

# China Watch

**Economic Research Department** 

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China's real GDP grew by 6.1% in Q1 2009 amidst a sharp global recession. Although the Q1 growth has continued to weaken from 6.8% in Q4 2008, the economy has been bottoming up and a relatively vigorous recovery can be expected in Q2, as domestic policies gain more traction, inventory depletes, and the difficult external environment stabilizes.

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#### **Executive Summary**

- China's real GDP grew by 6.1% in Q1 2009 amidst a sharp global recession. Although the Q1 growth
  has continued to weaken from 6.8% in Q4 2008, we think the economy has been bottoming up and a
  relatively vigorous recovery can be expected in Q2, as domestic policies gain more traction, inventory
  depletes, and the difficult external environment stabilizes.
- The continued slide in Q1 growth was led by weak external demand, which in turn depressed economic activities and industrial profits. Although export related economic activities remain sluggish, domestic demand held up well. Real retail sales remain robust growing over 15% in the last four months, while growth in real fixed assets surged to over 30% as more new projects benefiting from the fiscal stimulus have started in earnest.
- The massive fixed asset investment has depleted the inventory at a fast pace. Inventory destocking
  would faciliate the industrial output to accelerate in Q2. Meanwhile, Chinese banks have pumped in a
  huge amount of credit into the economy to accommodate the stimulus package. The favorable
  monetary conditions plus expansionary fiscal stimulus should bolster the economy going forward.
  Specifically, industrial production related to infrastructure spending should accelerate.
- Given the considerable slack remaining in the economy, CPI inflation continued to fall, entering negative territory already in March. Falling food prices and a large base effect contributed to the fall in CPI inflation. Meanwhile, thr producer price index fell by 4.6% in Q1, due to the sharp correction of commodity prices. However, we do not think these price developments will necessarily lead to sustained deflation in China, because M2 and credit growth have been growing at an unprecedented pace and the economy is expected to expand more robustly going forward. In fact, the current price falls could have an expansionary effect for both private consumption and industrial production, as they relax consumer budget constraints and reduce the costs of production inputs.
- Looking forward, given the full implementation of the large fiscal stimulus package, we expect the
  Chinese economy to recover more robustly in Q2. We therefore continue to maintain our call that
  China will be able to achieve its growth target of 8% this year because of the massive fiscal stimulus
  package, ample room for further monetary ease, and the government's strong command of the
  economy.
- While we continue to maintain our upbeat outlook for the Chinese economy, there are a number of downside risks and uncertainties surrounding this outlook.
- First, China's economic recovery remains quite fragile so that it looks premature to talk about monetary tightening. In particular, economic growth in China's coastal region and other export-oriented provinces (Shanghai, Zhejian, and Guangzhou) has remained quite sluggish. The authorities would need to nurture the currently fragile recovery via continuous and effective implementation of existing policies and should be ready to resort to further policy stimulus if necessary. Any premature monetary policy tightening or withdrawal of policies at this juncture is likely to falter the efforts made over the last several months.
- Second, while we do not view the risk of deflation as a major one, the probability of a deflation risk has
  increased as price falls in recent months have been larger than expected. This requires the
  accommodative monetary policies to stay for some time and, possibly, additional measures. In addition,
  the government could use this opportunity to speed up price reform in energy, water, and electricity
  sectors
- Finally, a slower than expected global recovery and a potential H1N1 (swine) flu pandemic could potentially undermine our relatively upbeat recovery scenario. First, a slower and weaker global recovery would continue to weigh on Chinese exports, unemployment, and growth. Second, although the current evidence suggests that the swine flu is less lethal than the SARS which hit Southern China in late 2002 and early 2003, vigilance and careful preventions are still required. The threat of a pandemic is also an opportunity for the government to pay more attention to the public health system that is in need of urgent upgrade.

#### **Recent Economic Developments**

#### 1. GDP Growth and Economic Activities

China's real GDP growth decelerated further to 6.1% in Q1 from 6.8% in 2008Q4, led by a sluggish external demand, which depressed exports and overall economic activities, while domestic consumption and net exports remained solid (Chart 1).

Indeed, the deceleration was consistent to some measures of economic activities. Exports slumped 20% (Chart 2), which was affected by a much weakened external demand. But the pickup in industrial production offset the fall in exports. Value-added industrial production grew 11% yoy in February and 8.3% in March, recovering from last quarter's bottom, which was driven by the enterprise restocking (see Box 1) and that stimulus package has started to take effect.

Meanwhile, slowing growth has also affected industrial profits and household income. Growth in industrial profits fell to -37% yoy in the first two months of 2009, compared with 16.5% over the same period in 2008. But the statistics, from 138 the largest state-owned enterprises by State-owned Assets Supervision and Administration Commission, showed their profits in March rose 85.7% on a month on month basis. Nominal household disposable income was further moderated to 10.2% yoy in 2009 Q1 from 14.7% yoy in 2008, but real disposable income continues to rise (Chart 3).

Retail sales continued to Maintain a fast pace. Although nominal retail sales grew only by 15% yoy in Q1, compared with 21.6% yoy in 2008, real retail sales grew by 16.4% yoy in 2009Q1, faster than the 14.8% yoy growth in 2008 Q1(Chart 3).

Led by fast implementation of the fiscal stimulus package and rapid credit extension by commercial banks, fixed asset investment (FAI) in nominal terms in Q1 rose 28.8% yoy to 2.81 trillion yuan (\$411.4 billion), compared to 23.4% yoy in 2008 Q4 and 28.8% yoy in 2008 Q3. The yoy growth in March was 30.3%, up from 26.5% in Jan-Feb, while the real FAI growth picked up even faster to 38.6% in March from 32.4% yoy in Jan-Feb on falling producer prices (Chart 4).

As the overall FAI held up well, China's property market began to rebound in the first quarter with surging transaction volumes. As a result, FAI growth in the real estate sector has rebounded, registering 11% yoy increase in March (Chart 4). Despite real FAI growth was extremely high in Q1, the real GDP growth remains moderate. The reason might lie in the fact that the investment consumed the accumulated inventory and inventory destocking offset the impetus from FAI. As the destocking process is coming to an end, the effect from both FAI and restocking should push economy to grow much faster in Q2.

Chart 1: Real GDP growth

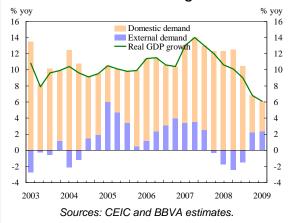


Chart 2: Industrial production and exports

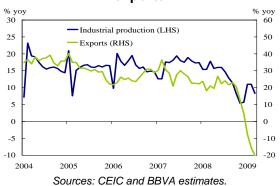


Chart 3: Real retail sales and income

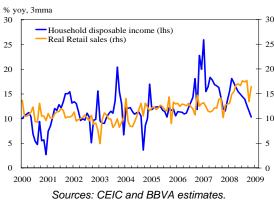
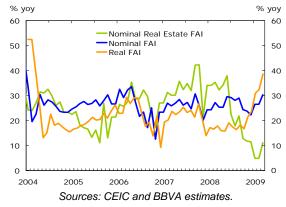


Chart 4: Fixed asset investment



#### 2. External Trade

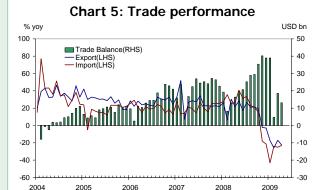
China's exports contracted further by 19.72% yoy, but imports decreased by more sharply of 30.94% yoy in the first quarter. The drop in exports was narrowed to -17.12% yoy in March, -22.6% in April from a decline of 25.73% in February benefiting from the stabilization of a rapid fall in external demand. Imports dropped by 25.14% yoy in March and 23% in April, improving from -43.08% in January. Trade surplus thus continued to remain substantial at USD 62.5 billion in the first quarter (Chart 5).

Although the decline in China's exports and imports was narrowing in the first quarter, the outlook for a quick rebound remains remote as the developed countries still show little signs that their economy will recover quickly any time soon in spite of some recovery in US PMI in April. Given the close relation between China's exports and US PMI, we expected the exports to stabilize and even rebound somewhat in Q2 (Chart 6). But the recent outbreak of the Swine or H1N1 flu virus might continue to delay the global trade recovery, thus further dampening the already jittery exports.

Meanwhile, import growth in Q1 decreased to -30.7% yoy from -8.1% in 2008 Q4, largely reflecting the lower oil and commodity prices than last year and the de-stocking process. Because China's export size is about 1.5 times as large as China's import size, trade surplus climbed to USD 62.5 billion in the first quarter, which is USD 21.1 billion higher than that in the same period of 2008. Thus, the contribution of net exports to GDP growth should remain highly positive in Q1, despite export slowdown.

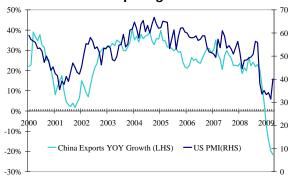
Looking forward, China's export growth should continue to decline in Q2, but an improvement in new export orders recently suggested the decline may have been bottoming out. However, the recovery in export growth will remain a fragile one as signs of economic recovery are yet in sign.

On China's exports by destination, exports to US dropped -15% from 0% in 2008 Q4. As China's largest trading partner, EU imports from China fell to -21.8% from 4.2% in 2008 Q4 (Chart 7). The recent economic talk between Chinese Vice Premier Wang Qishan and EU Trade Commissioner Catherine Ashton reassured that trade and investment are important to both economies as they will play a role in pushing economy out of the current crisis. We expect that ensuing trade and investment deals could reverse the falling demand.



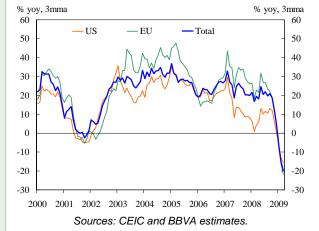
Source: CEIC.

Chart 6: China Export growth and US PMI



Sources: CEIC and BBVA estimates.

**Chart 7: Exports by markets** 



#### **BOX 1: Inventory De-stocking**

Chinese inventory cycle exhibits a clear seasonal pattern: The inventory level (the ratio of inventory to total assets) at the beginning of the year usually stays at the lowest level, partially due to the Chinese New Year effect as the factories close or reduce capacity during the holidays (Chart B 1.1). Then, the inventory level gradually picks up in the following quarters. This pattern is relatively stable from 2002 to 2007. However, the inventory cylce in China has experienced h a much higher volatility after the eruption of the global financial crisis.

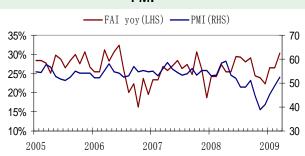
The average inventory level, proxied by the ratio of inventory to total assets, peaked in Oct-Nov in 2008. Because of the sudden decline of the global economy after the Lehman collapse, enterprises couldn't sell their products as usual, leading to high level of inventory. On top of that, firms had accumulated more raw materials to hedge the risks of further hikes in commodity prices before the collapse in July 2008. The ensuing collapse of the commodity prices, together with diminishing demand, has pushed the unused materials and unsold products to a record high. As a result, the inventory increased sharply in the Oct-Nov of 2008 (Chart B1.1).

Benefiting from the massive and timely stimulus plan, enterprises have seen their inventory worked out at a fast pace (Chart B1.2). In the first two months, inventories stood at the lowest level during the seven years. Moreover, industrial output remained low in the first quarter, on a yoy basis, industrial output only gained 0.09%, compared to 28% in the same period of last year. However, the very slow pace in industrial production was mostly offset by the rapid de-inventory process, led by rapid growth in fixed asset investment. Once the inventory pile-up is fully digested, industrial production will pick up again. The recent rebound of PMI to 53.5 suggests that industrial production and fixed asset investment will grow even faster in Q2 (Chart B1.2).

Chart B1.1: Inventory and Production Cycle in Mining and Manufacturing Sector



Chart B1.2: Fixed Asset Investment and PMI



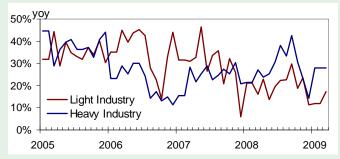
Sources: CEIC and BBVA estimates.

Specifically, the fixed asset investment totalled to 2.36 trillion yuan in 2009 Q1, up 524 billion yuan from the same period of last year. The rapid FAI growth is consistent with the extra spending target of the stimulus package. In terms of sectoral distribution, FAI has so far been concentrating mainly on infrastructure and heavy industries (Chart B1.3). FAI growth in heavy industry is more than ten percentage points higher than that in light industry, reflecting the FAI growth was driven by government stimulus package while the investment in light industries with more exposure to external demand remained sluggish. Meanwhile, the ratio of sales to industrial output also supports this: The ratio sales to industrial output rebounded in heavy industry, but the ratio in light industry was still falling (Chart B1.4).

Massive fixed asset investment in heavy industry consumed a lot of basic materials, such as coal, steel, copper, etc. Consequently, the inventory level in such industries was lowered as shown in Chart B1.5. Among 11 industries with the largest inventory fall, most were connected to fixed asset investment and construction.

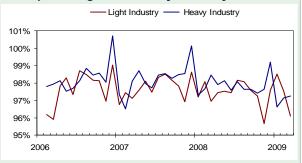


Chart B1.3: Fixed Asset Investment in Heavy and Light Industries



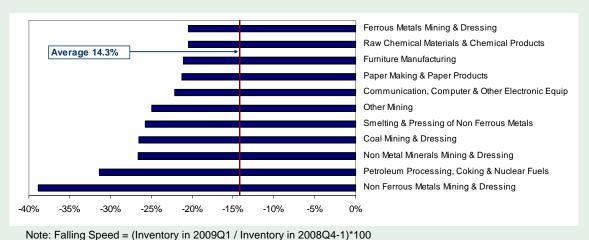
Sources: CEIC and BBVA estimates.

Chart B1.4: Ratio of Sales to Industrial **Output in Light and Heavy Industry** 



Sources: CEIC and BBVA estimates.

Chart B1.5: Industries Ranked by the Inventory Falling Speed from 2008Q4 to 2009 Q1



Sources: CEIC and BBVA estimates.

In sum, the inventory destocking is largely facilitated by rapid growth in fixed asset investment led by the government's fiscal stimulus package. Since FAI is currently concentrated in infrastructure related sectors, inventories in heavy industry sector depleted faster than those in the light industry sector, which is still affected by weak external demand. We expected that when government stimulus package has been fully implemented in the second and third quarter, the rapid pace of production related to infrastructure spending will be accelerated. If supported by a stabilization of external demand, the light industrial sector is also likely to rebound. As a result, we could see a stronger recovery of the economy in Q2.

#### 3. Inflation

The disinflation process accelerated in the first quarter and entered the deflation zone in February. CPI inflation fell to -0.6% yoy in the first quarter from 2.5 % in last quarter, with the March and April CPI inflation reaching -1.2% and -1.5%, respectively (Chart 8). The fall in CPI was led by both falling food prices and non-food prices (Chart 9), with food prices contributing -0.23 percentage points and non-food prices -0.97 percentage points in March. In the food part, the prices of rape oil and fresh pork, the main factors behind the surges in inflation in 2008, fall sharply after 2008 Q3. Pork prices are expected to decline further due to over supply, as farmers had been raising more hogs since the pork prices began to climb up in the first half of 2007 (Chart 9).

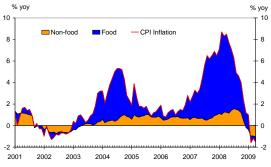
While imported inflation from international energy and commodity prices has also eased sharply, with prices in base metals falling 19.4% and Iron & steel falling 14.1% (Chart 10).

Given slower domestic demand and much more depressed commodity prices, PPI deflation accelerated by dropping -4.6% yoy in the first quarter from 2.5% in 2008Q4, with -6.0% in March. PPI fell much more in industrial goods (Chart 11).

Since China's PPI inflation is highly correlated to price changes in international commodity prices, the pass-through effect on PPI inflation will continue to affect CPI inflation in the near term (Chart 12). According to our estimates, a 10 percent decrease in commodity prices will likely lead to a 1.2 percent fall in PPI inflation and a 0.22 percent fall in non-food inflation. Given the commodity price was still falling, China probably will see some further declines in consumer and producer prices in April.

However, we do not think deflation will become a serious problem in China with rapid credit growth, increased farm subsidy, and pending reform in energy policy. In fact, we think the current fall in prices could play an expansionary role for the economy as input costs for enterprise are being reduced and the budget constraints for consumers enlarged. As fiscal stimulus and expansionary monetary policy continue to work through the economic system, prices will start to increase again, albeit at a modest pace.

**Chart 8: CPI inflation** 



Sources: CEIC and BBVA estimates.

Chart 9: Retail prices of selected food

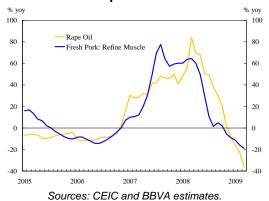


Chart 10: Prices of imported metals

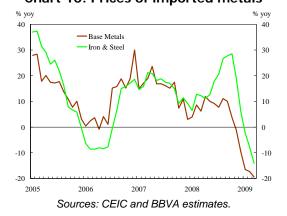
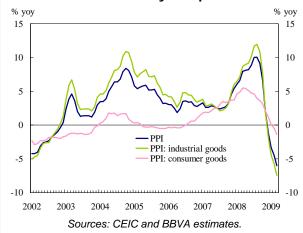
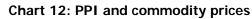
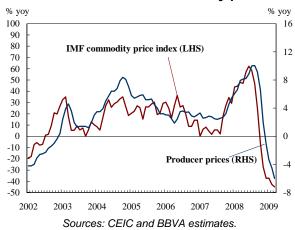


Chart 11: PPI by components









#### 4. Monetary conditions

Broad money (M2) growth picked up drastically to 25.5% yoy in March from 17.82% yoy in last quarter, while credit growth rose sharply to 29.8% yoy from 18.76% in last quarter (Chart 13). In April the growth rates of M2 and credit have been moderated to 26% and 29.8%. The surges in money supply and loans indicate that the aggressive monetary policy eases (interest rate cuts by 216 bps and reserve requirement ratio cuts by 200bps (400bps for small- and medium-sized financial institutions)) by the People bank of China (PBoC) have started to work (Chart 14).

Chinese banks, unlike their western counterparts, appear to have high incentive to lend because of their predominately state-ownership and profitability concerns under a low interest environment. The earmarked government spending has also provided new opportunities for banks to lend.

In addition, the much improved banking sector health also provides a good ground for banks to lend on much improved liquidity conditions. The NPLs in the banking system have fallen sharply, where the latest NPL ratio for major banks dropped to 2.0% in the first quarter, 0.5 percent point lower than that in the end of 2008, mainly because the write-off of NPLs from Agricultural Bank of China. In terms of loan structure, it appears that discounted bills accounted for a large segment of lending in Q1. This suggests that banks are still quite cautious about lending to firms under the current economic environment, although this has become lesser a problem in March and April.

Despite the surges in loans, small and medium enterprises are reported to continue having difficulty in getting adequate funding from the banking system. Given the importance of SMEs in creating jobs, how best to serve this segment of clients of commercial banks without necessarily increasing NPL risks remains a challenge for the Chinese banking system.

Chart 13: M2 and credit growth

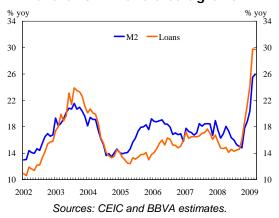
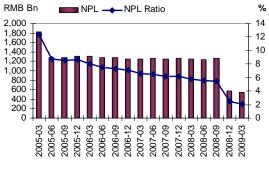


Chart 14: NPL and NPL Ratio



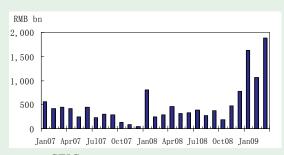
Source: CEIC.

#### Box 2: Why Did Discounted Bills Surge in Q1?

After the announcement of the two-year, 4-trillion-yuan stimulus plan last November, the People's Bank of China, the central bank, have cut both interest rate an reserve requirement ratio by 216 bps and 200 bps, respectively. In addition, the Chinese banking regulator has also abolished quotas on lending. Unlike their counterparts in the West, the Chinese banks are well capitalized and filled with ample liquidity. Under a more relaxed monetary policy, they have extended loans at rapid pace since the December 2008 (Chart B2.1). In the first quarter of 2009, Chinese banks increased loans by 4.58 trillion yuan, close to the annual target of 5 trillion yuan. On a monthly basis, new loans were 1.6 trillion yuan in January, 1.07 trillion yuan in February, and 1.89 trillion yuan in March. In fact, surges in bank loans in Q1 are not new. Because of the way that credit target was usually set at the beginning of a year, it appears the earlier the banks granted loans, the more income they will make during the year.

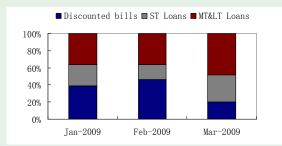
What is new for the Q1 credit number is that the discounted bills accounted for a large segment of loans extended in Q1 (Chart B2.2). Though the March loan figures suggested some normalization, it remains sizable compared with historical averages. On the type of borrowers, credits granted by large state-owned banks principally concentrate on the government sponsored infrastructure projects, while joint stock banks placed special emphasis on local high-quality enterprises.

Chart B2.1: Monthly New Loans Extended



Sources: CEIC.

**Chart B2.2: Composition of New Loans** 



Sources: CEIC

#### 2.1 Reasons for the Surge in Discounted Bills

Discounted bills usually took a small share, ranging from 5%-10% from 2008 onwards (Chart B2.2A). But In the first two months, the discounted bills recorded an explosive growth, even accounting for more than 40% in the new loans. The following factors might explain the reasons why this has happened.

The surge in discounted bills during Jan-Feb is partially due to the factor that banks are still risk averse. Given the great uncertainty regarding firms' ability to repay loans in a deep financial crisis, the banks preferred short term credit. This also shows that Chinese banks are concerned of risks after years of reforms and improvement in risk management. Besides, interest rates for excess reserve and central bank bills were low, at less than 1%, and the interest rate of discounted bills is at around 1.5%. So banks had the incentives to discount bills.

From the banks' perspective, at the beginning of a year, many banks made ambitious expansion plans for 2009 with the removal of the loan quota. Therefore, banks need to maintain enough deposits to boost their expansion. It appears that banks would like to utilize bank acceptance bills as the major instrument to extend credits. Upon banks' acceptance, the clients need to deposit a portion of their money beforehand as collateral. So the banks' acceptance bills off-balance sheet is a good method to absorb deposits. A coexisting phenomenon with bills surge is that the corporate time deposits should rise at the same time. As depicted in Chart B2.3, the corporate time deposits did grow, but the demand deposits declined in January. Also, the growth rates of M1 and M2 that deviated most in January show corporate deposits moved from demand to time category (Chart B2.4).

From the borrowers' perspective, the bills discount rate is lower than the short-term time deposit interest rate (Chart B2.5). The average discount rate for bills dropped to 1.3-1.8% in the state-owned banks in the

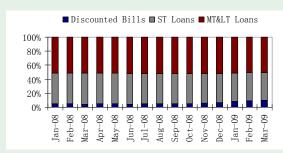


Yangtze River region and the Pearl River Delta region, which are 20-70 basis points (bps) lower than the sixmonth time deposit rate of 1.98%. So the arbitrage opportunity existed.

Finally, there is also chance of double counting. If the bills were discounted from the first bank to the second bank, i.e. inter-bank discounting, and the second bank still had the recourse to the first bank, then the same bills would be recorded in both banks' asset entries.

The benefits for bank bills lie in that if the bills are discounted, the return is higher than central bank bills. For the clients, they can either use the bills for payment or they can discount the bills directly to get money if cash is needed. That is why the discounted bills increased fast in Jan-Feb. After Feb, demand deposits started to grow faster than time deposits (Chart B2.3) and M1 started to pick up (Chart B2.4). It looks like the credit market is back to normal.

**Chart B2.2A: Composition of Total Loans** 



Sources: CEIC.

Chart B2.4: M1 and M2 YoY Growth

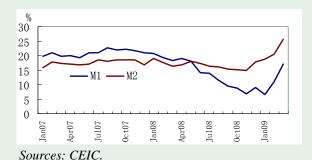


Chart B2.3: Corporate Demand Deposits and Time Deposits MoM Change



Sources: PBOC.

Chart B2.5: Discount Rate and Time Deposit Rate



1/: The discount rate is the average rate of 6-month bills discounted at the banks of Yangtze River Delta and Pearl River Delta

Sources: CEIC and China Bills Website

#### 2.2 Which banks have the most discounted bills

The attitude towards the discounted bills varied greatly among the listed banks: Bank bills discounted in Bank of Communications was even larger than the total new loans at the cost of decrease in new common loans, while in China Industrial Bank, the discounted bills accounted for only 10.9% in new loans granted in the first quarter.



**Table B2.1: New Loan Structure in Listed Banks** 

	Total New Loans	New Dis	counted bills	New	Common Loans
		Amount:	% of total	Amount:	% of total
	Amount: bn yuan	bn yuan	loans	bn yuan	loans
Shenzhen Development Bank	35. 7	20.5	57.3%	15. 2	42.7%
Bank of Ningbo	4.5	0.6	12.1%	4.0	87.9%
China Merchants Bank	119. 2	80.6	67.6%	38.6	32.4%
China Industrial Bank	85.8	9.3	10.9%	76. 4	89.1%
Bank of Communications	75.6	87.3	115.5%	-11.7	-15.5%
Industrial & Commercial Bank	636.4	201.3	31.6%	435. 1	68.4%

#### 5. Asset prices

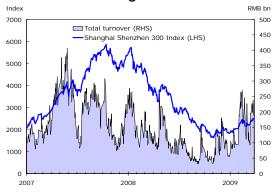
China's stock prices rebounded strongly in the first quarter. The Shanghai and Shenzhen 300 index surged 38% over the period, while the turnover in 2009 Q1 was twice as much as that in 2008Q4. The PE ratio also stayed at a sustainable level, around 16 times, compared to the peak of 70 times in October 2007. However, PE ratio may not be a good indicator to gauge market outlook as companies' earning tend to more volatile than a normal period in an economic downturn (Chart 15). The recent rebound showed that investors were confident about the prospect of Chinese economy. The relaxed monetary policy conditions might be another reason for the recent rebound of the stock market. In Q1, about RMB 4.58 trillion new loans were injected into the economy; some of them might find ways into the stock market.

As shown in Chart 16, the expected circulation of previously locked shares (or non-traded shares) continues to act as dampening effect on China stock market as the peak of non-traded shares to be unlocked will not be reached until late 2009, which will bring downward pressures to stock market. This downward pressure will be mitigated by the fact that the proportion of small shareholders this round only accounts for a small part while institutional investors are the big holders of non-traded shares.

The residential property prices registered a yoy decline in the first quarter, but the decline has narrowed in recent months, especially in cities such as Shenzhen. Since the middle of 2008, China's residential property prices have started to cool, after a sharp increase in property prices in preceding years (Chart 17). Housing price growth in Shenzhen recorded a large negative yoy growth of 16.3% in January, but the fall has started to narrow from February, representing the property market started to warm up again on government incentive policies. The increase in property transaction may reinforce economic recovery, as the housing and construction sector is linked with many other industries.

It seems China's housing market is facing a turning point. However, our housing valuation measures, estimated based on the supply and demand conditions of major Chinese cities, suggest that the housing prices in Beijing, Shanghai, and Shenzhen are currently overvalued by about 16%, 18%, and 20% from their respective equilibrium prices. However, the current resident housing prices in the Guangzhou appear to be reasonably priced, when compared with our equilibrium valuation measures. Box 3 provides an analysis on the outlook of China's residential housing market based on our recent publication, The China Real Estate Watch, May 2009.

Chart 15: Stock market slumps and trading shrinks



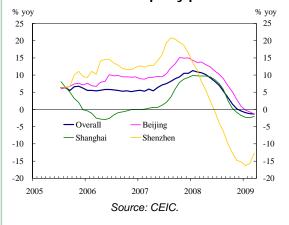
Source: Wind Financial.

Chart 16: Circulation of unlocked shares



Source: BBVA estimates.

Chart 17: Property prices





#### Box 3: How Would China's Residential Market Fare in an Economic Downturn?

After a period of surges in residential housing prices, China's real estate market started to cool in the middle of 2008, largely because of the tight monetary policy and other administrative measures that were implemented at the end of 2007 in an attempt to rein in real estate investment and rapid rise in housing prices. Indeed, the ensuing global financial crisis after the collapse of Lehman Brothers in September 2008 has quickly changed the outlook on residential housing in China. The nationwide housing price has experienced a decline for the time in a decade from December 2008 onwards. In some large cities, the fall in prices has been substantial. For example, Shenzhen, a city that has a high reliance on exports, has seen its monthly housing prices drop by over 15% in recent months (Chart 20). Though still moderate, Beijing and Shanghai have also started to experience falls in their housing prices.

Nationwide

200

Year-on-year growth

3-month moving average

6-month moving average

70-100

90-101

90-101

90-101

90-101

Sources: CEIC and BBVA estimates.

**Chart B3.1: Property Sale** 

While there is little doubt that China's residential property market has a bright long-term investment potential supported by long-term growth prospects, rapid urbanization, and high urban population densities, how will China's residential property market fare in the current global financial crisis? Specifically, will the residential property market experience a hard landing? How much more downward adjustment is expected? Are there any differences in terms of the adjustments among key cities in China such as Beijing, Shanghai, Shenzhen, and Guangzhou?

Despite the recent pick up of transaction volumes as show in Chart B1, we think that some downward price adjustments are unavoidable in the near term given the current global economic downturn and the near-term oversupply in the commodity housing segment. Because of rather high growth in real estate investment over the last two years, many projects are expected to be completed in 2009 and 2010. At the national level, we do see some oversupply in the near term, especially in the category of commodity housing segment (Charts B3.2 and B3.3).

Chart B3.2: Housing completed (Millions of sq m)

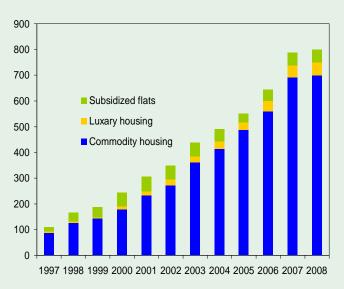
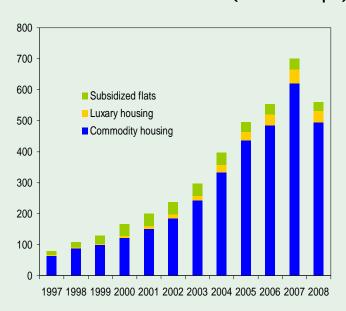


Chart B3.3: Transaction volumes (Millions of sq m)



Given the completed square areas and using different sales volume based on some assumptions, we find that it will take 3 to 4 years to digest the current existing new stock of housing. This supply factor is likely to continue to put downward pressures on existing housing prices in China.

Table B3.1: Expected Time to Sell out the Existing Stock of Floor Space

Assumption on selling speed	Date of Sell out
Same as in 2008	Nov 2012
Same as in 2009 Q1	Mar 2012
Average of previous 10 years	Oct 2014
80% of 2008 transaction	Oct 2013

Sources: Wind and BBVA estimates.

Indeed, this observation is also supported by our valuation analysis using a demand and supply framework at the individual city level. As shown in Table B3.2, the housing prices in Beijing, Shanghai,



and Shenzhen are currently overvalued by about 16%, 18%, and 20% from their respective equilibrium prices. However, the current residential housing prices in the Guangzhou appear to be reasonably priced, when compared with our equilibrium price measure. We also observe some overvaluation in some second-tier cities such as Chongqing and Tianjin in the order of 20% to 25%. Given there is not much over valuation at the national level, our forecasts for the national level was about 5-10%.

Table B3.2: Estimated Over- and Under-Valuation of Residential Housing Prices in Chinese Cities

Cities	Estimated Over- or Under-Valuations
Beijing	16%
Shanghai	18%
Shenzhen	20%
Guangzhou	-0.8%
Chongqing	20%
Tianjin	25%
Memo	
Nationwide	5-10%

Source: BBVA China Real Estate Watch, May 2009.

That said, we do not think housing prices in China will experience a hard-landing. In addition, this downward price adjustment will not be a long-lasting one, either, as what experienced in Japan, Hong Kong, and the US, largely because of some favorable factors such as high saving ratio, favorable demographics, rapid urbanization trend, steady demand for quality housing, and emerging demand for housing as an asset class in investment portfolio.

Other than these longer-term structural issues, both central and local governments have reacted quickly by issuing various supply management and demand stimulus policies. Furthermore, reduced interest rates and loosening lending policies towards the real estate sector also help stimulate the property sectors. In addition to these existing policies, we think further policy initiatives are still needed to prevent a hard landing scenario from materializing. Here are some proposals.

**Demand policies:** In general, we think local government policy initiatives to reform resident registration system to expand urban population can help stimulate demand, thus easing the fall in residential property prices. Indeed, some local governments have already used housing purchases as an incentive to gain urban resident registration. This policy could go even further by setting up a set of transparent qualification criteria to allow migrants to gain residency in urban areas. The Shanghai experiment that allows non-residents to obtain residency with specific criteria to qualify is a right step in the right direction. These measures will not only speed up the urbanization process in China but also help alleviate short-term surplus of housing units in the urban area.

**Supply policies:** Accelerated urban renewal program helps create demand for existing stock of surplus housing. Indeed, from our field interviews, cities such as Chongqing, Tianjin, and Qingdao have ambitious plans to engage in large scale urban renew programs in the coming years. These urban renewal programs will involve demolition of old city districts and immediately create demand for people who will be permanently or temporarily relocated out from the affected area. However, this policy also needs to be sensitive to the demand of people who are going to be relocated so as not to stir up social resentments and discontents.

Constructing more and providing affordable rental housing by local governments for low income families and migrants is a good policy to solve the housing problem for the poor. Such policies will not have much impact on existing housing prices as this segment of the population can not afford to buy into the current market given their income level and savings.



However, because of the current economic downturn, more government-provided economic housing for low-income and middle-income people at this juncture is likely to push the current housing prices down further, thus risking a hard landing of the property prices in some urban areas. The Hong Kong experience in 1998 could be illustrative. In order to avoid such pitfalls, the government must use stringent income test (exclude upper-middle income and high-income people), location test (ban expensive urban areas for such housing projects), and other useful criteria such as residency requirement to ensure the policy will not affect existing housing prices in a significant way.

Finally, reform in housing finance should also help stimulate demand and reduce costs of real estate development projects. Covered bonds could be a useful financial innovation for China to adopt quickly as it requires less legal hurdle and has a proper incentive structure between mortgage origination and distribution. Such mortgage finance innovation will help reduce risk concentration in commercial banks and make mortgage loans more accessible to the qualified general public. In addition, China should also allow experiments with an aim to eventually adopt some latest innovations in real estate financing tools such as REITs. Such a financing instrument will help widen financing channels for real estate developers and possibly reduce development risks and financing costs.

#### 6. Exchange rate and capital flows

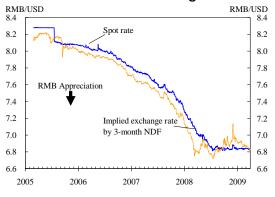
The renminbi exchange rate has stabilized since August 2008 (Chart 18), despite than the market had priced in some depreciation in 2008 Q4. As indicated by 3-month non-deliverable futures rate of CNY/USD, the market expects the renminbi to depreciate by 1.2 percent in 3 month time at the end of 2008. The NDF rate has converged to the current spot exchange rate, representing the speculation on RMB depreciation has diminished. While the RMB exchange rate maintained stability in the first quarter, other East Asian currencies depreciated by up to 10% in Q1 (Chart 19).

We continue to maintain the stability of the RMB exchange rate will be a preferred path in the near term as there is no further room for the RMB to appreciate as long as exports are suffering and unemployment rising. On the other hand, a depreciation of the RMB will be costly as well. This is because depreciation will invite trade protectionist pressures and limit the ability for PBoC to use the interest rate instrument to ease monetary policy. In addition, it will also worsen the global imbalance as it might lead to competitive devaluation in Asian and emerging market currencies. Therefore, stability of the RMB exchange rate is in China's interest for now.

Net capital inflows resumed somewhat after strong portfolio outflows in January. In particular, portfolio capital experienced large outflows for the first two months in January and February, before registering an inflow again in March, possibly attracted by a rebounding stock market. The net portfolio outflows occurred in January possibly reflected profit repatriation motives, as some FDI firms may need liquidity in their home markets on worsening global credit conditions. The valuation change of foreign exchange reserve could be another reason, as the fluctuation of USD could cause the value of non-USD assets in the reserve to move in the opposite direction, thus changing the nominal value denominated by USD.

Nevertheless, China's foreign exchange reserves continued to increase driven by FDI and trade surplus, rising by USD 7.7 billion in the first quarter than that in 2008 Q4. At the end of the first quarter, China's FX reserves reached to USD 1.954 trillion (Chart 20).

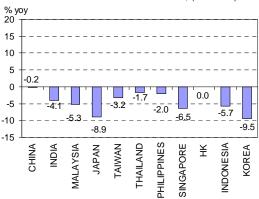
Chart 18: RMB exchange rate



Sources: Bloomberg, CEIC and BBVA estimates.

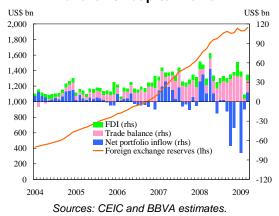
Chart 19: Nominal exchange rate of Asian currencies

NOMINAL EXCHANGE RATE/\$ (2009 YTD)



Source: Datastream.

**Chart 20: Capital flows** 





#### **Economic Policy and Outlook**

#### **Policy response**

Since our last review, the government had been effective in implementing the fiscal stimulus package. As shown in Chart 21, PMI has rebounded strongly and the economy is expected to recover with more vigor in Q2.

On fiscal policy, more details are announced in March at the National People's of Congress. Consistent to the previous announcement on the RMB 4 trillion fiscal stimulus package, the central government plans to increase investment by RMB 1.18 billion or 30% of the total over the next two years. This implies that the central government will invest RMB 590 billion in 2009.

The consolidated government deficit is budgeted to be RMB 950 billion or 3% of GDP. Out of which, RMB 750 billion will be incurred by the central government. The remaining RMB 200 billion will be spent by local governments financed by debt issuance that is guaranteed by the central government (See Box 4). It appears that the extra investment will be fully covered by the central government deficit spending for this year.

While the government spending increased, it also plans to reduce taxes and fees by RMB 500 billion in areas such as real estate and stock transaction taxes, export rebate taxes, and preferential tax treatment for small and medium enterprises.

Contrary to market rumors, there does not appear to be any new fiscal stimulus announced in Premier Wen's Government Work Report to NPC. Perhaps what's new in the Report is the number related to tax cuts amounted to RMB 500 billion, which was not properly accounted for in previous government statements.

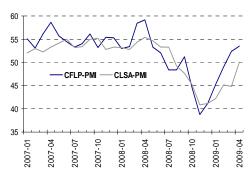
Assuming a fiscal elasticity of 0.3 for tax reduction, we estimate this will lead to extra growth of 0.5 percentage point.

Adding this extra effect to our previous fiscal elasticity estimates based on expenditures only, we estimate the fiscal stimulus package will generate at least 4.7%-6.2% of growth rate.

In addition to detailing the fiscal programs, the central government has also announced industrial policies to restructure China's 10 pillar industries such as automobile, textile, ship building, steel, and others by making them more competitive, energy efficient, better governed, and improving technology prowess. Although these plans have had short-term impact on the stock market, its real effect remains to be seen. Indeed, international experiences show that government interventions in industrial policy often do not achieve much as they intended to do. <sup>1</sup>

On monetary policy, rapid credit growth indicates that Chinese banks have responded positively to monetary policy ease, which is also consistent to our prediction. Despite banks tend to rely on

Chart 21: China Purchasing Manager Index



Sources: CEIC and BBVA estimates.

**Table 1: Industrial Policy** 

	Ten Revitalization Industries	Date of issue
1	Automotive Industry	Jan 14, 2009
2	Textile Industry	Feb 4, 2009
3	Equipment manufacturing industry	Feb 4, 2009
4	Shipbuilding Industry	Feb 11, 2009
5	Steel Industry	Feb 14, 2009
6	Electronic and Information Industry	Feb 18, 2009
7	Light Industry	Feb 19, 2009
8	Oil and petrochemical industry	Feb 19, 2009
9	Non-ferrous Industry	Feb 25, 2009
10	Logistical industry	Feb 25, 2009

Sources: BBVA.

**Economic Research Department** 

See Noland and Pack, "Industrial Policy in an era of Globalization: Lessons for Asia. Institute for International Economics, 2003.



discounted bills for lending in January and February, the March and April figures have shown that lending practices have returned to normalcy as medium and long term loans started to pick up. This probably shows that the banking system has also become more confident on the recovery of the Chinese economy.

#### **Economic Outlook and Prospects**

After the official announcement of the Q1 GDP number, others have aggressively revised up China's GDP forecast for 2009 from their previous gloomy outlook on China. We, however, continue to maintain our growth forecasts that China will grow by 8.1% in 2009 (Table 2). As discussed in great details in our China Watch in January 2009, we were quite optimistic that a growth rate of 8% has a high probability to be achieved thanks to China's massive fiscal stimulus package, ample room for further monetary ease, and credible institutions.

The better than expected first quarter GDP figure suggests that China's economy have bottomed. However, robust recovery remains fragile. As shown in Table 3, the Q1 growth was largely pulled by middle and western regions of China, whereas the previously most dynamic region in China, the coastal region, was growing at a sluggish pace weighed by sharp falls in export growth. For example, Shanghai, Zhejiang, and Guangdong only grew by 3%, 3%, and 6%, respectively, far slower than their 2008 growth rate at over 10%. Given the coastal region collectively produces 60% of China's GDP, the Chinese economic recovery will remain sluggish if this region does not grow at a robust pace.

Table 3: China First Quarter GDP by Region

Province	2009Q1 GDP, RMB bn	YoY % 2009 Q1	2009Q1 GDP, RMB bn	GDP YoY % 2008
Coastal Region	3,919	7	18,599	11
Central&Western Regions	2,897	8.6	14,093	12.2
Liaoning	264	9.6	1,346	13.1
Tianjin	142	16	635	17
Hebei	302	9	1,619	10
Shandong	647	7	3,107	12
Jiangsu	665	10	3,000	12
Zhejiang	463	3	2,149	10
Shanghai	315	3	1,370	10
Fujian	197	7	1,086	13
Guangdong	769	6	3,570	10
Guangxi	155	13	717	13
China	6,575	6.1	30,067	9.0

Looking forward, it appears China's export sector and the coastal region in general will likely to fare better from Q2 onwards as there are some visible signs of economic stabilization from a free fall in G-3 economies.

While we are optimistic a growth rate close to China's economic potentials can be achieved, we are surprised by the pace of disinflation in Q1. Indeed, the CPI inflation has registered three consecutive monthly falls, namely February, March, and April. Although we believe deflation will not be a serious problem in China because of rapid credit growth, rising farm subsidies, and energy price reforms, we revise down our CPI inflation for 2009

**Table 2: Forecasts** 

-	2008			2009			
	Actual	I Actual Forecast					
	Year	Q1	Q2	Q3	Q4	Year	
GDP	9	6.1	7.7	8.6	9.8	8.1	
CPI Inflation	5.9	-0.6	-0.1	0.9	1.8	0.5	

	2009F	2009	9F			2009F	
		Recent   No. of					
	BBVA	Consensus	Max	Min	Institution	quarter	
GDP	8.1	7.8	8.3	7	13	7.6	
CPI Inflation	0.5	0.3	2.5	-1	11	0.12	

Sources: Wind and BBVA estimates.



to 0.5% from our previously 0.7% (Table 2).

#### **Risk and Uncertainties**

While we continue to maintain China will be the first economy to recover from the severe global recession, there are a number of downside risks and uncertainties surrounding our relatively upbeat outlook going forward.

First, China's economic recovery remains quite fragile and it is thereby premature to talk about monetary tightening at this juncture. As shown in Table 3, economic growth in China's coastal region in general and large export-oriented provinces (Shanghai, Zhejiang, and Guangzhou) in specific remained quite sluggish. The authorities would need to nurture the fragile recovery via continuous and effective implementation of existing policies and contemplate standby policies if necessary. Any prematuring tightening or withdrawal of polices will falter the existing efforts made over the last several months.

Second, while we do not view the risk of deflation as a major one, the probability of a deflation risk has increased, as price falls in recent months have been larger than expected. This then requires further monetary policy response if necessary. Specifically, the reserve requirement ratio can be lowered further. More importantly, the government could use this opportunity to speed up price reform in factor market such as energy, water, and electricity.

Finally, a slower than expected global recovery and the H1N1 (swine) flu pandemic could potentially undermine our relatively upbeat recovery scenario. The slower and weaker global recovery will continue to weigh on Chinese exports, unemployment, and growth. Although the current evidence suggests that the swine flu is less lethal than the SARS which hit Southern China in late 2002 and early 2003, vigilance and careful preventions are still required. The threat of a pandemic is also an opportunity for the government to pay more attention on the public health system that is in need of urgent upgrade.

#### Box 4: Benefits of Allowing China's Local Governments to Issue Debt

In his Government Works Report to the National People's Congress (NPC) in March 2009, Premier Wen Jiabao stated that the State Council has agreed to issue RMB200 billion for provincial governments. This is a second time since 1998 that the central government issued debts for provincial governments in order to alleviate local government fiscal constraints and facilitate the implementation of the fiscal stimulus package.

Why can't local governments in China issue debt by themselves? At this juncture, China's budget law forbids local governments from running budget deficit and issuing debt as explicitely stated by Article 28 of the 1995 Budget Law. However, because of local government long-term development needs and the lack of effective monitoring, the provincial governments appear to have been running substantial amount of deficit since 1994 (Table B4.1). The aggregated local government deficit as a whole has been growing from 3.6% of GDP in 1994 to 6.8% of GDP in 2008. As a result, many local governments may have already been in debt. In addition, local government indebtedness will be more serious if their guaranteed debts via local government sponsor firms were to be included.

Table B4.1: Fiscal Revenue and Expenditure of Local Government, China (100M RMB, %)

				% Total		Surplus or
		% Total		Expenditu	Surplus or	Deficit /
	Revenue	Revenue	Expenditure	re	Deficit	GDP
1994	2,312	44.3	4,038	69.7	-1,727	-3.6
1995	2,986	47.8	4,828	70.8	-1,843	-3.0
1996	3,747	50.6	5,786	72.9	-2,039	-2.9
1997	4,424	51.1	6,701	72.6	-2,277	-2.9
1998	4,984	50.5	7,673	71.1	-2,689	-3.2
1999	5,595	48.9	9,035	68.5	-3,440	-3.8
2000	6,406	47.8	10,367	65.3	-3,961	-4.0
2001	7,803	47.6	13,135	69.5	-5,331	-4.9
2002	8,515	45.0	15,201	69.3	-6,766	-5.6
2003	9,850	45.4	17,230	69.9	-7,380	-5.4
2004	11,893	45.1	20,593	72.3	-8,699	-5.4
2005	15,101	47.7	25,154	74.1	-10,054	-5.5
2006	18,304	47.2	30,431	75.3	-12,128	-5.7
2007	23,573	45.9	38,339	77.0	-14,767	-5.7
2008	28,645	46.7	49,053	78.6	-20,408	-6.8

Source: CEIC.

By issuing debt for the provincial government, the cental government concentrates fiscal risks to itself local governments were to default their liabilities. In this sense, the alternative to allow provincial government to issue debt directly has some distinctive advantages:

First, allowing provincial government to issue debt directly will help defuse the fiscal risk that is largely concentrated at the central government level. Meanwhile, the local government debt market will also help speed up the provincial infrastructure development, investment in rural education and health, and other urgent development needs in China, which will will help facilitate the transformation of China's economic structure from high dependence on external demand to the one that relies more on domestic demand.

Second, perhaps the most far-reaching effect of the sub-national bond market development in China is that it will make local government finance transparent and accountable to local taxpayers, expand the power of the local People's Congress, and build necessary institutions to facilitate the firm establishment and effective enforcement of rule of law. This ultimately will help China's eventual transformation to a market economy that is governed by effective institutions.



Third, a vibrant domestic bond market will also help alleviate the "Original Sin" problem facing all emerging market economies, that is, their inability to either issue long-term domestic debt or to issue their domestic currency debt internationally. In addition, the sub-national bond market will likely enhance the sophistication of other segments of the China's capital markets, especially the stock market, since the local government bonds can also be used as better hedging instruments for risk management.

Of course, there are also risks associated with local government debt issurance such as excessive debt issuance and local government bankruptcy. To prevent excessive debt issuing, some effective fiscal rules (balanced budget rule and debt limit rule), which are akin to those adopted by the US states, should be required for Chinese provinces as well. In addition to fiscal rules, there should also be a local government bankruptcy law to allow orderly resolution of local governments' debt. Also, some parallel institutions must be built to promote an efficient local government bond market. They include transparent budget process and budget monitoring institutions, intergovernmental agencies to analyze and forecast local governments' budget, independent credit rating agencies, credible accounting and auditing process, and a set of intergovernmental agencies that can reduce information asymmetry of local governments' finances.



### **Appendix: China Statistical Table**

	Unit	2003	2004	2005	2006	2007	2008		200	08		2009
								Q1	Q2	Q3	Q4	Q1
Domestic economy												
Nominal GDP	RMB billion	13582	15988	18322	21192	25731	30067	6149	6913	7101	9904	6574
	USD billion	1641	1932	2239	2662	3391	4326	858	994	1038	1448	962
Real GDP growth	% yoy	10.0	10.1	10.4	11.6	13.0	9.0	10.6	10.1	9.0	6.8	6.1
CPI	% yoy	1.2	3.9	1.8	1.5	4.8	5.9	8.0	7.8	5.3	2.5	-1.2
OFI	70 <b>y</b> Oy	1.2	0.0	1.0	1.0	4.0	0.9	0.0	7.0	5.5	2.0	-1.2
External economy												
Exports	% yoy	34.6	35.4	28.4	27.2	25.8	17.2	21.2	22.2	23.0	4.3	-19.7
Imports	% yoy	39.8	36.0	17.6	19.9	20.8	18.5	28.9	32.7	25.8	-8.9	-30.8
Trade balance	USD billion	25	32	102	178	263	295	41	57	83	114	6
Current account balance	USD billion	46	69	161	250	372	426	n.a.	n.a.	n.a.	n.a.	n.a
Current account balance												
Dalaman of a summer	% of GDP	2.8	3.6	7.2	9.4	11.0	9.8	n.a.	n.a.	n.a.	n.a.	n.a
Balance of payment	USD billion	117	206	207	247	462	419	n.a.	n.a.	n.a.	n.a.	n.a
	% of GDP	7.1	10.7	9.2	9.3	13.6	9.7	n.a.	n.a.	n.a.	n.a.	n.a
Foreign exchange	USD billion											
reserves <sup>1/</sup>	וווווווווווווווווווווווווווווווווווווו	403	610	819	1,066	1,528	1,946	1,682	1,809	1,906	1,946	1,954
	% of GDP	24.6	31.6	36.1	39.3	43.4	44.2	44.1	44.4	45.0	44.2	44.0
External Debt	USD billion	209	247	281	323	374	375	393	427	442	375	n.a
External Boot	% of GDP	12.7	12.8	12.4	11.9	10.6	8.7	10.9	10.6	10.4	8.7	n.a
	% Of GDF	12.7	12.0	12.4	11.5	10.0	0.7	10.9	10.0	10.4	0.7	11.0
Fiscal												
Fiscal balance	% of GDP	-2.2	-1.3	-1.2	-1.0	0.6	0.0	10.5	7.9	0.8	0.0	2.
Monetary												
M2 growth	% yoy	19.6	14.6	17.6	16.9	16.7	17.8	16.3	17.4	15.3	17.8	25.5
Loans growth	% yoy	21.1	14.5	13.0	15.1	16.1	18.8	14.8	14.1	14.5	18.8	29.8
Benchmark lending rate					6.1	7.5		7.5	7.5	7.2		
	% pa	5.3	5.6	5.6			5.3				5.3	5.3
Benchmark deposit rate	% pa	2.0	2.3	2.3	2.5	4.1	2.3	4.1	4.1	4.1	2.3	2.3
Required reserve ratio <sup>2/</sup>	%	7.0	7.5	7.5	9.0	14.5	15.0	15.5	17.5	16.5	13.5	13.
RMB/USD exchange rate	(period-end)	8.3	8.3	8.1	7.8	7.3	6.8	7.0	6.9	6.8	6.8	6.8
	(period-average)	8.3	8.3	8.2	8.0	7.6	6.9	7.2	7.0	6.8	6.8	6.8
Socio-economic indicato	re											
Population	Person (million)	1,292	1,300	1,308	1,314	1,321	1,328	1,323	1,325	1,326	1,328	n.a
Urban	% of total	40.5	41.8	43.0	43.9	44.9	45.7	,		,	45.7	
								n.a.	n.a.	n.a.		n.a
Rural	% of total	59.5	58.2	57.0	56.1	55.1	54.3	n.a.	n.a.	n.a.	54.3	n.a
Life Expectancy	Years	n.a.	71.4	72.0	72.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a
Infant Mortality	per 1,000	n.a.	n.a.	25.0	24.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a
GDP per capita	RMB	10,510	12,299	14,012	16,122	19,474	22,639	4,648	5,218	5,354	7,457	n.a
	USD	1,270	1,486	1,712	2,025	2,567	3,258	649	750	783	1,090	n.a
Energy												
Energy Production	SCE Ton mn	1,638	1,873	2,059	2,211	2,354	2,460	539	642	651	628	n.a
Energy Consumption	SCE Ton mn	1,750	2,032	2,247	2,463	2,656	2,850	n.a.	n.a.	n.a.	n.a.	n.:
0,	SUE TUITTIII	1,750	2,032	2,247	2,403	2,000	2,000	II.d.	II.d.	II.d.	II.a.	n.
Per Capita Energy	SCE Kg											
Consumption		154	164	180	195	203	n.a.	n.a.	n.a.	n.a.	n.a.	n.
Per Capita Electricity	KWH											
Consumption	120011	174	190	217	249	275	n.a.	n.a.	n.a.	n.a.	n.a.	n.a

Sources: National Bureau of Statistic of China, World Bank, CEIC and BBVA estimates.

Notes: 1) The quarterly figures for "% of GDP" are annualized GDP figures.

2) In December 2008, the RRR for small and medium sized banks was cut to 13.5% while the RRR for the big six was cut to 15.5%.



#### For more information please contact

Servicios Generales Difusion BBVA Gran Via 1 planta 2 48001 Bilbao P34 944 876 231 www.bbva.es Register in Madrid: M-31252-2000

## other publications

























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