

Annex 1.7. Credit Demand and Capacity Estimates in the United States, Euro Area, and United Kingdom¹

This annex describes our methodology for estimating the demand for credit from the nonfinancial sector and the capacity of lenders to supply credit, as discussed in Section D of this chapter. Ultimately, this exercise is intended to project the *ex ante* financing gap — that is, the difference between *ex ante* demand for credit from the nonfinancial sector and the *ex ante* capacity to meet that demand from lenders other than central banks. The method is similar to that outlined in Annex 1.4 of the October 2009 GFSR, though a few changes have been made for this report, namely: (1) new equations for private sector credit demand in the euro area and United Kingdom; (2) added estimates of municipals' demand for credit; and (3) updated projections for nonbank credit capacity. This annex describes these changes in more detail.

Credit Demand

For our credit demand projections, end borrowers (issuers) were broken down into three categories: (1) government; (2) nonfinancial companies; and (3) households (mortgages and consumer credit are forecast separately). As in the October 2009 GFSR projections for central government credit demand (sovereign debt) were based on deficit forecasts included in the WEO. Municipal borrowing needs were assumed to grow at the same pace of the central government in the United States and the euro area, while municipal credit demand was assumed to be zero in the United Kingdom. The projections for private sector credit demand were modeled using regressions similar to those in the October 2009 GFSR. The projections are shown in Table 1.15 and the regressions are presented in Table 1.16.

Table 1.15. Growth in Credit Demand from the Nonfinancial Private Sector
(In percent)

	2002-	2008	2009	2010	2011
Total credit					
United States	9.3	2.2	-1.9	1.3	5.1
Euro area	7.3	6.7	0.5	0.3	3.4
United Kingdom	10.2	6.1	-1.4	0.1	3.8
Household credit					
United States	10.2	-0.1	-2.1	1.6	4.2
Euro area	7.9	3.4	1.4	1.8	2.0
United Kingdom	10.3	2.9	-0.3	2.0	3.9
Mortgages					
United States	11.8	-0.5	-1.6	2.7	5.3
Euro area	8.4	3.5	1.8	2.0	2.1
United Kingdom	11.4	3.4	0.5	2.5	4.6
Consumer loans					
United States	5.1	1.5	-4.3	-2.7	-0.5
Euro area	1.8	2.0	-3.8	-0.8	0.4
United Kingdom	5.2	0.1	-5.6	-2.0	-1.1
Corporate credit					
United States	8.3	5.1	-1.7	0.8	6.1
Euro area	6.9	8.8	0.0	-0.6	4.4
United Kingdom	10.1	9.0	-2.4	-1.5	3.7

Source: IMF staff estimates.

¹ This annex was prepared by Sergei Antoshin, Hui Jin, and William Kerry.

Credit Capacity

As in the October 2009 GFSR, we estimated *ex ante* credit capacity in two parts: that provided by the banking sector and that provided by nonbank lenders. Bank capacity was assumed to grow in line with projections for total bank assets, discussed in Section C.

The capacity of the nonbank lenders – including nonbank financial institutions, nonfinancial sector and foreign institutions – to provide credit was projected in aggregate for each country or region, rather than separately as had been done previously. Estimates for quarter-on-quarter growth in assets under management were based on nominal GDP growth, current account balance as a percentage of GDP, and lags of the dependent variables. Nominal GDP growth was used as a proxy for income and thus funds available to build domestic credit capacity, while current account balances represented capacity available from the rest of the world as foreigners invest their trade surpluses. For the United States, an additional ratio of private savings to GDP was found to be significant, perhaps reflecting the deeper capital market that is used to channel private sector savings to financial investments. The projections were based on WEO forecasts and are intended to capture the trend in nonbank credit growth.

Financing Gap

Projected quarter-on-quarter growth rates of *ex ante* credit demand and credit capacity were applied to the latest level of debt outstanding available from national flow of funds statistics. The *ex ante* financing gap is estimated as the difference between the increase in *ex ante* demand and capacity in each year. Compared with our October 2009 GFSR forecast for financing gaps in 2010, the euro area gap narrowed to €150 billion (from €240 billion), mainly because we now predict weaker private demand; the gap in the United States widened to \$360 billion (from \$90 billion), largely due to the incorporation of municipal demand in our estimates; and the gap of £150 billion in the United Kingdom is the same as the previous forecast, though the demand and capacity estimates have changed slightly.

Table 1.16. Regression Output on Demand for Nonfinancial Private and Public Sector Credit

Euro Area									
Mortgage credit =	0.70*D2 + 0.42*D3 + 0.47*D4 + 0.25*L1.MC + 0.70*L1.HP								
<i>p</i> -value	0.00	0.00	0.00	0.04	0.00				<i>R</i> -squared: 0.97
Consumer credit =	-3.10 + 6.58*D2 + 5.00*D4 + 0.46*L1.CC + 0.24*L3.CC - 0.27*L4.CC + 0.42*L1.PCE								
<i>p</i> -value	0.00	0.00	0.00	0.00	0.07	0.07	0.04		<i>R</i> -squared: 0.91
Corporate credit =	0.86*D2 + 0.96*D4 + 0.36*L1.NC + 0.19*L3.NC + 0.35*L3.I								
<i>p</i> -value	0.00	0.00	0.01	0.08	0.00				<i>R</i> -squared: 0.92
United Kingdom									
Mortgage credit =	0.33 + 0.28*L1.MC + 0.26*L2.MC + 0.19*L3.MC + 0.13*HP								
<i>p</i> -value	0.02	0.01	0.01	0.06	0.00				<i>R</i> -squared: 0.79
Consumer credit =	-1.42 + 1.93*D2 + 1.52*D3 + 0.81*D4 + 0.37*L1.CC + 0.37*L3.CC + 0.47*L1.PCE								
<i>p</i> -value	0.00	0.00	0.11	0.00	0.00	0.00	0.03		<i>R</i> -squared: 0.58
Corporate credit =	0.27*L3.NC + 0.37*L4.NC + 0.26*I + 0.26*L3.I								
<i>p</i> -value	0.00	0.00	0.03	0.03					<i>R</i> -squared: 0.59
United States									
Mortgage credit =	0.44 + 0.44*L.MC + 0.19*L2.MC + 0.14*PCE + 0.12*HP								
<i>p</i> -value	0.03	0.00	0.06	0.17	0.00				<i>R</i> -squared: 0.73
Consumer credit =	-0.31 + 0.61*LCC + 0.16*L2.CC + 0.43*PCE								
<i>p</i> -value	0.03	0.00	0.02	0.00					<i>R</i> -squared: 0.67
Corporate credit =	-2.91 + 0.26*LNC + 0.42*L2.NC + 0.09*I + 0.04*CU								
<i>p</i> -value	0.08	0.00	0.00	0.00	0.05				<i>R</i> -squared: 0.48

Source: IMF staff estimates.

Note: D2, D3, and D4 are dummy variables for the second, third, and fourth quarters, respectively; L = lagged operator; MC = mortgage credit; HP = home price index; CC = consumer credit; PCE = private consumption expenditures; NC = nonfinancial corporate credit; I = investment; CU = capacity utilization rate.