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RESIDENTIAL PROPERTY PRICE MISALIGNMENT WITH FUNDAMENTALS

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BOX 6: RESIDENTIAL PROPERTY PRICE MISALIGNMENT WITH FUNDAMENTALS[1]

The housing sector affects the business cycle through three main channels. First, house prices affect private consumption through their impact on household wealth. Second, developments in real estate prices affect housing investment and the construction industry, which tend to have a relatively high multiplier effect. Finally, these channels tend to be reinforced via the financial accelerator effect, given the role of real estate as collateral, thereby also affecting the banks' balance sheet and their willingness to extend credit to the real economy. The latter implies that the state of the house price cycle is also important from a financial stability perspective. In addition, excessive growth in house prices may lead to additional distortions in the economy, such as a misallocation of resources from productive sectors to the non-tradable sector, which in part explains the weak productivity growth experienced by some countries after the crisis.

A misalignment indicator based on fundamentals

Against this background, Micallef (2016) developed a fundamental misalignment index using a multiple indicator approach to identify under or over-valuation of house prices in Malta for the period between 2000 and 2015.[2] This Box updates the index using data for the first half of 2016.

Misalignment indices have become increasingly popular in recent years, being used both by private sector institutions as well as policy institutions.[3] The domestic indicator is made up of five sub-indices that capture demand, supply and banking system factors.

The house price-to-RPI ratio and the price-to-income per capita ratio represent the demand side. The real residential property price index, deflated by the RPI, is the indicator that most clearly summarizes inflation-adjusted housing market developments in Malta. On the other hand, the house price-to-disposable income per capita ratio gives a better insight of the households' purchasing power needed to buy a residence and hence, is considered as a measure of affordability. In the absence of official data, internal estimates of households' disposable income by the Central Bank of Malta are used as the measure of income.[4] Furthermore, the latter is divided by the population to account for demographic changes.

The two indicators on the supply side refer to house price-to-construction costs ratio and the dwelling investment-to-GDP ratio. The former applies Tobin's q, defined as the ratio of the market value of a firm to its replacement cost, to housing. This cost measure is calculated as the house price index divided by the construction cost. The latter includes both

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[1] Prepared by Brian Micallef. Mr Micallef is the manager of the Research Office of the Central Bank of Malta. He would like to thank Dr Aaron G. Grech for helpful comments and suggestions. The views expressed are those of the author and do not necessarily reflect those of the Central Bank of Malta.

[2] Micallef, B. (2016), Property price misalignment with fundamentals in Malta, *Central Bank of Malta Working Paper* WP/03/2016.

[3] UBS (2012), UBS Swiss Real Estate Bubble Index, *Schweizer Immobilien*, 2012Q3. This study applies a multiple indicator approach for the housing market in Switzerland, with the same methodology being subsequently used to assess real estate prices in the largest global cities. Lenarcic, C. and Damjanovic, M. (2015), Slovene residential property prices misalignment with fundamentals, *Banca Slovenije Working Paper* 2015 apply a similar methodology for Slovenia.

[4] For further details on disposable income in Malta, see Grech, O. (2014), A new measure of household disposable income for Malta, in *Central Bank of Malta Annual Report 2013*, pp. 42-48.

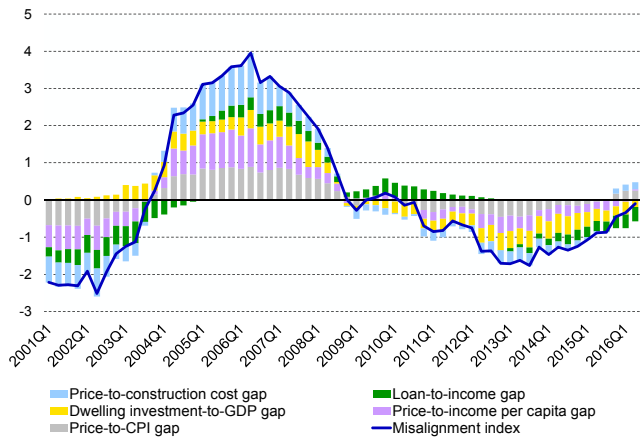
labour and materials costs in construction. An important limitation of this index, however, is that that it fails to consider land prices. The rationale for including dwelling investment is that a housing sector that accounts for a high percentage of GDP implies a state of overheating, which can be interpreted as a sign of a housing bubble.

The banking system perspective is captured by the loan-to-income ratio, defined as bank loans to households for mortgages relative to household income. When this ratio gets too high, households may become increasingly dependent on rising house prices to service their debt.

The five sub-indices enter the index in 'gap' form, that is, as a deviation from their trends or long-run averages. The weight for each component is derived by applying a principal component analysis (PCA) on the basis of the cyclical co-movement of the separate indicators. The weights are derived using the factor 'loadings' from the first principal component, which explains 74% of the variance between these indicators. The sub-indicator weights are shown in Table 1.

Chart 1 plots the misalignment indicator updated until 2016Q2, as well as the contributions made by each sub-index.[5]

Chart 1
MISALIGNMENT INDICATOR AND CONTRIBUTION OF SUB-COMPONENTS
(index; percentage point contribution)



Source: Author's calculations.

Table 1
SUB-INDICATOR WEIGHTS

	per cent
Demand	
Price-to-CPI gap	23.3
Price-to-income gap	23.3
Supply	
Price-to-construction cost gap	22.8
Construction investment-to-GDP gap	16.4
Banking sector	
Loan-to-income gap	14.2

Source: Author's calculations.

[5] The resulting index is also in line with other measures of misalignment derived from econometric analysis. For further details on the latter, see Gatt, W. and Grech, O. (2016), An assessment of the Maltese housing market, *Central Bank of Malta Policy Note*, October 2016.

The index shows a period of overvaluation in house prices starting from around the time of EU membership in 2004 that peaked in 2006-2007. During this period, the misalignment indicator clearly shows significant overvaluation of house prices in Malta.

The boom in house prices in the mid-2000s was due to a combination of demand and supply factors. Malta's membership in the European Union in 2004 may have influenced expectations about future economic prospects, while the entry in the ERM II mechanism, two years prior to the adoption of the euro, led to a gradual convergence of domestic interest rates to those set by the European Central Bank. Low interest rates had a positive effect on property prices, with residential mortgage debt increasing from only 14.5% of GDP in 2000 to 35.0% of GDP in 2007. In addition, property prices were also supported by the Investment Registration Scheme, a tax amnesty for Maltese residents with overseas assets that was effective between 2001 and 2005. Property development was further encouraged by the rationalization exercise in 2006 by the Malta Environment and Planning Authority (MEPA).

The combination of these policies encouraged construction. The number of development permits for new dwellings units, mostly apartments, almost doubled between 2003 and their peak in 2007. Similarly, the share of dwelling investment in GDP peaked at 7.4% in 2007, up from 4.0% in 2000. The increase in supply co-existed with a sharp increase in the number of vacant dwellings.

The disequilibrium started to be corrected from around 2008 following the slowdown in house prices. All the sub-indices contributed to the correction, although the banking system-wide indicator, the loan-to-income gap, lagged behind the other indices. The misalignment index reached a trough in 2013, with all the sub-components contributing negatively.

The decline in house prices during the crisis was a global phenomenon caused by overinvestment in construction in the pre-crisis years. However, compared to other European economies which had experienced excessive increases in house prices before the crisis, such as Ireland and Spain, the correction in domestic property prices was moderate in Malta.

Following a correction that lasted around five to six years, the housing market started to recover in 2013, with property prices registering healthy growth rates in 2014 and 2015. In addition to the robust economic growth and the drop in unemployment to historical lows, the increase in house prices is also attributable to targeted government policies aimed at stimulating the property market. These include another investment registration scheme in 2014, the exemption of stamp duty for first-time buyers on the first €150,000 of their new property value and the reform of the capital gains tax (CGT) in 2015, with the introduction of a final withholding tax system based on the value of the property. Portfolio rebalancing by investors into the housing market could also have played an increasingly important role.

By the second quarter of 2016, the overall indicator was back to its equilibrium level. Among the individual sub-indices, the house price-to-RPI ratio and the house price-to-construction costs have moved into positive territory since the end of 2015, as the increase in house

prices outweighed both inflation and cost developments. In 2016, the gap in house price-to-income per capita has also closed down. On the contrary, the other two sub-indices – the loan-to-income gap and the housing investment-to-GDP gap – are still contributing negatively, though their dynamics are different. Since 2014, the housing investment-to-GDP gap has been gradually closing down as dwelling investment started to recover following its sharp decline before the crisis. As a share of GDP, housing investment recovered from 2.5% in mid-2014 to 3.9% in 2016Q2, although it remains below than the long-run average of 4.8%. On the contrary, the loan-to-income gap remained firmly into negative territory, especially following the deceleration in mortgage credit growth in the first half of 2016.

Conclusion

This Box presents a multiple indicator approach to identify house price valuation in Malta based on fundamentals. The misalignment indicator shows a period of overvaluation in house prices that peaked in 2006-2007. This disequilibrium started to be corrected following the decline in house prices, reaching a trough in 2013. Starting in 2014, however, the index started to recover such that, by mid-2016, house prices were broadly in equilibrium.

More generally, the indicator presented in this paper is intended to provide a broad guide to the current momentum in house prices. The actual numerical results should not be overstated given the limitations in the construction of this index. Among the latter, the level of the variables, necessary for international comparison of property price levels, as well as other important determinants, such as foreign capital inflows, are not factored in the analysis due to lack of data. Perhaps more importantly, data on rents are limited and hence, the price-to-rent ratio, which compares the costs of owning a property to renting it, could not be computed. Rental costs are likely to play an increasingly important role in light of the influx of foreign workers, which increased demand for housing, especially in certain areas. Going forward, statistics on rents, once they become available, should definitely form part of the fundamental sub-indicators of the misalignment index.