INTERNATIONAL MONETARY FUND

KUWAIT

**Selected Issues**

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# I. KUWAIT FISCAL MULTIPLIERS[1]

## A. Background

1. Fiscal policy is the main macroeconomic policy instrument in GCC countries given their institutional and macroeconomic frameworks—large state-controlled endowment of natural resources; pegged exchange rate regimes, and relatively open financial accounts.

2. In spite of the relevance of fiscal policy, there is little work on the impact of fiscal policy on economic activity in the GCC. In recent work, Espinoza and Senhadji (2011) estimated the magnitude of fiscal multipliers in GCC countries and found the multipliers for total government expenditures—i.e., the increase in nonoil GDP in response to an increase in government expenditure—to be in the range of 0.2–0.3 (short-term multiplier) and 0.4–0.7 (long-term multiplier). They also investigated the impact of different types of expenditures, and obtained long-term multipliers in the range of 0.6–1.1 for capital expenditure and 0.3–0.7 for current expenditure.

3. Evidence on fiscal multipliers from other regions suggests that the impact of fiscal expenditures on economic activity depends to a large extent on key country features and the type of fiscal instrument:

- Spilimbergo, Symansky, and Schindler (2009) surveyed a large set of studies on fiscal multipliers. Their survey suggested that a rule of thumb for (peak) expenditure multipliers is between 1 and 1.5 for large countries, around 0.5 to 1 for medium-sized countries, and less than 0.5 for small open economies.[2] They also argued that slightly higher multipliers could be expected for investment spending.

- Ilzetzki, Mendoza, and Vegh (2011) argue that (long run) fiscal multipliers are affected by factors such as the country's degree of development, openness, exchange rate regime, and the government's debt level (the sample did not include GCC countries, though). For instance, they estimate (i) a multiplier of around 0.8 for developed economies and of just 0.2 for developing economies; (ii) a multiplier of around 1.3 to 1.4 for relatively closed economies (measured by their trade to GDP), and a negative multiplier for relatively open economies; and (ii) a multiplier of around 1.5 for economies with a fixed exchange rate regime, while a multiplier of zero for countries with flexible regimes. Their results also suggest that the effect of the exchange rate regime may be related to a large degree to monetary accommodation that takes place in fixed exchange rate regimes in tandem with the

[1] Prepared by Pedro Rodriguez.

[2] In small countries, government expenditure is perceived to have large "leaks"—mainly though high imports—which is perceived to contribute to low multipliers.

fiscal expansion. In addition, they find that the multiplier is negative when central government debt is over 60 percent of GDP.

4. In the rest of this note we study empirically the size of government expenditure multipliers in Kuwait using macroeconomic data. The sections below conduct a graphical and regression analysis of the impact of government expenditure (and its subcomponents) on nonoil GDP, and assess the results. In addition, one subsection explores the aforementioned issue of "leaks" to government expenditure that may affect multipliers in small and open economies like Kuwait. A data appendix at the end provides information on data issues (definitions, sources, and data adjustments).

## B. Government Expenditure and Nonoil Economic Activity in Kuwait

5. Kuwait's government expenditure as a share of nonoil GDP is quite large, at around 70 percent in 2009. However, Kuwait's fiscal expenditures contains a number of elements that do not directly impact aggregate demand and economic activity—in particular, transfers to social security and subsidies (mainly energy-related).[3] Therefore, to be able to estimate fiscal expenditure multipliers more accurately, it is expedient to carve out these expenditures from the total. After making this adjustment, Kuwait fiscal expenditures amounted to 50 percent of GDP in 2009.

6. Using the modified series, Figure 1 describes the correlation between real nonoil GDP growth and real government expenditure growth (upper panel) and two expenditure subcomponents: wages/salaries, goods, services, and capital expenditure (including land) (medium panel); and goods, services and capital expenditure (including land) (lower panel)—with the later describing direct aggregate demand pressures coming from government expenditure.[4] As can be seen from the figure, the high correlation of nonoil GDP growth is primarily driven by the goods-services-capital subcomponent (lower panel), and the correlation shown in the upper panel becomes even higher once transfers are excluded (medium panel).

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[3] Transfers to social security, including large recapitalizations of the social security fund, do not directly impact economic activity as they just constitute accounting transactions between public sector entities. Energy-related subsidies—in particular for electricity and water—reflect the opportunity cost of the energy used in the provision of these services, but do not represent actual transfers to households or enterprises. These subsidies tend to vary proportionally with the price of oil, but the actual price for the service paid by households and enterprises does not change.

[4] Government expenditure includes: wages and salaries, purchases of goods and services, capital expenditure (including land purchases), and domestic transfers (excluding transfers to the social security fund). Following Espinoza and Senhadji (2011) and Ilzetzki, Mendoza, and Vegh (2011) we deflate government expenditure by CPI. Data shown is from 1980 to 2007 (the last year for which GDP data at constant prices are available, although data at current prices are available up to 2009). Data for 1990–92 are excluded since they are affected by the Iraqi invasion of 1990.

7. It is important to note that data availability restricts our analysis to central government data, because data on general government—notably data on outlays by the social security fund—are not available. Ideally, multiplier estimations using general government expenditures would be preferable.

### C. Estimation Strategy and Results

8. We estimate fiscal multipliers for Kuwait by carrying out OLS regressions, with nonoil GDP as the dependent variable, and government expenditure included as independent variable. Whereas endogeneity issues are usually pointed out in the literature, for example on account of automatic stabilizers, this does not apply to Kuwait because the fiscal regime in Kuwait does not have built in automatic stabilizers. Other forms of endogeneity, such as the impact of the economic cycle on revenues (see Espinoza and Senhadji, 2011), are also unlikely to affect our results given that fiscal revenues come predominantly from oil exports, which reduces the impact of nonoil economic activity on government revenues and hence the impact of nonoil economic activity on expenditure decisions.

9. Table 1 presents the results of a regression of nonoil GDP against real government expenditure and several government expenditure subcomponents. As illustrated in column (1) the government expenditure variable is statistically significant in explaining nonoil GDP growth and the Durbin-Watson coefficient suggests that the residuals do not have serial correlation. Column (2) suggests that the significance and explanatory power of government expenditure are even stronger if one excludes (non social security) transfers from the definition of government expenditure. Column (3) shows that the wages/salaries-transfers subcomponent is not statistically significant in explaining real nonoil GDP growth, while column (4) shows that the goods-services-capital subcomponent is statistically significant, and column (5) shows that this significance is primarily driven by capital expenditure. Interestingly, lags of the regressors were not statistically significant, with the exception of the lagged capital expenditure (column 6).

10. The last row of Table 1 shows the expenditure multiplier associated with the elasticities estimated in the regressions, where the multipliers are calculated by dividing the elasticities by the associated share of expenditure to real nonoil GDP. The results show a multiplier for government expenditure of 1.25, with the multipliers for the subcomponents being 1.82 for the wages/salaries-goods-services-capital subcomponent, 0.74 for the wages/salaries-transfers subcomponent and 2.05 for the goods-services-capital subcomponent. The multiplier associated exclusively with capital expenditure is in the order of 2.67 for the contemporaneous specification, and 3.33 for the specification that includes a lag (here the multiplier is calculated adding the contemporaneous and lagged effects and dividing by the capital expenditure share in GDP).

11. Table 2 presents the results adding other control variables suggested in Espinoza and Senhadji (2011). For these results, we have worked with the total expenditure multipliers to

facilitate comparisons with their and other work. The results in column (1) indicate that the percent change in real oil prices is significant and that a 10 percent increase in oil prices tends to directly increase nonoil GDP growth by 0.8 percentage points. Column (2) indicates that inflation is not significant, while column (3) indicates that (a lagged) increase in the discount rate (the monetary policy rate in Kuwait) by 1 percentage point, tends to reduce nonoil GDP growth by 1.9 percentage points. Notice that when we include the monetary policy variable, the coefficient of the government expenditure declines to 0.46 (from 0.62), suggesting that part of the large impact of fiscal policy may be due to monetary accommodation—as suggested by Ilzetzki, Mendoza, and Vegh (2011) (see above). In this case, the expenditure multiplier falls to around 0.88.

12. Column (4) of Table 2 shows us that the impact of oil prices and monetary policy remains when we include them both in the same equation, but the results of column (5) indicate that they are no longer significant when the impact of government expenditure is measured by the goods-services-capital subcomponent. The government expenditure multiplier in this case is around 1.5.

### D. Assessment of the Results

13. The results presented above suggest that expenditure multipliers in Kuwait are likely to be high, and that they mostly operate through capital expenditure. Overall, the size of the multipliers are in the upper range of the rule of thumb of Spilimbergo, Symanski, and Schindler (2009), and more than double the size of the multipliers estimated by Espinoza and Senhadji (2011) for total government expenditure.

14. Two features of the Kuwait economy and two other factors could explain these relatively high multipliers.

- First, the financing of the expenditures comes from proceeds from oil sales (rather than from borrowing or higher taxes as is the case in most countries). Given this form of financing, an increase in government expenditure is unlikely to: (i) induce lower private consumption (which could be the case if the private sector anticipated higher future taxes); or (ii) crowd-out private investment through a reduction in the availability of bank loans to the private sector. Monetary policy may also have played a role in generating high fiscal multipliers, as the results of Table 2 suggest it may have been accommodative of the fiscal cycle. Nevertheless, the results of Table 2 also indicate that the size of the fiscal multipliers remains high even after controlling for the impact of monetary policy.

- Second, Kuwait's private sector depends to a large extent on the inflow of expatriate labor, rendering labor supply as highly elastic. This reduces the pressure that an increase in government expenditure could exert on the labor market and private sector wages, and hence on private sector economic activity.

- Third, the analyses for Kuwait focused on expenditure types that are expected to have a direct impact on aggregate demand (e.g., the analyses excluded transfers by the central government to the social security fund). This is likely to produce higher multipliers than when using broader measures of government expenditure.

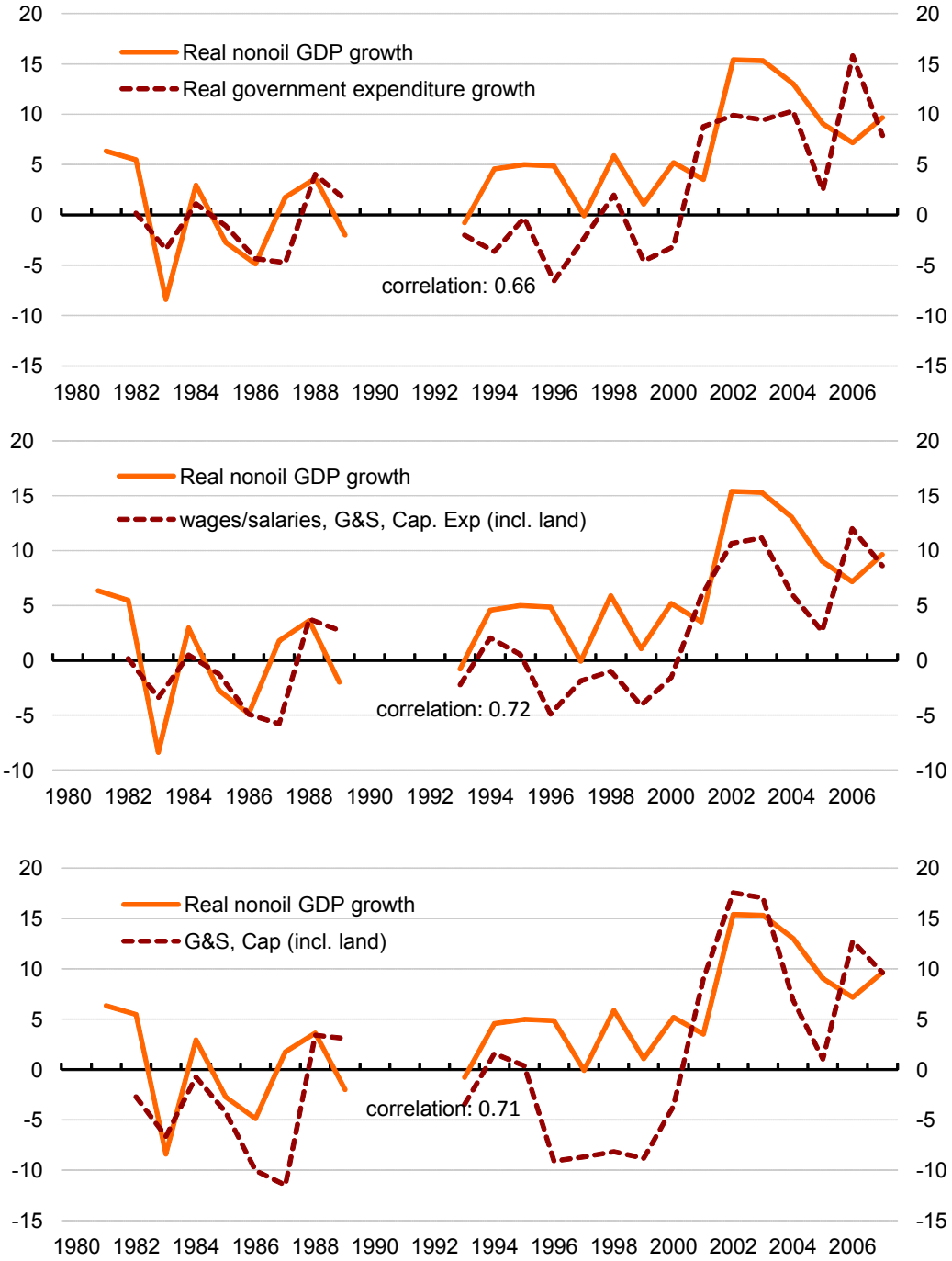
- Fourth, the analyses for Kuwait focused on a subsector of the economy—the nonoil sector—while the work on other countries has focused on total GDP. The broader focus of the work on other countries may result in lower multipliers.

### E. Imports and "Leaks" to Government Expenditure

15. As mentioned in the first section, previous studies have found that small and open economies tend to have lower multipliers given that government expenditures tend to "leak" out of the economy, particularly through imports. This concern regarding the effectiveness of fiscal multipliers may, in principle, also apply to Kuwait, given its high imports ratio (e.g., the ratio of imports to nonoil GDP was around 61 percent in 2007).

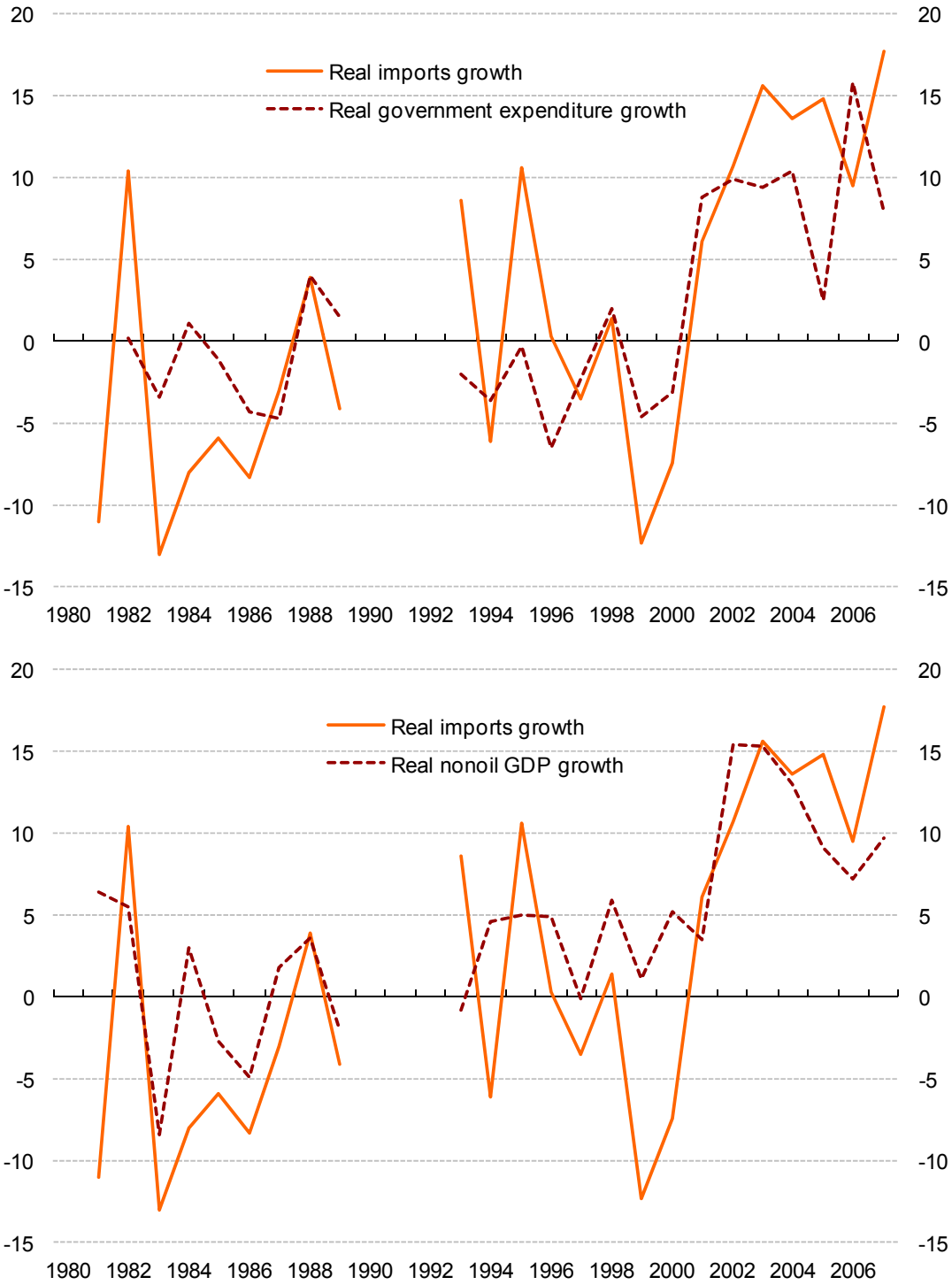
16. The upper panel of Figure 2 illustrates that the correlation between real imports and real government expenditure is indeed very high, but the lower panel suggests that this correlation may be due to the impact of government expenditure on real nonoil GDP and of the latter on imports. The regressions in Table 3 illustrate these links: the results in column (1) show that government expenditures are statistically significant in explaining imports, but, as column (2) shows, the effect declines substantially once we include nonoil GDP growth in the regressions. The latter result was, to a large extent, expected, given the correlation between real nonoil GDP growth and real government expenditure described in previous sections. Column (3) shows that government expenditure ceases to be a significant explanatory variable of imports if we narrow our definition to the subcomponent wages/salaries, goods, services, and capital expenditure (including land)—which is even more correlated with nonoil GDP. Column (4) illustrates that real nonoil GDP on its own has a slightly higher explanatory power on imports than real government expenditure.

**Figure 1. Kuwait: Real Nonoil GDP and Government Expenditure, 1980–2007**




Source: Kuwaiti authorities and Fund staff estimates.

**Figure 2. Kuwait: Imports, Government Expenditure, and Nonoil GDP, 1980–2007**




Source: Kuwaiti authorities and Fund staff estimates.

**Table 1. Kuwait. Estimating Government Expenditure Multipliers**

| Dependent variable: growth in real nonoil GDP<br>standard errors in parentheses | | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Growth in govt. expenditure | 0.65 | | | | | |
| | (0.16) | | | | | |
| Growth in W/S-G&S-C subcomponent | | 0.81 | | | | |
| | | (0.17) | | | | |
| Growth in W/S-T subcomponent | | | 0.21 | | | |
| | | | (0.21) | | | |
| Growth in G&S-C subcomponent | | | | 0.49 | | |
| | | | | (0.11) | | |
| Growth in Cap. Exp. | | | | | 0.28 | 0.17 |
| | | | | | (0.07) | (0.09) |
| Growth in Cap. Exp. (lagged) | | | | | | 0.18 |
| | | | | | | (0.09) |
| Constant | 3.06 | 2.86 | 3.25 | 4.02 | 4.11 | 4.18 |
| | (0.99) | (0.92) | (1.51) | (0.90) | (0.94) | (0.94) |
| R-square | 0.43 | 0.52 | 0.05 | 0.50 | 0.46 | 0.56 |
| Observations | 23 | 23 | 23 | 23 | 23 | 21 |
| Durbin-Watson statistics | 1.97 | 1.91 | 1.13 | 1.78 | 2.16 | 1.60 |
| Expenditure share in nonoil GDP (%) | 52.2 | 44.6 | 28.3 | 23.9 | 10.5 | 10.5 |
| Associated multiplier | 1.25 | 1.82 | 0.74 | 2.05 | 2.67 | 3.33 |

**Table 2. Kuwait. Estimating Government Expenditure Multipliers with the Inclusion of Control Variables**

| Dependent variable: growth in real nonoil GDP<br>standard errors in parentheses | | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Growth in govt. expenditure | 0.62 | 0.63 | 0.46 | 0.48 | |
| | (0.15) | (0.16) | (0.17) | (0.16) | |
| Growth in G-S-C subcomponent | | | | | 0.36 |
| | | | | | (0.12) |
| Growth in real oil prices | 0.08 | | | 0.07 | 0.06 |
| | (0.04) | | | (0.04) | (0.04) |
| Inflation | | 0.36 | | | |
| | | (0.35) | | | |
| Discount rate (lagged) | | | -1.87 | -1.56 | -1.32 |
| | | | (0.83) | (0.81) | (0.82) |
| Constant | 2.88 | 2.32 | 14.76 | 12.67 | 11.96 |
| | (0.92) | (1.22) | (5.3) | (5.16) | (5.15) |
| R-square | 0.54 | 0.46 | 0.54 | 0.61 | 0.63 |
| Observations | 23 | 23 | 23 | 23 | 23 |
| Durbin-Watson statistics | 2.06 | 1.96 | 1.72 | 1.91 | 1.9 |
| Expenditure share in nonoil GDP (%) | 52.2 | 52.2 | 52.2 | 52.2 | 23.9 |
| Associated multiplier | 1.19 | 1.21 | 0.88 | 0.92 | 1.51 |

**Table 3. Kuwait. Imports, Government Expenditure, and Nonoil GDP**

Dependent variable: growth in real imports of goods and services
standard errors in parentheses

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Growth in govt. expenditure | 1.10 | 0.54 | | |
| | (0.25) | (0.28) | | |
| Growth in nonoil GDP | | 0.86 | 0.87 | 1.18 |
| | | (0.29) | (0.32) | (0.25) |
| Growth in W/S-G&S-C subcomponent | | | 0.54 | |
| | | | (0.36) | |
| Constant | 0.43 | -2.20 | -2.20 | -3.30 |
| | (1.53) | (1.56) | (1.63) | (1.79) |
| R-square | 0.48 | 0.64 | 0.62 | 0.50 |
| Observations | 23 | 23 | 23 | 23 |
| Durbin-Watson statistics | 1.78 | 1.90 | 2.04 | 1.94 |

## References

Espinoza, Rafael and Abdelhak Senhadji (2011), "How Strong are Fiscal Multipliers in the GCC? An empirical investigation," IMF Working paper 11/61. Washington. D.C.

Ilzetzki Ethan, Enrique Mendoza, and Carlos Vegh (2011), "How Big (Small) are Fiscal Multipliers" IMF Working Paper 11/52. Washington. D.C.

Spilimbergo, Antonio, Steve Symansky, and Martin Schindler (2009), "Fiscal Multipliers," IMF Staff Position Note, May 2009, SPN/09/11. Washington. D.C.

## Data Appendix

This appendix reports definitions, sources, and data adjustments. All Kuwait's series come from data reported by Kuwait to the IMF during Article IV Consultation missions, while other data come from IMF databases (IFS or WEO). Government expenditure data are available from FY 1980/81 to 2009/10, with the exception of data on domestic transfers, which is available from FY 1982/82. Data for imports of goods and services are available for the period 1980–2009. Data for real GDP are available for the period 1980–2007. All the remaining variables (Kuwait and US CPI, real oil prices, and Kuwait's discount rate) are available for the period 1980–2009.

Nonoil real GDP: Calculated as total GDP (at constant market prices) excluding oil and refining activities.

Real government expenditure: Includes wages and salaries, purchases of goods and services, capital expenditure (including land purchases), and domestic transfers (excluding transfers to the social security fund). Following Espinoza and Senhadji (2011) and Ilzetzki, Mendoza, and Vegh (2011) we deflate government expenditure by CPI. The calendar year data used in the regressions are calculated as weighted averages of the fiscal year. The fiscal year ended on June 30$^{th}$ prior to 2001, and on March 31$^{st}$ since then.

Real imports of goods and services: Calculated as the imports of goods and services from the BOP deflated by US CPI.

Real oil prices: Average of prices of the following benchmarks: Brent, Dubai, and WTI. The series is deflated by US CPI. Taken from IMF's WEO database.

US CPI Index: United States' Consumer Price Index (base year 2005). Taken from IMF International Financial Statistics (IFS) database.

Kuwait CPI Index: Kuwait's Consumer Price Index (rebased to 2005).

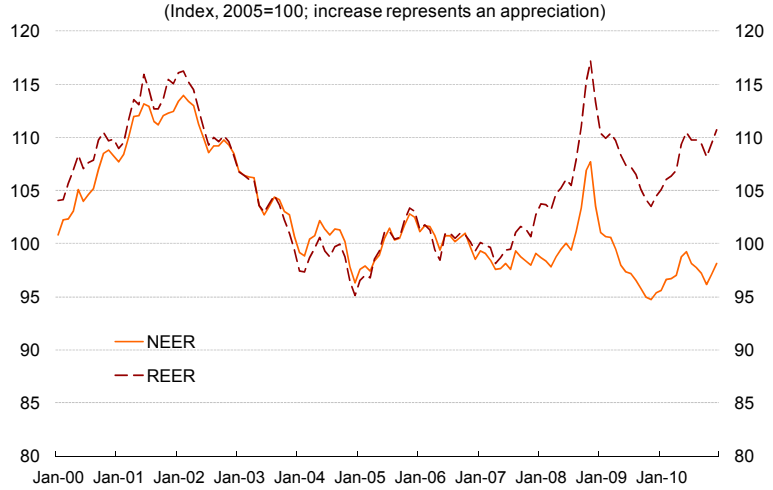
Kuwait's Discount Rate: Central Bank of Kuwait's discount rate.

# II. Exchange Rate Assessment[1]

## A. Summary

1. Following terms of trade gains, the real exchange rate has appreciated 16 percent since the end of 2004. The trade-weighted real effective exchange rate (REER) index depreciated only during 2005 and 2008 by 3.6 and 7.8 percent, respectively, otherwise the appreciation trend has been observed since 2004 (Figure 3). On the other hand, similar to some other GCC members (e.g. the UAE), the nominal effective exchange rate diverged from this pattern owing to higher inflation relative to trading partners.

**Figure 3. Nominal and Real Effective Exchange Rate, Jan. 2000–Dec. 2010**
(Index, 2005=100; increase represents an appreciation)




2. Estimates from CGER-type methodologies for exchange rate assessment indicate mixed results. The equilibrium real exchange rate approach and one of two macroeconomic balance approaches suggest that the dinar is undervalued in the range of 0 to 10 percent, while the external sustainability approach and a second macroeconomic balance approach suggest an overvaluation in the range of 12 to 17 percent.

## B. CGER-Type Approaches to Exchange Rate Assessment

### Equilibrium real exchange rate (ERER)

3. The first approach directly estimates the equilibrium real exchange rate (ERER) as a function of its underlying price-based fundamentals such as the terms of trade and relative productivity differentials between tradable and nontradable sectors. For the purpose of forming the exchange rate assessment, the adjustment to bring the exchange rate to the level consistent with these medium-term fundamentals is calculated as the difference between the estimated ERER and its current value. Two estimation methods were utilized for Kuwait, as follows:

4. *An annual estimation* which assumes that economic fundamentals explain the slow mean reversion of the exchange rate implied by purchasing power parity and then directly estimates the structural relationship between these fundamentals and the ERER. Given data limitations (particularly cross-sectoral productivity), the pegged exchange rate regime, and the oil-based economy with an institutional saving culture since the 1970s, *terms of trade*; *investment income*;

[1] By Samya Beidas-Strom.

and *government expenditures* are the chosen fundamentals. Using a vector error correction model (VECM), the long-run ERER was estimated, along with the speed of convergence of any short-term deviation.[2] Unit root tests suggest that Kuwait's REER and its fundamentals are non-stationary and integrated of the order (1). Hence one or more co-integrating relationship(s) exist(s). VECM estimates (Table 4) show the three fundamentals to be significant and have the expected sign bar one. In particular, the ERER appreciates with an improvement in the terms of trade (higher oil prices) and higher investment income, but depreciates with higher government spending. The latter implies that government spending in Kuwait increases demand for tradables relative to nontradable, deteriorating the fiscal balance and consequently the current account, leading to real currency depreciation. The results suggest that the dinar is undervalued by 9.92 percent.

**Table 4. Preferred Model: Long-term Coefficients from Vector Error Correction Model**

| | |
|---|---|
| LREER(-1) | 1 |
| LGEXPGDP(-1) | 0.310216<br>[ 4.38249] |
| LINVGDP(-1) | -0.156033<br>[-3.26849] |
| LTOTG(-1) | -0.239478<br>[-3.14234] |
| C | -4.20022 |
| Error Correction: | -0.685916<br>[-7.48912] |
| **Sample** | 1978-2007 |
| **Misalignment in percent of smoothed ERER (- undervaluation)** | **-9.92** |
| **# of cointegration vectors** | 1 |
| **Normality test** [1] | Fail to reject |
| **VEC residual serial correlation LM Tests** [2] | Fail to reject |
| **Lags** | 2 |
| **R-squared** | 0.78595 |
| **Adj. R-squared** | 0.689627 |
| **Log likelihood** | 55.14515 |
| **Akaike AIC** | -3.009676 |
| **Schwarz SC** | -2.542611 |
| Determinant resid covariance (dof adj.) | 5.12E-07 |
| Determinant resid covariance | 1.01E-07 |
| Log likelihood | 71.31674 |
| Akaike information criterion | -1.821116 |
| Schwarz criterion | 0.233973 |

Source: Staff estimates and calculations.

[1] Null Hypothesis: residuals are multivariate normal.

[2] Null Hypothesis: no serial correlation at lag order h.

[2] This section is based on an updated analysis of Maher Hasan's unpublished memo prepared for Kuwait's 2009 Article IV consultation.

5. *The high frequency estimation* is based on a panel of 25 oil exporters employing monthly data between 1980Q1 to 2010Q7, with individual country regressions to account for country-specific heterogeneity. The premise of the estimation is that for countries where primary commodities dominate exports, fluctuations in world commodity prices should explain most of the movements in their terms of trade yielding a "commodity currency" (Chen and Rogoff, 2002, and Cashin, Cespedes, and Sahay, 2002). Following this approach, a cointegration relationship between the logarithm of the REER and the logarithm of the real oil prices is found. Applying a novel and more robust Band Pass Filter methodology (IBPF) for unit root testing, evidence was found of a long-run cointegrating relationship between the REER and the real oil price.[3] The estimation for Kuwait shows that the REER and real oil prices are cointegrated with a statistically significant elasticity coefficient of 16.5 percent. It suggests that the Kuwaiti Dinar has been undervalued since late 2003, but a partial reversal in terms of trade gains brought it back to equilibrium during 2010. These episodes of deviation from the predicated norm narrow to an undervaluation of 0.28 percent in the medium term.

6. In summary, the equilibrium real exchange rate (ERER) approach suggests that the dinar is undervalued in the range of 0 to 10 percent. This was estimated using high frequency and annual methods, with the former yielding the lower bound of the undervaluation (0 percent) and the latter the higher bound (10 percent).

**Macroeconomic balance**

7. The macroeconomic balance approach calculates the difference between the current account balance projected over the medium term at prevailing exchange rates and an estimated current account norm. The exchange rate adjustment that would eliminate this difference over the medium term is then obtained using country-specific estimated responses of the trade balance to the real exchange rate.

8. Two estimation methods were utilized for Kuwait, which are specifically tailored to oil exporters:

- *Bems and de Carvalho Filho (2009):* To better fit oil-exporters within the CGER framework and in response to the questions such as "are CA fluctuations in oil-exporting countries excessive and how should their real exchange rate respond to the evolution of external (and domestic) fundamentals?" the authors propose a methodology tailored to the specific features of oil-exporting countries.[4] In particular, in order to separate the effects of oil revenues and fiscal policy conduct on the current account of net-oil exporters, the relevant fiscal variable is the non-oil fiscal balance while also including the oil trade balance in the specification. The two main specifications alternate between

[3] Based on Cashin, Ouliaris and Poghosyan (forthcoming).

[4] Bems, and de Carvalho Filho, 2009, "Exchange Rate Assessments: Methodologies for Oil Exporting Countries," IMF Working Paper 09/281.

including the lagged dependent variable and excluding NFA and vice versa. However, as noted by the authors, a more appropriate measure of "the NFA fundamental", in terms of its impact on the current account norm, would be the sum of NFA and underground wealth. Moreover, as they note, IIP data for many oil exports is incomplete and thus it is difficult to properly estimate NFA series. For Kuwait, the variant including the lagged dependent variable was employed, yielding a current account norm surplus of 42.2 percent of GDP (Table 5).[5] Contrasting the estimated norm to the current account projection for 2015 (a surplus of 34.1 percent of GDP) suggest an overvaluation of 17.4 percent.

**Table 5. Macrobalance (Bems et al. 2009): Kuwait**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Step 1. Calculate current account norm** | | | | | | |
| Non-oil fiscal balance in 2015 | | -0.177 | | | | |
| *minus Non-oil fiscal balance in trading partners in 2015* | | -0.051 | | | | |
| *equals* | | -0.126 | X | 0.404 | = | -5.1% |
| Oil balance in 2015 | | 0.488 | X | 0.472 | = | 23.0% |
| Relative income in 2015 | | -0.153 | X | 0.077 | = | -1.2% |
| Current account in 2006-2009 | | 0.364 | X | 0.597 | = | 21.7% |
| Growth rate in 2015 | | 0.047 | | | | |
| *minus growth rate in trading partners in 2015* | | 0.028 | | | | |
| *equals* | | 0.020 | X | -0.040 | = | -0.1% |
| Dependency ratio in 2010 | | 0.040 | | | | |
| *minus Dependency ratio in 2010 (trading partners)* | | 0.290 | | | | |
| *equals* | | -0.249 | X | -0.193 | = | 4.8% |
| Population growth in 2010 | | 0.014 | | | | |
| *minus population growth in 2010 (trading partners)* | | 0.007 | | | | |
| *equals* | | 0.006 | X | -1.579 | = | -1.0% |
| **Current account norm** | | | | | = | 42.2% |
| Current account in 2015 | | | | | = | 34.1% |
| *Difference* | | | | | | -8.1% |
| **Step 2. Calculate elasticity of current account to REER** | | | | | | |
| *minus* Export elasticity | 0.710 | X | 0.051 | Non-oil exports/GDP | = | 0.036 |
| *plus* Oil exports/GDP | 0.441 | | | | = | 0.441 |
| *minus* (1-Import elasticity) | 0.080 | X | 0.144 | Imports to GDP | = | -0.012 |
| **Overall elasticity** | | | | | | 0.466 |
| **Step 3. Calculate change in REER that would bring CA to norm** | | | | | | |
| Change in CA | | -0.081 | | | | |
| Overall elasticity | / | 0.466 | | | | |
| **Change in REER** | **=** | **-17.4%** | | | | |

Note: Negative change means that REER is overvalued

[5] As noted in Arezeki and Hasanov (2009), persistence in omitted variables could calls for the inclusion of the lagged dependent variable.

**Table 6. Macroeconomic Balance: GMM Estimation and Implied Norms for Kuwait (Beidas-Strom and Cashin, forthcoming)[1]**

(Dependent variable: Current account balance, as a share of GDP)

| | Specification I | | Specification II | | Specification III | | Specification IV | |
|---|---|---|---|---|---|---|---|---|
| | GMM coefficients | Contribution to CA norm[2] | GMM coefficients | Contribution to CA norm[2] | GMM coefficients | Contribution to CA norm[2] | GMM coefficients | Contribution to CA norm[2] |
| **Core CGER regressors** | | | | | | | | |
| Constant | 0.039 | 3.92% | 0.035 | 3.50% | 0.043 | 4.30% | 0.044 | 4.40% |
| Lagged dependent | 0.330 | 11.15% | | | | | 0.383 | 12.94% |
| Fiscal or non-oil fiscal balance | 0.851 | 24.49% | 0.385 | -7.00% | 0.851 | -6.60% | 0.391 | -7.11% |
| Oil trade balance/GDP | | | 0.454 | 20.54% | 0.462 | 24.49% | 0.459 | 20.76% |
| Old age dependency | -0.053 | -0.15% | -0.059 | -0.17% | -0.034 | -0.10% | -0.034 | -0.10% |
| Population growth | -0.693 | -1.39% | -0.930 | -1.86% | -0.632 | -1.26% | -0.589 | -1.18% |
| NFA/GDP | 0.023 | -0.02% | 0.022 | -0.02% | | | | |
| Relative income | -0.017 | -1.47% | 0.044 | 3.74% | 0.071 | 6.09% | 0.073 | 6.27% |
| Economic growth | -0.053 | -0.29% | -0.069 | -0.38% | -0.064 | -0.35% | -0.056 | -0.31% |
| **Net oil-exporter specific regressors** | | | | | | | | |
| Oil wealth | | | 0.0002 | 0.87% | 0.0006 | 2.62% | -0.0004 | -1.74% |
| Degree of maturity in oil production | | | | | 0.160 | 2.68% | -0.170 | -2.85% |
| **Additional regressors** | | | | | | | | |
| REER | 0.073 | -0.20% | | | | | | |
| Terms of trade | 4.269 | 0.21% | | | | | | |
| **Estimated current account norm (2015)** | | **36.27%** | | **19.23%** | | **28.60%** | | **31.09%** |
| **Underlying current account** | | | | | **34.1%** | | | |
| Current account elasticity to REER[3] | | | | | 46.6% | | | |
| **Avr deviation from equilibrium, undervaluation (-)** | | | | | **-4.6%** | | | |
| Hansen's J test of overidentifying restrictions | | 0.46 | | 0.61 | | 0.64 | | 0.62 |
| Arellano-Bond test for AR(1) | | 0.07 | | 0.09 | | 0.07 | | 0.08 |
| Arellano-Bond test for AR(2) | | 0.67 | | 0.71 | | 0.70 | | 0.69 |
| Number of instruments | | 6 | | 5 | | 5 | | 6 |
| Number of countries | | 24 | | 24 | | 24 | | 24 |
| Observations | | 82 | | 82 | | 82 | | 82 |

[1] Based on annual data from 1990-2009 from WEO autumn 2010 vintage, 4-year non-overlapping averages. Projections are consistent with the 2011 Article IV consultation.

[2] Contribution to CA norm=coefficient*medium-term projection/steady state value (in percent).

[3] Calculated as: (export elasticity)x(non-oil good exports/GDP)-(import elasticity-1)x(good imports/GDP), applying common CGER elasticities as per Bems at al. (2009).

- *Beidas-Strom and Cashin (forthcoming):* Past studies have tended to employ pooled OLS or fixed effects estimations, which assume strict exogeneity of explanatory variables and entail that the error terms are uncorrelated with all past and future values of the regressors. This is a rather strong assumption and unlikely to hold. Along with similar recent studies, the authors address these shortcomings by employing generalized method of moments' (GMM) estimation, which controls for potential endogeneity of the regressors in a dynamic panel setting by applying the GMM-IV system estimator of Blundell and Bond (1998). GMM-IV uses additional moment conditions to explain equilibrium movements in the dependent variable. They also address the shortcomings raised in Bems *et al* (2009) and Arezeki and Hasanov (2009) by introducing specifications for the macroeconomic balance (text table above), which experiment with the addition of "underground oil and gas wealth" and a proxy for underreported IIP.[6] In Kuwait's case, where only a modest amount of NFA is held at the CBK while other public sector assets are not included in the IIP, specification III and IV make the most sense and are thus preferred. Averaging the two estimated norms with the more "traditional" specification I yields an average current account norm surplus of 32.1 percent of GDP in 2015 (Table 6). Contrasting the norm to the projected "underlying" current account position in 2015 (34.1 percent of GDP) suggests an undervaluation of about 4.4 percent.

9. In summary, the macroeconomic balance approach suggests mixed results, with the dinar being either overvalued by 17 percent or undervalued by 4 percent.

**External sustainability**

10. The external sustainability approach broadly indicates an overvalued dinar. The underpinning of this approach is that the sustainability of the current account trajectory requires that the net present value (NPV) of all future oil and financial or investment income (wealth) be equal to the NPV of imports of goods and services net of non-oil exports.[7] Subject to this constraint, the economy would choose a path for imports, and hence a current account norm, that would support intergenerational equity given volatile oil prices and exhaustible oil reserves—through an appropriate pace of accumulation of net foreign assets. Estimating Kuwait's wealth at $2.1 trillion,[8] import trajectories ("annuities/income or allocation rules") are calculated under three different policy scenarios: (a) a constant share of

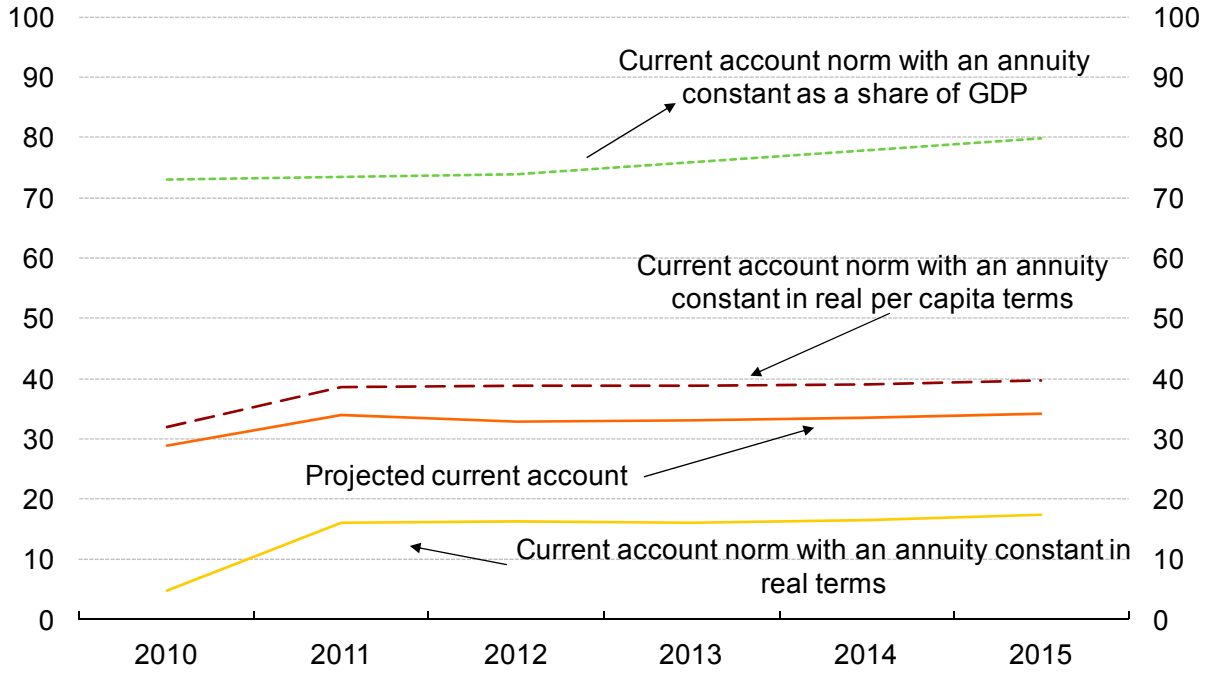
[6] Beidas-Strom and Cashin, "Are Middle-Eastern Current Account Imbalances Excessive," (forthcoming).

[7] See Bems and de Carvalho Filho, 2009, as above.

[8] Assuming for illustrative purposes 112 billion barrels of reserves and a 64 percent recovery rate, oil production would peak at 3.88 million barrels in 2030 before declining gradually (by 2 percent). Oil prices and the GDP deflator increase by about 2 percent after 2016, and real non-oil GDP grows by 5 percent. Future oil revenues are nominally discounted at 6 percent, the assumed rate of return on externally held financial wealth/NFA, while population growth is 2 percent.

GDP annuity; (b) constant real per capita annuity; and (c) constant real annuity (Figure 4). All three types of annuities are used in the literature, and can be derived from the optimization of plausible utility functions. Choosing the middle ground rule in terms of generosity (the constant real per capita annuity, rule b) as a benchmark, indicates a 12 percent overvaluation, as the implied norm (39.7 percent of GDP) is larger than the 2015 projected current account (34.1 percent of GDP). Naturally, changing the oil production and price path, population growth, or initial NFA, could have a significant impact of the implied current accounts of each allocation rule, as they are sensitive to parameter assumptions.[9]

**Figure 4. Kuwait: External Sustainability's Current Account Norms vs. Projections**
(In percent of GDP, 2010-15)




Source: Staff calculations and projections.

[9] The other rules suggest mixed results: a constant share of GDP (rule a), the most generous rule, suggests a 98 percent overvaluation—GDP growth is assumed to be higher than population growth and thus this rule tends to suggest a need for high savings and current accounts; while a constant real annuity (rule c), the least generous rule) suggests a 36 percent undervaluation—this rule does not take into account population growth and suggests the need for lower savings and current account ratios.

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# III. KUWAIT: NONFINANCIAL CORPORATE SECTOR PERFORMANCE[1]

1. Kuwait's corporate sector performance analysis for 2010 is conducted on 132 listed companies, compared to 110 in 2009, covering four sectors; Food, Industrial, Real Estate and Services.

## A. Profitability

2. The financial performance of the corporate sector appears to have improved in 2010, notwithstanding the continued drag by the real estate sector (Table 7). The size of the listed nonfinancial corporate sector in Kuwait is large with assets of $68 billion at end 2010 (43 percent of bank assets) and a total debt of $12.4 billion (19 percent of bank loans).[2] Debt to equity ratios remain within reasonable levels, averaging around 1. At the end of 2010, net profits of the nonfinancial corporate sector were higher than profits observed in 2009, largely on account of around 150 percent increase in the profits of the Industrial and Services sectors.

**Table 7. Corporate Performance, 2008–10**
(In U.S. dollar billions)

| | | Net Profit [1] | | | Total Assets | | | Total Debt | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number of Firms | 2010 | 2009 | 2008 | 2010 | 2009 | 2008 | 2010 | 2009 | 2008 |
| Food | 9 | 0.19 | 0.17 | 0.12 | 2.83 | 2.74 | 2.76 | 0.40 | 0.52 | 0.68 |
| Industrial | 21 | 0.29 | 0.11 | -0.18 | 5.79 | 5.29 | 5.42 | 1.89 | 5.16 | 6.16 |
| Real Estate | 49 | -0.35 | -0.39 | -0.25 | 22.02 | 24.07 | 25.11 | 5.01 | 4.39 | 3.88 |
| Services | 53 | 3.99 | 1.62 | 1.35 | 37.46 | 44.48 | 44.83 | 5.09 | 12.09 | 12.11 |
| Total | 132 | 4.12 | 1.52 | 1.04 | 68.11 | 76.59 | 78.12 | 12.39 | 22.17 | 22.83 |

[1] Net profit after unusual items

Source : Staff calculations based on Zawya balance sheets.

## B. Corporate Sector Stress Testing

3. In this paper, we explore corporate sector vulnerabilities to short term interest rate and income shocks and implications for bank credit. For this purpose, the interest-paying capacity of the corporates was stressed by increasing short term interest rates by 200 points and 500 basis points from current levels, and by assuming a negative income shock of 25 percent. Following the standard definition in the literature, firms with interest coverage ratio (ICR) below 1 are unable to generate enough income to cover the interest payments and their debt is classified as distressed. For the purpose of this exercise it is assumed that if corporates are unable to generate funds to pay interest, loans to these corporates would

[1] Prepared by Renas Sidahmed.

[2] Total debt in 2009 was 43 percent of bank loans.

eventually have to be classified as nonperforming loans on banks' balance sheets. The exercise was conducted only on listed nonfinancial corporates, within which the Food sector represents 3 percent of total debt; the Industrial sector represents 15 percent of total debt; the Real Estate sector 40 percent of total debt; and the Services sector 41 percent of total debt.

4. The resilience of the sector appears to have improved in 2010. On an aggregate level, the ICR for 2010 for the sector was at 3.2 at end 2010, compared with 2.6 in 2009 (Table 8 and 9). Additionally, corporate sector leverage has improved on account of a decrease of 44 percent in total debt and 9 percent in total assets in 2010. This decrease in total debt was not observed in the weaker segments where the level of debt of the companies with ICRs<1 has increased. By sector, 37 companies—4 Industrial (5 percent of total debt), 19 Real Estate (29 percent of total debt), and 14 Services (17 percent of total debt)—out of the 132 listed companies had ICRs<1 or operating losses, compared to 31 companies in 2009. These companies accounted for 51 percent of the total debt of the listed companies in 2010 as opposed to a share of 39 percent of total debt in 2009.[3] When further examining ICRs while taking into account cash cushions, the overall corporate sector performance improves substantially. By sector, 17 companies—1 Industrial (0.1 percent of total debt), 9 Real Estate (9.7 percent of total debt), and 7 Services (2.7 percent of total debt)—out of the 132 listed companies had ICRs<1 or operating losses, compared to 15 companies in 2009. These companies accounted for 12.5 percent of the total debt of the listed companies as opposed to a share of 7 percent of total debt in 2009.[4]

**Table 8. Interest Coverage Ratio, 2010**

| | Number of Firms | Total Assets | Cash Reserves | Total Liabilities | Short-term Debt | Total Debt | ICR | ICR with Cash | Average rate [1] |
|---|---|---|---|---|---|---|---|---|---|
| Food | 9 | 2.8 | 0.2 | 0.8 | 0.2 | 0.4 | 5.5 | 12.2 | 8.8 |
| Industrial | 21 | 5.8 | 0.4 | 2.3 | 0.5 | 1.9 | 2.6 | 8.1 | 3.5 |
| Real Estate | 49 | 22.0 | 0.7 | 11.2 | 0.9 | 5.0 | 0.7 | 3.0 | 6.6 |
| Services | 53 | 37.5 | 4.5 | 14.6 | 1.8 | 5.1 | 4.8 | 14.1 | 9.6 |
| Total | 132 | 68.1 | 5.9 | 29.0 | 3.5 | 12.4 | 3.2 | 9.6 | 7.4 |

Source : Staff calculations based on Zawya balance sheets.
[1] Average (interest) rate = Interest Expense/Total Debt*100.

[3] In 2009, 30 out of 110 companies had ICRs<1 or operating losses; 8 Industrial (18 percent of total debt), 10 Real Estate (12 percent of total debt), and 12 Services (8 percent of total debt).

[4] Taking into account cash cushions, in 2009, 15 out of 110 companies had ICRs<1 or operating losses; 4 Industrial (1percent of total debt), 2 Real Estate (2 percent of total debt), and 9 Services (4 percent of total debt).

**Table 9. ICRs by Sector, 2009–10**

| | 2010 | | 2009 | |
|---|---|---|---|---|
| | ICR | ICR w/cash | ICR | ICR w/cash |
| Food | 5.5 | 12.2 | 4.1 | 8.5 |
| Industrial | 2.6 | 8.1 | 0.6 | 4.3 |
| Real estate | 0.7 | 3.0 | 1.3 | 3.6 |
| Services | 4.8 | 14.1 | 3.7 | 7.5 |
| Total | 3.2 | 9.6 | 2.6 | 6.1 |

Source: Staff calculations based on Zawya balance sheets.

5. Similarly, the corporate sector maintains on average an adequate ICR (above 1) under an interest rate increase scenario of 500 bps, but the tests indicate some vulnerabilities on a sectoral level (Tables 10 and 11).

- For the Industrial sector an increase of 500 bps will cause 2 additional companies (accounting for an additional 7 percent of total debt) to have an ICR<1.
- For the Real Estate sector an increase of 500 bps will cause 2 additional companies (accounting for an additional 3 percent of total debt) to have an ICR<1.
- For the Services sector an increase of 500 bps will cause 6 additional companies (accounting for an additional 4 percent of total debt) to have ICRs<1.

6. While the performance of the corporate sector on average is adequate, attention should be given to those companies that comprise a substantial amount of the total debt of listed corporate, in order to avoid any spillover risks.

**Table 10. ICR Performance Under an Interest Rate Shock, 2009–10**

| | 2010 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|
| | 200 bpts | | 500 bpts | | 200 bpts | | 500 bpts | |
| | ICR | ICR w/cash | ICR | ICR w/cash | ICR | ICR w/cash | ICR | ICR w/cash |
| Food | 4.5 | 9.9 | 3.5 | 7.8 | 3.4 | 7.0 | 2.7 | 5.5 |
| Industrial | 1.6 | 5.2 | 1.1 | 3.4 | 0.5 | 3.2 | 0.3 | 2.2 |
| Real estate | 0.6 | 2.3 | 0.4 | 1.7 | 1.0 | 2.7 | 0.7 | 2.0 |
| Services | 4.0 | 11.6 | 3.2 | 9.3 | 2.8 | 5.8 | 2.1 | 4.3 |
| **Total** | **2.5** | **7.6** | **1.9** | **5.7** | **2.0** | **4.7** | **1.5** | **3.4** |

Source: Staff calculations based on Zawya balance sheets.

**Table 11. Number of Companies with ICR<1 After Shock, 2009–10**

| | 2010 | | 2009 | |
|---|---|---|---|---|
| | 200 bpts | 500 bpts | 200 bpts | 500 bpts |
| Food | 2 | 2 | 1 | 2 |
| Industrial | 6 | 6 | 10 | 10 |
| Real estate | 20 | 21 | 10 | 12 |
| Services | 16 | 20 | 12 | 16 |
| **Total** | **44** | **49** | **33** | **40** |

Source: Staff calculations based on Zawya balance sheets.

7. The stress testing also included an examination of the effect of income shocks, which indicated improved results compared to 2009 (Table 12).

**Table 12. ICRs After Income Shocks, 2009–10**
(25 percent decline/increase)

| | 2010 | | 2009 | |
|---|---|---|---|---|
| | ICR | ICR w/ cash | ICR | ICR w/ cash |
| Food | 4.1 | 9.1 | 3.0 | 6.4 |
| Industrial | 1.9 | 6.1 | 0.5 | 3.2 |
| Real estate | 0.6 | 2.2 | 1.0 | 2.7 |
| Services | 3.6 | 10.5 | 2.7 | 5.6 |
| **Total** | **2.4** | **7.2** | **2.0** | **4.6** |

Source: Staff calculations based on Zawya balance sheets.

### C. Distance to Default

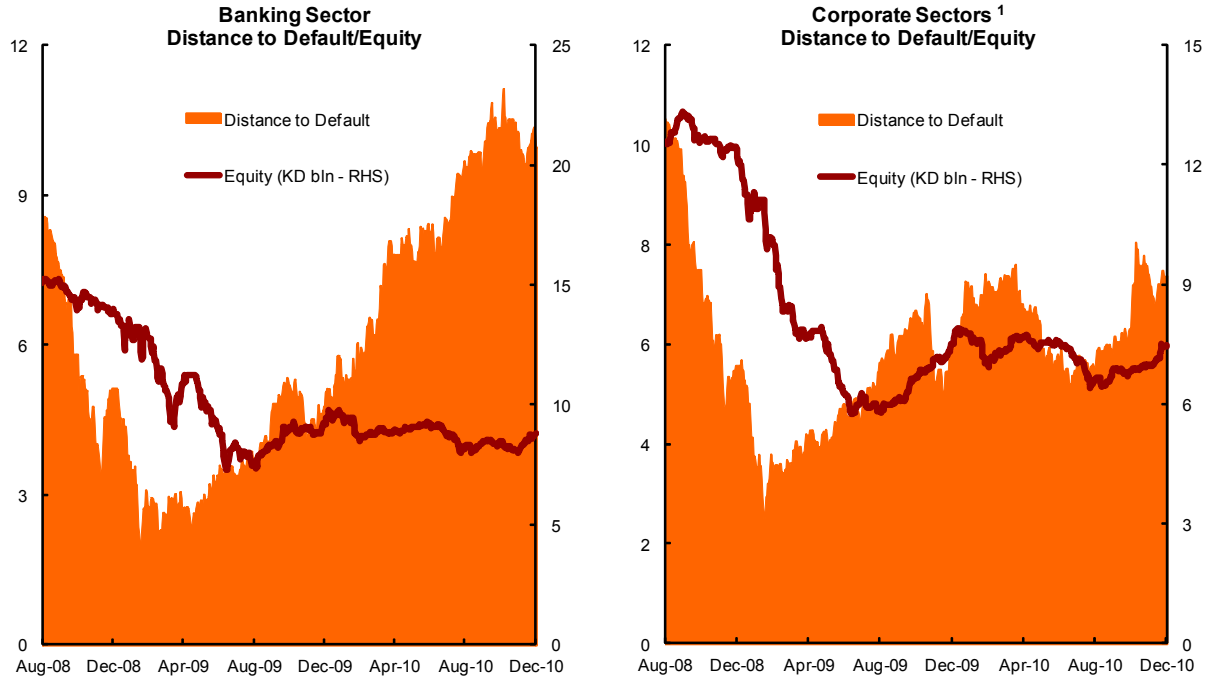
8. Distance-to-default (DD) measures the extent to which a firm's total assets (at market value) need to fall for a firm to default within a year, given its current balance sheet position.[5] For an individual firm, default occurs when the value of equity reaches zero. According to the methodology used in this analysis, a firm defaults when the market value of

[5] $DtD = \frac{\log(A) - \log(B) + [\mu - (\sigma_A^2/2)]}{\sigma_A}$ ;
A = assets, B = debt, $\sigma_A$ = standard deviation of asset return, $\mu$ = expected return

its assets falls short of its debt liability, or alternatively the market value of its equity falls to zero.[6] The Distance to Default calculation is derived from "inverting" the Black Scholes Merton (BSM) model. The BSM model is most often used to price a derivative asset (e.g. a call option) as a function of the probability of events.[7]

9. DD indicators were calculated for the banking sector and the corporate sector comprising food, industry, real estate and services companies (figure 5). The results indicate that even though these sectors were affected by the global crisis, their default risk is low; signifying that Kuwaiti banks and corporates are well cushioned to withstand shocks. The graphs show the direct correlation between the DD and the movement of equity in the market. As is expected, they move together (a high value of equity means that markets are assigning a strong probability that the future value of assets exceed its debt).

**Figure 5. Kuwait: Distrance to Default of Banks and Non-financial Corporates, Aug. 2008–Dec. 2010**




[1] Food, Real Estate, Industrial, and Services.

Source: Bloomberg, EMED, RATS and Fund staff calcuations.

[6] Total liabilities have been used for the purpose of this analysis.

[7] To calculate probabilities of default, Merton (1974) *On the Pricing of Corporate Debt: The Risk Structure of Interest Rates*, Journal of Finance, 29, no. 2 assumed that a company's equity is a call option on its assets (the equity has value only if the value of assets exceeds that of debt) and provided the formula needed to back up the probability of default from the value of equity and the volatility of the equity price.

# IV. MACROPRUDENTIAL POLICY IN KUWAIT[1]

## A. An Introduction to Macroprudential Policy[2]

1. Macroprudential policy seeks to manage systemic financial risk. Its objective is to identify, monitor, and prevent emergence of systemic risk in the financial system by: (i) limiting the build-up of financial imbalances; (ii) building mechanisms to mitigate the effect of downswings in the financial cycle and their effect on the economy; and (iii) addressing common exposures, risk concentrations, linkages, and interdependencies that are sources of contagion and spillover risk.

2. Systemic risk is posed by the potential disruption to financial services in all or part of the financial system, with negative consequences for the real economy. Macroprudential policy seeks to address two specific dimensions of systemic risk: the *time dimension* and the *cross-sectional dimension*.[3]

- The time dimension reflects a cumulative, amplifying mechanism that operates within the financial system as well as between the financial system and the real economy. This mechanism, or *procyclicality,* is based on the tendency of economic agents, both financial and non-financial, to increase risk exposure during the boom phase of a financial cycle, and to become highly risk-averse during the bust-phase.

- While procyclicality launches destabilization, the cross-sectional dimension magnifies the impact of financial distress. This mechanism, or *network risk*, depends on risk concentration (the number and size of financial institutions, their substitutability, and their vulnerabilities) and systemic interconnectedness (the level of intra-financial system activity). The collapse of a large financial institution can destabilize the rest of the financial system as can a group of smaller institutions sharing common characteristics and facing a common shock. Linkages across financial institutions are prime channels of contagion: direct links, indirect links, and effects related to how financial markets operate (liquidity squeezes, fire-sales).

3. Systemic risk may also arise because traditional microprudential policy does not assess system-wide risks. Accordingly, it is important to establish institutional arrangements

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[1] Prepared by Joshua Charap.

[2] For additional discussion on macroprudential policies, see *Macroprudential Policy: An Organizing Framework*; IMF Policy Paper; March 14, 2011, http://www.imf.org/external/np/pp/eng/2011/031411.pdf.

[3] In practice, these two risk categories are intertwined.

that permit oversight of all financial institutions (banks and nonbanks), instruments, markets, and infrastructure.

4. The analytical perspective of macroprudential policy should cover all potential sources of systemic risk.[4] It should cover developments in the whole financial system (regulated and unregulated), and take into account the feedback loop between the financial system and the real economy. Macroprudential policy should focus on risks arising primarily within the financial system, or risks amplified by the financial system. In general, macroprudential policy is not intended to address financial stability risks associated with macroeconomic imbalances and shocks, or inappropriate macroeconomic or structural policies—for which there should be adjustments in macroeconomic policies.

5. The core instruments of macroprudential policy are prudential-type instruments, calibrated and used to deal with systemic risk specifically, and applied with a broader financial system perspective. Non-prudential type instruments could also be added to the toolkit provided that they target systemic risk explicitly and that they are placed at the disposal of an authority with a clear macroprudential mandate (Table 13).

6. The institutional architecture should generally consist of two elements that could potentially overlap: a macroprudential authority with a clear mandate for financial stability and a formal mechanism for coordination of policies. For Kuwait, macroprudential authority could rest with the CBK given its existing roles in monetary policy, payment system oversight, and banking regulation and supervision. In addition, the authorities could consider establishing a committee comprising CBK, other financial regulators, treasury, and other relevant authorities to coordinate other policies affecting financial stability (e.g., fiscal, competition, etc.).

7. Prudential and non-prudential instruments have been used to constrain the upswing phase of the cycle (Appendix I). These have included countercyclical changes in risk weights on bank exposures to particular instruments, sectors, or markets; and time-varying caps on Loan-to-Value (LTV), Debt-to-Income (DTI), or Loan-To-Income (LTI) ratios, or criteria for loans' eligibility. Some countries have also used direct monetary policy instruments to constrain credit supply during booms, such as limits on the level or growth rate of aggregate credit or specific exposures. For example, LTV ceilings for high value property were reduced countercyclically in Hong Kong, Singapore, and China in 2009–10; DTI ceilings were countercyclically adjusted in Serbia; and several non-euro EU countries tightened loan eligibility criteria on foreign currency lending (Romania, Serbia, Poland, and Hungary).

[4] Nonfinancial risks—such as natural disasters, population change, technological change, political upheaval—are generally outside the scope of analysis.

**Table 13. Macroprudential Instruments**

| Tools | Risk Dimensions | |
|---|---|---|
| | **Time-dimension** | **Cross-Sectoral Dimension** |
| 1. Instruments developed specifically to mitigate systemic risk | | |
| | ▪ Countercyclical capital buffers<br>▪ Through-the-cycle valuation of margins or haircuts for repos<br>▪ Levy on non-core liabilities<br>▪ Countercyclical change in risk weights for exposure to certain sectors | ▪ Systemic capital surcharges on SIFIs<br>▪ Systemic liquidity surcharges on SIFIs<br>▪ Levy on non-core liabilities<br>▪ Higher capital charges for trades not cleared through CCPs |
| 2. Recalibrated instruments | | |
| | ▪ Time-varying LTV, Debt-To-Income (DTI) and Loan-To-Income (LTI) caps<br>▪ Time-varying limits in currency mismatch or exposure (e.g. real estate)<br>▪ Time-varying limits on loan-to-deposit ratio<br>▪ Time-varying caps and limits on credit or credit growth<br>▪ Dynamic provisioning<br>▪ Stressed VaR to build additional capital buffer against market risk during a boom<br>▪ Rescaling risk-weights by incorporating recessionary conditions in the probability of default assumptions (PDs) | ▪ Powers to break up financial firms on systemic risk concerns<br>▪ Capital charge on derivative payables<br>▪ Deposit insurance risk premiums sensitive to systemic risk<br>▪ Restrictions on permissible activities (e.g. ban on proprietary trading for systemically important banks) |

## B. Issues for Kuwait

8. Maintaining macro-financial stability in natural resource-based economies is more difficult than for less volatile economies. In light of experience with oil price volatility, oil exporting countries have established Sovereign Wealth Funds as reserves to insulate the economy from sharp changes in the value of oil exports, as well as to maintain living standards for future generations. Nevertheless, high saving rates become hard to justify as oil prices continue to rise, and countries find it difficult to avoid a procylical fiscal expansion when the oil cycle is on an upward trend. This situation is exacerbated for countries with open capital accounts because increases in the assets of the sovereign lower the perceived risk of their corporate borrowers, prompting higher private capital inflows. In general, banks operating in such volatile environments should internalize the uncertainty by building up their capital buffers, under pressure from shareholders or regulators.

9. During the recent boom, high oil prices, combined with an expansionary fiscal policy, contributed to high liquidity levels in the economy and resulted in a significant growth in credit and asset prices. This has resulted in an overheating of the economy, which in turn was

exacerbated by capital inflows in speculation of exchange rate realignment. Additionally, lower risk aversion in global financial markets increased investment companies' dependence in short-term foreign funding to expand domestic operations, adding to the buildup in system-wide vulnerabilities. Risks of excessive sectoral exposures and dependence on short-term foreign funding materialized after the decline in oil prices in mid-2008 and Lehman's collapse in September 2008.

10. Macroprudential policies are of particular importance for Kuwait given limited room for maneuver with exchange rate or monetary policy. In light of the constraints on exchange rate flexibility and therefore on monetary policy, fiscal policy would, traditionally, have the key role in macroeconomic policy.[5] The burden of supporting fiscal policy in managing the financial cycle that is typically associated with the oil cycle will therefore fall upon macroprudential policy. Kuwait already has in place a loan-to-deposit ratio that could be time-varying depending on conditions and could consider the adoption of other prudential measure (for example, counter-cyclical capital buffers and through-the-cycle provisioning) to dampen cyclical fluctuations in credit.

11. A macroprudential framework should be supported by an effective early warning system (EWS) to identify and monitor risks. The EWS involves consolidating quantitative work with qualitative insight, informed by the views of policymakers, market participants, analysts or academics. Quantitatively, the EWS should be based on timely, disaggregated, and high frequency indicators. Quantitative indicators for Kuwait should include, at a minimum: (i) foreign borrowing by all financial and nonfinancial entities by maturity and instrument; (ii) indicators of leverage of the corporate and financial sectors and households; (iii) indicators of real estate and equity markets; (iv) indicators of domestic credit growth; (v) indicators of sectoral exposures of banks and ICs; and, (vi) indicators of liquidity and funding practices. Qualitative aspects relevant for Kuwait would involve assessments of credit underwriting standards and risks arising from linkages in the financial sector. The EWS should be under regular review to incorporate lessons from new crisis situations, either domestically or abroad**.**

12. Macroprudential policies in Kuwait would strengthen the management of systemic risk by reducing the probability and the impact of a financial boom-bust cycle on economic activity. At present, macroprudential policy should focus on the interlinkages between banks, ICs, and the real estate sector and equity markets with a view to ensuring the resilience of the system, particularly banks. As the effects of the crisis unwind, macroprudential policies should seek to build reinforcing financial buffers to limit the buildup of systemic risk and to ensure the soundness of the financial system as a whole.

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[5] While the exchange rate arrangements for the dinar provide for some flexibility, management of the rate is constrained by the need to avoid prompting speculative inflows in anticipation of a revaluation.

## APPENDIX I. COUNTRY EXPERIENCES WITH MACRO-PRUDENTIAL AND OTHER MEASURES TO MITIGATE LEVERAGE AND ASSET BUBBLES

| | Macro-financial stability concern | Capital charges and provisioning | Reserve and liquidity requirements | Lending criteria and limits on exposures | Consumer protection, other |
|---|---|---|---|---|---|
| **Asia** | | | | | |
| China | Property boom in 2000s | | Higher reserves in several stages | Lower LTV for primary residence mortgages; limits on mortgages for investment properties | Ceiling on household debt service in proportion to income<br><br>Higher taxes on property transactions |
| Hong Kong | Property booms in 1990s, and late 2000s | | | Ceiling on growth of mortgage lending and on bank exposure to real estate<br><br>Lower LTV on luxury properties; lower ceiling on mortgage insurance (2009) | Higher transaction taxes for luxury properties (2010)<br><br>Close monitoring of high turnover properties |

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|---|---|---|---|---|---|
| India | Concerns in 2000s that banks were lenient in credit analysis to nonbank financial companies and real estate activities | Higher charges on loans to real estate sector and non-bank financial companies<br><br>Higher general provisions, differentiated by riskiness of assets | Higher reserves in several stages | | |
| Korea | Property bubbles and short-term foreign funding in 2000s | | Higher reserves for short-term funding, lower for term funding<br><br>Introduction of 100% max loan/dep ratio for large banks starting in 2013 | Lower LTV for housing loans; tighter LTV on luxury properties; 50% LTV for properties in Seoul (2010). | Ceiling on household debt service in proportion to income for selected areas |
| Malaysia | High exposures to real estate in 1990s, growth in mortgage loans in 2000s | Higher charges for classified mortgage loans | Higher reserves | Lower LTV for housing loans | Increase in min monthly payment for credit card balances |
| Singapore | Luxury property bubble (2009) | | | | Ban on interest only mortgages |

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|---|---|---|---|---|---|
| Thailand | Excessive borrowing by household sector in 2000s | | | Max LTV on housing loans | Increase in min monthly payment for credit card balances<br><br>Ceiling on credit card balances to income |
| **Europe** | | | | | |
| Bulgaria | Rapid credit growth in 2000s | Tighter loan classification and provisioning<br><br>Higher charges for high LTV mortgages | Higher reserves<br><br>Introduction of special reserves for excessive credit growth | Lower LTV for housing loans | |
| Croatia | Rapid foreign borrowing in 2000s | Higher retained earnings for fast growing banks<br><br>Higher charges for loans with FX risk | Higher holdings of risk-free securities for excessive credit growth<br><br>Introduction of special reserves on foreign bond issuance<br><br>Broadening the base to funding from nonbank intermediaries | Lower LTV for housing loans<br><br>Guidelines to banks on FX-induced credit risk | Ceiling on debt service in proportion to earnings<br><br>Min liquid cover for FX or FX-indexed borrowing |

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|---|---|---|---|---|---|
| Estonia | Overheating in 2000s | Higher charges on housing loans to residents | Higher reserves and broader base<br><br>Introduction of special reserves for excessive credit growth | | |
| Greece | Rapid growth of consumer lending in 2000s | Higher provisions on doubtful consumer loans | Introduction of unremunerated reserves | | Ceiling on household debt service in proportion to income |
| Hungary | Household borrowing in foreign currency in late 2000s | | | Lower LTV for car and mortgage loans in foreign currency | |
| Iceland[1] | Credit boom fuelled by capital inflows in late 1990s | | | | Min liquid cover ratio for foreign borrowing |
| Ireland | Concern that rising LTV fuel mortgage growth in 2000s | Higher charges for high LTV mortgages | | | |

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|---|---|---|---|---|---|
| Romania | Rapid growth of credit denominated in foreign currency in 2000s<br><br>Concerns also about regulatory arbitrage between banks, and less regulated finance and insurance companies | Tighter provisioning and classification for loans w/ FX risk | Higher reserves of FX funding, lower on local currency | Max LTV for housing loans<br><br>Ceilings on provision of insurance for consumer credit and mortgages | Ceiling on debt service in proportion to income for consumer loans and mortgages<br><br>FX loans cannot exceed 300% of own funds<br><br>Registration of all nonbank financial intermediaries. |

Sources: BIS, IMF, OECD, and national authorities, as of February 2010.

[1] Norway and Finland used LTV ceilings and required reserves in the late 1980s to slow down household credit growth.