time frame to purchase a suitable alternative property. In large measure, this supply-side constraint is a direct consequence of tight centralized government control and regulation of urban and regional planning and of the housing market, and of the underlying utopian perceived-needs-based approach to housing policy, issues which we discussed in section 1.

Second, since World War II, Dutch government policy as regards housing has changed repeatedly, and each time quite dramatically. We already briefly highlighted the historical sequence of policies of recent decades in section 1, too. One post-war policy era in particular proved to have lasting and in several ways quite irrevocable long-term consequences for household behaviour as regards residential mobility. After centuries of essentially organic compact and concentrated contiguous expansion of existing towns and cities, deliberate government policy fundamentally altered this long-standing evolution in the 1960s and especially in the 1970s. This dramatic policy change effectively followed and implemented recent and idealistically-driven fashion trends in town planning and in architecture, namely, of radical functional separation combined with large-scale new urban development. It was a fashion which in various ways already emerged among architects and town planners before the war, such as in France, but also, for instance, in Amsterdam. The new national government policy focus, known by the moniker *clustered deconcentration*, was on selected designated large-scale residential growth centres away from the old cities. They were situated in what were rural areas, often around existing old smaller towns. House building in existing cities, towns and villages outside these designated centres, was severely restricted and capped. This national zoning strategy had powerful lasting effects, effectively *separating working and living*. It resulted in the creation of major low-density residential new towns, often far removed from the much less regulated industrial and trade zones. The latter in particular gravitated to areas characterized by a good transport infrastructure. In a time of rapid growth in personal motorization, the result was effectively *habituating the Dutch population to lengthy daily commutes* [32].

The third key factor affecting residential mobility is related to changes in *government regulation regarding mortgage lending*. Regulation traditionally restricted the income basis for granting home loans to one single income within a household, commonly the highest. But this restriction was relaxed in the 1980s. Lenders were now allowed to consider the *total household income* as the basis for assessing the upper limit to the size of

32 Public transport is often advocated as a remedy against the inevitably resulting severe congestion of the road network. However, despite significant continuing investments in public transport, and despite ongoing massive structural operational subsidies, outside the major and densely built-up conurbations the beneficial effect of public transport on road congestion inevitably remains minimal.

home loans. This policy change took effect in a time when it had long become socially acceptable, and increasingly common, for both partners in a nuclear family to work. Broadening the basis for home loans directly increased the liquidity in the housing market. But, as we have seen in section 1, this market is highly supply-inelastic. At the same time, housing is very much a necessity in an economic sense. Consequently, this regulatory relaxation not only accommodated for, but also contributed to, the steady rise in real house prices of recent years. In fact, opportunity turned necessity:

At current price levels in the housing market, it is now usually a necessity for a household to have a double income in order to be able to afford an own home. But this also has a direct effect on reducing residential mobility in at least two ways: As the place of work of partners in a household may be in quite different locations geographically, daily commuting of at least one partner often is both an inevitability and a habit. And, as a result, a change in employment is no longer seen as the powerful reason in itself which it once was, to look for a new place of residence close to one's work. But, at the same time, moving to a new home beyond reasonable commuter distance because of a change in employment of one partner in the household, usually means that the second partner also has to look for alternative employment. This has become very much an inevitable imperative associated with non-local residential mobility, because that second income, too, is now often essential in order to be able to meet the financing requirements for owner-occupiers. Both changing home -- and changing all else that comes with changing home -- and changing two jobs, all simultaneously, is a challenge which many households will prefer to forego.

Thus, it would be an oversimplification to try to explain the relatively low household propensity to move which is seen in the Dutch housing market, merely in terms of household behaviour towards reducing housing costs by avoiding the direct costs associated with a sell-buy decision [33]. It is principally a result of the many decades of micro-management of the Dutch housing market through an intricate and mercurial complex of government policies, some pro-active, many remedial. This has created structural conditions in the housing market which continue to contribute to depressing the household propensity to move.

Among the remaining cost components associated with being an owner-occupier, the first one, the *net financing costs*, also deserves more detailed scrutiny. At first sight, the average of a 16.1% share of disposable household income reported by Haffner et al (2008) may not seem unduly disturbing, and this statistic may not immediately set any alarm bells ringing. The casual reader may even be left with the impression that the value of this statistic actually sketches a reassuring picture of the affordability of current price levels in the Dutch housing

33 These costs could, of course, be cut by half with immediate effect, namely, by abolishing the repeated 6% special tax levied by the national government on the sale price of any existing property each time it is resold. It is a special tax which would appear to serve no obvious beneficial social purpose, and it sits uncomfortably within the broader general structure of taxation in the Netherlands. The fact that this unique tax is not subject to review supports the view that the very high costs for households in the Netherlands which are associated with residential mobility, are not, in fact, a serious policy concern.

market. However, that would be a fundamental misinterpretation. Specifically, there are four important issues which must be considered in order to be able to place this cost component into proper perspective. They are:

(1) Income tax relief on mortgage interest payments
(2) The nature of average net financing costs statistics
(3) Levels of household indebtedness
(4) Developments in mortgage interest rates

We shall deal with each of these four issues in the remainder of this section 2.

First, the government policy of granting quantitatively unlimited *income tax relief on mortgage interest payments* is a discretionary measure [34]. It is a fiscal policy which leaves income in the private sector, rather than appropriating it for the public sector [35]. But at the same time, it is also a policy which effectively, and in significant measure, counters the principle of progression in the Dutch personal income tax system. To realize such progression, incomes are subjected to a staggered system of tax rates, with higher marginal rates, currently up to 52%, applied to higher segments of personal income. On average, higher-income households typically also have higher-value home loans. Reflecting the effect of these factors combined, Haffner et al (2008, section 5) find, for example, that in 2006 the average effective tax benefit in absolute terms, that is, in Euros, for households with an annual taxable income above € 90,000 was exactly 4 times higher than it was for households in the category up to € 25,000 [36]. Thus, the end result of the mortgage interest tax relief policy is a redistribution towards higher-income households, not only of income but also of the capacity to grow wealth. Using the data presented by Haffner et al (2008), the abolition of this tax benefit would raise the average net financing costs from slightly over 16% of disposable household income to over 22.5%. In other words, scrapping this policy would represent an average increase of the periodic ownership costs for an owner-occupier household by some 6.5 percentage points. Clearly, this represents a significant impact on the average disposable income of home-owning households.

However, in this context it is also worth noting the figure of 13%, quoted earlier, of owner-occupier households which have no financing costs. Generally, these are households which have no or no more mortgage obligations. It has long been customary in the Netherlands to grant home loans with a 30-year term. Traditionally, the assumption has always been that the total debt would be redeemed in these 30 years, resulting in full and unencumbered ownership of the property. This figure of 13% appears low [37], suggesting a tendency to refinance, rather

34 The duration of this income tax relief has been capped at 30 years. This limitation to the period over which the income tax benefit may be enjoyed has been effective since 2001. At the time of the introduction of this policy change, a special concession was made for mortgage loans taken out before 2001 in order to ensure that the impact of this measure on those older loans will also be felt only from 2031.

35 It would be less correct to say, as is often done, that these are moneys lost from the public purse. As stated, more properly, they are simply moneys not appropriated.

36 These statistics are for multi-person households, aged under 65.

37 Full analysis would require a proper cohort perspective, fully accounting for historical demographic structure and trends and specific by home ownership and its financing arrangements. Likely, the availability of data specific by the necessary variables on home ownership and financing will prove the main bottleneck in such an analysis. Retrospective questioning on this topic in the periodic national housing surveys conducted by

than to strive after the traditional Dutch values to pay off, save for the future, and live debt-fee. One may surmise that this is not only the result of a perpetual lifetime desire to keep moving up on the housing ladder. More likely, this is also in part a response to the important financial benefits obtainable through income tax relief on mortgage interest payments.

Recent evidence for the latter can be found in a development which, both from a micro-economic and from a macro-economic perspective, must be qualified as worrying. This is the rapidly growing prevalence of modern *term-unlimited non-amortizing* (non-repayment, interest-only) *mortgage loan constructions*. These constructions make no provision for the repayment of the loan principal. They thus eliminate the repayment element and maximize the interest element in the periodic household financing costs. As a result, these loan constructions very effectively *maximize the income tax benefit* received, while at the same time *allowing for the largest mortgage loan* affordable given the disposable income of a household. By the end of the 1980s, such non-amortizing mortgage constructions were still unheard of. But, according to Haffner et al (2008, p 57-58), by 2002, 33.5% of all households with a mortgage loan had opted for a full or partial interest-only loan construction, and by 2006, this figure had already risen to over 44%. This has made the non-repayment mortgage the most popular type of mortgage loan in the Netherlands by far, tending to relegate the linear and annuity stalwarts of old to relative oblivion.

However, this recent development in financing arrangements also suggests that, in the trade-off between directly available disposable household income and the long-term growth of wealth, the desire to create and grow personal wealth through home ownership is less of a consideration than it might seem at first sight. The perception among home owners of "*government-subsidized renting from the bank*" appears increasingly attractive. At least for the time being, the sword of Damocles, in the form of the 30-year maximum term, set as from 2001, to income tax relief on mortgage interest payments, seems no effective deterrent yet against these inherently risky constructions [38].

Furthermore, and as another direct effect of this government policy to alleviate the costs of home ownership, the benefit of the national redistribution of household income through the income tax relief enjoyed on mortgage interest payments is not only skewed towards higher-income households. It is also skewed increasingly from households towards the mortgage lenders. Macro-economically, the recent strong trend towards mortgage constructions designed primarily to maximize interest payments, effectively means that larger and larger proportions of disposable household income are *siphoned off from the real economy* and channelled direct *into the financial economy*.

As discussed earlier, prior to the June 2010 general elections in the Netherlands, there has been some movement among the major moderate left-of-centre political parties to reduce the tax relief on these interest payments. But this appears to have been motivated principally by the rapidly increasing amount of tax revenue interpreted as foregone as a result -- from some

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the Ministry of Housing (VROM), however, appears a useful method to shed more light on this matter.

38 This issue reinforces the need to introduce retrospective questioning in the periodic national housing surveys, focusing specifically on the history of financing of owner-occupied properties by households. The outcomes of such questioning are likely to provide valuable insights into, and awareness and advance warning of, both the *systemic dangers to the housing market* and the *risks to households*, which are associated with the rapid proliferation of non-amortizing mortgage loan constructions.

€ 7 bn in 2004 to some € 11 bn in 2009. In a time of severe fiscal constraints in the aftermath of the 2007-2008 global financial crisis and the ensuing economic downturn, the opportunity to raise additional tax revenue is, rightly or wrongly, seen as attractive. Considerations of social justice, specifically as regards the effects of the current tax policy on income distribution, appear to play a subordinate role at best. Any possible rebalancing of price levels in the housing market in line with more healthy fundamentals appears not to be regarded as an issue of relevance at all. In fact, maintaining confidence in the appropriateness of current house price levels in order not to generate any negative market sentiment in uncertain times for the national economy, appears paramount. In all, any moderate left-of-centre party manifesto proposals to make changes to the system of income tax relief on mortgage interest payments, are very modest, such as a cap at the top-end of the market. In addition, any such structural tax regime changes would be gradually phased over a period of decades to be widely felt. Full abolition is not suggested for the foreseeable future. And, of course, under the Dutch system of compromise coalition government, manifesto pledges, even if converted into actual policy, rarely survive entirely unadulterated.

The second issue as regards the net financing costs statistic is of deeper methodological importance when it comes to interpreting its value in the context of the current state of health of the Dutch housing market. The *average net financing cost figure* after tax relief of 16.1% (or 22.5% before tax relief) of disposable household income reported by Haffner et al (2008) is a *cross-sectional measurement*. It *disregards any longitudinal (or cohort) perspective* on the housing market. This is an elementary issue in the interpretation and assessment of housing market statistics:

Financing costs are settled at the moment of purchase of a property. The periodic mortgage payments only change to the extent in which changes in mortgage interest rates are carried through. The average household has made its home purchase many years in the past. Consequently, the reported net financing costs of 16.1% represent *historical house price levels*, *not current house price levels*. And as we have seen [39], real house prices in the Netherlands have been rising steeply since the 1980s. This rise will take many years to filter though in the *average* demands made on household budgets. But do so, they inevitably will.

Haffner et al (2008, p 50) indeed observe one direct reflection of this: They note that with increasing duration of residence in the same property, the average net financing costs drop quickly. However, it is all too easy for a casual reader to misinterpret this. This is a cross-sectional conclusion for 2006, comparing the net financing costs of cohorts which differ as regards duration of residence, and thus as regards the purchase date, under historical conditions of rapidly rising market price levels. Importantly, we do not have a system in a steady state, where every cohort in the future can self-evidently expect to experience this effect in the same way as time goes by and as their durations of residence increase.

The long delay in the trickle-down effect of steadily rising real asset prices on average financing costs statistics in a housing market is both deceptive and pernicious. It is a direct consequence of the fact that, so long as an existing home-owning household *either* does not move *or* exercises a sell-buy decision without trading up on the housing market, then their net

39 See, for example, figure 1 in section 1.

financing costs do not increase. Let us give an example to illustrate the latter, that is, moving without trading up.

Consider a household which has, for instance, financed a € 110,000 property, say, 15 years ago. Now, let this household exercise a sell-buy decision, buying a similar quality property valued today at, say, € 250,000. Then the financing costs for the household do not rise, because the value of the property which they sell has also increased to € 250,000. There is merely a windfall profit in terms of accumulated wealth. But this windfall profit has no real economic significance, unless the household chooses actually to monetize it, for example, by trading down on the owner-occupied housing market or by exiting the market altogether. Further, only when the household decides to trade up on the housing market, for example, by buying a similar property but in a more desirable location, will their financing needs in fact rise, but even then only marginally so, namely, on the difference between the selling price and the buying price. In summary, the periodic household financing costs associated with an owner-occupied property are characterized by a *fundamental historical-market-price lock-in effect*.

This *very slow trickle down effect* of appreciating real market price levels on the financing costs computed as an *average* over all owner-occupying households, *can easily make a housing market asset price bubble seem insignificant*, allowing it to persist and inflate for long periods before it finally reaches the point where it begins fundamentally to erode confidence in the housing market. The urgency is simply concealed by the momentum of the legacy of the past in terms of *existing* home ownership. And, in addition, overall, *on average even for starters* on the housing market the effect of a bubble in house prices is *mitigated by any intergenerational wealth transfers*, reducing average net financing needs.

As a result, over time, the average of 16.1% (or 22.5% before tax relief) of disposable household income required to finance an own home is *merely a cross-sectional observation* on a *structurally rising long-term trend*. In their study of household expenditure on owner-occupied housing, Haffner et all (2008) appear to miss the essence, and especially the long-term importance, of this crucial point.

Next, there is a third key issue regarding financing in the owner-occupier housing market in the Netherlands. This is the pressing matter of *household indebtedness*. Total indebtedness due to home-ownership financing needs has *grown steeply over recent years*. This reflects a combination of rising house prices and growth in home ownership. Haffner et all (2008, p 56) report a 2006 level of private home-ownership-related indebtedness equal to 111% of GNP. And earlier, in section 1, we already saw that Igan (2010) found that outstanding mortgages and consumer credit in 1998 together stood at 100% of GDP, rapidly rising to 185% by 2008. She found home-owning households in particular to be highly leveraged, with high loan-to-value ratio mortgages.

These are values beyond epic Greek proportions, approaching even the intractable Japanese sovereign debt mire [40]. Haffner et al (2008) observe that this debt is covered by the total asset

40 The main difference with the sovereign debt of Greece is, that this Dutch private household debt is largely internally financed. This ensures a higher level of stability and a lower risk of shocks due to exposure to the vagaries and vicissitudes of international credit markets. In this respect, the household debt situation in the

value of the Dutch housing market, in 2006 standing at 213% of GNP. This, however, is a misinterpretation. The security provided to the lenders is tied to the specific properties on which a mortgage loan has been extended.

Further, Haffner et al (2008) calculate an average loan-to-value ratio of 0.52 for 2006. In a mature housing market, the value of this statistic in itself is already high. However, here one has to bear in mind that, on average, longer ownership corresponds both to higher house values and to lower levels of mortgage-related indebtedness. And we have also seen, for example, that 13% of owner-occupier households are entirely free of any mortgage debt. It follows, and the statistics for 2006 bear this out[41], that the situation in terms of loan-to-value ratios is dramatically worse in particular for younger households, for starters on the housing market, and even for households moving on in the housing market.

Clearly, such very high leverage ratios pose significant systemic risks, not only to the housing market itself, but also to the broader economy and to the financial sector: If erosion of market confidence would lead to a prolonged slide, or even a crash, in real house prices, then these ratios would increase yet further. It would result in positions of negative equity (that is, a loan value which exceeds the asset value) on a wide scale.

Finally, there is a fourth issue of relevance in relation to house financing costs. This concerns developments in *mortgage interest rates*. Mortgage interest rates since 1975 have fluctuated markedly. But after a peak, touching 11%, in the early 1980s, overall there has been a downward trend to a dip just below 4% around the middle of the new millennium's first decade[42]. Further, in the Netherlands it has long been common to agree fixed rates for long terms, most usually today for a period of 10 years.

Consequently, the effect of historically low interest rates can be carried through in observed financial statistics on the housing market for many years. Specifically, in cross-sectional analysis of housing market data, the effect of this on average current financing costs statistics is similar to that of the legacy effect of historical house price levels. However, in the case of mortgage interest rates, the length of the effect is a function of the fixed interest rate time spans of the underlying mortgage loans.

Furthermore, there are two closely related developments in the aftermath of the 2007-2008 global financial crisis, which suggest that a continuation of the declining trend in mortgage interest rate levels seems extremely unlikely in the foreseeable future. Regulatory requirements as regards the capital adequacy of the banking sector are being tightened, and this adds to the cost basis of the institutions involved. And there are tendencies amongst lenders to become more risk averse and to charge higher risk premiums. Especially when Eurozone economies emerge from low levels of post-recession growth, stronger *appreciation of mortgage interest rates* than suggested by past experience *must* therefore *be expected*.

Netherlands is more akin to that of the sovereign debt of Japan. However, this latter similarity is at least in part only superficial. At a deeper level, there is yet a distinction, namely, as a result of the degree to which Dutch mortgage lenders themselves are dependent on international wholesale markets for funding.

41 Haffner et al (2008) give more details in table 5.3 on p 57.

42 See, for example, Haffner et al (2008), figure 3.1.

At the same time, in the Netherlands, too, the financial crisis has resulted in a marked shift of the burden of both debt and risk from the banking sector to the public sector. Inevitably, this puts pressure on government budgets. In the end, this, more than anything else might prove instrumental in a revision of the discretionary fiscal policy of income tax relief on mortgage interest payments, making households bear more of the full burden of the actual interest rates on mortgage loans.

We conclude this section 2 on financial statistics characterizing the demand side of the Dutch housing market with a general cautionary observation. As emphasized throughout this section, at all times the quantitative results presented above relate to *average* disposable household incomes in the owner-occupier sector, and to *average* costs of ownership. Such averages *do not capture diversity*, and they are also notoriously *sensitive to extreme values* in skewed distributions, such as in income distributions and in house price distributions [43]. If we consider, for instance, households with an annual disposable income of up to € 17,600 in 2006, then Haffner et al (2008) find net financing costs associated with home ownership amounting not to 16.1% of disposable household income, but rather to 26.3% [44].

However, these statistics and their interpretation do provide us with sufficient empirical insights so as to be able to explore the economically ultimately limiting demand-side factor identified at the start of this section, namely the financial room for manoeuvre for households. As we have seen, under the current fundamental supply-inelastic conditions of the Dutch housing market, this limiting factor is a measure for the effectively existing opportunity and scope for housing demand to translate into actual market participation, and therefore it is a key indicator of the continued healthy functioning of the Dutch housing market.

Clearly, for an adequate insight into the current state of health and into the long-term sustainability of the market, a longitudinal household life-cycle perspective (as opposed to a cross-sectional approach) is essential. And the challenge which we shall face in the next section is the creation of just such a perspective, both conceptually and empirically.

43 Note that this is a point which is entirely separate from the fact that Haffner et al (2008) entirely ignore that they are dealing with sample data. The authors fail to account for the empirical uncertainty inherently associated with sampling variability. However, the periodic Dutch national housing surveys involve very large sample sizes, and therefore the uncertainty surrounding the key national average statistics quoted by us, is likely to be limited.

44 Haffner et al (2008), p 49, table 5.1.

3 Measuring the Health and Sustainability of the Dutch Housing Market

In section 1 we have found that price levels in the owner-occupier housing market in the Netherlands are on a long-term trajectory to structural economic unsustainability. Our key objective in this report is to assess whether current price levels in the owner occupier housing market in the Netherlands can at the moment still be qualified as healthy. And our specific aim is to express any *deviation from healthy price levels* in terms of a *quantitative standard*. Developing such a quantitative standard will be the focus of the present section. Developing and empirically operationalizing a standard for measurement involves a number of choices. Building on the findings in the preceding sections, we shall explicitly discuss all the choices made. Finally, we shall present the *quantitative results* of our measurement. Next, in section 4, we shall discuss our key conclusions and a range of practical policy recommendations to address any issues found.

In a perfectly competitive market, the actual observed market clearing price is a measure of what are, by definition, healthy price levels [45]. However, in the preceding sections, we have seen that, given the fundamentals of the Dutch housing market, this market cannot reasonably be described as one characterized by perfect competition; far from it, in fact. In particular the supply side is the result of a changeable complex of top-down micro-managed -- and not seldom contradictory -- government policies aimed at engineering behaviour, society and the built and natural environments [46]. One key result is an inelastic supply side, which is not responsive to normal economic market forces. In addition, in many ways these government policies also extend to steering the demand side. Furthermore, the market is surrounded by agents and factors which combine to generate highly asymmetric market power conditions, resulting in strong systemic upward pressures on price levels. As a consequence of these fundamental market conditions, actual market clearing price levels cannot simply be interpreted as healthy without significant further qualification. This, therefore, leaves us with

45 See also box 1 in section 1, above.

46 The Netherlands no longer has any true natural environment. All "natural" landscape elements are a result of human intervention and engineering.

the question of how to measure the state of health of current actual observed price levels in the Dutch housing market.

One approach which we might consider in order to measure this state of health, is *supply-side* based: Specifically, as a measure of the value of each owner-occupied property we could consider the actual true *replacement costs*. It is perfectly possible to measure the amount, in today's prices, which it would cost to build any given existing owner-occupied property, allowing for land prices and for the state of maintenance and repair. However, from an economic perspective, given our analysis of the fundamentals of the Dutch housing market, such a supply-side approach based on replacement costs makes no sense. There are many reasons for this.

We have, for example, seen in section 1 that land prices themselves are a deliberately and arbitrarily manipulated policy outcome. The analysis would also not consider that a large part of house building projects in the Netherlands are carried out in planned construction streams, in co-ordinated medium to large-scale development projects involving many different parties in the building industry. Quantifying the benefits of scale would be surrounded by uncertainties.

But, most important of all, over the past decades, the construction industry has simply built within the ever expanding financial space offered by rapidly rising real sale prices, and within the physical and regulatory space determined by government policy. There is every likelihood that, as entrepreneurs, the construction industry has simply taken advantage of these conditions, and that the industry has adjusted actual property construction accordingly. This will then directly manifest itself in the nature and quality of the existing housing stock (the product), as well as in the efficiency of the construction industry itself (the production process). Thus, if, in fact, we do indeed have conditions of unsustainably misaligned price levels in the market, then the actual replacement costs in that case would simply be a direct reflection of this misalignment. Consequently, instead of an objective measure of market health, we would have a circular argument, and we would inevitably find that current price levels are appropriate and representing fair value.

In a market where supply is largely an opportunistic policy outcome, and not responsive to normal market forces, it is the *demand side* where the response must come from. Here, we have to consider that, in economic terms, housing is very much a *necessity* for a household, rather than an optional luxury good. In addition, the scope for *substitution*, in the form of an accommodating rented sector responsive to normal market forces, is severely constrained.

The highly centrally-planned and regulated rented sector in the Netherlands is both tight and rigid, and even less responsive to market forces than the owner-occupier sector. The rented sector offers, for example, no realistic scope as an effective market alternative to reduce any price pressures within the owner-occupier sector, let alone as a possible sink for absorbing any large numbers of households which might conceivably consider to exit the owner-occupier sector. As a direct result of deliberate government policy, there has, in fact, long been a sustained declining trend in the size of the rented sector relative to the owner-occupier sector, reflected in relative net build volumes and conversions. For example, as recently as 1986, the share of owner-occupied properties was still only 43% of all housing in the Netherlands; but by 2009 it had already risen to 59% (Blijie et al, 2010). Further, in terms of

dynamic exchange between both sectors, inflows into the owner-occupied sector, including through conversions, have long structurally tended to exceed outflows into the rented sector, with much of it taking place at the margins (Blijie et al, 2010, p 31). Haffner et al (2008, p 74) observe that the two sectors are, in fact, showing an increasing tendency to grow apart, developing as two separate markets.

In a supply-inelastic market and in the absence of effective opportunities for substitution, any sustained growth, however modest, in demand for a necessity, driven by for example socio-economic and demographic change, offers every scope for continued long-term structural upward pressure on price levels. However, on the demand side, the *continued long-term ability to absorb rising price levels* in the housing market is *constrained by* the *financing capability of households*. Importantly, though, as explained in section 2, in the actual functioning of a mature housing market, this constraint does not affect the majority of households in the owner-occupier sector. In the first instance and primarily, it specifically bears on the financing capability of those households *which first enter the market*, and, to a lesser extent, also of those households which choose to trade up on the market. Other things equal, this financing capability is a *direct function of disposable household income*.

However, as we have seen, *exogenous conditions* cannot be ignored here. In recent years, conditions have developed which have quite dramatically improved *ample and easy demand-side liquidity* in the Dutch housing market. By the first decade of the 21st century, interest rates had reached historical lows, effectively enlarging the financing capabilities of households. Further, government regulation had significantly stretched loan eligibility and size criteria, allowing for easier and larger home loans. And, as discussed, the Dutch government did not adjust its policy of quantitatively unlimited income tax relief on mortgage interest payments, even in the face of steeply rising mortgage loan sizes. In addition, mortgage lenders offered innovative and imaginative loan products designed to stretch loan sums yet further, exploiting in particular this government income tax policy. Encouraged by the limited default risks for lenders associated with mortgage lending in the Netherlands, financial institutions also proved readily willing to advance to the maximum loan sums stipulated in the code of practice for mortgage lenders[47]. As pointed out by, for example, DNB and AFM (2009), lenders were, in fact, increasingly found to exceed these norms for maximum mortgage loan amounts as a matter of routine lending practice.

In terms of house price levels, these market conditions resulted in an *average (arithmetic mean) sale price* of approximately € 240,000 at the start of 2010[48] (Kadaster[49], 2010). Unfortunately, the Kadaster does not provide any information as regards the price distribution, such as sale numbers (volume of sales) by price categories, nor even some

47 This code of conduct for responsible mortgage lending practice is known in Dutch as the "Gedragscode Hypothecaire Financieringen" or GHF.

48 After briefly peaking well above the € 250,000 level before the economic recession in the wake of the 2007-2008 global financial crisis, according to Kadaster data house prices by 2010 appear to have more or less stabilized, at least for the time being, around this € 240,000 mark.

49 The Kadaster is the Dutch Cadastre or Land Registry. However, in addition to completely and continuously keeping a register of titles (legal ownership and any incumbent rights), location and delineation of all land parcels, the Kadaster is also responsible for, amongst other things, completely and continuously registering the legal ownership of all buildings, any encumbering rights, including details of mortgages, as well as sale prices.

summary measure of the price variation about the observed arithmetic mean value [50]. This is unfortunate, because in our analysis below we shall need such information, most particularly in order to evaluate the *median market price* [51]. The availability of firm empirical evidence regarding the distribution of actual market prices would have made it unnecessary to develop an estimation procedure later on in this section 3.

Note that this average sale price is not necessarily equal to the average market value of owner-occupied properties in the Netherlands at that point in time. The average recorded sale price is based on actual sales in any given month, and at any point in time most owner-occupied properties are, of course, not for sale [52]. Further, sale numbers (volumes) tend to biased towards the lower-priced segment of the market. On the other hand, in the computation of the average (arithmetic mean), sales of small numbers of highly-priced properties can have a disproportionate upwards effect on the resulting value of the statistic.

In addition, the Kadaster statistics relate to sale prices of existing properties (that is, of second-hand properties) only. They do not include data on the sale prices of newly-built properties [53]. Government policy in recent years has been promoting new construction especially in the higher price categories. As the € 240,000 sale price statistic does not reflect

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50 Perhaps this is at least in part motivated by the difficulties associated with the interpretation of such data. The Kadaster house price statistics are based on monthly data. Market price fluctuations from month to month are the resultant of the combined effects of actual price changes and of the quality composition of the stock sold in any given month. See also Van der Wal and Tamminga (2008), who discuss this issue in the context of house price index construction.

51 Note for non-statisticians: Stated informally, the median market price is the *middle* price. More precisely, half of all properties (namely, the 50% of all properties which were the cheapest) were sold at a price below this median price, and the remainder (that is, the remaining 50% of all properties, namely, those which were the most expensive) were sold at a higher price than this median price. Because of the manner in which the common average (arithmetic mean) value is calculated, the sale of only a comparatively very small number of very expensive properties can significantly push up the recorded average (arithmetic mean) price. However, for the vast majority of properties sold, this average price then is *not characteristic or typical*. This makes the commonly quoted average value less useful if our aim is to characterize the "typical" price level in the market. The median value, on the other hand, is not sensitive to such extremes. Therefore, the median value is a better indicator to express "typical" price levels in the market. A similar argument holds true for, for example, income data. Here, recorded average incomes can be pushed up (or be portrayed favourably) greatly by the presence of a comparatively few excessively high earning individuals or households. The median income as an indicator of general income levels is not sensitive to such atypical outliers.

52 The Dutch national system of property taxation (WOZ) does assess the market value of all properties on an annual basis. However, in so doing, the value of properties not recently sold is imputed, using the actual market price of similar properties sold recently and allowing for quality (property and location) differences. Price trend estimates are used to obtain all value assessments retrospectively as of the uniform legal reference date of 1 January of each year. These WOZ valuations are the basis of property taxes. The valuations may be appealed, and this appeal system tends to ensure that, de facto, these valuations do not, on the whole, exceed actual true market values. When the WOZ system was first introduced in 1997, the extent of undervaluation in WOZ surveying practice was significant. However, in recent years, the approximation of true market values has become closer. Finally, we note that, as regards the housing market, WOZ valuations cover the total housing stock, that is, not only all owner-occupied properties, but also all rented properties.

53 Kadaster (2010) explains that this data restriction applies to the computation of the price-index numbers presented in the report. But the Kadaster report in question fails to mention that this reservation also applies to the absolute sale volumes and to the absolute € sale prices presented. However, the StatLine database of Statistics Netherlands (CBS) which also contains these Kadaster data, does properly identify this fact. De Haan et al (2008) confirm that the Dutch Kadaster does not even record the sale prices of newly-built houses at all.

the sale prices of any newly-built properties, it is reasonable to expect that the *true average sale price* in the owner-occupied housing market will, in fact, have been *higher*.

Nevertheless, this € 240,000 sale price statistic constitutes a reasonable reference market price *for the purpose of our subsequent analysis*. As we have seen in section 1, IMF (2010) found current price levels in the Dutch housing market not to be a cause for concern, and suggested that, if anything, recent modest declines might signify a period of undervaluation. It is our objective to test this assertion. By taking a low measurement of the average market price as our point of reference in our analysis, *we shall be erring on the cautious side* when measuring the actual true degree of overvaluation in the Dutch housing market. Below, we shall return to this issue on a number of occasions when motivating some of the choices made.

Given this framework and context, our key objective, next, is to explore *whether this current market value agrees with a market equilibrium price which, at the present moment, is still structurally sustainable*.

From our analysis so far of the fundamentals of the Dutch housing market, it follows that, in operational terms, structurally sustainable at the present moment effectively means, that the *current purchasing power of Dutch households* is *still sufficient* so that they can afford to *enter and remain in the housing market at this current price level*.

Specifically, we already know from section 1, that, on the continuation of current trends, the Dutch housing market is not sustainable in the long run. What we are interested in determining and measuring quantitatively here, is, whether or not *at the present moment* such an unsustainable condition has been reached yet. In other words, we shall assess *actual current market conditions*, assuming that current price and income levels remain stable.

This latter assumption, however, represents an unnecessarily strict formulation. To assess the sustainability of *current* market conditions, it is, in fact, sufficient to assume that future real disposable household income appreciation and real house price appreciation develop in line [54]. In other words, we shall not consider any continued excessive real house price inflation -- and associated unearned capital windfalls for existing home owners -- in the housing market which may result from a still further tightening of market supply conditions relative to developments in demand. And, similarly, we shall not consider the event of an excessive rate of growth in real disposable household incomes relative to developments in real house prices, or, equivalently, a significant drop in real house price levels relative to developments in real disposable household incomes.

Statistics on *disposable household incomes* are available from Statistics Netherlands (CBS). At the time of writing, the most recent year for which complete statistics have been published is 2008. This is not a very serious limitation, as it represents the data immediately before the start of the economic recession which resulted from the 2007-2008 global financial crisis. Indications are that, since then, there has been no upward movement in the income statistics

54 Effectively, we shall express matters in today's prices.

which we shall use here [55]. And as a result of post-recession government austerity measures aimed at reducing the national budget deficit and the level of sovereign debt, it is reasonable to expect that any growth in disposable household incomes will, at best, remain very limited indeed for the foreseeable future [56].

Importantly, as regards gross to net deductions, the CBS statistics on disposable household incomes are *after the effect of any taxes on income*. Thus, for households which qualify for any income tax benefits resulting from mortgage interest obligations, the benefits received are already reflected in the statistics in the form of correspondingly higher disposable incomes. In other words, from an accounting point of view, for the households concerned, the full interest charges payable on a mortgage loan bear on this disposable income.

Furthermore, we shall present a *central result* only. We shall not disaggregate our analysis by, for example, income categories, household age and composition, housing type and quality, regions within the country, and so on. We leave such more detailed refinements for further research. But we do note, that, in so doing, we do not do justice in particular to those home owners and prospective home owners who find themselves at the bottom end of the housing market for owner occupiers.

Above, we have seen (Blijie, 2010) that, at present, 59% of households are owner occupiers, and that this percentage is steadily rising. According to CBS statistics, which give results for quite broad income categories only, in 2008, 60.1% of households had a disposable household income of € 24,000 or more [57].

The *median disposable household income* for this year was slightly above € 28,000. In other words, in 2008, *half of all households* had a total disposable household income *higher than this amount*. And, conversely, the other half of all households had a total disposable household income of less than € 28,000. Nearly 30% of owner-occupier households belonged to this latter group of below-median income households.

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55 CBS income data for 2008 show, for example, an average annual disposable household income of € 33,500. Preliminary CBS data for 2009 give an average of € 33,400.

56 From the point of view of data consistency, it might at first sight appear more logical to use 2008 data on house price levels in our analysis, as well. In the course of that year, average sale prices recorded by the Kadaster for existing properties briefly peaked at an all-time high, just below € 262,000, or more than 9% higher than our reference value of € 240,000. Since that time, however, price levels in the housing market have fallen back somewhat, and by the middle of 2010, they appear to have stabilized around our € 240,000 reference mark. Our aim is to assess the long-term health and sustainability of the Dutch housing market *as it is at the present moment*. Therefore, using 2008 house price data would effectively mean that the quantitative findings of our analysis would already be outdated at the time of writing. Furthermore, a specific key objective is to assess whether, and if so, to what extent, current house price levels are overvalued. As we have seen, the issue of possible housing market overvaluation is contentious -- with, for example, IMF (2010) arguing that there is no such overvaluation (see section 1, above). Therefore, we choose to take a cautious approach, *preferring a conservative lower estimate* of the actual true degree of overvaluation. As explained, 2008 data on disposable household incomes may be taken as a reasonable proxy for (as yet unknown) current disposable household incomes. If anything, the actual 2010 disposable household income levels will prove to be slightly lower. So, if we match these 2008 household income data with 2010 housing market price levels, then we are *erring on the safe side*.

57 Clearly, these two income and home-owning categories do not fully overlap, as there is also the rented sector to be considered.

The *average* (*arithmetic mean*) disposable household income, both for all households and for home-owning households, was significantly higher. However, as explained earlier in this section 3, because of the way in which this average (mean) statistic is computed, the outcome is very heavily influenced upwardly by the presence of relatively small numbers of high-income households. These average (mean) incomes are therefore not very typical for the majority of households.

Figure 2 illustrates the distribution of disposable household incomes in 2008, both for all households and for owner-occupier households.

Figure 2 Distribution of Disposable Household Incomes 2008:
All Households and Owner-Occupier Households

As we have seen, in its essence a mature *housing market* may be characterized as a longitudinal (or time-dynamic) *flow market*, whose functioning over time is strongly associated with *household life cycle behaviour*.

In the basic *in-through-out scenario* of the housing market, the majority of households starting on the owner-occupier housing market, will be in their early careers, also in terms of income. However, there are also *other relevant flow scenarios* within the housing market. Some typical examples are existing owner-occupier households which merge through partnership formation, and existing owner-occupier households whose partners split. From a financial point of view, the most critical one of such other scenarios is the latter, the break-up of existing owner-occupier households through separation or divorce. Such a dissolution of an existing household effectively results in two new households. Apart from any tax effects, this also divides the disposable household income into two parts, not usually equal in size [58].

Within the framework of a *long-term sustainable* housing market, the *starters* on the housing market are, by elementary definition, *able to afford the financial expenditure associated with home ownership* [59]. Let us now consider a typical household starting on the housing market,

58 Depending on the break-up arrangements, one party might stay in the current property, or this property might be sold. However, the end result always is one additional new candidate household for the housing market, as well as two households on smaller household incomes. Any new ownership might be preceded first by a spell in the rented sector. It may be debatable how to describe such resulting new households from a housing market perspective. For example, if the existing property is sold, then the two new households were both existing owner occupiers, albeit as a single household. And so, one might argue that they are both movers in the housing market. But in that same case one may equally argue that only one can be a mover, as only one property is sold. And then, the second new household must again be a starter on the housing market. From our perspective here, such finer matters of terminology -- household focused or property focused -- are immaterial, however.

59 It is also useful to consider the opposite. Were traditionally typical starters no longer able actually to enter the market on the grounds of financial affordability, then the routine *fresh inflow* into the housing market

and let us explore this key issue of financial affordability of home ownership.

For a comprehensive picture, we would, of course, like to follow such a household over its life cycle in the housing market as time progresses and up to the present moment, charting the complete financial details regarding home ownership and income as they develop over time. However, there are no longitudinal statistical data available to carry out such an ambitious task. Given the central objective of our analysis, such a full analysis is also unnecessary: Commonly, any financial bottlenecks are felt most acutely at the start of the career of a household in the housing market. Disposable household income is often still lower than later on in the life history of the household. And that is also the moment when the key parameters are first set as regards the financial burden associated with participation in the housing market [60].

Specifically, we shall explore the following scenario: We consider a typical household which, in the course of its life history, has reached the *median disposable household income level*. They are owner occupiers by having purchased a *property with a median market value* [61]. The point in time of the purchase itself is immaterial -- it may be the current point in time of actual observation of the household, but it may equally well have been at some earlier date. Our only concern is the value at the time of the purchase. This value equals the median price in the current price distribution in the housing market. Furthermore, this scenario is, in fact, general: It may, of course, be interpreted as a starter scenario. But it may also be taken as the scenario of a household where some embedding in the owner-occupier housing market has already taken place; in the course of its life history, the household may even already have traded up on the housing market to acquire its current property. We shall use this typical household as our case study *standard* model in our assessment of the current price levels in the Dutch housing market [62]. First, we shall discuss the income and housing expenditure side,

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would effectively be *throttled* and *starved*, threatening long-term systemic sustainability. Other things equal, in such a case the market could regain its healthy long-term flow dynamics only by a rise in real disposable household incomes relative to real price levels in the housing market, or, equivalently, by a decline in real house price levels relative to real disposable household incomes. However, as we have discussed in section 1, the functioning of common supply and demand responses associated with competitive markets, and of the corresponding price formation mechanism, has been very significantly disabled in the Dutch housing market. Under these conditions, it is not to be expected that the market would per se rebalance itself to regain its former healthy dynamical state.

60 In terms of mortgage financing obligations, for example, for most common mortgage constructions the periodic financial burden taken on at that point in time will only ever be affected by changes in interest rates, unless the household decides, later on in its life history, to trade up or down on the housing market. And during the life history of the household, this nominal burden may be eroded in real terms by inflation.

61 House prices in a supply-inelastic housing market with abundant demand and ample demand-side liquidity, as in the case of the Netherlands in recent years, are typically heavily skewed towards higher values. Variation in prices below the arithmetic mean price is significantly less than it is above the mean. And the median price is considerably below the mean price. Thus, a property with a median market value is likely to fall in the lower or, at best, the lower-to-medium quality segment, depending on the region within the country. It might, for example, be an apartment in one of the bigger cities, a former right-to-buy social sector rented property, or somewhat above.

62 It is important to note that the value of the property in which our standard household is currently living, is not of decisive importance in our subsequent analysis. We shall merely use this value as a standard or yardstick to obtain a quantitative measurement of the current degree of overvaluation in the Dutch housing market. However, entirely independently of the value of this property, we shall also obtain separate quantitative measurements of the maximum price level in the housing market, expressed in current prices, which the standard household can afford. If so desired, then these latter results can be set against any alternative

and after that we shall discuss the question of the value of the property.

Thus, our standard household today has a disposable household income of € 28,000 for the year, that is, just over € 2,300 per month. In other words, it has just come to belong to the 50% of all households with the highest disposable household incomes in the country. In other words, in terms of income our household cannot reasonably be described as atypical. Also, as regards home ownership, too, the household is not in any way exceptional: As we saw in figure 2, nearly 30% of all owner-occupier households have a disposable household income which still remains below this median income value.

Let us allow this owner-occupier household a very modest net remaining disposable income of € 1,250 per month to cover all household outgoings except those directly associated with housing. That is to say, their housing expenses are allowed to absorb slightly over 46.4% of the total disposable household income. This remaining amount of € 1,250 per month is not yet quite a bare subsistence level, although this is clearly dependent on specific household conditions, in particular on the actual household composition. The amount of € 1,250 has deliberately been chosen so as to allow our prudent household some -- albeit very limited -- room to deal with moderate adversity, such as, for example, a need to absorb the effects of an unanticipated increase in mortgage interest rates. Alternatively, it might afford the household some limited ability to save. The latter could, for instance, prove invaluable when having to cope with ongoing housing expenditure in the face of unexpected temporary declines in income, such as through unemployment.

Clearly, many starters will, in fact, be on below-median disposable household income levels when they first enter the market. In many such cases, their choice to take the opportunity to grow household wealth through home ownership -- rather than the wealth of a landlord from whom they might rent accommodation instead --, may well put them under yet greater financial strain than the one currently faced by our standard household. And, of course, the picture becomes dramatically worse in terms of available disposable household income remaining after housing costs, if the system of income redistribution through the income tax relief which is still granted on mortgage interest payments, would be abolished.

Next, let us assess the periodic costs for our household which are inevitably associated with living as owner-occupiers. From section 2, we recall that the household faces four essential cost components, namely: (1) net financing costs, with the financing usually being in the form of a mortgage loan; (2) additional periodic expenses, such as property taxes, water and energy, and so on; (3) costs associated with depreciation of the property, that is, maintenance costs; and (4) costs associated with residential mobility.

Our standard household has 46.4% of its disposable income, or € 1083 per month, available to meet the total financial obligations resulting from its home ownership. A reasonable estimate of cost component 2 for our standard household is € 271 per month [63]. This, therefore, leaves

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reasonable and plausible yardstick to obtain corresponding overvaluation measurements on that yardstick.

63 Blijie et al (2010) report a 2009 cost-component 2 figure of 10% of disposable household income for the average household. For an average household, all four cost components together take about 40% of disposable household income (see section 2), as against 46.4 for our standard modal-income household. Taking (46.4/40)×0.10, or 11.6%, of the monthly disposable household income of € 2333, we obtain our

€ 812 per month in all for the remaining three cost components. Further, in section 2 we have seen that cost components 3 and 4 are in large measure proportional with the price of the property, although component 3 may tend to increase over the years in line with actual developments in real building and maintenance cost levels [64]. According to our findings in section 2, these two cost components may reasonably be budgeted at approximately 1.1% and 1.2% of the property price, respectively, per year. Consequently, for cost component 1, the financing costs, the standard household has a total amount available per month of € 812 minus 1/12 of 2.3% of the property value. That is to say, this latter sum is the total financial space -- the financial room for manoeuvre -- which our standard household has to meet its monthly mortgage obligations, and therefore the house price which it can afford [65]. The key issue to address, therefore, can now be formulated as follows: Is this financial room for manoeuvre under the present market conditions sufficient so as to enable a standard household to obtain adequate finance to meet current price levels in the housing market. Before addressing this question, let us first assess the financial parameters established for our household in some more detail.

Living on a disposable household income of € 1,250 per month after housing, is no life of luxury. So, it is an obvious question first to *ask whether* our standard household *could perhaps stretch this sum*. This is an elementary question, because if the answer proves to be affirmative, then, equivalently, the household could, instead, make its total housing budget of € 1,083 per month go further on the housing market. In other words, then a higher market price level would still allow the household to participate successfully in the housing market under current conditions.

Clearly, the household could opt to trade down on the housing market, freeing up some of the moneys now spent on financing obligations (cost component 1). This would also translate in minor reductions in cost components 3 and 4. However, as the final results of our analysis, later on in this section 3, will show, this is not a realistic option. Cost component 2 is also no option for economizing. To the contrary, in fact: This component is, instead, on a strong upward trend (Haffner et al (2008), Blijie et al (2010)), in particular as a result of the continued ongoing steep rise in energy costs [66].

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estimate of € 271 per month. Comparing this estimate with the actual amounts empirically observed for various income categories by Blijie et al (2010), this estimate appears entirely reasonable.

64 For our analysis here, the effects of such potential future increases in maintenance costs are not directly relevant, as we are exploring the health and long-term sustainability of the current status quo of the housing market. However, these effects could actually be felt if our household had purchased its current property some considerable number of years ago and if the market value of their property had appreciated significantly since.

65 Note that, other things equal, a lower property value reduces the absolute size of cost components 3 and 4. This lower property value, of course, also directly results in correspondingly lower periodic mortgage obligations. However, a reduction in the size of cost components 3 and 4 in turn generates more financial space for cost component 1 within the overall amount of € 812 available for these three cost components together, which in its turn again allows for a somewhat higher property value. Computationally, the solution which balances the books is found by a simple procedure, the details of which we shall not discuss here.

66 As explained in the case of maintenance costs, we are assessing the health and long-term sustainability of the housing market as it is at the present moment. Thus, for the purpose of our analysis here, we can disregard the long-term effects on future budgets available for housing of the strong exogenous upward trend in energy prices. Note, furthermore, that the above estimate of € 271 per month for cost-component 2 for our standard household is based on the most recent empirical data presented by Blijie et al (2010), rather than on the older

But our median-income household could indeed reduce its 46.4% housing burden -- or, alternatively, make its € 1083 monthly budget go further on the housing market -- in two ways. It could consider cutting down on maintenance (cost component 3) and/or it could postpone or reduce subsequent future sell-buy actions in the housing market (cost component 4).

However, by significantly cutting down on the budget for essential maintenance required to keep up the real value of the asset, the household would quickly find itself in breach of the terms and conditions of its mortgage contract. The property is the security for the mortgage lender. And with a view to preserving the quality of this security, the borrower is contractually obliged to maintain the property, as it is often still phrased in somewhat old-fashioned legalese, as a good father of the house. Also, by substantially cutting down on the budget required to maintain the real value of the own home, the household would essentially set itself on a long-term trajectory to living in a slum dwelling. In addition, of course, it would undermine the key notion of home ownership as a means of accumulating household wealth.

So the only effectively remaining option is the fourth cost component, namely deferring or cancelling any subsequent sell-buy decisions in the future. In the extreme case, this would mean that the first house owned by a household is bought for life. Moving in the housing market in the Netherlands is an extremely costly affair, amounting, as we have seen in section 2, to some 12% of the purchase price [67]. Half of this is due to a unique special 6% tax levied on residential mobility for owner-occupiers [68].

However, micro-economically for the household itself, a choice significantly to reduce residential mobility in the course of its life history can easily cause conflicts with household life-cycle events. Macro-economically, a reduction in residential mobility is highly undesirable, too. For example, the resulting reduction in the dynamism of the flow nature of the housing market translates directly into a reduction in the dynamism of, and in the optimal allocation of human resources within, the national labour market: It contributes to the breaking up the national labour market into regional catchment areas confined by reasonable commuting distances [69]. But it would, for example, also do little to help easing the demand for

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data given by Haffner et al (2010).

67 It is useful to put this in perspective, for example for an average-income household and for an average-price property. Let us recall that the average market price of a house at present is some € 240,000, and that the average disposable household income currently stands at around € 33,500 per year. This therefore means that, without trading up or down on the housing market, the costs involved in a single residential move amount to *86% of the total annual disposable household income*. We reiterate that this is merely for a straight swap, that is, for obtaining another similar property, not a higher quality house in the form of a more desirable property and/or a more desirable location. The sheer size of the amount involved explains why households commonly finance this sum to the extent possible and legally admissible within their overall mortgage loan. However, as mentioned earlier, the effect of such financing is a very significant further increase in the costs associated with residential mobility: Depending on interest rate levels, the resulting interest charges can easily double the effective total cost of a residential move over the full term of a mortgage loan.

68 This 6% property transaction tax is a remnant of an ancient tax system in the Netherlands which long pre-dates modern principles of taxation. Economically, today, it simply functions as a friction tax, impeding the healthy flow dynamics in the housing market without good reason.

69 This freezing and locking up of the dynamism in residential mobility and the resultant trend to labour market

transport and the steadily increasing congestion on the Dutch national road system.

We conclude that, both from the micro-economic point of view of optimal life cycle behaviour of the household and from a macro-economic point of view, a dynamic housing market is essential. Any reduction in the budget allocation made for the costs associated with residential mobility has a direct detrimental effect on such housing market dynamism, and is therefore undesirable [70].

Given the above financial parameters for the standard household, we can now ask what this means for the maximum property price which is still within reach. The answer depends in part, of course, on the *financing construction*. For our analysis, we shall consider only financially prudent and general standard financing constructions.

Specifically, therefore, in our analysis we shall rule out financial home loan excesses such as any non-amortizing (non-repayment, interest-only) loan constructions where no household wealth is created. We shall take home ownership in the true sense of the notion of ownership, so that the financing construction must lead to real wealth accumulation expressed through actual and ultimately unencumbered home ownership. Similarly, we shall not consider any other financing constructions which have been designed largely or entirely around the objective to maximize the benefits obtainable from government-policy based sponsorship through income tax relief on mortgage interest payments. These policies are fully discretionary, and, at least in principle, the benefits may be limited or even completely withdrawn at any time. Such a policy change could therefore radically affect the market price levels which correspond to a healthy housing market and to a housing market which remains sustainable in the long run. Further, we shall exclude any speculative high-risk mortgage loan constructions, such as term-limited interest-only schemes which are tied to an investment portfolio. Finally, for our analysis of price levels in the housing market, we shall also disregard any special individually-tailored and exotic loan products.

"localization" are developments which, in fact, have already been well under way in the country for many years. Increasingly since the 1960s, residential mobility is no longer seen as a natural remedy to even out regional differentials in tightness and ease within the national labour market. This applies to households, for whom moving is very costly and, in most parts of the country, also difficult due to housing market supply constraints. But it is also reflected in government policy. For example, the choice not to relocate is not regarded as a legitimate cause to restrict unemployment benefit, even if suitable employment is available in another part of the country.

70 On a concluding note as regards the method of accounting for this cost component 4, we observe that we could instead have opted simply to add the 12% costs associated with the purchase of a property to the purchase price. In that case, the household would, of course, be faced with correspondingly higher financing costs (cost component 1). And this form of accounting for cost component 4 would then more closely reflect actual common practice in the Netherlands. However, by transferring it to the financing costs, this transaction cost component then, of course, attracts interest, and this effectively raises its level. Consequently, given its total budget for housing and other things equal, the maximum house price level still within reach of the standard household would then be reduced. And therefore our analysis would more readily point to an overvalued housing market. As mentioned, our guiding principle is to err on the cautious side as regards the measured degree of overvaluation. Our approach to dealing with, and accounting for, cost component 4 follows this guideline by eliminating this interest charge. This is justified, because, at least in principle, this interest charge is realistically avoidable by the timely making of adequate periodic reservations.

In practice, therefore, this reduces the options for the purpose of our subsequent analysis to two traditional loan constructions, namely, to the linear mortgage loan and the annuity mortgage loan. From an accounting point of view, when assessing whether or not current price levels in the housing market reflect a healthy and sustainable state, there is much to be said in favour of a linear loan. However, as regards monthly financial obligations over the term of the loan, a linear mortgage loan is heavily front loaded. In our analysis, it would, other things equal, inevitably mean denying access to the housing market to more starters than an annuity-based scheme would do. In line with our stated desire to err on the safe side in our assessment of the health of current market price levels, we shall therefore choose to use an annuity loan as our yardstick, as this allows the greatest level of market participation under current market price conditions. Further, we shall consider the currently normal Dutch time to maturity of 30 years, by which time full and unencumbered ownership will have been acquired.

As regards financing arrangements, it is important to reiterate, that the statistics on disposable household incomes used throughout in this section 3, are after allowing for any and all effects of any taxes on the household income. Thus, the effects of any income tax relief obtained on mortgage interest payments has already been discounted in the amounts shown [71]. Consequently, for household budget accounting purposes, our standard household will have to meet the full monthly annuity payments out of its financing budget (cost-component 1), without being able to expect any further windfalls from the tax payer.

Further, we have opted for an annuity mortgage. Apart from any variations in the interest rate, the household therefore has to pay the same monthly amount throughout the term of the loan, be it when it first purchased the current property, or by our point in time of observation during its life cycle when it has reached the median household income level, and potentially so on until the 30-year term will finally expire. Effectively, as explained, all that we require for our analysis is, that, under very reasonable assumptions and at the precise point in time during the life history of the household when we make our observation, the costs associated with its owner-occupier status are just bearable, given its disposable income at that precise point in time. Clearly, therefore, the financial burden may, in fact, well have been significantly more pressing earlier in its life cycle when the household in question actually first bought its current house.

An important variable affecting financing costs for owner-occupiers (cost component 1) are, of course, *mortgage interest rates*. They will have an important bearing on our findings, and we therefore need to consider this issue in some detail. Let us recall our earlier discussion on the matter. In recent years, interest rates for mortgage loans have been in steady decline, reaching a historical low of around 4% per year by the time of the 2007-2008 global financial crisis. But the Netherlands also has recent memory of rates significantly higher, up to around 12%.

Above, we have argued that, in the emerging new conditions after the financial crisis, this 4%

71 Again, in line with our guiding principle to err on the cautious side, we elect to perform our measurement of the degree of overvaluation in the Dutch housing market under current conditions, that is, accepting the fact that any excessively high price levels do not in themselves represent overvaluation insofar as this excess reflects the additional demand-side liquidity which has been directly created by this government tax policy.

level is not sustainable in the medium to longer term, and that there is every likelihood that mortgage interest rates will structurally appreciate. In fact, by 2010, rates have already firmed somewhat from this 4% low. Once again, choosing to err on the cautious side, let us assume the following scenario for the purpose of our analysis here: We shall assume that the long-standing prudential German-Dutch axis will prevail in European Central Bank monetary policy making [72], and in particular that the current fiscal and sovereign debt problems of the financially less responsible members of the Eurozone will not be handled through a general monetary policy of asset erosion by allowing high levels of inflation. Further, we have to consider the regulatory tightening of liquidity and solvency requirements in the banking sector in the wake of the 2007-2008 global financial crisis. This tightening will inevitably translate in structurally rising costs for the financial sector. And this increase in the cost base will be recovered, at least in part, by an increase in the lending-borrowing interest rate spread.

Under this set of conditions, it may well be reasonable to expect that -- especially after some substantial economic recovery following the recent economic recession -- mortgage interest rates will rise by at least between 2 and 4 percentage points to between 6% and 8%. We shall take the more modest 6% figure as central guidance in our assessment, but we shall also explore the implications of the 4% and 8% levels. These annual percentage rates of 4%, 6% and 8% correspond to effective annual interest rates of 4.074%, 6.168% and 8.300%, respectively.

When discussing the financial parameters associated with household home ownership, one final matter to consider is that of any *intergenerational wealth transfers*. For most households which would benefit from any such transfers, this would be the result of inheriting parental wealth accumulated through parental home ownership. In our analysis, we shall disregard the effects of such transfers. There are three reasons for this choice.

First, given the average life expectancy in the Netherlands, which is now in excess of 80 years, it would be extremely unlikely for such a transfer already to occur within the first several years of home ownership by our standard household. More likely, if at all, they could expect to benefit only later in life, when they have already made substantial progress in their home-owning life history. Thus, it would be of little value in practice in facilitating housing market entry, that is, in assisting the standard household to become home owners in the first place. And, during the early years as owner-occupiers in the housing market, when the financial burden of home ownership tends to be felt most acutely, any intergenerational wealth transfer expected at some as yet unknown point in time in the future, does little to help making ends meet. Thus, the real practical effect of such wealth transfers on the flow dynamics of the housing market lies more in facilitating trading up on the housing market later on in the life cycle of the household. However, the ability to trade up later in its life history is beyond the core issue of housing market accessibility and affordability addressed in

72 In recent years, the traditional Dutch contribution to effectively maintaining this policy of monetary prudence has, of course, increasingly become partial at best, in that it more and more relates to sensible *government* budget deficit and debt levels only. As highlighted in section 2, between 1998 and 2008, the level of outstanding *household* mortgage debt and consumer credit combined has risen explosively from 100% of GDP to 185% of GDP. In 2008, some 85% of this overall household debt burden was mortgage related, and this percentage, too, is on a steady increase. Clearly, prudence in terms of maintaining healthy and sustainable household debt levels, appears to have been allowed to go entirely by the wayside.

this report.

Second, although the proportion of households in the rented sector is on a steadily declining trend, even today such households still make up around 40% of all households. Their offspring would, of course, not usually be able to benefit from any such intergenerational wealth transfers deriving from parental home ownership [73]. Now let us assume for a moment the event of starters and recent starters on the housing market already being able to benefit in significant measure from intergenerational wealth transfers -- an event which, of course, we have just seen to be very unlikely. Then, given the current fundamental characteristics of the Dutch housing market (see sections 1 and 2), price levels of typical market entry and early market career properties would reflect the presence and availability of such wealth among significant numbers of starter and recent starter households. In turn, the resulting higher price levels at this lower end of the market would inevitably simply contribute to perpetuating into the next generation the existing inequality between the two categories of (recent) starters, namely, those receiving a windfall wealth benefit resulting from parental home ownership, and those who do not. Such inequality has no basis in merit nor in social justice. And it is therefore undesirable that any assessment of the state of health of current price levels in the housing market would be an a priori function of any such inequality.

Third and finally, in the recent past the Netherlands has witnessed levels of house price inflation very much in excess of general inflation levels within the broader economy. The growth in property prices also significantly outstripped developments in income levels (see also figure 1). Consequently, any intergenerational transfers of wealth resulting from existing home ownership reflect in important measure unearned windfall wealth gains. In other words, they are not a proper reflection of real economic relations within the Dutch economy. Our objective is to assess the true intrinsic health and long-term sustainability of current conditions in the housing market. If we make the notion of market viability in part dependent on such inflationary windfall wealth gains, then this would result in an undesirable distortion of our assessment. And it would make it very difficult indeed to interpret the findings and to evaluate these on their real economic merits.

We conclude this matter by noting that in section 4 we shall revisit the issue of wealth accumulation through home ownership and the associated matter of intergenerational wealth transfers.

Finally, we need to consider the matter of the *market value of the property* owned by our modal-income household. The reason for this is as follows: As explained, the fundamentals of the Dutch housing market are such that trends in market clearing prices cannot a priori be taken as a valid measure which reflects the intrinsic health and long-term sustainability of market conditions. Thus, in these circumstances, the common approach -- as adopted, for example, by Igan (2010) -- of interpreting any short-term deviations from this trend as periods of overvaluation or undervaluation, is misguided and meaningless [74].

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73 A more definite analysis of the financial interaction between the rented sector and the owner-occupied sector as a result of intergenerational wealth transfers would require proper longitudinal cohort data, following kinship-related households more completely over their life histories in both markets.

74 See section 1 for a detailed discussion of this issue.

However, this observation in itself, of course, leaves the key issue of quantitatively measuring the degree of overvaluation in the Dutch housing market in an objectively verifiable manner, unresolved. As the use of market price trend data is ruled out as a valid measurement standard, we need an alternative reasonable and plausible yardstick. In line with the household-focused framework of analysis developed thus far in this section, we shall use the value of the property of our standard household for this purpose. However, clearly, other reasonable and plausible yardsticks are conceivable. Such other yardsticks may result in somewhat higher or lower estimates of the actual current degree of overvaluation in the Dutch housing market. But it remains important to realize that this choice of measurement standard does not affect the core issue addressed in this section 3, namely the financial ability of households, and in particular of starter households, to participate in the housing market. If market entry is structurally throttled and starved by overinflated market price levels relative to disposable household incomes, then the long-term systemic viability of the Dutch housing market is fundamentally at risk.

In the starter scenario, where our standard household is first entering the housing market at the precise point in time when we make our observation, we require that this household is able to purchase a *median-priced property*[75]. As we have discussed, depending on the part of the country, this will be a property in a quality segment which varies from lower to lower-to-medium. We recall that prices within the bottom half of the market are considerably more clustered than they are within the upper half. Thus, outside some economically peripheral areas, the real opportunity for our household to enter the market at a very significantly lower price will in practice be limited. We also note here, that, in terms of disposable income, our household is exactly on the threshold of the top 50% in the country, and that some 30% of existing home owners are on lower incomes. Thus, entering at or near the very bottom of the housing market would be an unrealistic assumption, and also an unrealistically harsh one, for our household.

The question now is, what is, in fact, the current median market price in Euros. We recall that, as a result of the 2007-2008 global financial crisis and the ensuing economic recession, average (arithmetic mean) market prices had experienced a modest decline to more or less stabilize, hovering around the € 240,000 mark, in the first half of 2010. Unfortunately, however, as we have seen earlier in this section 3, the Kadaster, the key official source of current housing market price data, does not publish any data or statistics regarding the distribution of market prices around this observed average (mean) price of € 240,000. Consequently, we are not in a position to evaluate the median price direct from the raw data. However, we can make a reasonable indirect estimate.

The housing market is characterized by long-standing structural tight supply conditions, by buoyant demand, as well as by high real price levels going back as far as the 1990s. Over the years, as a result, for a large section of home owners except the wealthiest, home ownership

75 In the more general scenario where our standard household has entered the housing market at some unspecified earlier date and where we catch up with this household at the precise point in time during its life history when it has reached the median disposable household income level, we require that, at that point in time of actual observation, it has financial costs associated with home ownership which are equivalent to those applicable in the starter scenario. In other words, the price paid for the current property at the time of purchase takes a median position in the distribution of current prices in the housing market. These scenarios are more fully discussed at the beginning of this section 3.

has become a realistic option only if they take out a mortgage loan near the maximum affordable given their current and expected future income levels. In this highly supply-inelastic market, prices in recent years have simply adjusted upwardly to levels which absorb the demand-side liquidity available in the market. Consequently, there must be a good correlation between disposable household incomes and market prices.

However, this correspondence between disposable incomes and market prices does not apply in the same way to the higher end of the market, that is, to the higher income categories and the more expensive properties. There is every reason to assume that in that market segment the elasticity of supply is significantly greater [76]. It follows that those house prices do not follow incomes to the extremes seen in the upper tail of the income distribution. Overall, therefore, the median value of the house price distribution will lie closer to the average (mean) value than is the case for the income distribution.

Consequently, if we take the ratio between the observed median income and the observed average (mean) income as an approximate proxy for the ratio between median and average (mean) house prices, and if we apply this proxy ratio to the observed average house price of € 240,000, then we will obtain a *lowest plausible estimate of the median house price*. Likely, actual median house price will, in fact, be higher. However, this is not undesirable from our perspective, because, as a result, we shall again err on the cautious side when it comes to quantitatively measuring the degree of overvaluation in the Dutch housing market.

Referring to the statistics displayed in figure 2, we have an average (mean) to median multiplier of 280/335 for the income distribution. Applying this multiplier as a proxy to the observed average house price of € 240,000, then we obtain a value of € 200,600 as a lowest plausible estimate of the current median house price in the market [77]. And we shall take this

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76 One reason, for example, is the relative freedom, strongly encouraged by government policy in recent years, and the greater ability of financially better endowed households to have a house built on demand and to specification. This is an option which in practice is not realistically available to the average household in the Netherlands.

77 In order to verify the order of magnitude of this estimate, we have developed an independent separate estimate, using market value data compiled through the national system of property taxation (WOZ) and available from Statistics Netherlands (CBS). While the Kadaster does not publish data on the distribution of actual house sale prices, CBS does publish data on the WOZ value distribution, albeit in a fixed and coarse classification. We use WOZ value data with reference date 1 January 2007. These are the most recent data before the onset of uncertainty in the WOZ valuation process as a result of the observed decline in sale prices after the Summer of 2008. From Kadaster data, we have that the weighted average sale price of existing owner-occupied properties for the 12 months centred on this date of 1 January 2007 was just over € 241,600. From the CBS data, we find an average (mean) WOZ value of € 233,000 and a median value of € 198,500. Applying the corresponding mean to median multiplier of 1985/2330 to our mean value of € 240,000, we obtain an estimate of the median value of € 204,500. This is nearly 2% higher than our earlier estimate of the median market price of € 200,600, giving us confidence in the quality of the estimation procedure developed above. One reason for the difference between these two estimates of the median may well lie in the fact that available data on the WOZ valuations are for the total housing stock. They do not distinguish between properties on the market and properties not on the market. Nor do they distinguish between owner-occupied properties and rented properties. Rented properties on the whole are of lower value than owner-occupied properties. Possibly, furthermore, within this mixed WOZ distribution, the distribution of the value of the rented properties is somewhat less skewed to the right than that of the owner-occupied properties. In summary, we conclude that our € 200,600 estimate of the median market price is a *reasonable* estimate. And in the assessment of whether or not the current Dutch housing market is overvalued, we prefer it over the WOZ-valuations-based median value of € 204,500, because it is a lower and therefore a more *conservative*

value as the reference for our standard household. We note, incidentally, that, at this estimated median market price of € 200,600, there will be several parts of the country where our household would today find it very difficult indeed even to find a property.

This completes our assembly of the financial parameters for our typical standard household. And we are now finally in a position quantitatively to address our core question: Is the housing market for owner-occupiers in the Netherlands at the present moment financially still healthy, so that, if present financial conditions persist, we have a dynamic housing market system which remains sustainable in the long run. And, if not -- that is, if the market is structurally overvalued and throttling healthy market entry levels (viable levels of access to starters on the housing market) --, then what is the degree of this overvaluation.

We have made this conceptually simple but operationally quite elusive matter measurable by expressing it in terms of a central measure [78], defined as the affordability for a typical standard household -- a household which, in the course of its life history, has arrived at the median disposable household income level -- to enter the owner-occupier sector of the market and to remain as home owners. The results are presented in table 1.

Table 1 Maximum Purchase Price in a Long-Term Sustainable Housing Market (Euros) and the Degree of Overvaluation of Prices in the Dutch Housing Market

Annual Interest Rate	Maximum Purchase Price	House Prices Overvalued by
4.00%	€ 121,400	65.2%
6.00%	**€ 102,600**	**95.5%**
8.00%	€ 87,700	128.7%

As regards column 2 of table 1, we underline that these prices measure the *maximum price levels* in a housing market which, *under current economic and fiscal conditions*, is systemically sustainable in the long run. They represent the maximum market prices which still reflect a structurally healthy and viable housing market.

In addition, in column 3 of table 1, we also present the degree to which actual current house

estimate. This is again in line with our earlier stated position, namely, that we prefer to err on the side of caution when it comes to our quantitative measurement of the degree of overvaluation in the Dutch housing market.

78 Clearly, this analysis can be extended by adding more detail to account for variation, such as, for example, variation in property type and quality, in household type and composition, in income levels, by region and location, and so on. And significantly more detailed insights could also be obtained from a more complete longitudinal analysis, following both the supply side and the demand side over time in a full cohort framework. However, such further analysis is beyond the scope of the present report. We note that it would also pose very considerable additional demands on the availability of data.

prices in the owner-occupier housing market in the Netherlands are overvalued.

Clearly, a picture emerges which can only be characterized as an *excessively overvalued housing market*. Taking our central 6% rate of interest as guidance -- as discussed, a very modest rate given the expectations as regards developments in mortgage interest rates in the immediately foreseeable future --, then prices in the Dutch housing market are currently at *close to 100% above levels which are sustainable in the long run*.

In assessing these results regarding the degree of overvaluation, it is important to reiterate that the percentages shown in column 3 of table 1 are the *lowest plausible estimates*, as they are based on an estimated true median market price level of € 200,600. As explained earlier, this value of € 200,600 is the lowest reasonable approximation. There is every reason to assume, that the actual real median market price is higher than this. And a higher true median market price than the one assumed here, will directly result in column 3 percentages which are correspondingly higher.

As an alternative perspective on the degree of overvaluation in the Dutch housing market, it is also illustrative to show the consequences on the household budget if our typical standard starter household would own its own home when, in fact, this home would indeed have been priced at € 200,600 [79]: At a mortgage interest rate of 6%, the monthly housing costs would consume 80% (€ 1,858 per month) of the total monthly disposable household income of € 2333. At 4% and at 8%, we have 69% (€ 1,613 per month) and 91% (€ 2,127 per month), respectively. Once again, we recall here, that these are lowest plausible estimates. Under actual current market conditions, the true impact of home ownership on the disposable household income would likely be higher still [80].

As will be clear from the discussion above, it is entirely reasonable to expect that the typical standard household used in this assessment, should be able to become home owners. Half of all households in the Netherlands have a disposable income which is less than that of our standard household, and of all owner-occupier households, in fact, nearly 30% are on a lower income than our standard household (see also figure 2).

Further, we may also consider the scenario where our household was not a starter on the housing market at the point in time of our observation, but instead an already existing home owner. If this household was still at a below-median income when the actual purchase of the maximally affordable home (table 1, column 2) was originally made, then it has likely been facing a disposable household budget after housing costs of even less than our minimum norm of € 1,250 per month.

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79 For the sake of simplicity, we shall assume that cost-component 2, including most notably energy costs, water and local taxes -- and assessed for our standard household at € 271 per month --, are not increased by living in a self-owned property whose value exceeds the values shown in column 2 of table 2.

80 Yet another perspective on the degree of overvaluation of Dutch property prices might be the following: At current price levels, the maximum purchase price affordable at the 6% mortgage interest rate level (see column 2 of table 1) will, today, buy the household no more than approximately three average garage spaces for parking a household car in The Hague.

It is important to bear in mind that the assessment in this section 3, and thus the findings in table 1, are based on maintaining current economic and fiscal conditions. In particular, we have assumed throughout that the current Dutch tax regime remains unaltered. In other words, the results shown in table 1 incorporate the effects of all current tax costs and benefits for home owners. As we have seen, this regime very substantially subsidizes and sponsors home ownership. Consequently, if, for example, the current system of income transfers to home owners through income tax relief on mortgage interest payments were to be limited or scrapped in the future, then the picture emerging of an already excessively overvalued housing market, would be altogether bleaker still.

Summarizing our findings against the background of the discussion in sections 1 and 2, it emerges that there is a *deep fundamental dislocation between supply and demand in the Dutch owner-occupier housing market*, which *expresses itself*, amongst others, *in structural highly overvalued market prices*.

This is a dislocation which remains largely hidden from view when using many of the common cross-sectional average statistics to typify and characterize this market. Cross-sectional analysis of a system which by its very nature is, instead, a time-dynamic longitudinal or cohort system, can be highly misleading. Through its full life history, each such individual cohort carries along with it the results of its own experience of the events and conditions which occurred and applied at the time of experiencing. If such events and conditions change over time -- such as over the past several decades in the Dutch housing market --, then another cohort will have a different life history. Simply cross-sectionally averaging out the characteristics of all cohorts observed at one given point in time yields statistics which are likely to be invalid and atypical for most, if not all, individual cohorts.

In particular at present this is a key issue as regards the sustainability of house price levels, because so much of the market and its existing burden of financing measured in cross-sectional averages is based on the persistence or momentum of old prices from a period which has witnessed massive house price inflation. This is the very reason why, given the constraints of available official data and statistics, we have focused analytically on the concept of starters in the housing market in order to assess the state of health and the long-term sustainability of the essential longitudinal market flow dynamics.

With this observation, we conclude the present section. In the following section 4, we shall focus on conclusions, and in particular on policy recommendations aimed at realigning the market with more viable and sustainable fundamentals and on restoring its financial health and balance.

4 Conclusions and Policy Recommendations

[Section to be included]

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