Is There an East European Housing Bubble?

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Global Economy Journal

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Is There an East European Housing Bubble?*

Robert C. Shelburne and Jose Palacin

Abstract

This study examines residential house price trends in the East European economies. The data are described and evaluated in terms of their quality and reliability: both official data from national statistical offices and that compiled by real estate companies are used. Current prices are evaluated in terms of the economic fundamentals in the region including GDP growth rates, interest rates, rental prices, alternative asset prices, and the availability of mortgages. The role of foreign currency mortgages is given special treatment given their importance in a number of countries and the vulnerabilities they introduce. For some of the markets a more detailed description of price trends by region or type of property is provided. Comparisons with western markets are made where appropriate. Generally it is concluded that price increases have been quite significant but any over appreciation is difficult to evaluate given the very positive changes in the economic fundamentals. In addition to price trends, the implications of the changing institutional structure of these mortgage markets are explained along with the implications of the housing market developments for consumer spending, fiscal and monetary policy. The possibility of a housing bubble and bust is examined along with its implications for the economy; policy options to minimize this likelihood and its consequences are also explored with due consideration of the limitations on macroeconomic policy options given the constraints imposed by euro accession in a number of the countries.

KEYWORDS: East Europe, housing, housing bubble, mortgage markets

*The views are those of the authors and do not necessarily represent the opinions of the UNECE or its member states.
INTRODUCTION

The past decade, especially the last five years, has witnessed a global boom in residential real estate prices, suggesting that a bubble may exist in many housing markets throughout the world. This is true not only in the industrialized countries including Australia, Belgium, France, Greece, Ireland, the Netherlands, New Zealand, Spain, the United Kingdom and the United States, but also in some emerging markets such as China, the Republic of Korea, and South Africa. Between the beginning of 2000 and the first half of 2005, euro area residential property has increased by a healthy but moderate 6 to 7 per cent per annum in nominal terms (4 to 5 per cent in real terms),\(^1\) while United States housing prices have appreciated by an average of 9.5 per cent per year in nominal terms (about 7 per cent in real terms) over the last five years with the largest yearly increase of almost 13 per cent occurring in 2005.\(^2\) However, by the summer of 2006 housing prices appear to have flattened out in the United States. According to Knight Frank’s (2006c) global house price index, the average house price increased by 6.1 per cent over the year ending in March 2006. Although previous housing booms have often been correlated across countries, what is unique and remarkable about the current one is the extent that it has been a truly global phenomenon. In fact prices have risen significantly in all the developed economies except Austria, Israel, Germany, Japan and Switzerland; in the latter three, real prices are at almost the same level as in 1970. Indeed, The Economist (2005) recently described the worldwide rise in housing prices as the “biggest financial bubble in history”\(^3\).

The global nature of the current boom seems counter to the popular notion that the three factors governing real estate prices are location, location and location. The cause of the present bubble is less well understood, but it is believed to be largely due to robust economic growth, the disenchantment of investors with stock markets following the crash in those markets in 2000,\(^4\) and historically low interest rates. The latter have been due primarily to the limited response of investment (after 2000) to lower interest rates which has meant that central banks have had to push interest rates much lower than if investment had responded more

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\(^{1}\) Data for 2000-2004 are from ECB (2005b); during the first half of 2005, eurozone housing prices rose 7.7 per cent (ECB, 2006).

\(^{2}\) U.S. data is from the fourth quarter of 2000 to the fourth quarter of 2005 (OFHEO, 2006).

\(^{3}\) Of course, not everyone agrees that there is a bubble, see Steidmann (2005).

\(^{4}\) Although in many developed countries returns on investments in housing have exceeded those from stocks over the last five years, over longer periods the returns from stocks have far exceeded those from housing. In the U.S., the S&P 500 index (including dividends) had an average annual return of 12 per cent over the period 1980-2004, while house prices in even the hottest markets such as San Francisco and New York averaged only 7 per cent (Rich and Leonhardt, 2005).
typically. In addition, recent financial developments such as lower refinancing costs, reverse mortgages, and secondary mortgages have worked to make housing wealth much more of a liquid asset and thus a possible substitute for traditional financial assets.

Although media reports have provided some anecdotal evidence of a boom in east European\(^5\) property markets, there has been no comprehensive analysis of this issue;\(^6\) in addition there is little publicly available data that would allow a formal assessment of this development. This study provides new data obtained from national statistical offices, real estate companies, and other survey data about housing price trends throughout the region and provides a comprehensive analysis of the factors operating in this market and their financial implications for the rest of the economy.

### HOUSING PRICE DATA AND TRENDS

Given the fairly well developed state of many of the east European economies, especially the new EU members, it is somewhat surprising that their housing price data is so limited and crude.\(^7\) Not all of the statistical agencies in the region collect housing price data, and for the ones that do the methodological procedures they use are quite simple and/or not fully explained; in some cases only price indices and not actual price levels are provided. This is all the more surprising given the very high rates of homeownership that exist throughout most of the region. As such, the official data must be interpreted with caution.

Of particular importance, is the lack of any real compositional adjustment for the price data. In most advanced economies, transaction price data are compositionally adjusted using some procedure that attempts to weigh the transaction data by the relative percentage of homes with similar characteristics such as location, size, age, and other specific attributes such as whether the house has a fireplace, air conditioning or swimming pool. This is important in that the houses being sold are unlikely to be a perfect representative sample of the housing stock, since different types of housing or housing in different regions or price categories are likely to be overrepresented in the transaction sample during a given period. This is especially the case if new and used dwellings are

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\(^5\) Eastern Europe refers to the new EU members (including those in central Europe), the EU accession countries in south-east Europe, and Russia.

\(^6\) Receiving even more press attention has been the east-European commercial market. A recent assessment concludes, “Commercial property prices across central and east Europe have risen surprisingly fast over the last two years and show little signs of slowing;” (Condon, 2006).

\(^7\) Even in the euro area, there is no harmonized national data on housing prices and the ECB must currently patch together different types of data from national central banks, real estate agencies, mortgage banks, and notary organizations in order to estimate housing price developments in the euro area (ECB, 2006).
aggregated, as new dwellings are generally of better quality and larger than older properties and located in different urban areas. Thus, for example, a significant increase in the price of new housing may not reflect the value of the existing housing stock. Although housing price data in western markets may also be collected from tax records or data obtained from appraisals for refinancing, both of these ultimately rely on transaction data that has been compositionally adjusted.

There are a wide variety of ways in which official price data are compiled across the region. For example, the Czech Statistical Office uses information on real estate tax returns to present price information. Indices for each monitored category are derived from weights based on the actual value of transactions. In Hungary, the Central Statistical Office does not deem the available information from tax records on the purchase/sale of dwellings to be sufficiently accurate to be used in aggregate official indicators. Their official data reflect the results of surveys conducted in 1999 and 2003, and cover only used housing, with price data based on estimations of value made by the respondents to these surveys. By contrast, Bulgaria’s official data reflect prices on actual transactions of properties with standard characteristics in the district centres where the market is well developed.

As a way of partially standardizing the price of housing units, especially taking account of size differences, and providing a more comprehensive measure of actual value (as opposed to trend value), housing prices can be expressed as the price per square metre. Based on the limited housing price data available for the region, there does not appear to be a consistently rigorous relationship between the size of a unit and the price per square metre; if there is a distinguishable minor tendency, it is for price per square metre to be higher for the smallest and largest units.

Table 1 presents trends in housing prices by per square metre for a number of selected countries and years as provided by official statistical agencies. Although the data are scant, some general trends may be identified. Prices seem somewhat volatile, judging by the dynamics of both overall prices and regional differences; however given that many are fairly small economies or that the data are for only a given city in some cases, a rather high level of volatility might be expected. Overall, there has been a general pattern of price increases since 2000, which has accelerated if somewhat erratically in most of the markets more recently. Cumulated over several years the price increases are sizable; however, after controlling for inflation, in only a few cases can these trends be interpreted as a real boom. The 48 per cent price increase in Bulgaria in 2004 and the 35-47 percent increases in Estonia in 2003 stand out as particularly large. Although these increases occurred over only a few years they nevertheless present a similar or even larger appreciation than that experienced by the U.S. and the eurozone over a much longer period. An exception to this general pattern of increases can
be found in Poland, where nominal price declines occurred in 2002 and 2003 for existing housing before resuming growth in 2004.

**TABLE 1**

Price per square meter, year-on-year per cent growth, national currencies

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>-0.8</td>
<td>0.3</td>
<td>1.8</td>
<td>12.2</td>
<td>47.5</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>8.5</td>
<td>21.6</td>
<td>17.9</td>
<td>22.8</td>
<td>..</td>
</tr>
<tr>
<td>Estonia</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>34.3</td>
<td>35.1</td>
</tr>
<tr>
<td>Kitchen plus 2 rooms</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>47.1</td>
<td>30.0</td>
</tr>
<tr>
<td>Estonian-Tallinn</td>
<td>..</td>
<td>8.4</td>
<td>16.5</td>
<td>28.3</td>
<td>..</td>
</tr>
<tr>
<td>Hungary</td>
<td>24.1</td>
<td>24.1</td>
<td>24.1</td>
<td>24.1</td>
<td>..</td>
</tr>
<tr>
<td>Latvia-Riga</td>
<td>..</td>
<td>33.3</td>
<td>30.0</td>
<td>4.8</td>
<td>..</td>
</tr>
<tr>
<td>Lithuania-Vilnius</td>
<td>..</td>
<td>-1.7</td>
<td>9.3</td>
<td>11.0</td>
<td>..</td>
</tr>
<tr>
<td>Poland</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Primary</td>
<td>20.4</td>
<td>7.1</td>
<td>2.5</td>
<td>0.4</td>
<td>6.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>9.6</td>
<td>0.6</td>
<td>-4.9</td>
<td>-1.6</td>
<td>5.0</td>
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<tr>
<td>Russian Federation</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Primary</td>
<td>..</td>
<td>21.8</td>
<td>22.4</td>
<td>26.1</td>
<td>27.5</td>
</tr>
<tr>
<td>Secondary</td>
<td>..</td>
<td>37.7</td>
<td>27.4</td>
<td>20.9</td>
<td>28.4</td>
</tr>
</tbody>
</table>

*Source:* Direct communications from national statistical agencies; data for Hungary are for 1999-2003.

Table 2 provides the price levels of dwellings per square metre in United States dollars for countries that supplied pricing data. Although these are expressed in a common currency, cross-sectional comparisons should be made with caution, since there are likely to be significant methodological differences in how the data were derived as well as obvious differences in such aspects as quality, composition (apartments versus houses) and location. The price trends discussed previously hold, with most of the inflationary effects removed, but exchange rate adjustments (distortions) are introduced. Given the significant swings in the euro/dollar rate and the fact that the reference foreign currency (i.e., the foreign currency typically used by the private sector) is not the same in all the countries reviewed, the choice of currency may have material implications. Because of insufficient data and differences in methodology, this study makes no systematic attempt to explain the overall variation in price changes across the countries in the region using fundamental economic factors.
TABLE 2  
Housing prices per square meter (dollars), 2000-2004

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>150</td>
<td>147</td>
<td>157</td>
<td>211</td>
<td>343</td>
</tr>
<tr>
<td>Croatia</td>
<td>1050</td>
<td>996</td>
<td>1063</td>
<td>1278</td>
<td>1487</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>199</td>
<td>193</td>
<td>245</td>
<td>358</td>
<td>..</td>
</tr>
<tr>
<td>Estonia</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>1-room and kitchen</td>
<td>..</td>
<td>..</td>
<td>415</td>
<td>592</td>
<td>897</td>
</tr>
<tr>
<td>2-rooms and kitchen</td>
<td>..</td>
<td>..</td>
<td>421</td>
<td>678</td>
<td>1008</td>
</tr>
<tr>
<td>3-rooms and kitchen</td>
<td>..</td>
<td>..</td>
<td>409</td>
<td>721</td>
<td>1032</td>
</tr>
<tr>
<td>4-rooms and kitchen</td>
<td>..</td>
<td>..</td>
<td>523</td>
<td>714</td>
<td>1040</td>
</tr>
<tr>
<td>Hungary</td>
<td>215</td>
<td>..</td>
<td>539</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Poland</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Primary market</td>
<td>434</td>
<td>493</td>
<td>507</td>
<td>534</td>
<td>602</td>
</tr>
<tr>
<td>Secondary market</td>
<td>347</td>
<td>370</td>
<td>354</td>
<td>365</td>
<td>408</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Primary market</td>
<td>309</td>
<td>362</td>
<td>413</td>
<td>532</td>
<td>722</td>
</tr>
<tr>
<td>Secondary market</td>
<td>234</td>
<td>311</td>
<td>369</td>
<td>455</td>
<td>622</td>
</tr>
</tbody>
</table>

Source: Direct communications from national statistical agencies; prices for Croatia are full construction costs, not transaction or asking prices. Prices for Hungary are for 1999.

Detailed regional or city price data are available from official sources for Bulgaria, the Czech Republic and Russia, while less comprehensive information is available for Estonia, Hungary and Poland. As is typical in western economies, housing prices are considerably higher in the large and historic capital cities than in other parts of these countries. For example, in the Czech Republic, prices in Prague are almost four times higher than the unweighted mean of the rest of the country. During the period 2001-2003, the average purchase price per square metre of family homes (not including multi-dwellings) in municipalities with a population of 50,000 or more was 2,337 Czech koruny, in cities with a population of 10,000-49,999 it was 1,433 Czech koruny, in cities with 2,000-9,999 it was 1,021 Czech koruny and in those with fewer than 2,000 people it was 981 Czech koruny. In Russia, the price of a square metre was almost 9 times higher in Moscow than in the much poorer region of Magadan.

For the countries where data has been gathered for both the country as a whole and the capital city, price growth has been roughly similar; although price increases in the capital cities of Sofia and Budapest have been slightly larger than their country average. In Russia, despite the much higher price level in Moscow, price changes there were similar in magnitude to those in Russia overall during the 2000-2004 period. In Hungary, there has been a distinct tendency for greater price escalation in the larger urban areas: between 1999 and 2003 prices increased
by 60 per cent in Budapest, 44 per cent in the county districts, 30 per cent in the towns, and 6 per cent in the villages.\footnote{However, only two data points were available for Hungary. As mentioned earlier, longer time-series are available based on tax returns, but the Central Statistical Office does not consider them reliable enough to be provided as official data.}

As discussed, the official data is subject to a number of shortcomings but one that is especially notable in this rapidly changing market is its timeliness. Alternative sources of price information are available from a number of real estate companies throughout the area which is more timely but obviously needs to be interpreted even more cautiously since they are likely to be compiled using less scientific techniques. These data suggest that the more moderate price increases reported over the last several years accelerated in 2005. Figure 1 provides price trends in city centres of some capital cities over the 1999-2006 period using data obtained from the valuation department of Ober-Haus (2006) real estate company derived from transactions and market studies. Overall, average price increases in the selected cities were modest until the middle of 2004 but picked up substantially after EU accession in May 2004; Vilnius was an exception with rapid price increases beginning in mid-2003. The average price for a square metre in Warsaw was almost 1,300 euros in 2005, while the price in the city centre was over 1,650 euros; Warsaw prices were up a substantial 18 per cent in 2005 after several years of quite modest appreciation since 1999.\footnote{Knight Frank (2006b) also reports price increases in Warsaw and Krakow of 10-20 per cent depending on location, and increases of 10-15 in Wroclaw.} The recent price increases have been even greater in Tallinn, Vilnius, and Riga; city centre prices in the first two are approaching those in Warsaw, with prices in Riga at almost 1,500 euros in early 2006. The European Mortgage Federation (2006b) reports housing price inflation in Tallinn at an annual rate of 82 per cent in the first quarter of 2006 after increasing at a 42 per cent rate in the last quarter of 2005. However, Knight Frank (2006c) real estate company reports price increases over the last year ending in March 2006 of 17.0 per cent in Tallinn, 8.3 per cent in Riga, and 8.0 per cent in Vilnius; these increases, unlike those of the EMF, are all below those reported for the previous year ending in March 2005 and suggest some cooling off in the Baltic housing markets.

Recent rapid price escalation for residential real estate has also been reported in Russia, particularly Moscow. According to IRN (irn.ru), the Russian real estate research service, Moscow apartment prices increased 50 per cent between March 2005 and March 2006 and increased 64 per cent between January 2006 and August 2006. The price increases have been greatest for one-room apartments in the outer suburbs; the average Moscow apartment price is now reported to be well over $3,000 per square metre. Knight Frank (2006) estimates that at the end of 2005 an “average prime” apartment in Moscow costs about the
same as one in Paris and is 44 per cent more than one in Madrid. In addition the price of such apartments has been increasing at an average rate of 27 per cent over the last several years. Because of this rapid price escalation, Russian prosecutors have been ordered to investigate building companies in order to ascertain if there has been price collusion in Moscow and St. Petersburg.

![Figure 1: East European City Center Prices](image)


In Kiev, the capital of Ukraine the Megakvartal real estate company (www.megakvartal.com) estimates that residential prices (U.S. dollars per square metre) increased over fivefold between the beginning of 2001 and the fall of 2005 after which they fell slightly but have since recovered to their previous highs.

Lexxus real estate company of Prague estimates that “quality” residential properties in that city have been appreciating about 6-8 per cent per year over the last several years up to January 2006 (Breux, 2006). In Prague the prices of newer units and houses in the suburbs have continued to rise, however there is evidence of falling prices for older apartments in less desirable sections of Prague and in other large Czech cities (Knight Frank, 2005). Market-research company GKI Gazdasagkutato reports that the average two-bedroom apartment in Budapest costs $103,710 in 2006, which is triple the price seven years ago (Gomez, 2006);

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10 Average prime properties appear to be more investment grade properties in good condition in good locations; price trends in this market may not reflect more general housing price trends.
this company predicts a further increase of 15 per cent for Budapest in 2006. The Croatian National Bank (2005) states that the average price of sold flats increased by 9.1 per cent over the year ending in June 2005 (based upon unofficial sources) although the price of newly built flats has increased by only 10.3 per cent since 2002. However, Knight Frank (2006) estimates that the price of “average prime” apartments in Croatia increased by 25 per cent in 2005 while houses increased by 20 per cent. The Slovakian Central Bank (Národná Banka Slovenska, 2005), using incomplete data provided by the Slovakian National Association of Real Estate Agents reports a price correction in real estate markets in 2004 after increases in 2002-2003. There is very limited price information on housing in Romania, but the real estate firm Colliers International reports that in Bucharest the 2003 price of a 4-bedroom apartment varied between 800 and 1,300 euros per square metre depending on location (EMF, 2005). The Slovenian Association of Estate Agents estimates house price inflation of slightly over 10 per cent in the year ending in March 2006 (EMF, 2006b). Knight Frank (2006 and 2006c) finds that the price of “average prime” apartments on the Black Sea of Bulgaria increased by 25 per cent in 2005, and prices in Bulgaria were up by 12.5 per cent in the year ending in March 2006. The only east European exception to these rising prices was Belgrade which experienced a 10.3 per cent decline over the same period following a decline in the previous year as well (Knight Frank, 2006c).

Ideally, it would be desirable to evaluate long-running price trends by comparing more recent data with those previously reported for earlier periods in other studies. For example, it is reported that in 1994 the average transaction price of housing units in the capital cities of Bulgaria and the Baltic countries ranged from $231 to $308 per square metre, of those in central Europe from $409 to $470, while in the Croatian and Slovenian capitals the average price was $1,130 (MRI, 1996). However, any comparison of the official data or real estate data with these earlier studies is limited by the absence of a consistent methodology or geographical area.

Lending surveys conducted by central banks present additional information on price dynamics for a number of countries, but these are of a qualitative nature. They aim to gauge commercial banks’ lending practices and help in their assessment of current and future economic conditions. These questionnaires include a section on housing loans to households, and the responses enable the central banks to monitor lending conditions based on indicators such as changes in the loan-to-value ratio (LTV) and minimum down payment requirements. The opinions of the senior loan officers regarding past changes and the likely future direction of nominal housing prices are also sought. In Poland, an improvement in perceptions of the future direction of the housing market was noticeable in the answers provided in the first half of 2005. In Hungary, further price increases were expected in the second half of 2005,
although bankers stressed important differences according to the type of housing. A opinion survey conducted by the GKI Economic Research Corporation (2006) of realtors, developers and households of the Hungarian residential market found that many thought there was a oversupply in the residential market that might lead to a decline in prices of 2.5 per cent in 2006 for used properties while prices of new properties might increase by one per cent.

The small number of years for which intra-country pricing data are available makes any formal empirical analysis of pricing trends within a country difficult; however some limited empirical analysis was performed on this intra-country regional data to determine the factors that might explain the regional differences in observed price changes. Variables that traditionally have been found to be significant in explaining cross-country, cross-regional or cross-city price trends in western markets generally provided very limited explanatory power. Regional-level data for a number of variables that might be important are generally not available; for example, interest rates, the availability of certain types of mortgages or competition in the banking sector may vary by region due to differences in the level of development or urbanization, but it was not possible to obtain this type of information. The level of housing prices was generally highly correlated with the level of income or wages across regions in the countries analyzed. However, except for Russia, it was not possible to obtain any robust relationship between price changes and wage or population changes. In some cases, regional price levels which include tourist resorts might be distorted due to external factors that were not apparent in the domestic income or population data.

A more interesting and unexpected result was the finding that in several of the countries analysed, especially after controlling for the capital cities, there was some degree of regional price convergence (i.e. prices have been growing faster in those regions where they were originally lower). This is not a general characteristic of housing market price dynamics, and is the opposite, for example, of that found in recent United States regional price trends. Bulgaria was an exception to this trend; the different dynamics observed there may reflect the fact that prices started to grow significantly only in 2003, and particularly in 2004. Regional construction data available for the Czech Republic showed that this variable did not seem, as might be expected, to be significantly related to price changes in housing, but it did appear to be highly correlated with income growth and initial income levels.

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11 A detailed econometric analysis of regional housing price changes in Russia is provided by Palacin and Shelburne (2005).
12 An analysis of housing prices in the United States using 143 metropolitan statistical areas found a highly significant and positive relationship between their level in 2002 and their increase between 2002 and the first quarter of 2005; data obtained from the National Association of Realtors.
In the cases where data were available, there were some small but noticeable pricing trends which differed significantly for the different segments (i.e., size, age or quality) of the housing markets. In Russia from the beginning of 2000 through the end of 2004, the average reported price of all new dwelling increased by 244 per cent while the price of all used units increased by 284 per cent; for typical flats, the increase was 230 per cent for new units compared to 308 per cent for used flats. In terms of quality, a price increase of 268 per cent was observed for low quality dwellings, 308 per cent for typical flats, 267 per cent for improved flats, and 201 for elite flats. The price increases for dwellings in Estonia followed a distinct pattern of much larger appreciations for the smaller and “cheaper units”. Between the first quarters of 2002 and 2005, the price of a dwelling comprising one room plus a kitchen increased by 122 per cent, while the price increases for two- to five-room dwellings (including a kitchen) increased by 103 per cent, 72 per cent, 39 per cent and 28 per cent respectively (from the second quarter of 2002 for five rooms).

The recent trend of rather significant increases in housing prices in several countries raises the question of affordability. Estimates of changes in affordability are often calculated using a ratio of housing prices to some measure of income. However this ratio fails to take into account the impact of changes in financing conditions on affordability. It is nevertheless useful as a first approximation to interpret the observed changes in prices. As the emphasis is primarily on the dynamics of this ratio, a readily available measure such as GDP per capita can be used. In Croatia and Poland, the ratio declined in 2000-2004 (i.e. affordability increased), with this trend in Poland being much clearer for the secondary market. In the Czech Republic and Russia there was a moderate increase in the ratio. And in the remaining countries for which there was data, more significant increases in the ratio were observed, but with important differences. In Bulgaria, this reflects the jump in prices from 2003 to the second quarter of 2005, compared with the preceding period when the ratio followed a declining trend. In Estonia, intermediate types of properties (those with 2-3 rooms and a kitchen) displayed the largest increase in this ratio. In Hungary, only two years of observations (1999 and 2003) have revealed a noticeable deterioration in affordability. Other measures of income, such as wages, show similar dynamics, as could be expected given the short time span over which the comparison was made.

An analysis of housing affordability in Russia by Kosareva (2005) concluded that the ratio of the market price of a standard dwelling (defined as 54m²) to average household income for a family of three has improved each year between 1998 and 2004. Their affordability index was slightly better for Moscow. If the decline in interest rates experienced in recent years throughout the region are considered, an interest rate adjusted measure would suggest less of deterioration in affordability than does the simple price to income ratio.

13 If the decline in interest rates experienced in recent years throughout the region are considered, an interest rate adjusted measure would suggest less of deterioration in affordability than does the simple price to income ratio.
than Russia overall, but neither of these were as good, although they were relatively comparable, as affordability had been in the EU or the USA in 2002. However, in 2004 only 16.9 per cent of Russian households were considered to have the income necessary to buy a standard dwelling with the help of a loan.

FUNDAMENTALS AFFECTING EAST EUROPEAN HOUSING PRICES

The official statistics, as presented in the previous section, suggest significant to moderate price increases in the region up to 2005 while the more recent real estate company estimates for 2005 suggest even more significant price escalation. A natural question is whether these price increases reflect basic fundamentals or have been inflated by “irrational exuberance;” this assessment is made difficult by the generally favourable economic developments and expectations of continued prosperity in the economies of the region in recent years. A complicating factor is that there is some evidence that prices fell significantly during the early transition period; therefore it is possible that the recent price increases could be simply a rebound from their depressed levels during the earlier period of economic instability.

It is generally believed that sustained residential price increases cannot occur without liberal financing from the domestic banking sector, since the vast majority of households do not have accumulated savings to support such increases. Foreigners who often bid up financial assets might wish to also participate in the housing market, however, they are faced with many of the same constraints as domestic residents since mortgage finance must usually be obtained locally. In addition, many countries limit foreign ownership of property, or immigration restrictions limit access. The financial systems throughout the region are underdeveloped especially in regards to providing mortgages or housing loans more generally and it has been the recent institutional development in this sector that has been the real impetus behind the recent price developments.

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14 Currently, only 1 per cent of Europeans obtain a mortgage in a different country from that where the property is located; these are mostly people living near the border or purchasing second homes; BBC News, August 30, 2005, www.bbc.co.uk.

15 Nevertheless, real estate markets are becoming increasingly “globalized” as cross-border transactions have been increasing significantly. It is difficult to estimate the effect foreign investors have played in the east European housing market due to limited information. It is estimated, for instance, that foreigners purchased about 5,000 properties in Budapest in 2005 while they purchased 1,367 (up 11 per cent) in Warsaw (Gomez, 2006). In China, another emerging market that has recently privatized housing, the People’s Bank of China has concluded that foreigners have played a significant role in the rapid appreciation of real estate in Shanghai and Beijing; they accounted for 23 per cent of all purchases in the last quarter of 2003, and have been especially heavy buyers of high-end properties (McGregor, 2005).
In some countries, the mortgage market is quite new, having only begun, for instance, in Romania and Ukraine in 2003.

**TABLE 3**

Mortgages as percentage of GDP, 2001-2005

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>..</td>
<td>..</td>
<td>1.1</td>
<td>2.7</td>
<td>4.8</td>
</tr>
<tr>
<td>Croatia</td>
<td>5.9</td>
<td>6.9</td>
<td>8.8</td>
<td>10.3</td>
<td>..</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1.4</td>
<td>2.1</td>
<td>3.1</td>
<td>4.4</td>
<td>6.2</td>
</tr>
<tr>
<td>Estonia</td>
<td>5.8</td>
<td>7.9</td>
<td>11.7</td>
<td>16.6</td>
<td>24.8</td>
</tr>
<tr>
<td>Hungary</td>
<td>2.2</td>
<td>4.7</td>
<td>8.3</td>
<td>9.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Latvia</td>
<td>..</td>
<td>4.2</td>
<td>7.7</td>
<td>12.1</td>
<td>19.6</td>
</tr>
<tr>
<td>Lithuania</td>
<td>..</td>
<td>..</td>
<td>3.4</td>
<td>5.6</td>
<td>7.7</td>
</tr>
<tr>
<td>Poland</td>
<td>1.8</td>
<td>2.6</td>
<td>3.6</td>
<td>4.0</td>
<td>5.4</td>
</tr>
<tr>
<td>Romania</td>
<td>..</td>
<td>..</td>
<td>1.1</td>
<td>1.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Slovakia</td>
<td>..</td>
<td>..</td>
<td>5.1</td>
<td>6.6</td>
<td>8.2</td>
</tr>
<tr>
<td>Slovenia</td>
<td>3.3</td>
<td>3.5</td>
<td>3.9</td>
<td>4.4</td>
<td>..</td>
</tr>
</tbody>
</table>

**Source:** Central banks websites and direct communications, UNECE common database.

**Note:** Croatia, Estonia, Latvia, Lithuania, Poland, Slovakia, Slovenia: the data are for housing loans instead of just mortgages; Czech Republic: in addition, there are housing construction loans (in 2005 they equalled 3.2 per cent of GDP); Russia: housing loans (including mortgage) by the end of 2005 were 0.6 per cent of GDP; Romania: housing loans for the year are the values in the end January of the next year; Croatia: housing loans as of the end of January 2002 for 2001.

Table 3 describes the level and growth of mortgages as a percentage of GDP over the last several years; although growing rapidly throughout the region this ratio was still below 10 percent in 2005 for all but three countries. Although there is considerable variance in this ratio in western markets, in the EU this ratio averages about 45 per cent of GDP (but varies from only 15 per cent in Italy to 111 per cent in the Netherlands). Nevertheless the growth of mortgages between 2001 and 2005 has been impressive in a number of these markets, more than quadrupling in the Bulgaria, the Czech Republic, Estonia, Hungary, and Latvia, and tripling in Poland while increasing significantly in the rest. Mortgages as a percentage of GDP in 2005 were the largest in Estonia and Latvia, where they also experienced the largest increases in 2004 and 2005. The most recent estimates of net residential mortgage lending find it increased by 100 per cent in Estonia and Latvia in the year ending in March 2006 compared to the previous year; it was up by 92 per cent in Lithuania, 24 per cent in Hungary, although it fell 8 per cent in Poland (EMF, 2006b). The overall price trends observed throughout
the region over the last several years are generally consistent with the size and growth of the mortgage market. Interest rate subsidies played an important role in fuelling housing demand in Hungary from 2000 onwards, but the tightening of access criteria for budgetary reasons in early 2004 sharply curtailed the growth of mortgages. The more moderate price increases in Poland since 2001 are reflected in the more moderate growth of mortgages there. One notable factor contributing to the rapid expansion of consumer credit in east Europe has been the increasing presence of foreign banks, this has been most apparent in the Baltic countries.

The availability of mortgages is dependent on long-term financing from the banking system. With most deposits having no or a very short-term maturity while mortgages are basically long-term loans, there is a significant maturity mismatch that can limit the desirability of offering mortgages. There are a number of institutional innovations such as the creation of mortgage-backed bonds or securities that can allow the banking system to diversify these risks. Generally these secondary mortgage markets are most developed in those east European countries where mortgages (as a per cent of GDP) are the most significant, however, the banking system primarily covers mortgage loan risk in this region. In some countries, special housing savings banks have been created which offer the banks a more stable source of funds. In a number of countries, especially those in south-east Europe, it is the absence of long-term funds or the lack of options for managing the maturity mismatch that has most limited the availability of mortgages.

Of course access to loans may be a necessary condition for sustained price increases but there must also be a strong consumer demand as well. This demand will depend on the costs of loans and consumers perceived ability to service these loans based in large part on their perceived future income. Over long periods, real prices of housing tend to increase at the rate relatively close to the growth in per capita output; for example, they increased by an average of 1.75 per cent a year during the 1971-2003 period in the industrialized countries. Given that real income growth in Eastern Europe has been and is likely to remain robust for a

16 The risks associated with deposits and loans having different maturities can also be reduced by the growth of the deposit base of the banking sector.

17 Within the EU the significance of covered mortgage bonds varies enormously from almost nothing in the U.K. to 100 percent of mortgage debt in Denmark, the EU-25 average being 17 per cent. Likewise in east Europe there is a diversity of sources for mortgage finance with covered bonds accounting for less than 5 per cent of mortgage debt in Poland and Latvia to almost 30 per cent in the Czech Republic and over 60 per cent in Hungary. Mortgage backed securities are increasingly being issued in the EU (especially in the U.K.) accounting for 23.5 per cent of new mortgages during 2004 (EMF, 2005; as obtained from the European Mortgage Federation). In the U.S. more than one-half of residential mortgages are incorporated in mortgage-backed securities (Frankel, 2006).
number of years, it is expected that this factor will continue to exert upward pressure on housing prices.

Future housing price developments will depend on expectations as well as actual future income growth. However, the likely path of income growth in the region is subject to considerable uncertainty. Although the growth in per capita income has been quite respectable for most of the countries in the region since the mid-1990s (a little later for EU candidates in southeast Europe), much of this early growth could possibly have been considered as a rebound from the transitional recession so the expectation that the region would experience longer run strong growth has taken some time to be widely accepted.\(^{18}\)

Although housing has a significant consumption component, it is an asset, and like equities its value is likely to adjust according to revised expectations of future economic prospects. As with other assets whose value is based on forward-looking information, its value is likely to experience sizeable volatility. Any revision in the expected long-term growth rate of an economy will be reflected in expected future income and thus in expected future housing values. However, once an expectation of higher future income growth is accepted, housing prices are unlikely to simply start growing at the higher rate; as with other assets, the value of housing would be expected to jump significantly as soon as market participants adopt the new expectation. In addition, since the supply of housing is essentially fixed in the short run, changes in demand from revised expectations are likely to lead to a situation where prices have a tendency to over- or undershoot in the short run before significant supply adjustments come into play.

A defining characteristic of an emerging market economy is that its equilibrium growth path over the long term is subject to more uncertainty than that of a developed economy. Agents therefore have a tendency to adjust their expectations about the long-term prospects of an economy based upon short-term developments; thus a spurt of economic growth is likely to be translated into expectations of a long-term increase in the growth rate (Aguiar and Gopinath, 2004). Consequently, asset prices in emerging market economies whose values depend on future income levels tend to be subject to greater volatility, as their current values adjust to changes in expectations. This translates into the general, more volatile macroeconomic environment found in emerging market economies. Since housing is an asset whose future value depends on future income, it would likewise be expected to experience similar volatility. Even in developed economies, where long-term expectations concerning national income are more stable, there is considerable volatility in housing prices. For example, in the United Kingdom annual nominal housing price changes varied between −10 and 30 per cent between 1988 and 2000 (Campbell and Cocco, 2005).

\(^{18}\) In fact the Baltic countries and those in south-east Europe have only very recently re-attained the per capita income levels of 1989.
In many early-stage emerging market economies, however, there might be a counterbalance to this situation in that their financial markets, and especially their mortgage markets, are less developed. This means that their housing prices cannot fluctuate to the degree consistent with changing income expectations because households’ liquidity is constrained by the absence of housing finance. However with mortgage markets developing rapidly in east Europe, these economies might be entering a “volatile range” of middle-income emerging markets that might be especially likely to experience housing bubble and bust cycles if they are subject to the higher levels of volatility from adjusting expectations and also have financial systems that are sufficiently developed to finance these expectations.

Interest rates appear to be another major factor in explaining medium-term price trends since they affect the costs of purchasing housing and thus its affordability. It is generally believed that the low rates that have existed for the last several years throughout much of the world have played an important role in the current global housing boom. There has been a general decline in interest rates throughout east Europe; figure 2 provides data for several countries.

The downward trend reflects not only the worldwide decline in real interest rates, but the lower domestic inflation rates, the increased integration of these countries into the global financial system, increased competition in domestic banking, the development of secondary mortgage markets, and reduced risk premiums due to improved complementary institutional structures involving credit information and foreclosure rights. In the new EU member states and accession countries, convergence with euro interest rates has been one of the factors driving the reduction in financing costs. However, it is worth noting that a substantial diversity of financing conditions has survived even within the EMU in terms of the types of products offered, the funding instruments used by the banking sector and, ultimately, the financing costs borne by households.

The interest costs of mortgages in many east European countries have also been kept low with the widespread use of foreign-currency-denominated loans which generally have lower interest rates and therefore require lower initial monthly payments. The prevalence of these loans (see table 4) generally reflects the degree of dollarization or euroization of the banking system in an economy. In the new members of the EU, euroization reflects the public’s confidence in their planned adoption of the euro; and although the preparation for EMU membership mitigates the risks involved in this foreign currency exposure, it is quite clear that

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\(^{19}\) Empirical analysis finds that both short-term and long-term rates have a significant influence on housing prices.

\(^{20}\) Kosareva (2005) reports that in Russia mortgage interest rates for ruble denominated mortgage loans varied from 15 to 18 per cent in 2004 while inflation was near 12 per cent.
this process will have to unfold without serious problems if the inherent risks are to be avoided.\footnote{A currency peg provides an obvious anchor for the choice of currency in lending. In Latvia, the switching of the peg to the euro from the previous Special Drawing Rights (SDR) link in 2005 has resulted in a growing share of the euro in foreign currency lending, which has been supported also by interest rate differentials. However, the dollar still accounts for a sizeable share of the existing stock of mortgage loans.} In Slovakia, and particularly the Czech Republic, foreign-currency-denominated loans to households are practically negligible; in most of the other countries in the region, they constitute a more significant share of housing loans (and, when the distinction can be made, an even higher share of mortgage loans) than of overall loans to households. Hungary had been an exception, as its programme of public subsidies, which underpinned the growth of mortgage lending, applied only to loans in local currency. However, in recent years a more stringent criteria has been established for these subsidies as a way to constrain the program’s budgetary implications; and as a result, there has been a

\footnote{A currency peg provides an obvious anchor for the choice of currency in lending. In Latvia, the switching of the peg to the euro from the previous Special Drawing Rights (SDR) link in 2005 has resulted in a growing share of the euro in foreign currency lending, which has been supported also by interest rate differentials. However, the dollar still accounts for a sizeable share of the existing stock of mortgage loans.}

Source: Central banks’ websites.
significant increase in foreign-currency-denominated lending to households.\textsuperscript{22} At the end of 2003 foreign currency loans accounted for only 1.2 per cent of housing loans in Hungary, but increased to 7.6 per cent by the end of 2004 (as shown in table 4) and were up to 23.9 per cent by March 2006. In Poland, a tight monetary policy to support disinflation, resulting in a strong złoty, underpinned a sustained increase in the share of foreign-currency-denominated loans beginning in 2000.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|}
\hline
 & Total & Housing & Mortgage \\
\hline
Bulgaria & 10.3 & 24 & 24 \\
Croatia & 0.5 & .. & .. \\
Czech Republic & 0.2 & 0.1 & 0.2 \\
Estonia & 65.1 & .. & .. \\
Hungary & 9.5 & 7.6 & 7.6 \\
Latvia & 68.9 & 74.5 & .. \\
Poland & 29.6 & 56.6 & .. \\
Romania & .. & 89.2 & .. \\
Russian Federation & 15.1 & 32.8 & 59.8 \\
Slovakia & 0.5 & 0.0 & .. \\
\hline
\end{tabular}
\caption{Percentage of household borrowing in foreign currency by loan type, 2004}
\end{table}

\textbf{Source:} As in table 2,

\textbf{Note:} In Croatia, most of the national currency loans are indexed to foreign currency (as of Dec. 2004, 86 per cent of loans to households were either foreign currency or kuna loans indexed to foreign currency).

The depreciation of the złoty in 2003 was a catalyst for a reversal of this trend.\textsuperscript{23} In countries with a currency board, high levels of foreign-currency-denominated borrowing are understandable, as households are willing to benefit from lower interest rates while being reasonably confident in the stability provided by such a currency regime. However, the share of foreign-currency-denominated lending is higher in Romania than in Bulgaria, suggesting the overwhelming importance of interest spread differentials and the use of the euro

\textsuperscript{22} Strong foreign currency borrowing by households has bolstered the exchange rate, helping to fund a large current-account deficit. The wide gap in interest rates on loans in foreign currency compared to those in the national currency suggests that this trend is likely to continue. As the foreign debt of the Government and banks has also increased sharply, this increases their vulnerability to a sharp depreciation in the exchange rate (Rózsavölgyi and Kovács, 2005).

\textsuperscript{23} Latest figures suggest that foreign-currency-denominated lending is rising again boosted by an appreciating exchange rate and accounting for 74 per cent of mortgage loans at the end of August 2005.
as the currency of reference in real estate transactions where inflation has been significant.

Although the banking sector appears to have limited its direct vulnerability to currency swings by minimizing its currency mismatches, it is nevertheless vulnerable to risks of default, since household incomes are largely in domestic currency and they do not have a natural hedge against foreign currency exposure. For consumers, a major impetus for taking foreign-currency-denominated loans is their lower interest rates. To the extent that this interest rate differential represents an anticipated currency depreciation that actually occurs, consumers gain no real advantage in terms of their real present value payments. However, in instances where consumers are restricted in the amount of their mortgage loan by standardized payment-to-income ratios (often around 30 per cent), a foreign-currency-denominated loan would allow a consumer to qualify for a larger loan amount.24

One somewhat surprising aspect of foreign currency mortgages has been the popularity of Swiss franc loans. Given the likely future adoption of the euro by the new and future EU members, one would think euro loans would be the overwhelming choice since consumers’ future wages will one day be in euros. However, given even lower interest rates on Swiss franc loans, they remain quite significant in a number of countries. For example, in March 2006 over 90 per cent of foreign-currency loans in Hungary were in Swiss francs. Recently, the Hungarian central bank expressed concern about the risks to consumers of these loans (Magyar Nemzeti Bank, 2005). Likewise, the Serbian central bank issued a warning about the potential risks that consumers were incurring especially with loans in Swiss francs, which carry lower interest rates but expose consumers to much greater currency risk than domestic and even euro-denominated loans (since the bank attempts to limit movements in the euro-dinar exchange rate).25 It is possible that the prevalence of foreign currency borrowing represents some form of market failure that may need to be addressed by some form of policy intervention which could make the borrowing requirements for foreign currency loans more stringent. In Poland new legislation requires that borrowers must sign an acknowledgement that that they have been informed about the risks associated with foreign currency mortgages. The Hungarian Financial Supervisory Authority has also been distributing information on these risks. In the near future in Poland,

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24 The Hungarian experience, after the tightening of the subsidies scheme and the take-off of foreign-currency lending, shows that households were ready to accept exchange rate risk in order to relax credit constraints (Kiss and Vadas, 2005).

25 This tendency to use foreign currency loans to get lower interest rates and perhaps relax payment-to-income ratios exists even within some eurozone economies; for example in Austria, 30.4 per cent of household loans (July 2005) are in foreign currency, mostly Swiss francs (Oesterreichische Nationalbank, 2005).
foreign currency mortgages may affect capital requirements and the credit rankings of banks (EMF, 2006).

Although most of the focus in the economics literature is on real interest rates, even lower nominal rates (with a constant real rate) can increase the demand for mortgage loans by lowering monthly payments, which would loosen the income to loan constraint on borrowing; in addition, lower nominal rates would increase the demand for loans by giving the consumer a more desirable payment time profile that is more consistent with maintaining a constant payment to income ratio.26

Additional factors that have been isolated as having a significant impact on housing price trends include employment growth and/or household formation and/or population growth, population density, construction costs and levels, unemployment levels, past housing price trends, real household disposable income growth, lagged (but not contemporaneous) real stock prices, credit growth and the existence of a banking crisis.27 For the countries of eastern Europe, most of these variables would seem quite supportive of future price growth.28 The fairly significant increase in local stock prices is likely to provide some households with additional wealth that they might seek to reallocate to housing although investment in shares is not particularly widespread.29 A few of the poorer countries in the region have also benefited from significant workers’ remittances, and these are likely to fuel demand by providing an additional source of financing (UNECE, 2005, chapter 5).

One major negative influence on housing prices for the region concerns demographic trends. Several of the countries in the region (such as the Baltic States, Bulgaria, the Czech Republic, Hungary, Russia, and Romania) are experiencing or are expected to experience low, if not negative, population growth. It has been estimated in western economies that an increase in the

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26 Inflation and increased job experience lead to future nominal income increases while the payments on a fixed mortgage loan remain constant; thus the ratio of mortgage payment to income falls through time. Ideally, one would expect consumers to prefer a more constant ratio; the lower the nominal interest rate (for a given real rate) the closer becomes the payment profile to the ideal over time.

27 A recent cross-sectional analysis of housing prices in 18 OECD economies can be found in IMF (2004); Jacobsen (2005) provides a time series analysis of Norwegian house prices.

28 After Spain’s accession to the EU, its real housing prices doubled over the subsequent five years; it is not clear if these price increases were due to changing economic fundamentals, a distinct EU effect, or unwarranted speculation. Ireland’s real housing prices almost doubled between 1980 and 2000.

29 Stock prices have increased significantly throughout the area, especially in the new EU member states. The increase in 2004 and 2005 were 57 per cent and 43 per cent for Hungary’s BUX, 57 and 43 per cent for the Czech PX-50, 28 and 34 per cent for Poland’s WIG, 81 and 26 per cent for the Slovak SAX, 40 and 45 per cent for the Baltic BALTIX, 101 and 51 per cent for Romania’s BET, and 38 and 32 per cent for Bulgaria’s SOFIX-BS.
population growth rate of one percentage point increases annual real housing prices by 4 per cent (IMF, 2003, chapter 2). Over a five-year period, in a country with a stable population real housing prices would therefore be expected to grow by 20 per cent less than in a country, such as Ireland, with a population growth rate of around 1 per cent. Thus, in projecting future housing price movements in eastern Europe, demographic trends will likely be an important factor. The general expectation is that these countries will mimic their western European neighbours and continue to experience low or negative population growth even if their rapid economic growth continues; however, there remains a possibility that sustained economic growth will stimulate population growth. Average household sizes are currently larger than in western Europe, and their declining trend is likely to persist; this will dampen the depressive effects on housing demand of the population declines. The ageing of the population is also likely to reduce the average household size.

As much as half of the housing stock in many countries was built under communism and is viewed to be of lower quality and deteriorating. This may limit demand (and thus price growth) for this segment of the market and increase the demand for older historical properties and modern units. However, according to Ober-Haus real estate analysts the current price differential between Soviet-era and modern apartments remains rather small but is likely to increase through time. There are also a number of pricing factors that are more country-specific; these include the design and development of the mortgage market, real estate taxes and other housing-related transaction costs and subsidies, and the availability of land appropriately zoned for residential use. Over the next several years there may be a significant increase in newly constructed units due not only to the recent increase in prices but due to attempts to construct units before an anticipated increase in the valued added tax (VAT) applied to the purchase of new residential units in the EU. For example, in the Czech Republic the VAT on residential units will increase from its current rate of 5 per cent to 19 per cent in 2008.

An unexplored question is whether or not there is a “separate” EU membership effect on housing prices. Certainly, EU membership introduces a number of changes in economic fundamentals affecting growth and interest rates that should positively affect housing prices, but it is possible that there may be some additional and independent EU effect not normally captured by the traditional economic variables used to explain prices. There was a credit boom

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30 This is the general trend forecast by the UN Population Division of the Department of Economic and Social Affairs (2003).
31 In Moscow, a comparison of “similar” units (i.e., after controlling for size, number of rooms, location, etc.) found that prices of units built after 1990 cost 2.5 per cent more than units built during 1965-1990 and 25.8 per cent more than units constructed before 1965 (IUE, 2004).
beginning slightly before EMU accession for the four “less developed” EU members – Ireland, Greece, Portugal, and Spain which was fuelled primarily by the fast expansion of housing loans (Magyar Nemzeti Bank, 2005). In addition, housing prices increased significantly in Sweden and Finland (but definitely not Austria) after their accession to the EU in 1995 and increased by almost 19 per cent in 2004 in Malta.

\[\text{FIGURE 3}\]

Average residential rents

\begin{center}
\begin{tabular}{|c|c|c|c|c|c|c|c|}
\hline
Year & Warsaw & Vilnius & Riga & Tallinn \\
\hline
1999 & 4.00 & 2.00 & 3.00 & 5.00 \\
2000 & 4.00 & 2.00 & 3.00 & 5.00 \\
2001 & 4.00 & 2.00 & 3.00 & 5.00 \\
2002 & 4.00 & 2.00 & 3.00 & 5.00 \\
2003 & 4.00 & 2.00 & 3.00 & 5.00 \\
2004 & 4.00 & 2.00 & 3.00 & 5.00 \\
2005 & 4.00 & 2.00 & 3.00 & 5.00 \\
2006 & 4.00 & 2.00 & 3.00 & 5.00 \\
\hline
\end{tabular}
\end{center}


A number of methods have been proposed to evaluate whether housing prices are consistent with economic fundamentals. The two most common measures compare housing prices with either some measure of personal income or with rents. Trends in the price to income ratio often referred to as affordability were previously discussed; after accounting for the expected increase in this ratio due to lower interest rates, affordability does not seem to have fallen significantly in most countries over the last several years (at least through 2004). The rising trend in the price to rent ratio in east Europe appears to be roughly similar to that observed in western economies where rising prices have not been accompanied by rising rents. As shown in figure 3, average residential rents in several east European cities as estimated by the Ober-Haus real estate company have been relatively flat; Tallinn is perhaps an exception with significant increases after 2003. In Prague residential rents are reported to have fallen by a quite significant
10 to 15 per cent in 2005 due to a developing oversupply of units (Oxford Analytica, 2006).

The logic of examining the ratio of housing price to yearly rental value is based on the expectation that there should be some relationship between the price of an asset and the income that can be generated from it. With stocks, this relationship is often expressed as the ratio of an asset price to its estimated yearly earnings, commonly referred to as the P/E ratio. This ratio is often used to assess whether stock markets are overvalued. In the case of housing prices, generally there is a fairly robust relationship between rents and selling prices. For example, figure 4 shows how average rents in German cities are related to average selling prices of condominiums (medium-quality units). The fact that this price to rent ratio has increased substantially in many western economies is often cited as a reason for suggesting that a bubble has developed in these markets. However, interpreting this ratio is complicated by the fact that, like the housing price to income ratio, it would be expected to increase when interest rates fall as significantly as they have.32 A more general rule of thumb, that incorporates both housing prices and interest rates, is that a property should rent for something relatively close to the monthly payment on a 30-year loan; however, in many western markets this is no longer the case. A significant qualification applies to this type of analysis for much of east Europe in that the rental market in many countries is not well developed because of high ownership rates, rent controls, and very limited information on prices and rents for comparable units.33 There is, however, a market for buy-to-let properties; according to calculations by local real estate companies, even in the Baltic countries, where house prices have risen considerably, yields from residential property rentals have been declining but are still in the 6 to 8 per cent range in Poland and the Baltics and 5 per cent in Prague;34 these returns are approaching domestic currency interest rates while still above euro and Swiss franc rates and are still slightly above estimated returns in western markets. Thus these figures suggest that rental income would be

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32 For the euro area, the house price to rent ratio increased by almost 30 per cent between 1996 and the end of 2003 while this ratio increased by almost 60 per cent in Spain and the Netherlands (ECB, 2004).

33 The private rental market continues to be quite small in many of these countries. Data on rents is generally weighted heavily towards rentals of public housing, and therefore is not an acceptable proxy for this type of analysis. In Bulgaria, rents in the CPI include both the regulated and non-regulated sector. The average annual growth rate of rents paid consistently exceeded the increase in housing prices in 2000-2003 by a large margin, a trend that was only reversed following the sharp increase in housing prices observed in 2004. By contrast, in a number of Estonian cities for which information was available, the ratio of housing prices to rent sharply increased in 2002-2003.

34 These estimates are provided by the Ober-Haus real estate company (Ober-Haus, 2006) for Tallinn, Vilnius, Riga and Warsaw and by Lexxus real estate company (Breux, 2006) for Prague.
sufficient to cover all or most of the mortgage payments and therefore, by this measure at least, residential property in these markets would not appear to be currently overvalued. Knight Frank (2006) estimates that the rental return on a Moscow apartment is about 6 per cent while that on an apartment on the Black Sea of Bulgaria is 5 per cent and only 3 per cent on one in Croatia; these yields are below typical mortgage rates in their respective areas and the profitability of such investments would appear to be dependent on further appreciation.

A typical sign of an ending bubble and an approaching bust is that the rate of sales of property decline and inventories increase; as of yet there is little evidence of this. However, it is reported in Prague that the proportion of new apartments sold prior to construction has fallen significantly from over 50 per cent in 2004-2005 to less than 20 per cent in early 2006 (Oxford Analytica, 2006).

THE POSSIBILITY OF A HOUSING BUST AND THE APPROPRIATE POLICY RESPONSE

Housing prices seem synchronized amongst the industrialized economies, as they appear to be significantly affected by fundamentals that are global in nature, such
as interest rate movements or business cycles, which affect all countries fairly simultaneously. The importance of these global factors for specific country housing markets vary, but since they account for a considerable amount of the variation in housing prices, future price movements in eastern Europe are likely to be significantly affected by developments in the housing market in other countries. Therefore if housing markets in a number of major economies, including the United States and many western European countries, are overvalued and subject to a bust, this decline could very likely spill over into eastern Europe through numerous transmission channels, including interest rates, exchange rates, wealth effects, withdrawal of foreign investment and consumer psychology. However, given that the pricing cycle in eastern Europe started significantly later than in western markets, and that the fundamentals may be different, this is but one possibility.

According to an IMF analysis, a crash in housing prices is fairly rare; in the western industrialized economies covering the period 1970 to 2003 the probability of a bust was only 5 per cent for a given country in a given year. However, that probability was approximately 40 per cent following a boom; a rapid tightening of monetary policy usually triggers busts. Housing busts generally coincide with recessions, and are often associated with a concurrent equity bust. Moreover, they are often synchronized across countries. The typical price decline in a bust was 27 per cent. Although a housing bust is less frequent than an equity price bust, by lowering GDP by almost 8 per cent, it has a significantly greater impact on the economy and more extensive implications for the banking sector; in addition a housing bust requires a longer time period – almost four years – to work itself out. The longer time period means that more of the real price decline can be achieved through inflation and less through a fall in nominal prices. A severe housing bust lowers consumption expenditures not only for homeowners who lose wealth, but also for owners of mortgage-backed securities; where homeownership is low, housing price declines, by lowering rental costs, can increase the consumption of lower income households. More localized housing busts are often associated with falls in the level of employment. In addition to the economic costs associated with a deflating bubble, resources are misallocated during the boom phase since too much investment is likely to have been directed towards new housing.

Currently, there is a debate amongst central bankers, policy-makers and academics over the degree to which monetary policy should consider or even

35 IMF (2003, chapter 2) and IMF (2004, chapter 2).
36 In fact the length of the bust is negatively related to the inflation rate suggesting a significant degree of nominal downward rigidity so that in a low inflation environment it takes a much longer time for real house prices to reach their trough.
target asset prices.\textsuperscript{37} Even ignoring the conceptual question as to whether escalating housing prices should be incorporated into consumer price indices (since they represent a major component of household expenditure) and addressed as an inflation issue, rapid asset price increases and possible economic bubbles may adversely affect financial stability. It has been suggested that loose monetary policy in the late 1990s resulted in the stock market bubble and the global downturn that followed, and that it is currently creating a similar type of bubble in many housing markets. The Japanese property bubble of the late 1980s and its subsequent crash beginning in 1991 has been of particular interest since it was followed by a decade-long period of stagnation. This boom–bust cycle is alleged to have resulted from the Japanese central bank’s initial neglect of and then possible overreaction to property prices. The price of housing almost tripled during the 1980s and then declined by almost half in the 1990s; commercial real estate and land experienced an even greater boom and a faster and larger bust. Since the banking system financed these real estate transactions, the collapse of property prices led to a banking crisis, as property developers, and to a much lesser degree, homeowners, defaulted on their loans (Moffett, 2005).

Another experience that may be especially noteworthy for the east European economies concerns the property market cycle that developed in the east Asian emerging markets in the 1990s. There, over appreciation and investment resulted in too much illiquid property which proved to be of limited value in resolving their currency crises.

Another cautionary experience may be that of the financial liberalizations in Finland, Norway and Sweden in the mid-1980s. Initially after the elimination of many barriers to household borrowing, there were fast credit expansions to households which were accompanied by significant increases in housing prices. However, by the end of the 1980s the enlarged debt burdens of households led to a decline in consumer borrowing which was accompanied by a significant housing market slump (Athanassiou, 2006).

In much of the developed world there have been a number of innovations in mortgage finance whose overall effect is to reduce the extent to which households acquire equity in their properties. This includes larger loan-to-value ratios, longer loan maturities, interest only loans or accordion variable mortgages (when interest rates increase, the monthly payment stays the same but the length of the loan increases). These features can increase the amount consumers can borrow and perhaps help them through a temporary period of higher interest rates or income loss. However, overall consumers end up with less equity in their properties and any downturn in housing prices could result in negative housing

\textsuperscript{37} Also, it is not clear to what degree property prices affect monetary policy in the euro region, but the European Central Bank’s (2005, p.34) stated position is that “Developments in residential property prices are an important factor in the assessment underlying monetary policy decisions.”
equity which could be problematic for the banking sector. These mortgage innovations are likely to spread rapidly into the east European mortgage market as it develops especially due to the influence of foreign bank ownership and increased competition.

Currently, given the limited availability of information on housing market prices and the reduced scope for exercising discretionary monetary policy, central banks in many countries of the region do not seem to have given much weight to housing price developments in their execution of monetary policy. Nevertheless, a recent paper by the Bank for International Settlements (BIS), which includes a case study of the Czech National Bank (CNB), concludes that the CNB “pays close attention to developments in real estate prices” which “have begun to take a central position in the CNB’s monetary policy”, but its actual importance remains “limited and only indicative” (Matalik, Skolkova, and Syrovatka, 2005). Undoubtedly, the extent to which central banks in emerging markets begin to consider real estate trends in their conduct of monetary policy will depend on the ongoing debate among developed countries’ central banks on how to weigh this factor. Although the European Central Bank (ECB) and the Bank of England have expressed concern about asset bubbles, and seem sympathetic to the idea of using monetary policy to limit them by leading against the wind as opposed to pricking them, the current thinking of the United States Federal Reserve (as expressed by both Greenspan and Bernanke) seems to be that it is less costly to “mop up” an asset bust than it is to avoid one altogether by raising interest rates to contain a bubble when that might create additional unemployment (Balls, 2005). This assessment is based, to a large extent, on the limited costs associated with the last stock market bubble and bust; however, the macroeconomic implications of stock and housing bubbles may be fundamentally different, especially since the latter is generally financed with borrowed money. In addition, real estate markets differ from most other financial markets in that the boom phase cannot be dampened by pessimists, since short trading is not possible. Thus the manner in which booms proceed and unwind may be quite different.

When a property price bubble is part of a general condition of excessive liquidity, a tighter monetary policy might be warranted. However, if the bubble exists in a stagnant economy, or in one where the real estate exposure of the banking sector is limited, the appropriate policy could be one that is more precisely targeted at the property bubble. For example, minimum down payment

38 Much of Bernanke’s theoretical work has been devoted to this issue, see Bernanke and Gertler (2001).

39 If “sophisticated investors” consider real estate prices to be low, they might purchase some property, but if prices are too high, there are no easy ways to profit from the situation; this contrasts with financial markets where sophisticated investors can take a short position whenever they believe asset prices are too high (Belke and Wiedmann, 2005).
requirements, where they can be legally regulated, could be raised, or the tax rate on capital gains on housing could be increased. Such regulatory policies could be particularly important in countries with a currency board, or those attempting to fix their exchange rates to the euro as a precondition for euro accession, since they have limited policy discretion over interest rates. However, in the east European economies information on housing generally is not available in a timely manner, and even in the few countries where there has been a systematic effort to gather such information, many shortcomings remain. This constrains the ability of policy-makers to take into account housing prices when making policy decisions.

FURTHER IMPLICATIONS OF HOUSING PRICE DEVELOPMENTS

Changes in asset prices, especially real estate prices, are also likely to have significant effects on the fiscal position of a country by altering the amount of revenues collected on capital gains and turnover transactions, in addition to the more general increases in taxes produced by income growth resulting from wealth effects and greater investment. Asset busts, especially large ones, can lead to increased government expenditures if it becomes necessary to bail out the banking sector due to balance sheet problems. These types of expenditures have amounted to over 10 per cent of GDP in some emerging market economies. The overall magnitude of these revenue and expenditure effects can be significant; for instance it has been estimated that 30 to 40 per cent of the fiscal deteriorations experienced by the United Kingdom and Sweden during the early 1990s were due to asset price effects, with real estate price changes being particularly significant (Eschenbach and Schukecht, 2004).

The housing market has important macroeconomic implications for a variety of reasons. Housing prices affect residential investment as well as perceived wealth, and therefore influence consumption expenditures and aggregate demand. By the late 1990s, residential real estate accounted for 25 per cent of aggregate household wealth in the United States and 35 per cent in the United Kingdom, and these figures may be twice as high for middle-income

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40 For example in the United States, regulation X gives the Federal Reserve the power to regulate required down payments. However, so far the Fed has chosen not to use this as a macroeconomic stabilization tool.

41 Efforts are under way to improve this situation, especially the significant time lag. In the Czech Republic, for example, there is a project to compile an index based on transactions reported by estate agents, which might include a monitoring of such transactions in the regular set of surveys conducted by the statistical office. The Czech National Bank has played a critical role in driving the demand for better statistics on housing prices (Vojtisek, 2004).

42 Data for the United States is from Bertaut and Starr-McCluer (2002) and that for the United Kingdom is from Banks and Tanner (2002).
households (Tracy and Schneider, 2001). In emerging market economies, residences account for an estimated 75-90 per cent of household wealth (IFC, 2005). The estimated annual marginal propensity to consume as a result of increasing housing wealth is almost twice the effect on consumption as equivalent increases in stock prices; for example in the United States, it is between 3 and 6 per cent. This higher propensity to spend stemming from increased housing wealth seems somewhat surprising, given that it is considerably more difficult to extract liquidity from changes in housing wealth.43

Although there appears to be a well-established empirical relationship between housing prices and consumption, which seems positively related to the size of the mortgage market (Catte, Girouard, Price and Andre, 2004), some theoretical questions remain. Some economists argue that a rise in housing prices, although increasing the nominal financial wealth of homeowners, does not actually increase society’s real wealth, and should therefore not affect consumption through a wealth channel. The logic of this argument is that housing is also a consumption good, and that a rise in housing prices simultaneously increases the implicit rental costs of housing. Thus homeowners who continue to live in their homes (or any other) are unable to purchase any additional commodities as a result of the price increase, and are therefore no richer in a real sense. In addition, renters or those in starter homes who anticipate purchasing new homes become “poorer” since they will ultimately have to pay more, which would compel them to forgo the consumption of other goods that they might otherwise have purchased.

It is possible that a large number of households are limited in how much they can borrow, and are not able to allocate consumption over their life cycle consistent with their time preferences. In such cases, higher values of housing would enable increased access to additional credit or allow the withdrawal of equity through refinancing. They might also allow households to substitute housing wealth for precautionary savings in financial assets, which would free up income for current consumption. Evidence for these channels comes from household consumption data which show that the consumption effects of increases in housing prices are weaker for households with unused borrowing capacity (Campbell and Cocco, 2005). Some economists argue that the correlation between housing prices and consumption is spurious, and that both are the result of some other macroeconomic factor. For example, if households become optimistic about future income growth, both consumption and housing prices should increase, the latter as a result of the effect of expectations about future income on current asset prices. It has also been suggested that financial

43 However, selling financial assets might incur additional taxes on the capital gains, while withdrawal of housing equity by refinancing does not.
44 There is, however, significant cross-country variation in this relationship, see Osborne (2005).

http://www.bepress.com/gej/vol6/iss3/1
liberalization results in more credit, which increases both housing prices and consumption (Attanasio and Webber, 1994). The ability of increases in housing prices to influence consumption through a number of these channels depends on the existence of a well-developed financial system (for example, a large amount of mortgages that can be refinanced). Given the infancy of this market in most countries of the region, it may be expected that increases in housing prices would have less of an effect on consumption; however, households in the region may be more liquidity constrained than in western markets, in which case the effect would be stronger.

The vulnerability of the household sector to potential shocks has increased as a result of growing indebtedness, which partly reflects real estate purchases. It therefore becomes important to monitor housing prices and developments in this market for a more complete assessment of threats to financial stability. While in most east European economies mortgages and overall household debt are still relatively small, they have reached levels in some central European and Baltic countries that make the potential impact of variations in exchange and interest rates fairly significant. In Latvia, the central bank identified developments in the real estate market and mortgage lending to households as the most serious sources of potential financial vulnerability for the banking system in both 2003 and 2004. In Estonia, the strong growth of households’ financial liabilities, due mainly to borrowing for home purchases, has led to a negative net financial position against the banking sector since the fourth quarter of 2003. The gap between financial assets and liabilities has continued to widen, and household wealth has become increasingly dependent on the dynamics of real estate prices.

Since housing price changes can affect the balance sheet of the banking system, they can also have a significant impact on financial stability. Given that many of the banks in eastern Europe are foreign owned and thus diversified regionally, defaults on housing loans could probably be absorbed reasonably well unless they were part of a larger global housing bust. Banking in Russia may be more vulnerable given that it is more concentrated in the domestic market, but mortgages are much less significant there. Increases in housing prices may affect the rate of inflation – even if such prices are not part of any “official” consumer price index by affecting consumer expenditures, which can induce prices increases throughout the economy. The flip side of increased consumption due to rising housing prices is reduced savings. This can have negative implications for long-term growth, and might contribute to current account deficits as the country attempts to tap external sources of savings.

\[45\] Stress tests show that even if 20 per cent of the loans were related to real estate activities and housing purchases, the additional capital required to continue to meet the minimum capital required would be equivalent to only 0.2 per cent of the 2004 GDP (Bank of Latvia, 2004).
The institutional design of the mortgage market has important implications for housing market volatility and the effectiveness of monetary policy. Fixed-rate mortgages, high turnover costs (including refinancing penalties), conservative loan-to-value requirements and lower rates of home ownership have been found to reduce housing price volatility (Maclennan, Muellbauer, and Stephen, 1999). The structure of the mortgage market influences the monetary transmission mechanism by altering the way interest rates affect new housing investment, consumer housing demand by altering affordability, and current consumption expenditures by changing mortgage payments for those with flexible rates or refinanced loans, in addition to creating housing market wealth effects. This implies that the prevailing type of mortgages can significantly affect the speed and degree to which lower interest rates result in higher consumption and investment expenditures. For example, if refinancing of fixed-rate loans is limited by prepayment penalties, lower interest rates will provide a much lower stimulus to consumer spending; likewise the more adjustable the interest rate, the faster and larger the stimulus. Thus, for example, because of differences in the design of the mortgage market, it is generally believed that monetary policy is more effective in the United States than in continental Europe. The preference for refinancing in the United States has also been accompanied by a tendency for homeowners to withdraw equity out of their houses, which creates additional stimulus but could also increase homeowners’ vulnerability to price declines.

It has been argued that the “one size fits all” monetary policy of the euro zone will have different effects on each of the members due to significant structural differences in each of their housing markets. Those at the extremes of the institutional spectrum in the euro zone have been advised to harmonize their housing markets towards the centre in order to minimize macroeconomic problems that might arise from either their over- or under-responsiveness to a given monetary policy. Thus the new EU members as well as the candidate countries, all of which are future members of the euro zone, would benefit from ensuring that the design of their housing markets follows a template

46 The rise in housing prices increases households’ wealth, allowing them to borrow more against the increased value of this collateral. This credit channel represents a third way through which the dynamics of the housing market affect homeowners’ decisions, and can be influenced by changes in monetary policy (Aoki, Proudman, and Vlieghe, 2002).

47 The design of the United States market is asymmetric. Although there has been a recent increase in adjustable-rate mortgages, between 85 and 90 per cent of the stock of mortgage debt is at fixed rates (ECB, 2005a). Thus lower interest rates have a fairly stimulating effect by encouraging refinancing since there are few prepayment penalties. Higher rates, however, have a much lower impact since the stock of debt is not affected.

48 Structural differences in the housing market are considered a factor that might complicate the United Kingdom’s possible participation in EMU, see UK HM Treasury (2003) and Maclennan, Muellbauer, and Stephens (1999).
corresponding to the main tendencies of the older EU members (the EU-15). Currently in the Baltic countries, variable-rate mortgages are dominant, while in the others mortgage arrangements are more in line with those prevailing in existing euro-zone members (i.e. fixed rates with pre-payment penalties). The importance of foreign currency lending in a number of countries introduces another difference in the monetary transmission mechanism, and means that exchange rate changes could result in different sized shocks to different economies.

CONCLUSION

Much of the global economy appears to be mist of a housing price boom that has increased prices to levels not normally considered consistent with economic fundamentals. Nevertheless there have been significant changes in a number of parameters such that it becomes at least reasonable to hypothesize that there has been some structural shift in asset markets that might justify these price levels.\(^{49}\) In east Europe residential housing prices have begun to increase substantially over the last several years; official statistics suggest significant but more moderate price increases while in some countries these increases have been quite substantial especially in the last two years if less reliable but more timely data is believed. At the same time, the economic fundamentals for the region have changed dramatically over the last five years with weak growth and an atmosphere of uncertainty being replaced by strong income growth, significant institutional innovation, integration into the world financial system, and EU membership or its prospects for much of east Europe. Although the latter does not apply to Russia, it has benefited tremendously from its oil and gas bonanza. It is not just housing that has responded to these changes, other asset markets have also experienced similar sizable appreciations. In summary, the situation is therefore very difficult to assess since the rapid increases in housing prices have been accompanied by significant changes in fundamentals.

An evaluation is also hampered by the lack of any recent historical record which can be used for comparisons since the creation of private housing markets in this region is relatively new. It is possible that the more recent price increases might be simply a rebound from their depressed levels of the previous decade of transition instability since there is some evidence that prices fell significantly during this period. The questionable quality of the stock of much of the Soviet-era housing introduces yet another unknown parameter that must be addressed. In western markets, a major concern is that existing prices may not be sustainable once historically low interest rates increase back to more normal levels. In east

\(^{49}\) Or in the words of Charles Kindleberger, “This time is different.”
Europe, however, this reversal in interest rates is likely to be much smaller since the interest rates declines experienced in the region over the last five years are not simply cyclical as in the west but reflect a fundamental shift in the availability of credit due to profound changes in credit markets and more general integration of these economies into the global financial system. An overall assessment of the situation throughout east Europe is hampered significantly by the absence of quality and timely data on housing prices. The ability of policy to address any potential bubble is limited by constraints on monetary policy faced by central banks throughout the region which will require that any policy response be of a more microeconomic regulatory nature.

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