BANK ĊENTRALI TA' MALTA
EUROSISTEMA
CENTRAL BANK OF MALTA

AN ASSESSMENT OF THE MALTESE HOUSING MARKET

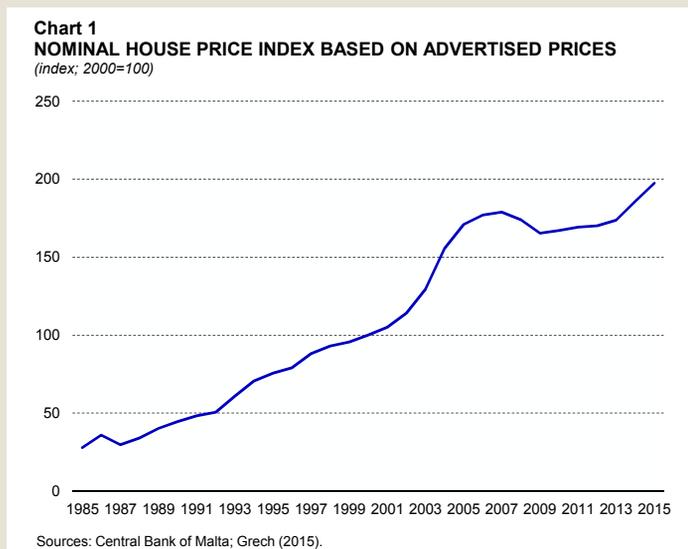## BOX 3: AN ASSESSMENT OF THE MALTESE HOUSING MARKET[1,2]

Few macroeconomic variables generate as much interest and debate as house prices. Households, firms and policymakers alike watch house prices closely because of the far-reaching implications they have on wealth, and thus private consumption, housing investment and collateral, which in turn influences non-performing loans as well as banks' and borrowers' ability and willingness to lend and borrow, respectively. Developments in house prices therefore influence macroeconomic performance and the stability of the financial system.

The relevance of house prices is particularly pronounced in Malta, where the home-ownership rate stands at 80%, and 41% of total credit extended by banks takes the form of mortgages.[3,4] In recent years, house prices in Malta have risen considerably. Between 2000 and 2015, house prices nearly doubled, increasing by 4.8% (2.6% in real terms) per annum, on average, although with a significant degree of variability.[5] This has led to growing concerns about the possible existence of a housing bubble, a situation where there is misalignment between the market price of an asset and its underlying value as determined by economic fundamentals, making the property market prone to price corrections that generate adverse macroeconomic consequences.

This Box provides an assessment of the Maltese housing market, in particular by addressing four key points of interest. First, it outlines the main developments in the housing market in recent decades and discusses the various demand and supply factors that have shaped the course of house prices. Next, using both statistical and econometric techniques, it examines whether there is any misalignment in house prices. Third, data is used to identify trends in housing rents. Finally, a simulation is conducted using STREAM, the Bank's core macro-econometric model, to quantify the macroeconomic impact of a change in house prices and identify the main channels through which such a change is transmitted to the broader economy.

Main developments in the housing market

The scope of this section is to highlight the key developments in the housing market since the mid-1980s and the various demand and supply factors that drove these changes. Chart 1 shows the

Chart 1
NOMINAL HOUSE PRICE INDEX BASED ON ADVERTISED PRICES
(index; 2000=100)

Sources: Central Bank of Malta; Grech (2015).

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[2]   This Box summarises the results of an earlier policy note. For further details, see Gatt, W. and Grech, O. (2016), An Assessment of the Maltese Housing Market, *Policy Note,* Central Bank of Malta.

[3]   The home-ownership rate is the ratio of owner-occupied dwellings to total residential dwellings. The remaining 20% of households rent their residence. Of these, 10% rent at market prices, while 90% rent at subsidised prices. The figures reported are those for 2014.

[4]   The figure quoted for the ratio of mortgages to total credit is that for 2015.

[5]   Throughout the study, unless otherwise stated, the house price data used is that published by the Central Bank of Malta, which extend back to 2000 and are based on advertised prices.

evolution of the nominal house price index based on advertised prices.[6] It is possible to distinguish between four distinct periods. House prices grew strongly between 1985 and 2001, increased even more rapidly over the 2002 to 2005 period, registered virtually no growth between 2006 and 2013, and rose considerably again in 2014 and 2015.

Over the period spanning 1985 to 2001, house prices nearly tripled, rising by an average rate of 7.9% per annum. A key factor behind this increase was the steady growth in income over this period. Strict exchange controls in place until 1994, limited the number of investment options, and thus a significant portion of savings were channelled to the housing market. Although mortgage lending rates were broadly stable prior to the liberalisation of capital markets in the early 1990s, subsequently interest rates declined and credit expanded at an even faster rate, fuelling further demand for housing. The Development Planning Act of 1992, which brought about more stringent controls on development, thus constraining housing supply, is likely to have raised house price expectations. Together, these factors more than outweighed the effect of dampened demand for property brought about by the introduction of Capital Gains Tax in 1993.[7]

Between 2002 and 2005, house prices rose at an even faster pace, averaging growth of 13.0% per annum. During this period, credit continued to increase rapidly – though at lower rates than in the previous period – and interest rates declined further. A number of tax amnesties granted between 2001 and 2005, under which undeclared assets were regularised, channelled more funds into the property market which, in turn, added further upward pressure on prices. Moreover, Malta's accession into the EU in 2004 is likely to have raised expectations regarding future economic prospects and hence to have driven up prices further. Income growth was relatively modest during this period. The rise in house prices contributed to an increase in housing investment.

After an extended period of strong, largely uninterrupted growth, house prices entered a phase of anaemic growth, which lasted from 2006 to 2013. Over this span, house prices only registered marginal growth that averaged 0.2% per annum, with prices falling in 2008 and 2009. A rationalisation exercise carried out by the Malta Environment and Planning Authority (MEPA) in 2006, which relaxed height limitations and development in certain zones, eased supply restrictions. While development permits for dwellings and housing investment increased in 2006 and 2007, exerting downward pressure on prices, they declined over the rest of the period, reflecting the slowdown in house price growth. Besides raising unemployment and briefly depressing real incomes, the 2008 global economic crisis is likely to have resulted in higher levels of precautionary saving in more liquid assets, channelling funds away from the property market. These developments more than offset upward price pressures brought about by the continuing expansion of credit, fall in interest rates and income growth, which was generally robust, despite the crisis.

In 2014 and 2015, house prices increased considerably, by 7.0% and 6.3% per annum, respectively. Factors behind these developments include buoyant economic activity, significant credit growth and falling interest rates. Besides lowering the cost of borrowing, the low interest rate environment has also boosted demand for property through portfolio rebalancing, as investors increase their property holdings in search of higher yielding assets. Other key factors that contributed to the recent rise in house prices include the stamp duty exemption for first-time buyers, the IIP, the reform to rental income tax legislation (all introduced in 2014), the 2015 capital gains tax reform and the increase

[6] Pre-2000 data are taken from Grech, A. G. (2015), The Evolution of the Maltese Economy since Independence, *Working Paper* 05/2015, Central Bank of Malta.
[7] For an account of the main factors behind the evolution of house prices between 1980 and 1994, see Demarco, A. (1995), Aspects of the Housing Market in Malta: 1980-1994, *Quarterly Review*, 28(4), pp. 54-64, Central Bank of Malta.
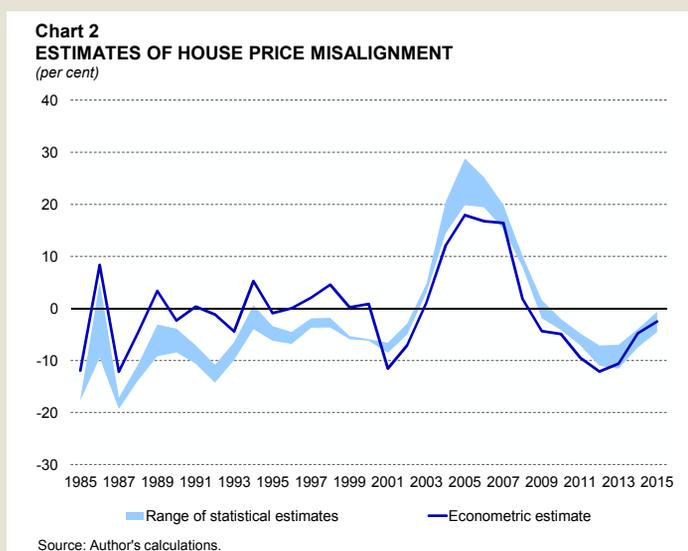
in the number of foreign workers.[8,9,10,11] The recovery in house price growth translated into a higher number of development permits for dwellings and a rise in housing investment.

House price misalignment

This section identifies episodes of house price misalignment in Malta and quantifies the degree of overvaluation or undervaluation, with the analysis extending back to the mid-1980s.[12] Misalignment occurs when there is a divergence between the market value of an asset and its underlying value as determined by economic fundamentals. To identify and measure the extent of misalignment, two alternative approaches are adopted. The first approach is a statistical one, with misalignment defined as the deviation of the house price-to-income ratio from its long-run trend. The long-run trend is extracted using three different statistical techniques: a linear time trend, a Hodrick-Prescott (HP) filter and a Kalman filter. This produces three different statistical estimates of misalignment.

These statistical estimates of misalignment are based on developments in house prices relative to those in income. However, there may be other factors that influence whether house prices are overvalued or undervalued. To address this, the second approach is an econometric one, whereby in the long run, equilibrium house prices are specified as a function of income, the mortgage interest rate – which proxies the user cost of housing – and mortgages granted by banks.[13] Under this setting, misalignment is defined as any developments in house prices which are not explained by the fundamental factors in the model.

Chart 2 presents the estimates of misalignment from both the statistical and econometric approaches, with those from the statistical approach shown in the form of a range. All three statistical estimates point to a similar story. House prices were undervalued between the mid-1980s and the early 2000s, with the degree of misalignment narrowing gradually. This was followed by a period of overvaluation, which peaked in 2005. This misalignment was gradually corrected and equilibrium was restored in 2009. Since

Chart 2
ESTIMATES OF HOUSE PRICE MISALIGNMENT
(per cent)

Range of statistical estimates — Econometric estimate

Source: Author's calculations.

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8   First-time buyers are exempt from stamp duty on the first €150,000 of the value of the property.

9   The IIP requires the main applicant to purchase property with a minimum value of €350,000 or lease property at an annual rent of at least €16,000 for a period of no less than five years.

10   Following the 2014 reform, lessors have the option of paying a 15% flat rate on rental income, rather than their marginal tax rate. For most lessors, this represents a reduction in tax on rental income.

11   As from 2015, property was subject to one final withholding tax of 8% on the transfer value of the property. This replaced a system that consisted of both a 12% final withholding tax and a 35% tax on any profit made.

12   When official data were unavailable, data found in Grech, A. G. (2015), The Evolution of the Maltese Economy since Independence, *Working Paper* 05/2015, Central Bank of Malta, were used.

13   The model presented here is similar to the inverted demand function approach found in a large strand of the empirical literature, where equilibrium house prices depend on the quantity of housing and other factors that influence housing demand, as in Muellbauer, J. (2012), When is a Housing Market Overheated Enough to Threaten Stability?, *Department of Economics Discussion Paper Series No. 623*, University of Oxford. The quantity of housing was not included in the econometric model presented above because it produced implausible results.
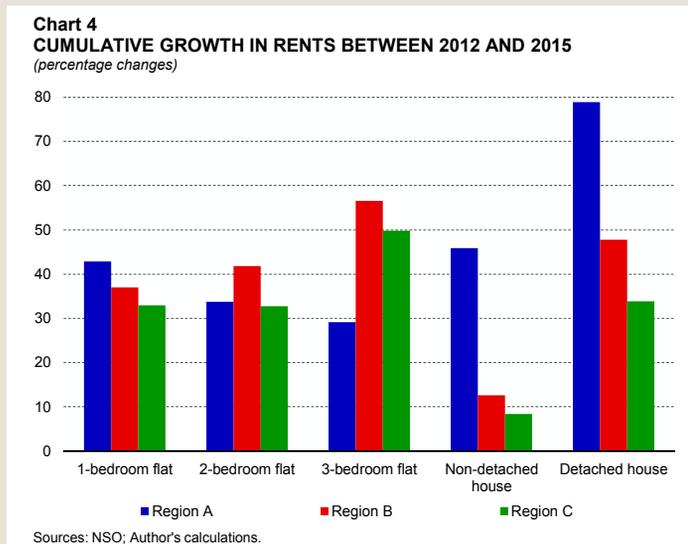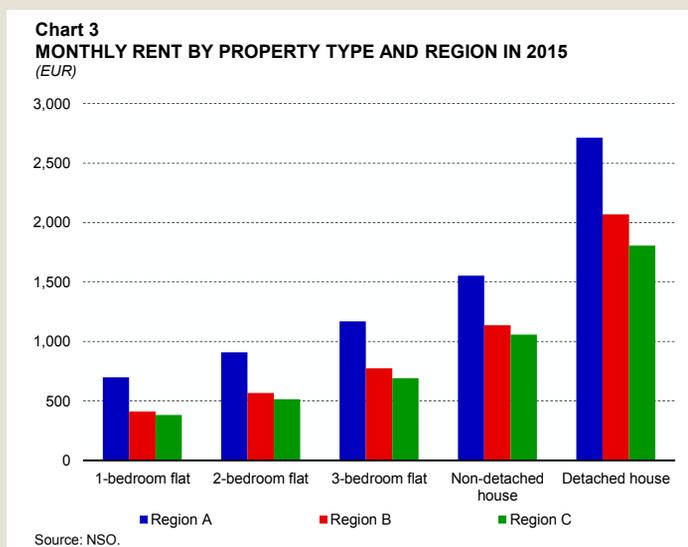
then, house prices have been undervalued, although the trough was reached in 2012 and as at 2015 house prices stood close to their equilibrium value. The econometric model suggests that house prices were broadly in equilibrium during much of the 1990s, but thereafter the extent of misalignment is very similar to that identified by the statistical approach. A key result that emerges from this empirical analysis is that as at 2015 house prices were not overvalued, but rather slightly undervalued by around 2.5 per cent.[14]

Key trends in the house rental market

The purpose of this section is to analyse recent trends in the rental market for various types of property in three key regions in Malta.[15] As pointed out previously, around 80% of Maltese households are home owners, while the remaining 20% rent their residence. Only 10% of these rent at market prices, with the rest renting at subsidised prices. Since the discussion that follows is based on market rents, the developments outlined here impact a relatively small segment of the population.

Chart 3 shows that, as at 2015, across all property types, rents in region A (Sliema, St. Julian's, Gzira and Valletta) were, on average, higher than those in region B (Mellieha, St. Paul's Bay, Qawra and Bugibba) which, in turn, exceeded rents in region C (Vittoriosa, Senglea, Cospicua and Marsascala), although the latter difference was far less pronounced. Rents in region A were nearly 50% higher than those in region B, while region B commanded rents that were on average, around 10% steeper than those in region C.

Chart 4 suggests that rents rose significantly between 2012 and 2015. Although

Chart 3
MONTHLY RENT BY PROPERTY TYPE AND REGION IN 2015
(EUR)

Source: NSO.

Chart 4
CUMULATIVE GROWTH IN RENTS BETWEEN 2012 AND 2015
(percentage changes)

Sources: NSO; Author's calculations.

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[14] Micallef, B. (2016), Property Price Misalignment with Fundamentals in Malta, *Working Paper* 03/2016, Central Bank of Malta presents very similar results using a different modelling framework.
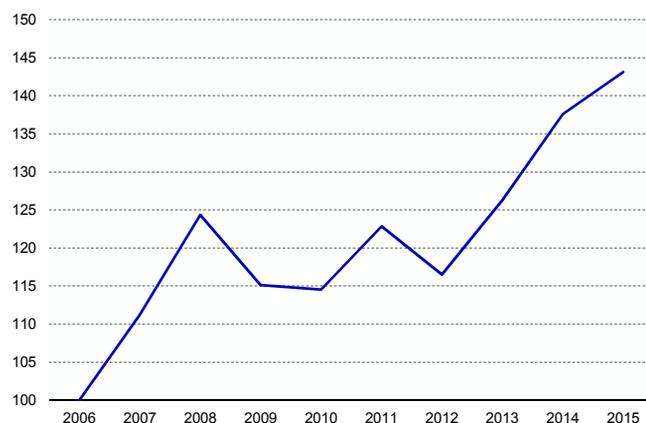
[15] The primary scope of the data used, which are collected annually through a survey conducted through estate agencies, is to compare the relative cost of living in different cities, where civil servants working for EU institutions live, and then adjust their salaries accordingly. The property should be of good to very good quality (but not luxurious), unfurnished, constructed or modernised significantly within the last ten years and in a residential area of good quality. For this reason, it is likely that these properties generally command rents that are higher than the national average (or median), and therefore the figures and trends are only indicative of the developments in the overall market. For further details, see Eurostat (2016), *2015 Current Market Rents - From surveys through estate agencies*.

this increase was broad-based, regions A and B witnessed stronger growth in rents than region C. The properties that registered the highest gains in rents were detached houses in region A and 3-bedroom flats in regions B and C.

Chart 5 presents the nominal median house rent index across all property types. Rents rose considerably between 2007 and 2008. Over the 2009 to 2012 period, rents witnessed a decline, before increasing significantly once again between 2013 and 2015.

Chart 5
NOMINAL HOUSE RENT INDEX
(index; 2006=100)

Sources: NSO; Author's calculations.

between 2013 and 2015. Over the past decade, rents grew by more than 40 per cent in nominal terms. A number of factors have contributed to this substantial rise, such as social and demographic factors, changing attitudes towards renting, the IIP, the reform to rental income tax legislation, the increase in foreign workers and rising demand for residential property as accommodation for tourists.[16,17]

In the literature, a popular approach of examining whether house prices are misaligned from their fundamental value is the user cost of housing methodology. Under this approach, house prices are in line with fundamentals when the cost of owning a house (the user cost of housing) is equal to the cost of renting it, once all costs have been taken into account. In particular, the fundamental value of housing is given by the ratio of rent to the user cost.[18] An increase in rents therefore raises the fundamental value of property. Hence, the gradual rise in rents recoded in Malta adds plausibility to our assessment that the increase in house prices in recent years, particularly the strong growth registered in 2014 and 2015, does not seem to be out of line with fundamentals.

The macroeconomic impact of a change in house prices

This section measures the macroeconomic impact of a change in house prices in Malta and outlines the key channels through which such a shock propagates to the broader economy. Towards this end, a simulation is carried out in STREAM, the Central Bank of Malta's core macro-econometric model. A macro-econometric model provides the ideal methodological framework since it captures

[16]   One instance of demographic change was the decrease in the average household size, which fell from 3.1 in 1995 to 2.7 in 2011 since growth in the number of households outpaced population growth. See NSO (2007) *Census of Population and Housing 2005, Volume 1: Population*, and NSO (2014) *Census of Population and Housing 2011*, respectively.

[17]   The number of foreign workers in Malta increased more than fourfold between 2006 and 2014 from around 5,000 to nearly 22,000. See Grech, A. G. (2016), Assessing the Economic Impact of Foreign Workers in Malta, *Quarterly Review*, 49(1), pp. 39-44, Central Bank of Malta.

[18]   The user cost of housing includes the real interest rate (the mortgage interest rate plus the opportunity cost of equity), running costs (such as repairs and insurance), buying and selling costs (such as stamp duty and estate agency commission), depreciation and the expected real appreciation rate of the property. For further details on the user cost of housing, see Fox, R. and P. Tulip (2014), Is Housing Overvalued?, *Research Discussion Paper* 2014-06, Reserve Bank of Australia, and Himmelberg, C., C. Mayer and T. Sinai (2005), Assessing High House Prices: Bubbles, Fundamentals and Misperceptions, *NBER Working Paper* No. 11643, National Bureau of Economic Research.

the interdependent nature of modern economies, where many variables and different sectors are interlinked. STREAM is a traditional structural model but unlike many models within its class, contains fully-fledged fiscal and financial blocks.[19]

The shock is defined as a permanent exogenous increase in house prices of 10%, which shifts the level of house prices over the entire three year simulation horizon.[20,21] Table 1 displays the impact of this change in house prices on key macroeconomic variables. A permanent increase in house prices raises wealth, and thus private consumption, and also boosts investment in housing. These developments translate into higher GDP, which, in turn, stimulates employment and wages. Government consumption expands as a result of an increase in public compensation of employees and public intermediate consumption. This leads to a further improvement in GDP, which is partially offset by a rise in imports. The growth in economic activity exerts upward pressure on prices which, in the context of unchanged foreign prices, gives rise to a slight loss in competitiveness and consequently exports decline gradually. On balance, however, GDP increases. Buoyant economic activity, in turn, stimulates investment further, with the other categories of investment – namely non-housing investment and government investment – also being affected positively. Higher GDP brings about lower unemployment.

On the fiscal front, government revenue rises due to higher macroeconomic bases. Government expenditure also increases since the growth in public compensation of employees, public intermediate consumption and public investment outweigh the drop in interest payments paid by the Government. The net effect translates into a rise in the government balance ratio – implying an improvement in the deficit ratio – which causes the government debt ratio to fall.

Turning to financial developments, a positive shock to house prices reduces non-performing loans. This, in turn, decreases the probability of default, which prompts banks to lower retail lending rates. This drop in lending rates, coupled with a decline in the probability of default and higher house prices, results in an expansion of credit. Consequently, this boosts banks' profits, despite the fall in lending rates. Higher profitability gives rise to an increase in equity, but this is outweighed by the rise in risk weighted assets brought about by the decrease in the probability of default, and thus the capital adequacy ratio deteriorates, albeit marginally.

Two key messages can be drawn from these results. First, in Malta, a house price shock influences the wider economy through three main channels: private consumption, housing investment and credit. Second, the macroeconomic impact of a domestic house price shock is likely to be contained, particularly when one bears in mind that the magnitude of the shock presented here is considerable in comparison to the historical fluctuations in house prices.

These results are subject to two important caveats. First, often economic shocks do not happen in isolation. A house price shock might be caused by other disturbances (for example, an international financial crisis) and might itself trigger further shocks (for example, a drop in investor confidence), which would amplify the macroeconomic impact.[22] Second, the model used is linear and hence does not capture non-linearities, that is, it does not cater for the possibility that the economic relationships

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[19]   Further details are presented in Grech, O. and N. Rapa (2016), STREAM: A Structural Macro-Econometric Model of the Maltese Economy, *Working Paper* 01/2016, Central Bank of Malta.

[20]   Since the model is linear, a decrease – rather than an increase – in house prices by the same magnitude would yield identical results, with the opposite sign.

[21]   For the results of temporary shock and a comparison to the results found in the literature, see Gatt, W. and Grech, O. (2016), An Assessment of the Maltese Housing Market, *Policy Note,* Central Bank of Malta.

[22]   STREAM is equipped to measure the impact of such scenarios.

Table 1
THE MACROECONOMIC IMPACT OF A PERMANENT HOUSE PRICE SHOCK
Percentage changes from baseline levels unless otherwise specified

	Year 1	Year 2	Year 3
Economic Activity			
Real GDP	0.08	0.22	0.21
Private consumption	0.67	1.17	1.11
Government consumption	0.02	0.13	0.06
Gross fixed capital formation	0.20	0.69	0.92
Exports	0.00	-0.04	-0.09
Imports	0.39	0.54	0.47
Gross Fixed Capital Formation			
Private sector non-housing	0.02	0.26	0.40
General government	0.24	0.71	0.92
Housing	1.73	5.48	5.44
Prices			
GDP deflator	0.01	0.05	0.13
Labour Market			
Unemployment rate[1]	0.00	-0.02	-0.02
Total employment	0.01	0.10	0.19
Total compensation to employees	0.02	0.25	0.31
Fiscal Developments			
Total receipts	0.27	0.58	0.61
Total expenditures	0.03	0.14	0.21
Balance[2]	0.10	0.19	0.17
Gross debt[2]	-0.16	-0.49	-0.69
Financial Developments			
House prices	10.00	10.00	10.00
Non-performing loans ratio[1]	-0.46	-0.80	-0.85
Average retail lending rate[1]	0.00	-0.04	-0.02
Loans to the private sector	1.10	2.42	3.43
Banks' profits	0.72	1.33	3.36
Capital adequacy ratio[1]	-0.11	-0.23	-0.39

[1] Absolute changes from baseline in percentage points.
[2] Absolute changes from baseline as a per cent of GDP.
Source: Author's calculations.

being modelled might be dependent on the state of the economy. For instance, the economy might respond differently to a house price shock that occurs during a period of economic and financial stress than it would to a shock that arises in 'normal' times.

Concluding remarks

This Box has provided an assessment of the Maltese housing market by focussing on four key points of interest. First, it highlighted the main developments in the housing market in recent decades and showed that economic, social, demographic and legal factors all played a role in shaping the course of house prices. Next, using both statistical and econometric techniques, the study examined whether there is any misalignment in house prices and found that as at the end of 2015, house prices were not overvalued. Third, it identified trends in housing rents and argued that the considerable broad-based increase in rents in recent years reinforces the evidence that house prices are not overvalued, but rather in line with fundamentals. Finally, a simulation was conducted using STREAM, the Bank's core macro-econometric model, to quantify the macro-economic impact of a change in house prices and identify the main channels through which such a change is transmitted to the broader economy. The results suggest that a house price shock influences the wider economy via three main channels – private consumption, housing invest-ment and credit – and that its macroeconomic impact is limited, but this comes with important caveats.

A number of policy implications emerge from this analysis. First, the compilation of more timely and representative data, on both house prices and rents, would allow for a quicker and more com-prehensive assessment of housing market developments. This, in turn, would make it possible to identify misalignments and allow policy makers to take corrective action in a timelier manner. In this regard, the Central Bank of Malta is currently developing a hedonic house price index, which disen-tangles house price changes that are due to differences in the quality of the units being sold from house prices movements brought about by changes in demand and supply.

The second point of interest relates to policies aimed at reducing market frictions that could fuel unnecessary price pressures. The recent amendment to the Civil Code that allows for the quicker sale of inherited vacant property is an example of such a policy.[23] Other policies that could be introduced include those that reduce the time and cost associated with buying and selling property, policies that encourage renovation to vacant properties in need of repair, as well as further amend-ments to rental legislation.

Finally, a change in house prices might not occur in isolation. This highlights the importance of assessing whether the financial system, and the economy more broadly, is resilient enough to with-stand unlikely but plausible scenarios, where the economy is hit by a number of adverse shocks. Such stress testing exercises are conducted regularly by the Central Bank of Malta. Moreover, policies aimed at limiting contagion effects will serve to prevent the amplification of shocks, thus containing the macroeconomic consequences of changes in house prices.

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[23] Following the amendment to the Civil Code on April 1, 2016, inherited vacant property may be sold after three years pro-vided that 51% of the heirs are in agreement on the price at which the property should be sold. Prior to this, heirs were required to sell inherited property after five to ten years.