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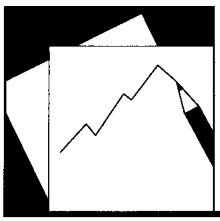

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The Housing Cycle in Emerging Middle Eastern Economies and its Macroeconomic Policy Implications

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Abstract

This paper examines housing finance and housing price dynamics in selected emerging Middle Eastern economies over the past two decades. It finds that (i) mortgage markets have experienced rapid development, which has led to lower private per capita consumer spending volatility this decade; (ii) a downward price correction occurred in the housing market after 2007, which appears to have bottomed out; (iii) the rental market appears to be largely determined by region-specific economic fundamentals—a youthful working-age population and wealth variables; and (iv) a segregation between self-owned house and rental price dynamics exists in this region, rendering the former more sensitive to the business cycle.

JEL Classification Numbers:
Keywords: Housing finance, mortgage market, housing and rental price dynamics and bubbles, Middle East, North Africa, panel data analysis

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I. INTRODUCTION

The recent boom in house prices in many advanced countries and the subsequent sharp correction in a few of them has attracted policymakers' and researchers' attention, as has the link between housing and business cycles. The boom-bust cycle in house prices is observed not only in advanced economies, but also in the Middle East, North Africa, and Central Asia region (MCD).

Empirical studies have shown that the housing cycle can affect an economy through two important channels: (i) a more developed housing finance market helps households better smooth consumption, but (ii) the positive feedback from house prices to household consumption could be a threat to economic stability.

This paper aims to shed light on the dynamics of these two channels in the emerging MCD (EMCD)[2] region. It does so through (i) a documentation of the development in housing finance markets and their links to the macroeconomy; (ii) a characterization of the housing price cycle—including, in particular, its determinants and its recent correction; and (iii) an examination of the segregation between the housing and rental market in EMCD.

The paper addresses the following questions pertaining to the first channel: Has EMCD experienced a liberalization of housing finance? Do cross-country differences in housing relate to the institutional characteristics of national mortgage markets in this region? How do housing and housing finance impact consumption? And, pertaining to the second channel: Has EMCD experienced a housing and rental boom-bust cycle in the past two decades? What are the implications for the macroeconomy—does housing amplify or dampen the business cycle, and what is the scope for stabilization? Do house prices reflect a bubble? What are the fundamental determinants of rental price dynamics, and how different are these fundamentals from those in advanced and other emerging market economies (EME)?

The remainder of this paper is organized as follows: Section II discusses characteristics of the housing market in EMCD, including supply rigidities and demand features; Section III documents mortgage market innovations and develops a mortgage market index (MMI); Section IV presents housing and rental price developments, while Section V links these developments to consumption volatility and the MMI; Section VI estimates the fundamental determinants of rental price dynamics using panel data analysis covering 33 EMEs and exploiting cross-country differences (heterogeneity); and Section VII concludes.

[2] The EMCD region comprises the following 16 economies: Algeria, Bahrain, Egypt, Iran, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Tunisia, Saudi Arabia, Syria, and the United Arab Emirates. However, data are not available for all 16.

II. HOUSING MARKET COMPOSITION

Characteristics of the housing market in MCD countries are summarized in Table 1, which splits the market into three categories: homeownership (housing hereafter), and rental and social housing. It is perhaps remarkable to observe a similar average homeownership ratio in this region compared to advanced countries. According to WEO (2008a), about 65 percent of the population, on average, lived in self-owned houses in OECD countries between 1995 and 2007. In EMCD, this percentage varies from 38 percent in Egypt to about or over 80 percent in Syria and Tunisia, with nine out of 11 countries in Table 1 having a share larger than 50 percent and an overall average of 64 percent. For the other two housing market categories—rental and social or subsidized housing—there is a relatively larger fraction of rentals in most countries. An outlier is the United Arab Emirates (UAE), where the share of the rental market is as high as 45 percent due to the large share of expatriate workers.

Table 1. Characteristics of the Housing Market in Emerging MCD

	Home-ownership	Rental & Leasehold	Informal and Social (Subsidized) Housing	Land Mkt Problems	House Price / Income Ratio	Supply Gaps
Algeria	0.45	0.30	0.25	Yes	12	Yes
Bahrain	0.68	0.20	0.12	Yes	12	No
Egypt	0.38	0.33	0.29	Yes	7	Yes
Jordan	0.71	0.17	0.12	No	3	No
Kuwait	0.68	0.27	0.05	Yes	…	Moderate
Morocco	0.65	0.22	0.15	Yes	9	Future
Qatar	0.72	0.28	…	…	…	Moderate
Saudi Arabia	0.56	0.44*	…	No	…	Future
Syria	0.85	0.07	0.08	…	…	Moderate
Tunisia	0.77	0.08	0.15	…	5	No
UAE	0.55	0.45	0.05	…	>12	No

Sources: Amar Finance and Leasing (2006-08), AMF (2007), IFC (2007), Markaz (2009), Merrill Lynch (2007), Oxford Analytica (2009), Sico Investment Bank (2008), World Bank (2005), and authors' calculations.
* Note that this is a sum of both the rental (23 percent) and leasehold (21 percent) share.

In spite of the high homeownership ratio in EMCD, there is a shortage in housing stock, particularly affordable low- and middle-income housing.[3] Supply rigidities are partly attributed to land supply constraints,[4] which appear to exist in all countries with

[3] Down payments for homeownership have ranged between 20–100 percent, implying that the younger generation (21–35 year-olds) and members of low-income households have been, for the most part, deprived of ownership. As a result, a large segment of these populations have tended to live with their parents until they are able to purchase a home, while a smaller fraction rent. Moreover, and until recently, bank and nonbank lending to these particular groups has been limited.

[4] The state is a majority owner of land in Algeria, Egypt, Iran, and Morocco. In Egypt and Morocco, only 25 percent of land is titled. By contrast, in Saudi Arabia, the state offers families free plots of land to build their new homes—although more recently this has been limited to low-income households. Several other economies

(continued…)

supply gaps. While some positive changes occurred after 2000, affordable housing is still a challenge for many EMCD economies. In addition, as Table 1 indicates, in countries with supply gaps, the house-price-to-income ratio is generally larger than in those without.[5]

Nevertheless, supply rigidities do vary across countries and income groups. Algeria, Egypt, Iran, and Yemen face supply shortages across all income groups, which are chronic for low-income households in particular. In Kuwait, Lebanon, Morocco, Qatar, Saudi Arabia, and Syria, supply gaps are significant, primarily for low- to middle-income households. In contrast, excess supply exists in Bahrain and the UAE in the luxury and leasehold market and in Morocco's luxury tourism segment. Adequate supply prevails in Jordan and Tunisia,[6] while future supply challenges are acute in Morocco (in the non-luxury segment) and Saudi Arabia. For the latter, policies appear to be in train to meet demand.

Demand in the rental segment of the housing market took off in the late 1990s, driven by rising incomes (including from remittances) in net oil importer economies (NOI) and growth in the number of expatriate workers in net oil exporter (NOE) economies. Prior to this time, the rental market was static and suffered from administered pricing in several EMCD economies (e.g., Egypt and Tunisia). Since then, however, political and economic factors, as well as structural reforms, have added more dynamism to the sector.[7]

Since 2002, the market has been dominated, in terms of value, by the luxury and middle- to high-income market segments, which is tailored to high-income expatriates, seasonal tourists, national professionals, and the wealthy. High-income expatriate workers, many of whom work in the financial and oil industries of the Gulf Cooperation Council (GCC), come from Australia, Europe, and North America. Seasonal tourists are mainly European, particularly in Morocco, or religious, linked to the holy cities of Saudi Arabia. These two groups generate the majority of demand in the luxury and high-end segments of the rental market, where rental-price-to-income ratios are particularly high. The rental yield[8] varies widely across EMCD, with an average of 6 percent in the GCC and a high of 20 percent in the UAE. Blue-collar expatriate workers from the Asian subcontinent form the majority of low-income renters, in particular in the GCC, but are not assumed to drive the market.

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in the region shared this problem prior to 2001, but structural reforms introduced in 2002—particularly in Egypt and Morocco—began to relax this constraint.

[5] The house-price-to-income ratio is high in both Bahrain and the UAE despite the absence of a supply gap. This may be due to building and demand-push associated with expatriates' luxury houses in these countries.

[6] Home improvement is needed in the latter to avoid any erosion in value of housing stock.

[7] Such is the case in Saudi Arabia, due to its "Saudisation" policy (Merrill Lynch 2007).

[8] This is the real estate industry's profitability yard stick.

Social housing accounts for the remainder of the market, ranging from a high of about 30 percent in Egypt (rising to 65–90 percent in certain cities) to only 5 percent in some of the GCC economies. Social housing policies can be either enabling or regressive in EMCD. During the 1990s and the first half of this decade, state subsidies were highly regressive in Algeria, Egypt, and Morocco. But in many other countries, well-targeted policies—including enshrinement of the right to decent housing in state law (e.g., Bahrain and Saudi Arabia) — have enabled more affordable housing. In addition, in most EMCD, public-private partnerships have been set up to supply affordable social housing to mid-to-low income households. This is usually complemented by softer housing finance terms (i.e. interest rate subsidies and loan guarantees) offered by banks and nonbank financial institutions. Notable exceptions include Lebanon and Yemen, which would benefit from well-targeted support to the sector (World Bank 2005).[9] It should be noted that in the literature, social housing is found to dampen house price volatility.

III. Mortgage Market Innovations and a Mortgage Market Index

Housing finance systems in the region have developed rapidly, both in terms of sources and instruments of financing, during three distinct stages over the past two decades: from early to mid-1990s, the late 1990s and early 2000s, and post-2003.

During the first stage, primary mortgage markets—although having been in existence for several decades—were very small. Sources of financing were limited to personal equity from bequests, savings, and remittances. Private banks were very conservative (given that they were intermediated by bank deposits backed by heavy collateral), and stipulated that a large fraction of a property's face value be paid upfront. Lack of credit information about borrowers drove up the price of housing loans, and highly regulated markets—which governments dominated with direct mortgage lending through state-owned banks and agencies—resulted in chronic underfunding.

Deregulation of the region's mortgage finance market began in the late 1990s. This second stage of development featured competitive pressure brought on by the entry of additional traditional incumbent banks and a wider variety of products. While housing finance access broadened, it remained limited to high- and middle-income households. Moreover, large deficits in infrastructure and tight regulation[10] persisted.

[9] See Appendix Box A.1 for a description of social housing reforms in the region.
[10] Registration, transfer, foreclosure, construction quality, and tax regimes.

The third stage of development commenced in 2003 and resulted in a profound change in housing finance across all dimensions. Newly established nonbank[11] financial and specialized institutions entered the market with Islamic and non-Islamic mortgage financing instruments and often were both financiers and large investors in the both the residental and commerical real estate sector.[12] They acted to extend the duration of mortgage loans, from the traditional seven to 15 years, to as long as 30 years in some countries. Lower mortgage borrowing costs were reflected in higher loan-to-value (LTV) ratios and lower mortgage rates across most EMCDs. [13]

A comparison of countries across the region in terms of mortgage financing reveals different development stages for NOE and NOI. Whereas NOI—such as Egypt, Jordan, and Tunisia—are still in the stage where the government is shifting from a provider to a regulator of mortgage lending, and the financial sector remains conservative in lending,[14] NOE are much more developed. Countries such as Bahrain, Kuwait, and the UAE have almost fully deregulated their mortgage markets, including by introducing state-of-the-art mortgage regulations, securitization infrastructure, and secondary mortgage markets—and even opening up the market to foreign banks and borrowers.[15] Indeed, with abundant liquidity, financial institutions of some NOE have begun financing other mortgage markets in the region, perhaps as a diversification tool.

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[11] To be specific, it was by and large the GCC (and, in particular, the UAE) nonbanks that contributed to this profound change. In Egypt and Morocco, for example, banks actually extend less than half the total of mortgage loans, given a rich nonbank lending environment—which nonetheless has many problems and is undergoing significant reform. The change in the role of the state, as a specialized lender and market enabler, was the other contributing factor—see below.

[12] The main Islamic (*shari'a*-compliant) housing finance products are: *Ijara* (akin to a lease), *Musharaka mutanaqisa* (akin to a declining-balance mortgage), *Murabaha* (akin to cost-plus mortgage), *Furijat* (shorter-duration mortgage) and *Yusur* (an adjustable repayment mortgage). See Appendix Box A.2 for more details on Islamic mortgage products. Box 3 and Box 1 of the Bahrain and Kuwait 2009 Article IV consultation staff reports, respectively, also shed some light on investment companies and wholesale banks' exposure to the real estate sector.

[13] For example, in Egypt the *effective* interest rate reached over 20 percent a few years ago, falling to about 12 percent in 2007/08—with the rate applied to low-income households capped at about 6 percent (or 2-4 percent above the central bank rate), and in Jordan the rate was about 9-10 percent, down from 14-15 percent a few years earlier.

[14] At one end, Morroco is an exception, since it has the most advanced mortgage market in the region. At the other end is Egypt, whose mortgage market suffers from high barriers to entry and very conservative lending practices (e.g. the highest, double digit "effective" interest rates, the most regressive subsidies, and the weakest property rights) despite a very rich micro finance history of more than a century. As whole, NOI have increased in the number of lenders and products, while upgrading property rights and regulatory capacity as well as making social housing policies less regressive.

[15] The exception being Saudi Arabia, which has a more rudimentary mortgage market, albeit a rapidly developing one in the past two years.

To summarize cross-country differences in mortgage financing, a synthetic index of mortgage market developments is constructed as a simple average of six indicators (Table 2). The first five indicators are comparable to the MMI developed by WEO (2008a) for advanced economies. The sixth indicator is a composite of four indicators that capture underwriting and regulatory capacity.[16] [17]

Table 2. Institutional Differences in National Mortgage Markets and the Mortgage Market Index in Emerging MCD, 2004-08

	Lenders and loan features				Securitization	Underwriting and Regulation				
	MEW, refinancing or tax benefits	Number of products and lenders 1/	Typical Term (years)	Interest rate adjustment	MBS and other products	Approval and Underwriting 2/	Typical LTV ratio (percent)	Legal Framework (Mortgage Law)	Credit 3/	Mortgage Market Index 4/
Algeria	No	…	…	…	No	162	…	0.5	2	…
Bahrain	No	BP, I, T, BB, FC, PPP	20	Fixed	Limited	18	0.70	1	4	0.80
Egypt	Limited	BP, IFI, MFI, I, FC, II	15	Both	Limited	85	0.75	1	5	0.51
Iran	…	…	…	…		147	…	…	3	…
Jordan	No	BP, BB, PPP	14	Both	Limited	115	0.70	0.75	2	0.59
Kuwait	Yes	BB, BP, I, FC, II, PPP	22	Both	Yes	83	0.80	1	4	0.95
Lebanon	…	…	…	…	…	102	…	…	5	…
Morocco	Yes	BB, BP, MFI, CCC,	20	Fixed	Yes	112	1.00	0.7	2	1.00
Qatar	No	BP, I	18	Variable	Limited	54	0.75	1	2	0.43
Saudi Arabia	Yes	FC, BB, BP/I, MFI, E	20	Fixed	Limited	1	0.05	0.75	6	0.84
Syria	…	…	15	…	…	71	…	0.5	0	…
Tunisia	Yes	BB, BP, FC, CCC	18	Variable	Yes	55	0.65	1	5	0.73
UAE	No	BP, FC, I , BFC	22	Both	Yes	11	0.80	1	5	0.91

Sources: AMF's MENA Housing Finance Conference (2007), IFC's Global Conference on Housing Finance in Emerging Markets (2008) and Financing Homes (2008), Merrill Lynch (2007), World Bank (2004, 2005, 2009), various central banks' websites, and authors' calculations.

1/ Primary mortgage lenders: BP=private commercial bank, BB=public bank, FC=private specialist finance companies, BFC=public nonbank, I=Islamic, II=Institutional investors, MFI=micro finance institutions, CCC=consumer credit companies, PPP=public private partnership companies, IFI=IFC/World bank, E=employer provided housing.

2/ Proxied by World Bank's Ease of Doing Business for the rank of Registering Property (2009).

3/ Proxied by World Bank's Ease of Doing Business for Depth of Credit Information (2009).

4/ For "mortgage equity withdrawal (MEW), penality free refinancing or tax benefits" and "number of lenders and their mortgage products", "securitization" and "the legal framework", values ranging between 0 and 1 are assigned to each country depending on the prevalence/depth of these three characteristics/features, ranging from nonexistent to widespread, respectively. For "interest rate adjustment", values ranging between 0 and 1 are assigned to each country depending whether only variable or a mixture or purely fixed rates, respectively. The other variables in this table, each country is assigned a value between 0 and 1, equal to the ratio of the maximum value across all countries.

These are: mortgage loan approval and underwriting requirements, typical mortgage LTVs, credit risk capacity, and clarity of the mortgage law and other more regulatory capacity issues concerning the real estate sector.[18] The index lies between 0 and 1, with higher values indicating easier household access to mortgage credit.

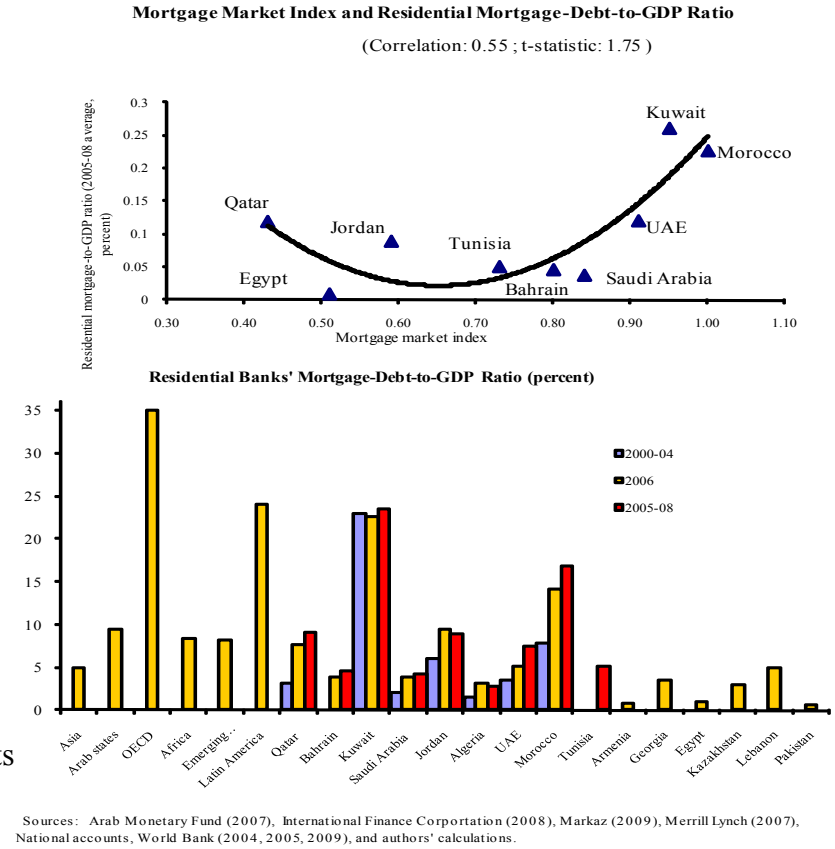
[16] One of these, typical LTV ratios, was included in WEO (2008a). The other three are unique to this paper.

[17] This is done for two reasons. First, loose lending practices in some advanced countries are considered as contributing factors which partly triggered the current financial crisis. Hence, high LTV ratios are not deemed an advancement or innovation without supporting regulatory capacity to ensure adequate risk analysis is being undertaken by both lenders and regulators. Second, there are large cross-country differences in EMCD in terms of property rights and the adequacy of legal proceedings (including court foreclosures).

[18] Examples include direct limits on banks' real estate credit concentration ratios, limits on indirect exposure to the sector either through owned companies or SPVs, prevention of the purchase of underdeveloped real estate property for speculative purposes, and specific residential and corporate mortgage leverage ratios.

Figure 1. Mortgage Debt Extended by Banks and Mortgage Market Innovations

Countries that experinced faster and deeper innovations in residential mortgage markets (Kuwait, Morocco and the UAE) tend to have a higher stock of mortgage debt as a ratio of GDP.



Sources: Arab Monetary Fund (2007), International Finance Corportation (2008), Markaz (2009), Merrill Lynch (2007), National accounts, World Bank (2004, 2005, 2009), and authors' calculations.

The results shown in Table 2 indicate significant differences in the institutional features of mortgage markets across EMCD. These differences may help explain the large inequality in the stock of household mortgage debt, since a higher index is associated with a larger mortgage-to-GDP ratio (Figure 1, top panel) and implies that institutional differences matter, as they do in advanced economies (Calza *et al* 2007, WEO 2008a).[19] Table 2 shows that Kuwait, Morocco, and the UAE have the most developed mortgage markets in the region. They offer a wide range of primary mortgage products, such as penalty-free refinancing, tax benefits for ownership, second mortgages on favourable terms, clear underwriting requirement, a wide range of lenders, and fixed interest rate mortgage products. The second tier is Bahrain and Saudi Arabia, which is less developed terms of having lower LTV ratios, less securitization, and less flexibility in lending. Particular to Saudi Arabia is the dominance of *shari'a*-compliant mortgage market instruments. The third tier is Qatar[20] and other NOI. The mortgage markets in these economies have all witnessed

[19] It should be noted that not only do some countries not distinguish between residential (household) and business (corporate) mortgage loans, but more importantly in recent years, the mortgage-to-GDP data in this paper captures bank only loans and credit to households. The nonbank share is absent in this paper due to data limitations, as is the corporate sector's mortgage leverage ratio. That is not to suggest that nonbank and corporate mortgage lending are is insignificant. Quite the contrary, these have been rising very rapidly in the past three to four years and are most likely to be larger than bank lending to households in the GCC, Egypt and Morocco. Moreover, these are presumed to be key drivers of Dubai's real estate boom, along with the demand push from expatriate workers.

[20] Qatar has a lower MMI than other GCCs reflecting its relatively limited range of mortgage lenders and loan features (i.e. its score generated from the first three and fifth columns of Table 2). However, (as shown by the latter columns of Table 2) it is well-advanced in terms state of the art institutional housing finance infrastructure. Thus its MMI is likely to improve in the near future.

profound advancements, but have not necessarily witnessed extensive and uniform innovation across all indicators shown in Table 2 as compared to the first two tier-economies.

It could be argued that a number of exogenous macroeconomic factors contributed to the development of EMCD mortgage markets. Abundant global liquidity and the pegged U.S. dollar exchange rate regimes prevailing in most economies both automatically meant a looser monetary policy stance in the recent past. Soaring oil prices and the resultant abundant oil wealth of institutional investors critically contributed to the market's development, both in terms of products and the introduction of capital market funding (through securitization). The change in the role of the state (and its sovereign wealth funds) as a specialized lender, stemming from an interest in diversifying its portfolio away from fixed-income markets, also became a major feature of this period. The state also enacted reforms to relax some supply constraints (such as weak land titling and property rights more generally and regressive social housing policies). In terms of the development of securitization,[21] the Arab Fund for Social Development and the Arab Monetary Fund have played an instrumental role, and in housing finance instruments more generally (AMF, 2007 and IFC, 2008).

IV. Housing and Rental Price Dynamics

Most countries in EMCD do not have house price indices, which makes econometric analysis infeasible. Instead, descriptive analysis is undertaken for those few which do: Kazakhstan, Kuwait, Oman, and the UAE (Box 1).[22] This analysis shows evidence of a strong downward price correction from 2007 onwards, which appears to have bottomed out.

Figure 2 plots the change in nominal and real house prices in these four countries. As can be seen, despite continuing nominal and real appreciation, a correction occurred after 2007, especially in the UAE.[23] In the first two quarters of 2009, the house price index in the UAE

[21] Two forms of securitization have begun to emerge (Table 2): mortgage backed assets (MBS) converted to bonds, which are fully sold to institutional investors (i.e. off the balance sheet of banks), and to a lesser extent covered bond issuance (which remain on banks' balance sheets). For example, the inception of the Algerian Mortgage Refinance Company in 2007 finances unsecured debt securities (mortgage backed bonds); the Egyptian company of mortgage refinance is embarking on the development of the secondary market MBS; the Jordanian Mortgage Refinance Company, a PPP, is a liquidity facility to commercial banks backing residential mortgage loans with a maximum LTV ratio of 80 percent (since 1997); in Morocco securitization was initially limited to transactions involving first-ranking mortgage receivables but more recently a SPV has been set up to purchase all mortgage receivables, expanding to include various products such as RMBS, CMBS, ABCP, and offshore securitization; in Saudi Arabia Dar Al-Arkan, a PPP, commenced issuance of Islamic MBS in 2008; in Tunisia the first MBSs were issued in 2006 for loans with a LTV ratio of 55 percent; the UAE was the first EMCD country to issue MBS.

[22] Appendix Table A.1 lists the definition of these house prices. For Oman, CPI rents could be the imputed rental value of owner-occupied housing, which could explain why house and rental price dynamics co-move.

[23] It should be noted that the house price index of Dubai is used as a proxy for the UAE. See Appendix Table A.1 for further details.

Box 1. Sources of House Price Data in Emerging MCD Economies

Real estate markets are among the less transparent asset markets in the world. The lack of good quality and timely data on real estate developments is a major complicating factor in assessing whether developments are a cause for concern or not in advanced economies, let alone in emerging markets. In the case of the emerging MCD region (EMCD), the following data sources have been consulted.

The Mazaya Index, www.mazayarealestate.com, provided the first comprehensive real estate index for the GCC. It was developed by the Kuwait-based Al Mazaya Holding Company in 2005, which purchases, develops, sells and manages residential and commercial real estate properties in the GCC, Lebanon and Jordan. Mazaya has recently expanded coverage to include a deeper assessment of real estate prices in the GCC. This paper does not use the Mazaya Index. Historical data can be obtained for a fee, while updates would require a subscription fee.

The Global Property Guide (http://www.globalpropertyguide.com) provides data for a subscription fee, covering many advanced and EMEs. For EMCD, the following countries are covered: Egypt, Jordan, Lebanon, Morocco, Tunisia and UAE. Data availability is for 2007 onward.

The Colliers International House Price Index (HPI) http://www.colliers-me.com/ mailto:consultancy@colliers-me.com was established in 2008. The data coverage is for properties in Dubai which have been mortgaged through member institutions. These members are: HSBC Bank Middle East Limited, Barclays Bank PLC, Amlak Finance PJSC, Dubai Islamic Bank PJSC, Emirates NBD, and Abu Dhabi Commercial Bank (ADCB). A weighted average method is used to construct the Index, with the weighting being apportioned on the basis of unit type (apartment, villa or townhouse). More general developments in other real estate markets in EMCD are covered (but not their prices).

In terms of data from country authorities, Jordan's land department publishes weekly land sales by size and value in local newspapers. Morocco's central bank, Bank Al-Maghrib, is currently compling a real estate price index. For the rest of the region, real estate research companies and banks offer some secondary sources. House price indices are available for Kazakhsatan (Haver Analytics), Kuwait (Natioanl Bank of Kuwait), Oman (Haver Analytics) and the UAE (Colliers International).

Other secondary sources consulted during this study include:

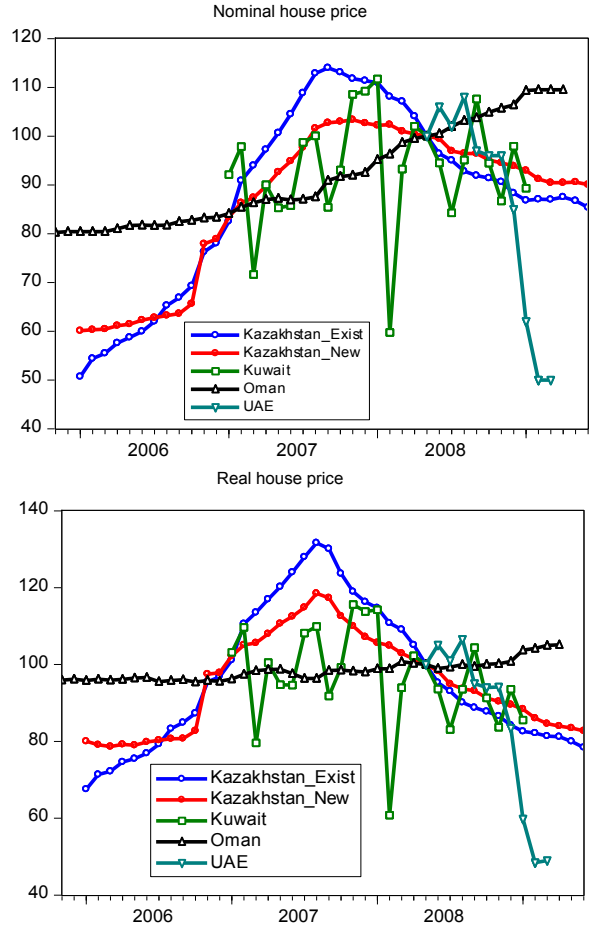
- Amar Finance and Leasing, an Islamic finance company based in Kuwait, produces quarterly real estate research reports, 2005-09 <http://www.amarfinance.com>
- Various Business Intelligence Middle East real estate reports, such as <http://www.bi-me.com/main.php?id=25335&t=1&c=18&cg=3> on Jordan's residential building permits, total value of transactions and land sales from the Ministry of Finance's Department of Land and Survey
- Global Investment House, a Kuwaiti Investment Bank, produces Equities and Real Estate Research Reports http://www.globalinv.net/default.asp?lf=1
- Lebanon Real Estate Report is produced by Bank Audi's Research Department (Beirut)
- Marakaz Research, Kuwait Financial Centre, produced reports during 2005-09 <www.markaz.com>
- REIDIN is an information service designed for real estate market professionals in emerging market countries www.reidin.com
- Real estate reports by Sico Investment Bank of Bahrain <www.sicobahrain.com>
- Shuaa Capital, the Dubai-based investment bank, produces some reports <www.shuaacapital.com>

Finally, other disaggregated relevant data is unavailable uniformly—e.g. investment (residential and non residential); consumption (by type: durables and nondurables; by age group—young-working age vs. older retirees) and mortgage credit (by banks and nonbanks to residents and nonresidents) data.

decreased 50 percent. For the period prior to 2005, only annual data for Kuwait is available. It is used to complement the picture: a 16 percent appreciation in real house prices took place between 2003 and 2007 (Figure 5). Despite scant house price data, the above analysis shows that there is an indication of *a boom-bust cycle in the housing cycle in the region*, which is corroborated below.

Using CPI rents, for which data is much more extensive, Figure 3 plots the change in nominal and real rental prices in EMCD. It shows that nominal CPI rents experienced a strong appreciation in almost all countries in the past two decades, whereas real CPI rents has been much more stable. Having said that, rich cross-country dynamic differences are evident. Given high inflation this decade in the region, especially in NOE, an interesting question is whether CPI rents have driven the overall inflation index or vice versa. To address this question, Granger causality tests of CPI rents and the overall CPI index are carried out.[24] The results show that for the majority of countries in EMCD nominal CPI rents Granger cause the overall CPI index. In particular, for six (Egypt, Jordan, Kuwait, Oman, Pakistan, and Saudi Arabia) out of ten EMCD economies, nominal CPI rents Granger causes the overall CPI index, whereas in only four (Kuwait, Morocco, Oman, and Tunisia) other economies is the opposite true: overall CPI index Granger causes the CPI rents. For the UAE and Kazakhstan, overall CPI and CPI rents do not Granger cause each other. Furthermore, for robustness, co-integration tests are carried out.[25] These show that only in four countries (Egypt, Kuwait, Morocco, and Oman) is the hypothesis of co-integration between the CPI rents and the overall CPI index not rejected. This indicates that for six (Jordan, Kazakhstan, Pakistan, Saudi Arabia, Tunisia,

Figure 2. Nominal and Real House Prices in Four MCD Countries, 11/2005-7/2009

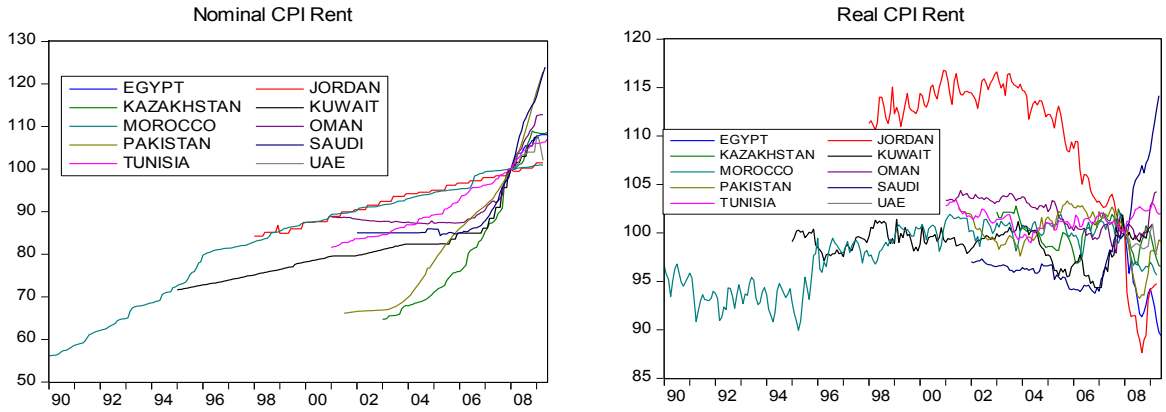


[24] See Appendix Table A.2 for further details.

[25] See Appendix Table A.3 for further details.

and the UAE)[26] out of ten EMCD economies nominal CPI rents dynamics are not driven by inflation—but perhaps by positive demand shocks in the rental market.[27] Fundamental determinants of rental prices shall be the subject of Section VI.B. For now, the descriptive analysis gleaned from the figures above does show a strong appreciation in nominal CPI rents over the past two decades, suggesting that house prices may have experienced a similar appreciation in the same period.

Figure 3. Nominal and Real CPI Rent, 1/1990-7/2009



Sources: Bloomberg and Haver Analytics.

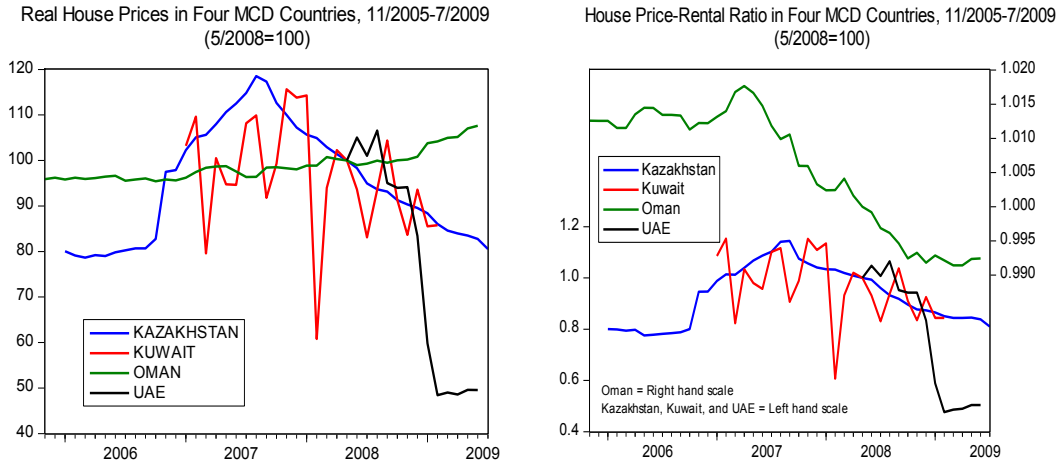
Comparing Figures 2 and 3, one can observe a sharp difference between rental and housing price dynamics, when inflation is taken out, as follows: real house price dynamics still exhibit a similar pattern as nominal house price dynamics, whereas the nominal and real rental dynamics are substantially different. This suggests that the house price fluctuation is much stronger than that of the rental price dynamics, rendering the former more sensitive to the business cycle (i.e. pro-cyclical) and potentially amplifying the business cycle. This difference is clearly demonstrated by directly plotting the real house price dynamics and the real rental dynamics and examining their co-movement in Figure 4. Combining the

[26] Since quarterly data is employed for the co-integration tests, rent could be sensitive to the overall monthly CPI. However, if that were true, the two variables of the UAE and Kazakhstan would have to also be co-integrated, which they are not. Thus the co-integration results reject this possibility.

[27] One could argue that if rent is more sensitive to the interest rate than aggregate inflation through its effect on user costs then rent could be more flexible than the aggregate price level in the face of shocks. The estimation results of Section VI.B below suggest that in the EMCD region the rental market is more driven by expatriate workers' demand for housing (proxied by remittances) and the population size of expatriate workers, in addition to the aggregate price level. For this reason, rental growth does not closely follow the change in CPI. Moreover, firms' investment decisions, which may be correlated with the employment of expatriate workers, could be more sensitive to aggregate shocks (e.g. technology shocks, liquidity shocks, etc.) rather than the aggregate price level. Thus, one could say that shocks influencing the demand in the rental market may not be sector-specific shocks but could be aggregate shocks. Further research would be needed to corroborate this point.

Box 2. The Bust in the Housing Price Bubble: Differences in Timing

A bubble can be detected when a persistent difference between estimated house prices, as determined by fundamentals, and observed market values occurs. For simplicity, real house prices (left hand side of the figure below) and house-price-rental ratios (right hand side of the figure below) are employed to proxy bubble dynamics (Poterba, 1991)—i.e. vulnerability to over or undervaluation and thus potential corrections. These are available for Kazakhstan, Kuwait, Oman and the UAE. From the figure below, one can discern a decoupling of the housing market in these countries from other parts of the world, such as the United States. For example, the correction in the house price in Kuwait and the UAE took place during Q4 2008, much later than elsewhere. Also, it appears that the UAE and Oman experienced a bottoming out in house prices during Q1-Q2 2009. These patterns can be discerned from both real house price and house price-rental ratio dynamics.



In the four countries, the earliest correction in the house price-rental ratio took place in Oman in May 2007—more than a year earlier than in the UAE. Also, countries differ a lot in terms of the magnitude of correction. Kuwait and Oman experienced a much milder correction than Kazakhstan and the UAE's. For the latter, its house price-rental ratio decreased 50 percent within a 7 month period. There are two interpretations for these cross-country differences: (1) the extent of the housing bubble varies across countries, as well as the timing of turnaround in investment sentiment, and (2) the rental market and the owner-house market may be segmented.

For Kazakhstan and Oman, where substitution between various housing market segments takes place when the price-rental ratio peaks, consumers switch to rentals given the higher opportunity cost of investing in a house and/or the additional cost of servicing mortgage debt. This then led to a sharp correction in the housing boom, which took place during 2007, in line with adverse global conditions. On the other hand, for Kuwait and the UAE, the housing market is segmented between ownership (nationals) and rentals (expatriates—with only a small fraction of national youths and low-income families renting), thus substitution between housing and rentals does not take place. Indeed the decline in the price-rental ratio appears to be resilient to global financial conditions—i.e. decoupling from the global adverse financial conditions took place—with the sharp correction only taking hold during Q4 2008. This correction then may not stem from the higher opportunity cost of investing in a house and/or the additional cost of servicing mortgage debt. Rather it could be a pure busting of the bubble due to overvaluation.

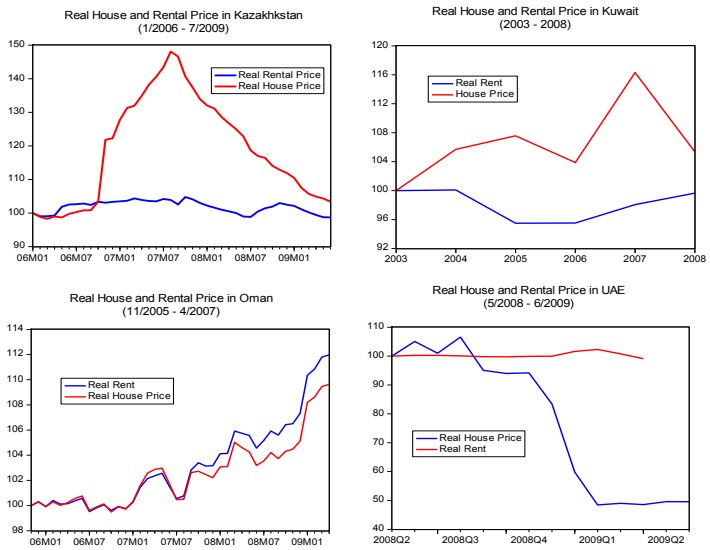
What are the implications for policymakers? First, the housing market is more sensitive to the business cycle, which could contribute to amplifying it. Second, in markets where housing and rentals are not substitute goods, stabilization policies aimed at dampening housing's amplification of the business cycle could be futile.

appreciation in the rental price with the well-known facts of the economic boom in the recent decade in this region, one can concurrently infer an even stronger house price appreciation.

Another message delivered from Figure 4 is that house and rental prices may not always move in the same direction. Assuming that housing is a normal good, an economic boom would cause some upward price pressure on both real prices of houses and rentals. For example, Figure 4 shows that for Oman, both real house and rental prices appreciated after 1/2006. However, despite buying a house and renting being substitutes, their prices can move in opposite directions. A more delicate argument goes in this way: nationals who rent an apartment are usually younger professionals entering the property ladder. If these consumers delay their decision to buy a house (due to economic conditions perhaps), one can observe an appreciation in the real rental price, perhaps owing to more consumers staying put in the rental market. When the housing boom cools, consumers form an expectation of further price depreciation and therefore delay their decision to buy.

The same argument applies in periods of boom housing. Figure 4 corroborates this point: observe that when there was a strong depreciation in Kuwaiti and Emirati (i.e. the UAE) house prices in 2008 and 2009, respectively, real rental prices went up. Examining the substitution between houses and rentals is important when studying housing price volatility, since a high substitution rate between the two goods would make house prices less sensitive to economic conditions—i.e. consumers could better smooth their time path of climbing the property ladder. Ortalo-Magne and Rady (2006) emphasize the importance of the timing of first-time house buyers' in housing price volatility. In this vein, the following sections and Box 2 document evidence of the existence of a segmented market between houses and rentals. This points to limited substitution between the two goods in EMCD, which could be a driver of price volatility and thus lead to the existence of bubbles—without scope for stabilization by the policymaker.[28]

Figure 4 Comparison between Real House and Rental Price in Four MCD Countries (2003 - 2009)



Source: National Bank of Kuwait, Colliers International, Haver Analytics, Bloomberg

[28] This is particularly relevant to the GCC economies with a large number of expatriate workers and a higher share of rentals.

V. HOUSING AND THE MACROECONOMY

A. Brief Review of the Literature

There are broadly two channels through which the literature links housing to the macroeconomy: consumption smoothing and residential investment. This literature concludes that a more developed mortgage finance market allows households to smooth consumption, and at the same time, easier access to housing finance may increase the demand for housing, with the consequent appreciation in house prices fueling a boom in the economy and resulting in some economic instability (Aoki *et al* 2002, Muellbauer 2007, and WEO 2008a). For residential investment, Leamer (2007) shows that it is the best indicator among all other components of GDP in forecasting economic recessions in the United States. In OECD countries, residential investment usually leads the business cycle by one to two quarters (WEO 2008a).

For the United Kingdom, two other aspects have been recently established: that (i) the link between the housing sector and the business cycle, through consumption, appears to have weakened over the past decade (Benito 2006); (ii) the relationship between house prices and consumption is stronger for younger rather than older households (Attanasio *et al* 2005); and (iii) consumption of homeowners and renters are equally aligned with the house price cycle, suggesting that wealth, not collateral, channels have been the principal cause of the relationship between house prices and consumption (Attanasio *et al* 2005).[29]

Finally, the characteristics and structure of mortgage markets also play a key role in forging new links between housing markets and the business cycle (Dynan *et al* 2006). This has led many to conclude that macroeconomic fluctuations may be amplified by an endogenous financial accelerator mechanism (Kiyotaki and Moore 1997, Bernanke and Gertler 1995, Bernanke and Gilchrist 1999, and Aoki *et al* 2002). Others have argued that increased integration of housing finance with capital markets has reduced the interest rate elasticity of residential investment and housing (WEO 2008a).

B. Housing and Consumption in EMCD

As Section IV above demonstrated, while most countries in the region do not have house price indices, through descriptive analysis of four economies that do, this paper finds evidence of a boom-bust cycle in the housing market. This section builds on that descriptive price analysis to show its link with the macroeconomy. At the same time, it is important to note that there is not only limited house price data, but also the lack of disaggregated and limited frequency of a few key macroeconomic variables (such as the decomposition of consumption across age groups and good types—durables and nondurables—and investment

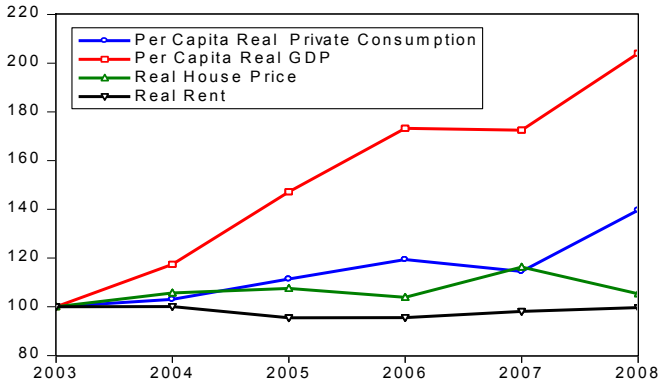
[29] These latter two points are of importance for EMCD given its particularly youthful workforce (as a ratio of total work force) and, in some of its economies, a significant rental segment.

across private and public investment types—residential and nonresidential) prevents fully addressing the questions raised in Section I. Due to these limiting factors, more descriptive analysis is employed to examine the two channels (mentioned in Section V.A above) which links housing to the macroeconomy.

Figure 5 plots annual per capita consumption, GDP, and house and rental prices for Kuwait. One can glean an interesting pattern (despite not showing non-oil GDP): prior to 2005, per capita consumption and house prices both increased or co-moved, while thereafter the two moved in opposite directions. As private consumption and housing consumption add up to the total household budget, this pattern suggests that after 2005, the substitution between the two was much stronger post 2005 than prior. The decrease in private consumption in Kuwait during 2006 was likely due to the stock market correction and tight lending regulations.

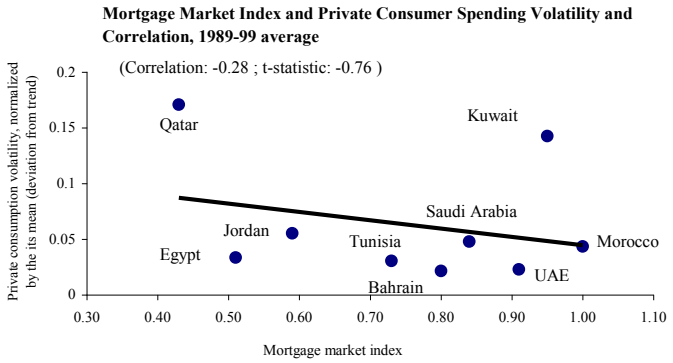
On the other hand, when examining cross-country differences in EMCD, Figure 6 points to a potential positive impact of mortgage market development on consumption. It can be seen that the MMI is closely and negatively correlated with lower detrended per capita private consumer spending volatility this decade as compared to last. However, since Both Kuwait and Qatar appear to be outliers—they are the most distant from the fitted lines of Figure 6—it is likely that there are other explanations to this pattern, including the common causality of wealth effects.

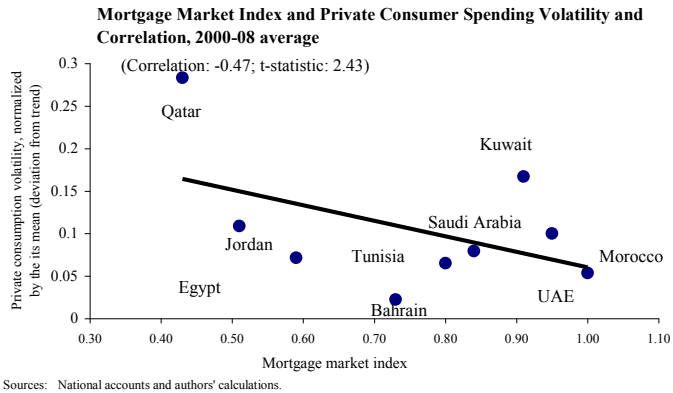
Figure 5. Comparison of GDP, Consumption, House and Rental Price in Kuwait, 2003-08



Source: National Bank of Kuwait, IFS, Haver Analytics

Figure 6. Mortgage Market Index and Consumption Correlations, 1989-2008
The link between private consumer spending and innovations in mortgage market is stronger this decade compared to the last, and is associated with lower consumer spending volatility.





Sources: National accounts and authors' calculations.

VI. THE DYNAMICS OF RENTAL PRICES

As noted earlier, data on CPI rents is available for many EMCD economies. In this section, this data is used to estimate the long-term fundamental determinants of real rental price growth using panel data analysis. This analysis corroborates the segregation between housing and rentals observed earlier—which is likely to be partly due to the shortage in housing supply and the large expatriate worker share in NOE. Therefore, one conclusion of this section is that the property ladder may be shorter in EMCD (compared to advanced economies), as home buyers may directly enter the housing market without first renting. Consequently, this makes the housing market more sensitive to the business cycle and general economic conditions (i.e. more pro-cyclical thus potentially magnifying the cycle when policies are being geared to dampening it). Indeed, the above descriptive comparison between housing and rental prices did suggest that the former experienced a much stronger appreciation during this last decade.

The panel method of econometric estimation below will model the determinants of rental prices in 33 EME, following the empirical literature's standard housing and rental price models—Case and Shiller (1989), Miles (1992), Englund and Ioannides (1997), Collyns and Senhadji (2002), Tsatsaronis and Zhu (2004), Box 3.1 of WEO 2008a, and Hilbers *et al* (2008). These models suggest that the component of house prices that cannot be explained by fundamental determinants—fitted—imply an over- or under-valuation (i.e. speculation), since the error term should be white noise unless the models suffers from an omitted variable problem. They mainly follow (i) an equilibrium *user cost* framework premised on the idea that the cost of owning a house is equal to the cost of renting it in the long run or (ii) a *demand-side* model which explains the long run equilibrium real house price as a function of demand variables, such as disposable per capita income, user costs (long-run mortgage interest or short-run risk free real interest rates), demographic pressures, rent controls and subsidies (or taxation benefits from ownership). The latter models assume an inelastic supply of housing and land. In addition, most studies assume homogeneity of the slope coefficients as countries in the tested sample are fairly similar (advanced or European, by and large).

This literature concludes that the fundamental determinants of house price dynamics are the interest rate channel (user costs), which is inversely related to house prices (i.e. has a negative sign) and directly linked to the wealth channel proxied by real disposable income (i.e. has a positive sign). Hilbers *et al* (2008) also find demographic pressures not be a fundamental determinant of house prices.[30] Unlike this literature, as will become apparent below, the fundamental determinants of long-run rental prices in EMCD are rather different.

A. Data

Annual data for the period 1989-2008 from Bloomberg, Haver Analytics, IFS and the World Bank's World Development Indicators was employed.[31] The data covers a sample of 33

[30] Although they note that correlations seem to have strengthened at the beginning of this decade.

[31] See Appendix Table A.1 for a list of data sources and definitions.

EME, balanced between NEE and NEI—including ten EMCD economies, as follows: Argentina, Brazil, Bulgaria, Chile, China, Colombia, Croatia, Czech Republic, Ecuador, Estonia, *Egypt*, India, Indonesia, Israel, *Jordan*, *Kazakhstan*, Korea, Kuwait, Malaysia, Mexico, *Morocco*, *Oman*, *Pakistan*, Philippines, Poland, *Qatar*, Russia, *Saudi Arabia*, Serbia, South Africa, Thailand, *Tunisia*, and the *UAE*.[32] [33]

B. Estimation

Given that the data for the purpose of modeling is annual, heterogeneity across countries could be constrained. On the other hand, it is implausible to assume homogeneity across all 33 countries in the sample. As a compromise, it is assumed that countries have different secular trends in terms of their real rental price determination mechanism, but for all other fundamental regressors it is assumed that the EMCD economies all have the same coefficients. Thus, a cross-country panel regression with fixed effects is used to model the real rental price *growth rate*. This approach controls for joint endogeneity of the regressors and correlated country-specific effects.

When buying a house and renting are substitute goods, one would expect the fundamental determinants influencing house prices to have an impact on rental prices. In particular, one would distinguish between quantity effect channels and price effect channels. Determinants which increase the demand for housing (such as per capita income and population growth) have positive effects on both house and rental prices, whereas those which make buying more costly (such as the mortgage rate) have negative effects on house prices but positive effects on rental prices. However, for some variables, these effects may be transmitted through both channels.

For the fundamental variables included in the regression function that would determine real rental price growth, the strategy is to be parsimonious. Moreover, it is assumed that housing supply rigidity[34] in EMCD would imply that the real rental price is largely driven by demand side fundamentals, many of which are non-stationary. Therefore, the *growth rate* of the real rental price (rather than the *level)* is modeled to avoid having a spurious regression.[35] The standard model to estimate is given by equation (1):

$$\Delta \ln P_{it} = c + \alpha_i + \beta_y \Delta \ln y_{it} + \beta_R \ln(1 + R_{it}) + \beta_W \Delta \ln WPop_{it} + \beta_C \Delta \ln Credit_{it} + \varepsilon_{it} \qquad (1)$$

[32] This mixed data set of countries across diverse regions implies abundant heterogeneity. To address this concern, the analysis runs regressions for the full sample of all 33 EME and then separately for EMCD alone. Moreover, additional techniques are used to address this problem while exploiting its richness—see Sections C and footnote 43 below.

[33] EMCD economies are in *italics*.

[34] This is corroborated by adding two proxies of supply rigidity.

[35] Since not all channels may be controlled for, it is possible that no co-integrated relationship between the rental price and the right hand side variables of the regression function exists.

The right hand side regressors are: real per capita GDP growth ($\Delta \ln y_{it}$), the real long-term lending rate ($\ln[1+R_{it}]$),[36] working population growth ($\Delta \ln WPop_{it}$) and real credit growth ($\Delta \ln Credit_{it}$). These are all quantity effect channel regressors, i.e. a higher (i) real per capita GDP growth rate makes households richer and thus demand more housing; (ii) working population growth rate directly leads to more demand for housing; and (iii) credit growth rate fuels more liquidity which also exerts a demand push for housing.[37] Since credit growth is an explicit regressor,[38] other liquidity regressors such as the real long-term lending interest rate may only have an impact through the price effect channel, i.e. a higher lending rate makes mortgage financing more costly and hence increases rental demand by reducing the number of home purchases. The coefficient α denotes country fixed effects and subscripts *i* and *t* denote individual countries and time periods.

This standard model has two main caveats. The first is that heterogeneity across countries in terms of the growth rate of rental prices may not be fully captured by country specific fixed effects. For example, the fraction of house (ownership) and rental shares in the total housing market may vary across countries—i.e. countries with a larger rental segments may have larger coefficients for the per capita GDP and working population growth regressors. Also, the degree of segregation between the house and rental segments of the market may change the coefficient of the price channel; with a higher segregation between the two segments implying a weaker interest rate effect. The second is that there could be spillovers from house (ownership) segment to the rental segment of the housing market. As seen above, the bust in house prices could lead to an increase rental prices. This suggests that variables may have an impact on the rental segments through households' switching decisions between housing and rental segments of the market. Since the *aggregated* switching decisions of households depend on population and housing market composition, the interpretation of estimation results should be taken with caution.[39]

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[36] The long-term (LT) lending rate is considered to be a proxy for the mortgage lending rate, since the latter is only available for a few EME. For those which are available, the mortgage rate was found to mirror the LT lending rate. Using such a rate could capture the impact of better housing finance access, since the MMI developed in Section III is time invariant.

[37] An affordability ratio is also usually employed in advanced-economy empirical models of house price determinants, to capture the dynamic feedback from higher prices and income. While this ratio—defined as lagged real-CPI-rents-to-real-per-capita-income ratio, unlike advanced economies'—was included in several rounds of the estimation, it was not found to be a significant fundamental determinant of EMCD rental price dynamics—i.e. its coefficient was naught (0.00).

[38] This is consistent with Collyns and Senhadji (2002), who also find that property price inflation in emerging Asia was procyclical with credit growth.

[39] Since GDP rather than GNP was used to measure income, the estimation results therefore apply to citizens and non-citizens alike. However, given that the influx of expatriate workers is sensitive to economic conditions and the luxury end of the rental market is predominately occupied by foreign high-income workers, factors relating to non-citizens could drive the results—a point verified by the estimation results and thus implying that EMCDs are different from the standard empirical models of house price determinants.

Table 3. Standard Panel with Fixed Effects to Model $\triangle \ln P_{it-1}$

	Model						
	1	2	3	4	5	6	7
Coefficients of:							
$\triangle \ln y_{it}$	0.01	0.325***	-0.0206	0.0982	- 0.0339	0.0816	- 0.0600
	(0.05)	(0.086)	(0.047)	(0.067)	(0.046)	(0.068)	(0.040)
$\triangle \ln Wpop_{it}$	0.567**	0.165	0.455**	0.0687	0.401**	0.0616	0.445***
	(0.19)	(0.52)	(0.18)	(0.39)	(0.17)	(0.39)	(0.15)
$\ln (1+R_{it})$			-0.402***	0.636***	-0.199	0.617***	- 0.760***
			(0.13)	(0.043)	(0.15)	(0.046)	(0.17)
$\triangle \ln Credit_{it}$					0.129**	0.0234	0.0914*
					(0.053)	(0.017)	(0.049)
$\triangle \ln Remittance_{it}$							0.0668*
							(0.036)
N=	68	320	68	320	68	320	43
R^2	0.3342	0.1225	0.4317	0.4950	0.4858	0.4984	0.7632

Notes: *** (**) denotes *t*- stat at the 1 (5) percent level of significance. Standard errors are in brackets below each coefficient. Column 1, 3, and 5 are for emerging MCD economies only, 2, 4, and 6 for all emerging markets as a whole, and 7 for GCC countries.

To partially address the first caveat, two models are estimated: one for the full sample and another for EMCD alone. As Table 3 reports, for EMCD the significant regressors are working-age population and credit growth, whereas for all EME, only the interest rate channel is significant (as per the empirical literature on advanced economies). In column 3, one can see that interest rate has a negative effect on the real rental price, which suggests that shrinking firm investment dominates the substitution between the housing and rental market in terms of the interest rate channel. This is verified in column 5, which shows that credit growth is significant while the interest rate is not. One could think of two reasons for the significant credit growth channel for EMCD. First, as more expatriate workers are hired, a demand push in the rental market takes place. Second, more employment opportunities provided to domestic workers also push up prices. To differentiate between the two, worker remittances (as a proxy for expatriate workers) are added to equation (1) and the model is estimated for the GCC alone. From column 7, it can be seen that adding this regressor does not make credit growth insignificant (and delivers a significantly higher R^2). This suggests that both channels influence the rental market in the GCC.[40]

C. Dummies and Omitted Regressors

The above section showed that for EME as a whole, the interest rate channel is significant while the credit growth channel is not. Such a sharp contrast between EME and EMCD alone implies that there could be more of a segregation between the rental and house (ownership) segments of the housing market in the latter, possibly reflecting the fact that direct bank mortgage lending is unavailable to expatriates.

[40] Mortgage credit has recently been extended (indirectly) to expatriates in a few EMCD economies (Dubai and Qatar, to be specific) via construction developers (corporates) who borrow from banks. Other types of credit, however, are extended directly to expatriates including for the purchase of durables.

To verify this, (i) interaction terms between the interest rate and a dummy for EMCD, and (ii) between working-age population growth and an EMCD dummy are added to the standard equation. Table 4's column 2 corroborates the previous finding, by showing that working-age population growth (including expatriates)[41] is significantly more positive while the interest rate is significantly more negative.

Table 4. Panel Fixed Effects with Interaction Terms to Model $\triangle \ln P_{it-1}$

	Model			
	1	2	3	4
Coefficients of:				
$\triangle \ln y_{it}$	0.0816	0.0383	0.120*	0.007
	(0.068)	(0.067)	(0.071)	(0.021)
$\triangle \ln Wpop_{it}$	0.0616	-2.17***	0.147	-1.034*
	(0.39)	(0.79)	(0.39)	(1.035)
$\ln (1+R_{it})$	0.617***	0.660***	0.613***	0.278***
	(0.046)	(0.045)	(0.045)	(0.065)
$\triangle \ln Credit_{it}$	0.0234	0.0149	0.0183	0.129***
	(0.017)	(0.016)	(0.017)	(0.037)
$\triangle \ln Wpop_{it} \times$ MCD		2.615***		
		(0.91)		
$\ln (1+R_{it}) \times$ MCD		-1.005***		
		(0.32)		
Oil price			0.0737***	
			(0.026)	
Oil price× Oil Exports			-0.123***	
			(0.041)	
Steel price				0.007
				(0.021)
Steel price × Oil Exports				-0.0177
				(0.048)
N=	320	320	320	244
R^2	0.4984	0.5305	0.5161	0.3486

Notes: *** (**) denotes *t*- stat at the 1 (5) percent level of significance. Standard errors are in brackets below each coefficient.

For robustness, other regressors which could be relevant for the EMCD house and rental price determination mechanism are added to avoid an omitted variable problem. Specifically, oil and steel prices (transformed into local real currency) are employed as proxies of supply rigidities. To keep the model parsimonious, interaction terms are dropped. The results are shown in column 3 and 4 of Table 4.[42] It is perhaps surprising to see that NOE have milder real rental price growth when the oil price increases. One explanation could be that speculation in housing is positively correlated with the oil price, and this could reduce rental demand through consumer switching (from rentals to houses). Finally, another technique is attempted: the mean-group estimator proposed by Pesaran *et al* (1999).[43] The results show

[41] Since the coefficients obtained in this regression do not go hand in hand with theory, one might conclude that population growth dominates (as per a few advanced-country empirical studies), rendering all other coefficients insignificant. It should be noted, however, that this is not the case in EMCD. In particular, for three GCC countries, the dominance of the working-age population regressor appears to be due to the large share of expatriate workers in total population. In these countries, without expatriate workers population growth does not dominate the regression.

[42] The price of steel, a key construction input, is insignificant.

[43] This methodology has an advantage when slope coefficients are heterogeneous across countries (as is likely to be the case here) of providing consistent estimates of the sample mean of the heterogeneous cointegrating vectors. Pooled-within-dimension (fixed effects) estimators do not have this advantage. Moreover, this estimation method provides a single-equation—correcting for the small sample effects of serial autocorrelation and endogeneity—to estimate a long-run (cointegrating) model. The estimated model is described by the following equation:

$$\Delta \ln P_{it} = c + \alpha_i + \beta_y \Delta \ln y_{it} + \beta_W \Delta \ln WPop_{it} + + \beta_C \Delta \ln Credit_{it}$$
$$+ \lambda(\ln P_{it} - \gamma_y \ln y_{it} - \gamma_w \ln WPop - \gamma_C \ln Credit_{it}) + \varepsilon_{it}$$

The intuition of the model is that in the long run, quantity variables such as real per capita income, working-age population and credit growth are co-integrated with the growth rate of the real rental price. The term in the

(continued…)

that none of the coefficients are significant for EMCD, although for the full sample of EME, real per capita GDP and working population growth are significant long run determinants whereas credit growth is only a short run determinant.[44]

VII. Conclusions and Policy Implications

This paper (i) documented developments in housing finance markets and their linkages to the macroeconomy; (ii) characterized the housing and rental price cycle in terms of their determinants and recent correction; and (iii) examined the segregation between the homeownership and rental segments of the housing market in EMCD. It showed that (a) EMCD has experienced a housing and rental boom-bust cycle over the past two decades; (b) this has been accompanied by a liberalization of housing finance; (c) cross-country differences in housing do relate to the institutional characteristics of national mortgage markets in this region; (d) the predominant segment of the housing market, home ownership, is more sensitive to the business cycle and general economic conditions, thus potentially amplifying its pro-cyclicality; (e) mortgage market innovations are correlated with lower per capita consumption volatility this decade; (f) house prices reflect bubble dynamics in spite of cross-country differences in terms of the timing of the bubble's bust; (g) house prices are decoupled from the recent adverse global financial conditions due to segmentation; and (h) the fundamental determinants of rental price dynamics are different from those of advanced economies, reflecting the importance of the youthful working-age population (including expatriate workers) and regional wealth effects (from remittances and credit growth) associated with the oil boom—rather than the interest rate channel. The latter implies that monetary policy and its transmission have not been fundamental determinants of the region's rental price dynamics.[45]

The main policy implications that could be drawn of from the above conclusions are: (i) attention should be given to improving data availability—(historical, current and future) coverage and frequency of house price indices, bank and non-bank mortgage credit to

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parentheses of (2) measures the deviation from the long run equilibrium and λ is the speed of convergence. Concurrently, the short run relationships between the real rental price and these variables are provided. Since annual data do not provide much room to explore heterogeneity across countries, the assumption here is that all long and short run coefficients are identical across countries. The model is estimated for the full sample of EME and then separately for EMCD.

[44] See Appendix Table A.4 for a summary of the quantitative results.

[45] IMF (2009b) finds that in advanced economies monetary policy was not the smoking gun for the recent house price boom-bust cycle. In other words, it could well be that in some countries interest rates were too low (the United States) but in other countries despite high interest rates there was a house price boom (Australia, the United Kingdom, and New Zealand), and in other countries interest rates were low but no boom occurred (Germany). So from an advanced cross-country perspective one cannot conclude that monetary policy was the main fundamental factor driving house prices.

residents and corporates, and other relevant disaggregated macroeconomic variables such as consumption and investment—to allow policymakers to better monitor house price asset developments and their implications for the macro economy and business cycle; (ii) relaxing the household budget constraint through mortgage market innovation could have important consequences for aggregated demand through consumption and investment which should be monitored and understood, including how these variables lead or lag the business cycle and whether prudential regulation of the mortgage market is adequate enough to avoid an excessive build up of vulnerabilities; and (iii) the amplification of the business cycle due to house price fluctuations should be further analyzed, including to assist policymakers in the design of appropriate stabilization policies.

Appendix

Appendix Box A.1. Cross-Country Differences in Social Housing

- **Bahrain.** Hay Al Zahra in Bahrain is a prime exmaple of social housing to mid-to-low income households. It is complemented by the Social Housing Fund which offers interest rate subsidies and loan guarantees through banks and nonbank financial institutions.
- **Egypt.** The unaffordable housing market is being tackeled through a range reforms including a loan gurantee system, the Government Social Fund, which effectively offers 15 percent of a residential propety's face value as a direct subsidy. More recently, the emergenance of nonbank finance companies in Egypt have been backed by state subsidies and foreign financing.
- **Jordan**. The Jordanian Housing Bank, which offered mortgage financing since the late 1980s, was directly supported by state subsidies. The Jordanian Mortgage Refinance Company—a public-private-partnerhsip—is a liquidity facility to commercial banks, offering residential mortgages. It provides collateral for loans with LTV ratios up to a maximum of 80 percent and has been in operation since 1997.
- **Kuwait**. The Kuwaiti government offers every citizen housing finance support, through the state housing program, including housing loan interest rate subsidies.
- **Morocco**. The housing market suffers from complex direct support, subsidy and guarantee system but major reforms have been in train since early 2007.
- **Saudi Arabia.** The state plays a major role in the housing market, and, in effect, 50 percent of housing finance is interest free (since 1979) and land is freely provided to nationals. However, high mortgage bank loan delinquencies have implied a high fiscal cost on the budget. On the other hand, the two main nonbank players, REDF and Dar Al-Arkan, which also lend to the corporate real estate sector, have no loan delinquencies.
- **Tunisia**. Since 1988, the role of state has been diminishing in Tunisia. Nevertheless a public bank dominates 80 percent of housing loans. There are four social mortgage lending products, three of which are supported by the state's social housing policy: direct subsidies from the state, credit from tax free savings, traditional mortgage loans and social security funds.
- **UAE**. While direct support has diminished in the UAE, the active support of the state remains evident through land grants and subsidized loans to commerical developers (Nakheel and Emaar) and through minimal interest rates on loans to low income households offered by the Dubai Development Board.

Appendix Box A.2. Common Islamic (*shari'a*-compliant) Mortgage Instruments

- *Ijara* (akin to a lease) a financer purchases an asset and leases it to a client through a leasing contract for a specified rent and term. The owner of the asset (the financier) bears 'risks and rewards' associated with ownership and sells it to the client upon payment of the last installment

- *Musharaka mutanaqisa* (akin to a declining-balance mortgage) an equity participation contract under which a financier and its client contribute jointly to purchase a home (e.g. financier (80%) and client (20%). Ownership is distributed according to each party's share in the financing (co-ownership). The title deed is held in the name of the financier and transferred to the client's name upon payment of the last installment

- *Murabaha* (akin to cost-plus financing) mortgage with maximum term of 18-20 yrs usually, with down payment (30%) and insurance, key underwriting criteria incl. debt-service-to-income ratio of <33%, payment of house appraisal fees and submission of other documents

- *Furijat* mortgage of shorter-duration (6 yrs) and (5.5)% murabaha profit mark-up adjustable over duration of loan. Refinancing possible after 25% paid up

- *Yusur* the first adjustable repayment mortgage, enables the borrower to pay lower monthly installments for up to three years

Sources: Saudi Home Loans (2007) and Merrill Lynch (2007)

Appendix Table A.1. Data Sources and Definitions

Variables	Data Source	Data Definition
GDP	WEO and REO Database	
CPI	WEO and REO Database	
CPI Q & M	INS	
Private Consumption	WEO	
FDI	WEO	
Credit to Private Sector	IFS Database	
Population	IFS Database	
Share Price Index	IFS Database	
Industrial production	OECD Analytical Database	
Dependency Ratio	IFS Database	
Overall Fiscal Balance	WEO and REO Database	
Unemployment	WEO and REO Database	
Investment (Total, Public, and Private)	REO and OECD Analytical Database	
Interest rates	IFS Database and OECD, Analytical Database, Central Banks' Websites	
Workers Remittances	REO and OECD Analytical Database	
CPI Rent	Haver Database	
Construction GDP	Haver Database and Bloomberg	
Investment in Construction	Haver Database and Bloomberg	
Dependency Ratio	World Bank Database	
Urban Population	World Bank Database	
Working Age Population	OECD Analytical Database	
	End 2007 data. USA's Energy Information Agency	
Net oil exporter and importer countries	http://tonto.eia.doe.gov/country/country_energy_data.cfm?fips=PL	
Oil Price Index	WEO	
Kazakhstan	Haver Analytics	New house prices
Kuwait	National Bank of Kuwait	Volume of residential property sales divided by the number of the sales
Oman	Haver Analytics	CPI of self-owned houses
UAE	Colliers International	Overall Dubai house price index

Appendix Table A. 2. Granger Causality Tests for 10 MCD Countries

	Egypt	Jordan	Kazakhstan	Kuwait	Morocco
Lag Length	4/4	6/9	9/9	6/9	7/9
CPI Does not Granger Cause Rent (p-value)	0.21	0.38	0.43	0.03	0.02
Rent Does not Granger Cause CPI (p-value)	0.02	0.02	0.12	0.01	0.21
N	18	130	69	164	225
	Oman	**Pakistan**	**Saudi Arabia**	**Tunisia**	**UAE**
Lag Length	9/9	9/9	9/9	9/9	3/4
CPI Does not Granger Cause Rent (p-value)	0.03	0.15	0.19	0.04	0.21
Rent Does not Granger Cause CPI (p-value)	0.00	0.03	0.04	0.25	0.20
N	91	87	80	93	13

Note: x/y means that the maximum number of lags is "y", and the optimal lag number according to AIC, SIC & HQIC is "x".

Appendix Table A. 3. Summary of Grange Causality and Cointegration Tests for 10 EMCDs

	Rent GC CPI	CPI GC Rent	Cointegrated
Egypt	×		×
Jordan	×		
Kazakhstan			
Kuwait	×		×
Morocco		×	×
Oman	×	×	×
Pakistan	×		
Saudi Arabia	×		
Tunisia		×	
UAE			

Appendix Table 4.A Pooled Mean Group Estimation for the Rental Price

	Coefficients						
	Long Run			Converg.	Short Run		
	$\ln y_{it}$	$\ln Wpop_{it}$	$\ln Credit_{it}$		$\triangle \ln y_{it}$	$\triangle \ln Wpop_{it}$	$\triangle \ln Credit_{it}$
MCD Economies	-1.260	-0.314	0.349	0.0852	-0.0484	0.177	0.044
	(1.55)	(0.95)	(0.65)	(0.104)	(0.054)	(0.19)	(0.061)
33 Emerging Markets	0.424**	-0.318*	-0.0046	-0.228***	0.119	0.333	0.217***
	(1.55)	(0.18)	(0.65)	(0.104)	(0.054)	(0.19)	(0.061)

Notes: *** (**) denotes *t*- stat at the 1 (5) percent level of significance. Standard errors are in brackets below each coefficient.

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