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Global Economic Perspectives

WO Update: From Financial Crisis to Global Recession

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- Accordingly, we now expect a major recession for the world economy over the year ahead, with growth in the industrial countries falling to its lowest level since the Great Depression and global growth falling to 1.2%, its lowest level since the severe downturn of the early 1980s. We also see a steep drop in global inflation to 3.1% next year thanks to a collapse of energy prices and rising unemployment.
- Key central banks are projected to cut rates to or below the historical lows reached earlier this decade. Moreover, as growth slumps, fiscal policy should turn sharply expansionary, probably more so in the US than elsewhere.
- The massive macroeconomic policy response in our view is likely to stabilise the global economy by 2010. However, given the severity of the shocks, a recovery of growth to the rate of potential is unlikely in the foreseeable future.

World economy in recession

	GDP growth, %				CPI inflation, %			
	2007	2008F	2009F	2010F	2007	2008F	2009F	2010F
US	2.0	1.1	-1.0	0.9	2.9	4.6	2.3	1.5
Japan	2.0	0.1	-1.2	1.3	0.0	1.5	0.1	-0.3
Euroland	2.6	0.9	-1.4	0.4	2.1	3.4	1.4	1.3
G7	2.1	0.8	-1.1	0.9	2.2	3.6	1.7	1.2
Asia (ex Japan)	9.4	7.6	5.7	5.9	4.4	7.3	4.1	3.2
EMEA	6.6	5.4	3.2	3.5	9.5	11.8	9.3	n.a.
Latam	5.4	4.3	2.3	3.1	6.2	8.7	6.9	5.6
Global	4.7	3.2	1.2	2.5	3.6	5.6	3.1	2.6

Source: DB Global Markets Research

Economics

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Key Economic Forecasts

	Real GDP % growth ^b			Consumer Prices % growth ^c			Current Account % of GDP ^d			Fiscal Balance % of GDP		
	2007	2008F	2009F	2007	2008F	2009F	2007	2008F	2009F	2007	2008F	2009F
US	2.0	<u>1.1</u>	<u>-1.0</u>	2.9	4.6	<u>2.3</u>	-5.3	-4.7	-3.5	-1.2	<u>-3.2</u>	-8.0
Japan	2.0	0.1	<u>-1.2</u>	0.0	1.5	0.1	4.8	3.6	4.6	-0.8	-2.6	-3.4
Euroland	2.6	<u>0.9</u>	<u>-1.4</u>	2.1	<u>3.4</u>	<u>1.4</u>	0.3	<u>-0.2</u>	<u>-0.1</u>	-0.6	<u>-1.5</u>	<u>-4.3</u>
Germany	2.6	1.4	<u>-1.5</u>	2.3	3.0	<u>1.0</u>	7.6	<u>6.5</u>	<u>3.2</u>	0.1	-0.1	<u>-2.8</u>
France	2.1	0.7	<u>-1.2</u>	1.6	3.3	<u>1.0</u>	-1.2	-1.6	<u>-2.0</u>	-2.5	<u>-3.3</u>	<u>-4.8</u>
Italy	1.4	-0.1	<u>-1.0</u>	2.0	<u>3.5</u>	<u>1.6</u>	-2.4	-2.9	-2.6	-1.9	<u>-2.8</u>	<u>-4.5</u>
Spain	3.7	<u>1.2</u>	<u>-2.0</u>	2.8	<u>4.3</u>	<u>2.0</u>	-10.1	-10.4	-9.8	2.2	<u>-0.8</u>	<u>-4.4</u>
UK	3.0	<u>0.9</u>	<u>-1.7</u>	2.3	3.8	<u>2.8</u>	-4.3	-2.4	-2.8	-2.5	<u>-4.5</u>	<u>-6.5</u>
Sweden	2.9	<u>0.7</u>	<u>-0.8</u>	2.2	<u>3.7</u>	<u>2.2</u>	8.5	<u>7.5</u>	<u>6.5</u>	3.4	<u>1.5</u>	<u>-2.0</u>
Denmark	1.7	<u>-0.2</u>	<u>-1.4</u>	1.7	<u>3.3</u>	<u>1.0</u>	0.7	<u>1.2</u>	1.2	4.9	<u>3.0</u>	<u>-1.0</u>
Norway	3.7	<u>2.0</u>	<u>-1.4</u>	0.7	3.8	<u>2.6</u>	15.4	<u>14.0</u>	<u>11.0</u>	13.9	<u>14.0</u>	<u>10.0</u>
Poland	6.6	<u>4.9</u>	<u>2.9</u>	2.5	<u>4.2</u>	<u>3.2</u>	-3.8	-5.2	<u>-4.5</u>	-2.0	-2.5	-2.6
Hungary	1.3	<u>1.9</u>	<u>0.2</u>	8.0	<u>6.2</u>	4.1	-6.5	<u>-5.8</u>	<u>-3.0</u>	-6.4	<u>-3.2</u>	<u>-2.8</u>
Czech Republic	6.5	<u>3.8</u>	<u>2.0</u>	2.8	<u>6.4</u>	<u>1.5</u>	-2.5	-2.3	<u>-2.1</u>	-1.6	-1.4	-2.0
Australia	4.2	<u>2.3</u>	<u>1.5</u>	2.3	4.6	3.5	-6.2	-4.9	-4.3	1.6	<u>1.7</u>	<u>0.5</u>
Canada	2.7	<u>0.6</u>	<u>1.0</u>	2.1	2.9	2.1	0.9	0.9	<u>-0.3</u>	0.7	<u>0.2</u>	<u>0.0</u>
Asia (ex Japan)	9.4	<u>7.6</u>	<u>5.7</u>	4.4	<u>7.3</u>	<u>4.1</u>	6.0	4.0	<u>3.8</u>	-0.2	<u>-0.9</u>	<u>-2.3</u>
India	9.3	7.7	<u>6.0</u>	4.6	9.6	<u>5.3</u>	-0.8	-1.6	<u>-1.5</u>	-6.2	-7.5	-7.4
China	11.9	<u>9.8</u>	<u>8.0</u>	4.8	6.3	<u>2.8</u>	9.5	6.5	5.4	0.7	0.7	<u>-1.0</u>
Latin America	5.4	4.3	<u>2.3</u>	6.2	<u>8.7</u>	6.9	0.8	-0.5	-1.3	3.2	3.1	2.8
Brazil	5.4	5.2	<u>2.9</u>	4.5	6.2	5.0	0.3	-1.5	-2.1	-2.1	-2.1	-2.4
EMEA	6.6	<u>5.4</u>	<u>3.2</u>	9.5	<u>11.8</u>	<u>9.3</u>	-0.9	<u>-0.2</u>	<u>-4.1</u>	0.6	<u>0.9</u>	<u>-1.5</u>
Russia	8.1	<u>6.9</u>	<u>3.4</u>	11.9	<u>14.1</u>	<u>10.5</u>	5.9	<u>8.3</u>	<u>-1.9</u>	5.4	<u>6.1</u>	<u>-0.5</u>
G7	2.1	<u>0.8</u>	<u>-1.1</u>	2.2	3.6	<u>1.7</u>						
World	4.7	<u>3.2</u>	<u>1.2</u>	3.6	5.6	<u>3.1</u>						

(a) Euroland forecasts as at the last forecast round on 25/05/2008. Bold figures signal upward revisions, bold, underlined figures signal downward revisions.

(b) GDP figures refer to working day adjusted data. The non-adjusted growth forecasts for Germany are 2.5% in 2007, 2.6% in 2008 and 1.1% in 2009. (c)

HICP figures for euro-zone countries and the UK (d) Current account figures for Euro area countries include intra regional transactions

Forecasts: G7 quarterly GDP growth

% qoq saar/annual: % yoy	Q1 08	Q2 08F	Q3 08F	Q4 08F	2008F	Q1 09F	Q2 09F	Q3 09F	Q4 09F	2009F	2010F
US	0.9	2.8	-1.3	-4.5	<u>1.1</u>	-1.0	0.5	0.5	0.6	<u>-1.0</u>	<u>0.9</u>
Japan	2.8	-3.0	-3.0	-2.1	<u>0.1</u>	-1.5	0.3	0.6	0.3	<u>-1.2</u>	<u>1.3</u>
Euroland	2.8	-0.8	-0.8	-2.0	<u>0.9</u>	-2.4	-1.2	-0.4	0.4	<u>-1.4</u>	<u>0.4</u>
Germany	5.2	-2.0	-0.1	-1.6	<u>1.4</u>	-2.6	-2.4	-0.1	0.3	<u>-1.5</u>	<u>0.5</u>
France	1.7	-1.3	-1.0	-2.0	<u>0.7</u>	-3.0	1.0	-1.0	2.0	<u>-1.2</u>	<u>0.7</u>
Italy	2.0	-1.1	-0.6	-1.6	<u>-0.1</u>	-1.6	0.2	0.5	0.4	<u>-1.0</u>	<u>0.5</u>
UK	1.2	0.0	-1.2	-2.0	<u>0.9</u>	-2.4	-2.0	-1.2	0.0	<u>-1.7</u>	<u>0.7</u>
Canada	-0.8	0.3	0.6	-0.1	<u>0.6</u>	-0.9	3.0	3.5	2.7	<u>1.0</u>	<u>2.8</u>
G7	1.7	0.5	-1.3	-3.1	<u>0.8</u>	-1.5	0.1	0.3	0.6	<u>-1.1</u>	<u>0.9</u>

Sources: National authorities, DB Global Markets Research

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- Accordingly, we now expect a major recession for the world economy over the year ahead, with growth in the industrial countries falling to its lowest level since the Great Depression and global growth falling to 1.2%, its lowest level since the severe downturn of the early 1980s. We also see a steep drop in global inflation to 3.1% next year thanks to a collapse of energy prices and rising unemployment.
- Key central banks are projected to cut rates to or below the historical lows reached earlier this decade. Moreover, as growth slumps, fiscal policy should turn sharply expansionary, probably more so in the US than elsewhere.
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Introduction

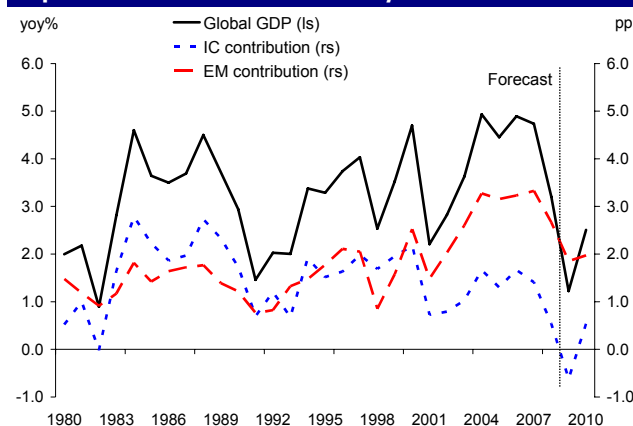
In our last World Outlook published at the beginning of October we thought the world economy could get away with a relatively mild recession (and GDP growth of still 2.3% in 2009). The dramatic further tightening of money and credit markets, and plunging equity markets since then have exposed the big downside risks to this forecast. The global financial system came close to collapse and, despite a global policy response of historical proportions, a severe credit crunch for the real economy is now under way.

The worst global downturn since 1982

We now expect global GDP growth in 2009 to drop to 1.2%, its weakest level since the early 1980s (Chart 1). Growth in industrial countries on average is projected to fall to its lowest level in the post-war period. Growth in emerging market is projected to slow sharply as well, but to remain well above that in the industrial regions. The unusually steep recession in industrial countries is masked in the global total more than it would have been in the past because faster growing emerging market countries, carry a greater weight in the world total than they did in earlier decades. We expect global GDP to continue to grow at

near-recession rates of less than 3% in 2010. This economic backdrop sets the stage for a sizeable slow-down of inflation.

Chart 1: World Recession: Emerging markets soften unprecedented industrial country downturn.



Source: DB Global Markets Research

Massive policy response to the crisis

As the global financial system came close to collapse, governments and central banks around the world staged an unprecedented rescue effort. Policy countered the imminent melt-down from three sides (for details see the appendix to this article):

- massive liquidity injections into the money markets by central banks and government programmes to exchange illiquid troubled securities against liquid assets;
- explicit or implicit government guarantees of bank deposits and bank debt to stave off the bank run by institutional investors;
- programmes to take over insolvent banks or to re-capitalise weak banks.

These measures have in our view, greatly reduced the risk of systemic failure and created the necessary conditions for stabilization of the global financial system. However, it will take some time for all the measures to be implemented, and still more time before they will have the desired effects. In the meantime, we expect money and credit markets to unfreeze only very slowly, and equity markets to remain extremely volatile.

Impressive and far-reaching as they are, the policy measures taken to avert financial collapse are unlikely on their own to stave off a severe credit crunch for the real economy. Banks are scrambling to reduce leverage, and despite equity injections by governments, they are unlikely to achieve lower leverage levels without a cut-back in balance sheets. In addition, lending by the non-bank

financial sector will be severely constrained by the drying up of markets for securitised loans (in the recent past, nonbanks relied heavily on raising funds in the capital markets via securitization). This is likely to affect the US economy especially hard. The negative effects of the credit crunch on private spending are likely to be augmented by the effects of collapsing home prices and

equity markets on consumption and investment. A combined monetary and fiscal expansion should eventually begin to overcome these severe drags on growth of domestic demand. However, as past experience with banking crisis (notably in Scandinavia) has shown, severe recession can occur even in the presence of an aggressive policy response.

Table 1. World economy in recession

	GDP growth, %				CPI inflation, %			
	2007	2008F	2009F	2010F	2007	2008F	2009F	2010F
US	2.0	1.1	-1.0	0.9	2.9	4.6	2.3	1.5
Japan	2.0	0.1	-1.2	1.3	0.0	1.5	0.1	-0.3
Euroland	2.6	0.9	-1.4	0.4	2.1	3.4	1.4	1.3
G7	2.1	0.8	-1.1	0.9	2.2	3.6	1.7	1.2
Asia (ex Japan)	9.4	7.6	5.7	5.9	4.4	7.3	4.1	3.2
EMEA	6.6	5.4	3.2	3.5	9.5	11.8	9.3	n.a.
Latam	5.4	4.3	2.3	3.1	6.2	8.7	6.9	5.6
Global	4.7	3.2	1.2	2.5	3.6	5.6	3.1	2.6

Source: DB Global Markets Research

A severe recession in the industrial countries

The major industrial countries combined are projected to suffer the worst recession since WWII next year (with average declines in real GDP from peak to trough of around 2%). Consumer spending will be hit hard by tighter credit, large drops in household wealth (associated with big declines in home prices and stocks), and rising unemployment. Investment is likely to plunge on the back of the decline in consumer spending as well as directly in response to tighter credit and falling equity markets. These negative effects will be partly offset by a sharp decline in energy prices, but the softness in energy prices will also reflect the global downturn which will be depressing trade among countries. Negative spill-over effects from the downturn in the most affected countries are likely to drag down other countries not directly impacted by domestic housing slumps and banking crisis (see Table 1 for an overview of our global economic forecasts and p.2 for more details).

Table 2. Interest Rate Forecast Summary

	Central bank rate, %				10Y yields, %			
	Cur- rent	3M	6M	12M	Cur- rent	3M	6M	12M
US	1.50	1.00	1.00	1.00	3.94	4.25	4.50	4.75
Japan	0.50	0.25	0.25	0.25	1.60	1.40	1.40	1.40
Euroland	3.75	2.75	2.25	1.50	4.07	3.70	3.50	3.50

Source: DB Global Markets Research, as of October 17

US

At the epicentre of the financial quake are of course the US and Europe. In the former we expect GDP to contract by 1.0% in the annual average of 2009, followed by a stabilisation of growth at a low level in 2010. The peak to trough decline in US GDP from 2008 to 2009 is close to 2%. The start of the US recession may well be dated from the beginning of 2008, and unemployment has been rising since late 2006. If so, our forecast would make this the longest US recession in the post war period at 18 months-(the previous record being 16 months). And we would see the longest period of rising unemployment (nearly 4 years) with one of the largest increases in unemployment at 4 percentage points.

Even so, comparisons with other countries that have gone through banking crises and housing bubbles suggest that US GDP could drop even further than we are projecting. We should note that real consumer spending in the US is expected to show a decline of unprecedented magnitude and duration (for the US) in this forecast through the middle of 2009 (at least unprecedented since the Great Depression of the 1930s). The US saving rate has been at a record low, and we see it rising by several percentage points over the next two years from its recent level near zero. One reason the overall US recession does not look worse going forward is that while business spending is projected to drop significantly, it has less room to decline than in previous downturns. The buildup of the business capital stock was relatively mild during the most recent economic expansion, and there is much less "overhang" to work off than has typically been the case historically. In addition, and importantly, much of the correction in the residential capital stock that typically occurs going into a

downturn has already occurred thanks to a steady and rapid decline in residential investment over the past two and a half years. There is also a timing issue. A key reason why we do not anticipate a larger drop in overall GDP in 2009 is that a very sharp decline in US output appears to be taking place in the current quarter, with a likely tremendous inventory liquidation under way now in response to a substantial weakening of consumer spending that has already occurred. As inventory liquidation proceeds at a significantly slower pace in the quarters ahead, this imparts a positive impetus to output growth during 2009. Finally, macroeconomic policies have been aggressively stimulative in the US so far in this cycle, with the Fed having cut rates to 1-1/2%, and Congress having passed a stimulative tax rebate program. We expect both more Fed rate cuts and aggressive further fiscal stimulus to come.

As the measures taken to relieve stress in the money markets begin to take effect over the weeks ahead, we expect the Fed's monetary stimulus to begin to show through and be more supportive of growth. Owing to the drop in energy prices, the rise in unemployment, and slowing non-oil import price inflation, we expect inflation to fall sharply¹. We also expect the US general government budget deficit (on a national accounts basis) to roughly double in 2009 from a level of about 3-1/4% in 2008 as a result of (1) spending related to support of the banking system and mortgage markets, (2) other fiscal stimulus on the spending side, and (3) tax cuts and reductions in tax revenues resulting from the economic downturn.

Europe

The contraction should be more pronounced in Europe, where we see real GDP dropping next year by 1.4% in the euro area and 1.7% in the UK. As we have argued for some time, we see the euro area as badly affected by the housing market downturn and financial crisis as the US. However, the policy response in the euro area has been more sluggish so far, and this is unlikely to change materially in the future. The ECB is now correcting its mistaken monetary tightening and likely to push policy rates below recent historical lows to 1.5% by mid-2009 on the back of a steep drop in inflation. But the fiscal policy response to the downturn by euro area governments is likely to be slow in coming, and less forceful and effective than in the US on account of a lack of close coordination. We expect the government deficit to rise from 0.6% of GDP in 2007 to 4.3% in 2010. The UK in our view is more adversely affected by both housing market downturn and the financial crisis than either the US or the euro area.

Japan

While Japan is not in the epicentre of the crisis it is affected by the global slowdown, yen appreciation, and the lagged effects of the run-up of commodity prices. As a

result, we expect the downturn in economic activity to prevail through the first quarter of 2009, completing four consecutive quarters of declines in GDP. Recovery could begin in 2010, but only at a modest pace. Thus, this recession would be far deeper than that after the burst of the technology bubble and close to the first two recessions of the 1990s. The room for economic policy to alleviate the downturn appears limited. The high level of government debt and the goal to achieve a primary fiscal balance by 2011 would seem to prevent a large-scale fiscal stimulus. Low interest rates and the reluctance of the Bank of Japan to return to the regime of zero interest rate and quantitative monetary easing would also seem to limit monetary easing to a 25bp rate cut and a higher monthly outright purchase of long-term government securities.

Fall-out for the emerging market countries

Growth in emerging market countries as a group is holding up better than in the industrial countries. However, negative spill-over effects and home-grown problems in some countries are likely to induce a significant drop in growth in most EM countries while the decline in commodity prices is affecting the commodity exporters among the EM countries.

In addition to the end of a multi-year export boom, China and India – more so than the rest of Asia – face the unwinding of a domestic investment boom. Their property markets are experiencing pronounced weakness which will be an important drag on growth over the next year or two. This could potentially also be an important source of pressure on financial institutions as property prices decline. We expect the Chinese government to provide an additional fiscal stimulus of about 1% of GDP. However, compared with other governments in the region, we think China has the greatest scope to increase spending by a larger amount as it faces much less of a financing constraint.

For Asia ex-China and India ("Asia-8") the post-crisis years have shown a close, contemporaneous and stable relationship between growth here and growth in the G2 economies. Over the past 8½ years, a 1% decline in G2 growth has been associated with a 1.4% decline in Asia-8 growth. While we think this "growth beta" may be lower in the coming years due to relatively healthier bank and corporate balance sheets, that is certainly not a given. Recent weeks have shown that the G2 banking crisis can quite easily spread to Asia even if the underlying balance sheet vulnerabilities are less significant here. Financial intermediation requires trust and confidence, and even in Asia these are fraying.

It should come as no surprise, therefore, that as the advanced industrial countries – Asia's key export markets – have fallen into recession, so too is recession spreading to Asia. The most export-sensitive economies have been

¹ We expect WTI oil prices to reach USD70 per barrel by the end of this year and to decline to USD52/bbl by the end of 2009.

hit first – Hong Kong and Singapore’s economies began to contract in Q2 – but we think South Korea and Taiwan will soon follow. We expect there will still be a North-South divide – recession means negative growth in North Asia and slow but positive growth in Southeast Asia (excluding Singapore).

We have argued over the last year that rising inflation in Asia reflected mostly rising commodity prices (which is to say, core inflation was generally much lower and not especially high, suggesting that inflation was more “cost-push” than “demand-pull”). Therefore, we argued, as soon as commodity prices stabilized, inflation would start to fall. With domestic price pressures reversing with recession, we expect deflation to return to Hong Kong, Singapore, South Korea and Taiwan. Inflation will be sharply lower elsewhere and we see significant downside risk to the inflation forecasts.

With inflation falling sharply central banks will be free to respond to the recession by easing monetary policy. Indeed, some have acted more quickly than we had expected. The Chinese authorities have cut lending rates twice and cut reserve requirements by 100bps; the central bank in Taiwan has reversed all of last year’s rate hikes; the RBI has cut reserve requirements by 250bps in two weeks. We expect central banks to cut interest rates on average by 100bps or more over the next year. We expect a strong fiscal response as well, especially in China, Hong Kong, Thailand and Singapore, although relative to the size of the external shock only in China do we think fiscal policy can make much of a difference.

For countries in Eastern Europe, Middle East and Africa (EMEA, including the CE4 countries) we expect growth to be close to 3% next year from a projected 5.4% in 2008. A slowdown in domestic demand combined with lower food and oil prices is likely to induce inflation to drop from double digits in 2008. For the EMEA countries the ability to finance large current account deficits is at risk in an environment of more difficult global financing conditions. The downgrades to our growth forecasts reflect an adjustment to domestic demand so that the current account shortfalls narrow to more sustainable levels. In a situation where exports or capital inflows slow, the bulk of the adjustment will fall on investment and consumer spending.

For countries such as Turkey and South Africa policy rates may have to be cut more slowly than currently expected in order to attract capital inflows and to avoid further currency weakness. The inflationary impact of recent currency weakness will also prevent rate cuts. In Russia, the negative effects of the oil price decline will hit the oil sector as well as reduce liquidity that has previously boosted bank lending. This will have a knock on effect on investment which will also act to rein in growth. We see growth dropping to 3.4% next year, half of this year’s projected 6.8%.

Latin America looks much less vulnerable than EMEA as leverage is lower and has been mostly financed by local sources, but there are material re-financing risks in Argentina, Ecuador and Venezuela, while the rest of the region is vulnerable to further sharp currency moves and corporate defaults. We have revised LatAm growth expectation further down as a reflection of a downward revision in global demand, a potentially meaningful reduction in external financing and FDI, and falling commodity prices. In addition, the associated currency weakness will be an important source of pressure on both corporate and bank balance sheets, and will probably limit the authorities’ room to apply counter-cyclical policies. Growth performance is expected to suffer the most in commodity exposed countries that at the same time have significant external financing needs, like Colombia, or Brazil and Peru to some extent. Mexico is already suffering from its closeness to the US economy and economic growth is going to continue slowing down next year from a low basis. In Brazil, the reversal of strong capital inflows in the past few years is likely to exacerbate the short term impact of the crisis but economic growth should go back to around 3.5% in 2010 despite a potentially feeble global recovery.

Risks

Uncertainties around forecasts are usually large. At this juncture they do seem unusually so. Our forecasting models have not seen the kinds of shocks that the global economy has been undergoing of late. Our ability to gauge not only how severe the credit crunch we are now undergoing will be, but also the response of consumer and business spending to such a credit crunch is woefully inadequate. Our new forecasts for global growth and inflation are significantly below recently published forecasts, yet we see both downside and upside risks. Financial conditions could deteriorate further and / or the credit crunch for the real economy could be sharper, and/or the reactions could be greater than we assume, inducing an even more severe recession in the industrial countries than we presently expect. On the other hand, the unprecedented policy measures already taken and further policy action could more effectively counter the downward pressures on growth than we have assumed. At present, we feel that these risks are broadly evenly balanced around our below-consensus forecast.

Some market participants and observers have voiced concerns that the significant increase in government debt on the back of fiscal stimulus programmes could induce a severe drop in bond prices and force governments to “monetise” the debt (i.e., have central banks buy bonds against newly created money). As a result, inflation could rise. We don’t share these concerns. In an environment where risk aversion reigns and inflation drops we expect investors to absorb the additional government bond supply without problem. We also expect central banks to absorb their massive liquidity injections once the financial

system is on the mend and the major economies are getting back on track. However, inflation risks could arise in the longer term as governments face massively increasing fiscal pressures associated with the retirement of the baby boom generation.

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(Based on contributions from Deutsche Bank's Global Markets Research economists)

Annex: Measures to Address Financial Crisis

This annex summarizes what policies measures have been taken to date to deal with the financial crisis. We have organized the measures taken in the context of steps that need to be taken ultimately to resolve the crisis. Specifically, central banks and Treasuries need to operate on three fronts to unfreeze financial markets, stop the global bank run, and get banks lending and economies moving again:

- (1) inject liquidity into/break immediate logjam in money and credit markets, most importantly now unsecured term lending;
- (2) bolster confidence in banks and other financial institutions and get these markets moving again by
 - (a) guaranteeing deposits or bank debt more broadly,
 - (b) recapitalizing banks both where equity ratios are below prudent levels and more broadly, and
 - (c) purchasing illiquid (toxic) assets, and
- (3) Pursue expansionary monetary and fiscal policies to counter a sharp economic slowdown and get financial institutions to begin lending and investing again.

The list below takes stock where we stand on these fronts, focusing primarily on actions taken over the past month. This list is followed by several tables that give more background information on the measures that have been taken.

Liquidity measures:

- The Fed has roughly doubled the size of its balance sheet during the current crisis, injecting more than \$1trn, including substantial secured term lending, but more remains to be done and implemented (most importantly unsecured term lending via the Fed's new CP facility, which will be implemented on Monday October 27).
- The BOE has roughly doubled its balance sheet as well, but the ECB has been much slower to expand liquidity, with its balance sheet growing only 7% since last August so far. The picture for the ECB is in the process of changing significantly in the future as banks tap both overnight and term funds the ECB is offering.

Re-building confidence in banks:

- Progress has been made in a number of European countries in guaranteeing bank debt, raising deposit insurance, injecting capital, and relieving banks of troubled assets or non-performing loans. Various political leaders in Europe have vowed not to allow systemic failures.
- US Bank deposit insurance has been raised to 250k; and the US has followed the European lead and guaranteed new bank debt..
- The US TARP has so far been devoted to large-scale injection of capital, and the GSEs should begin additional purchases of MBS very soon. Other TARP activities are likely at least several weeks of.

On the macro policy front:

- The Fed has cut rates aggressively, and key central banks have begun to cut in coordinated fashion.
- Fiscal stimulus packages (already in the works in the US) will be further developed over the next several months and most likely implemented by sometime in Q1.

List of specific measures taken²

1. Central banks' liquidity enhancing measures: US:

- Prior to mid-September, Fed's creation of TAF, TSLF, PDCF, swap lines with ECB and other central banks to inject liquidity into banking system.
- Since mid-September, the Fed has:
 - Expanded eligible collateral for PDCF and TSLF, increased frequency and size of TSLF auctions,
 - Eased restrictions on transactions between banks and broker-dealers
 - Implemented plan to loan banks funds to buy ABCP and buy agency discount notes (DN) outright
 - Increased swap lines to foreign central banks from \$290 billion to \$620 billion,
 - Increased the size of the 84-day TAF auctions from \$25 billion to \$75 billion, introduced forward TAF auctions
 - Begun paying interest on reserves to enable it to expand balance sheet without limit and without affecting monetary policy objectives
 - Established a system for unsecured lending (purchasing commercial

² See also our Deutsche Bank "Overview of Global Policy Initiatives," 16 October 2008.

paper)—to commence on October 27, 2008.

Euro area:

The ECB in recent weeks has:

- Announced fixed rate, full allotment tenders for main weekly refinancings from Oct. 14 until Jan. 20 at least.
- Announced narrowing of standing facilities rates corridor to 100bp from 200bp;
- Rised O/N dollar funding to USD100bn from USD70bn (USD165bn of a total FX swap of USD240bn has been utilized so far).
- Allowed more banks to participate in unscheduled cash auctions.
- Extended eligible collateral for its weekly long-term repo operations to include AAA-rated ABS and highly rated ABCP;
- Lowered the minimum rating required for collateral to BBB- from A-.
- Offered unlimited USD liquidity at a fixed rate

UK: BOE has:

- Extended its Special Liquidity Scheme.
- Provided US dollar funding.

Russia:

- Central bank extended unsecured loans to qualified banks for up to six months and introduces other measures.

(2) Measures to bolster confidence in banks and other financial institutions and get these markets moving again

(a) Guarantee of bank deposits or deposits/debt more broadly

US:

- US Treasury establishes two-year guarantee program for money market funds, effective as of Sept 29, 2008, to cover fund levels as of Sept 19, 2008, not beyond.
- FDIC temporarily allowed to borrow unlimited funds from the Treasury;
- FDIC deposit insurance increased from \$100,000 to \$250,000 for two years;
- Guaranteeing new senior unsecured debt including promissory notes, commercial paper, interbank funding, unsecured sections of secured debt issued between 14 October and 30 June 2009.

Europe:

- Irish government guarantees all deposits, covered bonds, senior and dated subordinated debt (until September 2010);
- Greek government initially announces plan to guarantees all bank deposits, but has since backed away from blanket guarantee.
- Belgium, Greece, Netherlands and Spain have each raised deposit insurance to EUR100,00.

- Germany makes political commitment to guarantee deposits;
- ECOFIN (European Union Finance Ministers) issue statement, including a set of principle on how European governments were to deal with bank interventions on a case-by-case basis. Pledge to let no systemically important bank fail. Minimum deposit insurance for EU members raised to EUR50k from EUR20k. Heads of State give a political guarantee that all deposits are safe;
- UK Treasury announced increase in deposit insurance to GBP50k from GBP35k;
- UK Treasury announced bank rescue plan including a GBP250bn bank debt guarantee scheme.
- In the wake of the Paris summit on October 12 several European countries presented new bank debt guarantee schemes.
- Germany passes law to set up special EUR500bn fund for bank recapitalization and guarantees of bank debt

(b) Bank recapitalization

US:

- Congress approves \$700 billion rescue package - Treasury authorized to purchase distressed assets, including bank stock. \$125bn of capital to be injected into banks. Nine major banks have already received capital.

Europe:

- ECOFIN (European Union Finance Ministers) issues statement, including a set of principle on how European governments were to deal with bank interventions on a case-by-case basis. This ratifies the recent country-by-country approach to take-over, re-capitalise, or guarantee troubled banks.
- After the Paris summit of October 12 Germany, France Italy, and several smaller countries presented sizeable bank recapitalization programme (in magnitudes equivalent to 2%-3% of GDP). Germany passes law on October 16-17.
- On October 13 the UK Treasury injected fresh capital in the amount of GBP37bn into several key UK banks.

(c) Purchase of illiquid (toxic) assets.

US:

- Congress approves \$700 billion rescue package - Treasury authorized to purchase distressed assets. Setting up auction process or other method to price and purchase these assets could take another 3-4 weeks.
- The GSEs are authorized to purchase up to \$200 billion distressed MBS, purchases to begin very soon at rate of \$40 billion per month.
- Spain announced that it will spend up to EUR30bn in Q4'08 with a further EUR20bn

available next year. The fund will purchase AAA asset-backed bonds and other high-quality bonds via auctions. The government will issue bonds to finance the fund.

Other market-oriented measures:

- US and UK tighten restrictions on net short positions on financial stocks;
- US relaxes mark to market accounting rules slightly;

3. Macro stimulus policies.

US:

- Fed cuts rates 325 bps between 9/07 and 3/08

Europe:

- Stability and Growth Pact effectively suspended.

All:

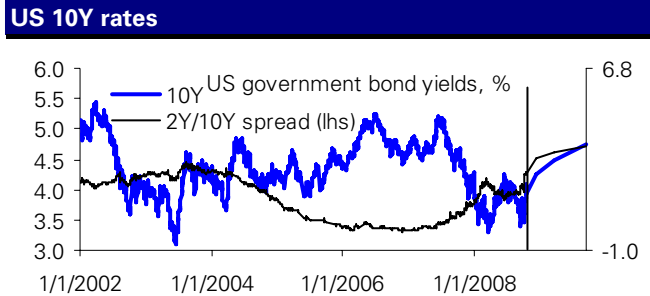
Coordinated 50 bp rate cut by all major central banks (except BOJ).

Financial Forecasts

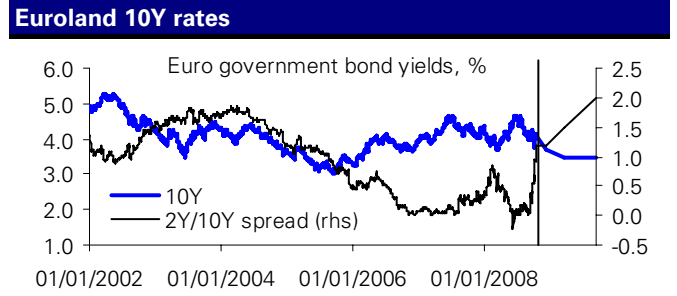
		US	Jpn	Euro	UK	Swe	Swiss	Can*	Aus*	NZ*
3M Interest Rates¹	Actual	4.42	0.88	5.02	6.16	5.44	3.09	2.50	6.00	7.50
	Dec08	2.75	0.85	3.80	5.10	4.00	2.50	2.00	5.50	6.00
DB forecasts & Futures	futures	2.75	0.83	4.00	4.85	5.51	2.38	—	—	—
	Mar09	2.40	0.60	2.75	4.50	3.50	2.25	2.00	5.00	5.50
	futures	2.37	0.77	3.51	3.97	5.46	2.28	—	—	—
	Sep09	1.75	0.60	1.90	3.10	3.00	2.00	2.00	4.50	5.25
	futures	2.39	0.80	3.36	3.75	2.21	2.43	—	—	—
10Y Gov't² Bond	Actual	3.94	1.60	4.07	4.72	3.71	2.94	3.74	5.25	5.89
	Dec08	4.25	1.40	3.70	4.30	3.75	2.70	3.75	5.25	6.00
Yields/ Spreads³	forwards	3.94	1.62	4.06	4.68	3.59	2.92	3.81	5.32	5.87
	Mar09	4.50	1.40	3.50	4.20	3.80	2.60	3.50	5.00	5.75
DB forecasts & Forwards	forwards	3.97	1.64	4.05	4.63	3.54	2.97	3.89	5.37	5.88
	Sep09	4.75	1.40	3.50	3.90	3.75	2.70	3.00	4.50	5.50
	forwards	4.03	1.67	4.04	4.54	3.60	3.08	4.07	5.45	5.92

		EUR/USD	USD/JPY	EUR/GBP	GBP/USD	EUR/SEK	EUR/CHF	CAD/USD	AUD/USD	NZD/USD
Exchange	Actual	1.35	101.6	0.78	1.73	9.97	1.53	1.18	0.69	0.61
	3M	1.45	100.0	0.76	1.91	9.85	1.56	1.07	0.78	0.62
	6M	1.43	99.3	0.76	1.88	9.83	1.56	1.08	0.77	0.61
	12M	1.38	97.8	0.76	1.81	9.78	1.56	1.11	0.75	0.60

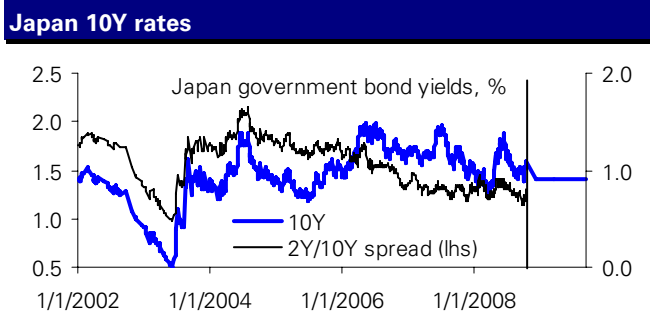
(1) Future rates calculated from the June, September and March 3M contracts. Forecasts are for the same dates. * indicates policy interest rates.
 (2) Forecasts in this table are produced by the regional fixed income strategists. Forwards estimated from the asset swap curve for 2Y and 10Y yields.
 Sources: Bloomberg, DB Global Markets Research. Revised forecasts in bold type. All current rates taken as at Friday 11:00 GMT.



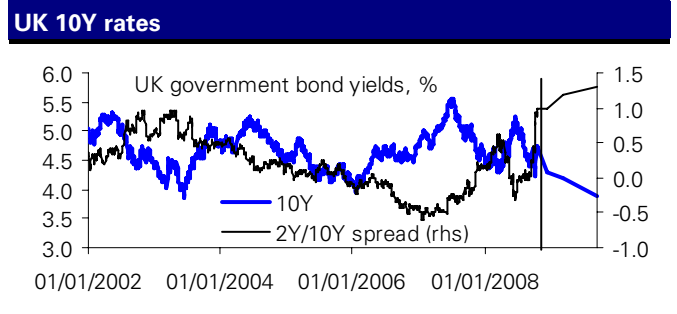
Source: DB Global Markets Research



Source: DB Global Markets Research



Source: DB Global Markets Research



Source: DB Global Markets Research

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Global	<p>Dbdaily – European Edition (daily) Dbdaily – Asian Edition (daily) Dbdaily – Pacific Edition (daily)</p> <p>Global Economics Perspectives (weekly)</p> <p>The World Outlook (quarterly)</p> <p>Global Macro Issues (occasional paper series)</p> <ul style="list-style-type: none"> ▪ How far could US Home Prices Fall? (Oct 5, 2007) ▪ Why Hasn't Homebuilding Employment Dropped? (July 10, 2007) ▪ Is Emerging Asia Holding Down US Inflation (Feb 26, 2007) ▪ Evolution in Bretton-Woods II: Controlled Reflation as the Path of Least Resistance (Dec 7, 2006) ▪ US Trend Employment Growth Has Fallen To 100,000 Per Month (Dec 6, 2006) ▪ Understanding MEW and How It Is Spent (Nov 17, 2006) ▪ Financial system modernisation and economic growth in Europe: Financial markets as risk managers for the economy (Oct 27, 2006) ▪ Housing and the US Consumer: What Foreign Experience Has to Say (Oct 16, 2006) ▪ The Transatlantic Productivity Divide: Reasons and Consequences (Oct 13, 2006)
US	<p>US Daily Economic Notes (daily) US Economics and Strategy Weekly (weekly) US Housing Watch Monthly (monthly)</p>
Europe	<p>European Daily Economic Notes (daily) UK Daily Economic Comments (daily) Europe Inflation Report (weekly) Focus Europe (weekly)</p>
Japan	<p>Japan Economics Weekly (weekly)</p>
Emerging Markets	<p>Emerging Markets Daily – European Edition (daily) Emerging Markets Daily – Asian Edition (daily) Emerging Markets Daily – US Edition (daily) EMEA & LatAm Event Radar (weekly) EMEA & LatAm Monetary Policy Rate Calls (bi-weekly) Emerging Markets Monthly (monthly) EMEA & LatAm Balance of Payment Monitor (quarterly) Emerging Markets Special Publications (occasional series)</p>
Dollar Bloc	<p>Dollar Bloc Weekly (weekly) Australian Economics Monthly (monthly)</p>
Asia	<p>Asia Economics Daily (daily) Asia Economics Monthly (monthly) Real Exchange Rate Monitor (monthly)</p>

