

China Macro

J TRIAGE REPORT

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Related Companies
(Feb 29, Yahoo Finance)

Hollysys Automation (NASDAQ:HOLI)
Stock price: USD 11.09
52 week range: 4.54 - 15.23
Market cap: 619.2 mln
Daily turnover: 246,642

China Railway Group Limited (HKG:0390)
Stock price: HKD 3.17
52 week range: 1.43 - 5.42
Market cap: 13.34 bln
Daily turnover: 27.2 mln

China Railway Construction Corp Ltd
(HKG:1186)
Stock price: HKD 6.13
52 week range: 3.07 - 8.95
Market cap: 12.73 bln
Daily turnover: 13.4 mln

Zhuzhuo CSR Times Electric (HKG:3898)
Stock price: HKD 20.75
52 week range: 10.82 - 33.55
Market cap: 9.46 bln
Daily turnover: 2.97 mln

Anhui Conch Cement (HKG:0914)
Stock price: HKD 27.55
52 week range: 17.90 - 56.90
Market cap: 35.81 bln
Daily turnover: 14.2 mln

Year of the (White) Elephant

How efficient is China's new infrastructure?

China now has the newest and most extensive infrastructure in the world, but does it make economic sense? Here we review the biggest portion of the stimulus spending, transportation infrastructure, and find the value questionable.

High Speed Rail

After a splurge that brought spending over 800 billion RMB per year in 2010, the Ministry of Rail now is short of cash to meet accounts payable. Debt service will be hard. As the Railways pushes for a bigger budget in 2012, questions surround whether it has been useful to spend so much for higher speeds of travel.

New Zones

Special zones and new cities seem more useful to driving land appreciation for governments than for any real economic contribution.

Airports

With 70% of the nation's airports losing money, can China afford to keep building?

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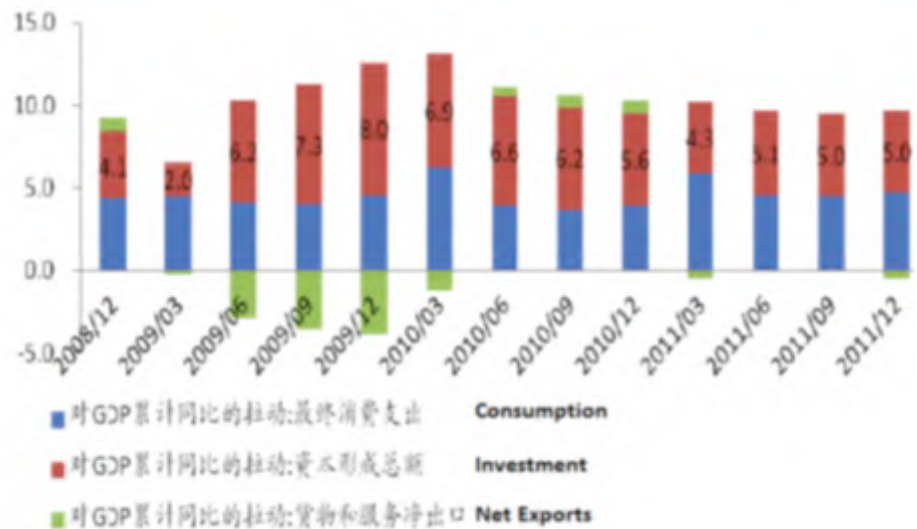
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Investing for the Present

In China’s stimulus spending spree between 2008 and 2011, building infrastructure seemed to be the key to generating future GDP growth.

And China went into building infrastructure for trains, planes, and automobiles with a vengeance. Since the global financial crisis began in Q4 2008, an increasing proportion of China’s impressive 9-10% GDP growth has come from investment, replacing exports and displacing consumption. Government statistics indicate that, in the recently completed quarter, investment contributed 5 percentage points of the total 8.9% GDP growth, meaning that over 50% of economic growth was driven by investment.

Three Main Contributors to GDP Growth



Source: Wind Information (A domestic financial data, information and software provider.)

The key drivers of the infrastructure investment program have been highways and railways--no surprise, as these programs, unlike locally managed programs like water treatment or schools and hospitals, are directed by the central government, which has the most ability to amass and deploy capital.

The pace of the recent acceleration in fixed-asset investment (FAI) is staggering: infrastructure spending has accounted for over one-third of FAI since 2004, while total FAI increased by more than 400% in the period.

After the financial crisis in 2008, the investment wave swelled out of control.

A Chinese saying goes, “If you want to be rich, first build roads.”

Newly issued bank loans reached 17 trillion RMB in 2009 and 2010, 9.59 trillion in 2009 and 7.59 trillion in 2010, while the average newly issued bank loan was only 3.9 trillion from 2006 to 2008, 3.18 trillion in 2006, 3.63 trillion in 2007, and 4.91 trillion in 2008.

When Do You Stop?

At this point, China arguably has more infrastructure than the economy can justify. Lu Dadao, an expert at the Chinese Academy of Sciences, points out at his article “The Proposition to Avoid the Over Advance and Inappropriate Construction of China’s Transport Infrastructures”¹ saying that China has a lot of highways per unit of GDP-- 1.4 kilometer per \$10,000 in GDP, which comes to three times the relative length of highways in the EU, twice that of the United States, and eight times that of Japan.

Short-term incentives to drive top-line GDP growth have led to infrastructure investment everywhere, from airports in tiny cities, to questionable railway upgrades, to port expansions.

First, the vertical relationship between local and the governments means that local officials have weak incentives to provide services to their local constituents and strong incentives to capture central budgets, find money locally, and demonstrate growth by pouring a lot of concrete; this activity is visible and rewarded.

Second, local governments compete to capture rural areas as part of their own administrative districts by building ultra-large ports or airports. Whoever can round up the funding and persuade the Ministry of Railways or Ministry of Transport that it should get the go-ahead will likely get cheap or free land, as well as more budgets in the future. And once a project has been started, it is impossible to stop.

11th and 12th Five Year Plan New Construction Targets (Cumulative Number)

	By end of 2005	11th Five Year Plan (2005-2010)	By end of 2010	12th Five Year Plan (2011-2015)
Highway mileage (km)	41,000	65,000	74,000	108,000
Number of airports	142	186	175	230
Traffic of ports (bln tons)	3.4	5.0	5.6	7.8

Source: News reports, J Capital Research

¹ Published in “Scientia Geographica Sinica” in 2012 Jan.
<http://www.cnki.net/kcms/detail/22.1124.P.20120119.1448.010.html>

Cost Overruns

Our review of available project proposals and budgets indicates overruns of typically about 66%. Some examples:

Major Infrastructure Projects Cost Overruns

Unit: bln RMB	Original Budget	Actual Spending	Overruns
Beijing Olympics	13.0	19.3	48%
Guangzhou Asian Games	13.6	17.4	28%
The Three Gorges Project	90.0	180.0	100%
Hangzhou Bay Bridge	11.8	16.0	36%
Capital airport Terminal 3	25.0	27.0	8%
Jinghu (Beijing-Shanghai) High-speed Railway	92.0	220.0	139%
Wuguang (Wuhan-Guangzhou) High-speed Railway	68.0	116.0	71%
Guangzhou Railway Station	7.1	14.1	99%
Shanghai Harbor New City	120	200	67%
Chongqi Bridge	3.6	7.6	111%
Qinling Zhongnanshan Tunnel	2.5	3.2	28%
Wuhan Erqi Bridge	4.8	7.3	52%
AVERAGE			66%

Source: News reports, J Capital Research

Predictably in a bureaucratic system, the overruns are hard to catch. Chinese news releases almost never compare the original budget and actual spending side-by-side, even in the National Audit Office reports. For example, the Auditor's report on the Beijing Olympics stated that, "the actual spending slightly increased from the original budget"² despite the massive overspending that characterized the infrastructure projects surrounding the Games. Further, even if there are real explanations for the cost overruns, the answers are all standardized and therefore do not elucidate what the true reasons were. One standard phrasing is: "We underestimated cost and did not expect that material prices, land acquisition, and relocation price would be so high."

² <http://www.audit.gov.cn/n1992130/n1992150/n1992500/2302152.html>

Off the Rails

Under the former Minister of Railways, Liu Zhijun, railway build-out projects saw scope and spending creep to a magnitude paralleling the Great Leap Forward.

Minister Liu took office in 2003. By 2010, when he was removed on corruption charges, FAI spending on the rail system had risen from 88 billion RMB in 2004 to 840 billion RMB in 2010. Under Minister Liu, China built 10,000 km of high-speed rail, the longest and fastest-rated system in the world.

Cumulative High-Speed Rail Length

Unit: KM	HSR	Non HSR	Total Railway Length
2006	0	77,084	77,084
2007	520	77,446	77,966
2008	4,042	75,645	79,687
2009	6,123	79,377	85,500
2010	8,358	82,242	90,600
2011	13,073	85,927	99,000
2015 Est.	26,000	94,000	120,000
Avg. additions/ year from 2012-2015	3,232	2,018	5,250

Sources: MOR, News Reports, J Capital Research

After a fatal rail accident in Wenzhou in the summer of 2011 caused a temporary freeze in rail projects, investment dropped. In December, MOR announced 500 billion in projected spending for 2012, down from about 560 billion in 2011. However, the Wall Street Journal reported on February 15th that the spending would total around 406 billion in 2012, including 17 billion in projects have yet to be approved by the NDRC.

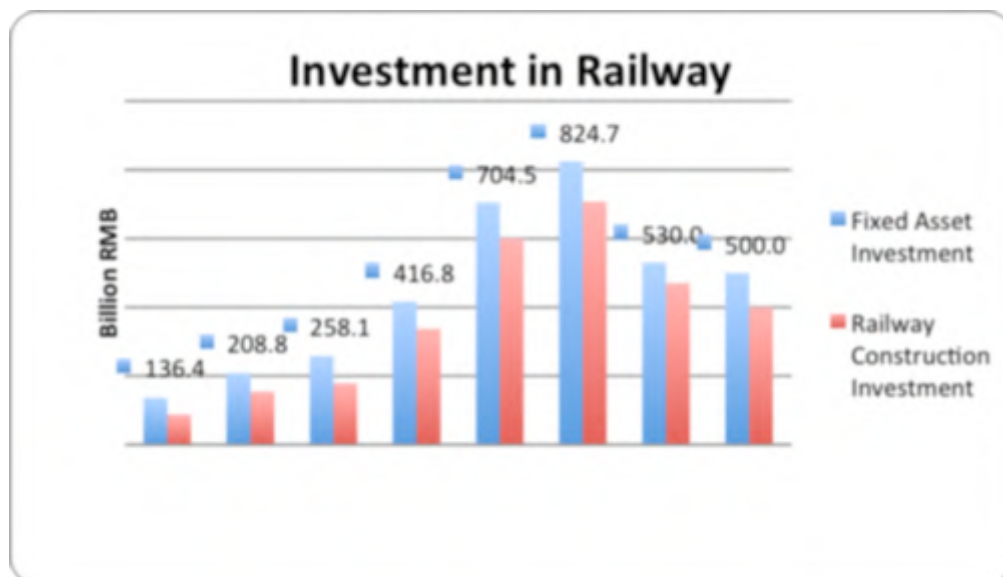
The spending breakdown is 71% for infrastructure (such as land costs), 15% for equipment, and 3% for maintenance.

Planned Spending on High-Speed Rail 2011-2015

	New mileage (KM)	Investment (bln RMB)
2011	4715	639.3
2012	3038	330.3
2013	2667	365.0
2014	4421	542.9
2015	3847	343.4

Source: <http://news.gaotie.cn/guihua/2011-05-14/12543.html>

FAI in Railways 2005-2012



Sources: China Ministry of Railways, J Capital Research

Local bondholders say they are confident about their 500 billion target. We believe that the ministry is pushing to achieve 500 billion but that logistic obstacles make spending over 400 billion unlikely. Before the current period of accelerated spending, MOR has consistently under-spent its targets by about 25% due to difficulties in obtaining land for the rail lines, finding qualified engineers, and procuring materials to the required standard. At this point, exposes of low-quality construction and rampant graft in the system make it likely that the bureaucracy will add gates and checks to the spending stream, not remove them.

Some of the problems:

- Cost overruns, leading to penalty at MOR and many idle lines
- A mismatch between need for freight carriage and the new HSR lines
- Excessive spending on huge stations
- Lower-than-projected passenger density
- HSRs over long distances are inefficient, leading to questions about whether the Chinese system will **ever** make a positive economic contribution.

Slow Payments

At the start of the recent build-out, MOR was very optimistic about the high-speed rail. The lines were to be self-sustaining and some were expected to become profitable. The Beijing-Shanghai line is slated for profit in 16 years.³

³ <http://www.stockstar.com/zsh/SS2009081330216727.shtml>

But the reality is that the ministry now cannot even meet its accounts payable, much less debt service and principal.

The China South Locomotive & Rolling Stock Corporation (CSR) and China North Rolling Group Corporation (CNR), MOR'S largest equipment suppliers, are now waiting on 10.2 billion RMB in payments for contracts that were completed starting in 2009. Thanks to three bonds issued in 2011, MOR paid them 34 billion in the fall, out of the total accounts payable of 44 billion RMB. But many other creditors are lined up behind these two: news reports say that the three bond issues raised only 70 billion, while the total payables debt is 249.1 billion RMB, owed to 36 domestic railway companies.⁴

For 2009 and 2010, the MOR tread water, though revenue increased by 31%. Profit, on the other hand, dropped significantly due to higher costs for people and materials.

MOR Financial Figures

Rmb bln	2009	2010
Total revenue	522.18	685.70
Passenger fare revenue	109.05	134.49
Freight revenue	413.13	551.21
Operating expense	472.60	599.57
Freight cost	265.27	298.98
Depreciation	54.60	70.48
Other expense	152.73	230.11
Net profit	2.74	0.02
Interest and principal cash payments	73.60	150.1

Source: News reports, J Capital research

<http://finance.eastday.com/economic/m1/20110808/u1a6040674.html>

<http://www.shclearing.com/DownLoad/ShowInfo.asp?Infoid=1505>

According to the National Railway Conference held in Beijing on December 23, 2011, the new minister of MOR⁴ estimated that the ministry's total revenue would reach 834.8 billion RMB for 2011 and possibly 954.8 billion RMB in 2012.

In Hock

The fast increase in MOR debt has led to reduced creditability and higher rates for loans. In Q3 2011, the State Council had to intervene with banks to insist that they raise their lending quota to MOR, and ultimately, only the China Development Bank agreed to issue a large loan.

Between 2008-2010, debt owned by the Ministry of Railways grew at nearly 48% annually and reached 1.89 trillion at the end of 2010. By end of

⁴ <http://www.eaeb.cn/2011/1110/65827.html>

September 2011, MOR's debt reached 2.23 trillion RMB.

The listed companies

Based on this outlook on the fundamentals, we believe that stocks closely tied to the rail build-out, such as China Railway Group (0390.HK) and China Railway Construction (1189.HK) will have to under-perform expectations. Some issues:

- The Ministry is not buying rolling stock as quickly as the lines are being completed. Many lines will be under-utilized.
- The spending target of 500 billion RMB is unrealistic and actual spending might be 15-20% lower.
- Spending focus has been on land acquisition and the associated value appreciation. As the property market tumbles, the ministry's incentive and ability to invest will decline rapidly.

Hollysys (HOLI)

Despite publicity around its contribution to the HSR, we believe that the lion's share of Hollysys' income from HSR projects comes from contributing light, temperature, and exit control systems to large new railways stations. This portion of the build-out is likely to come under more pressure than other parts, which means the highest-margin part of Hollysys' contracts should be much harder to get.

Anhui Conch (0914.HK)

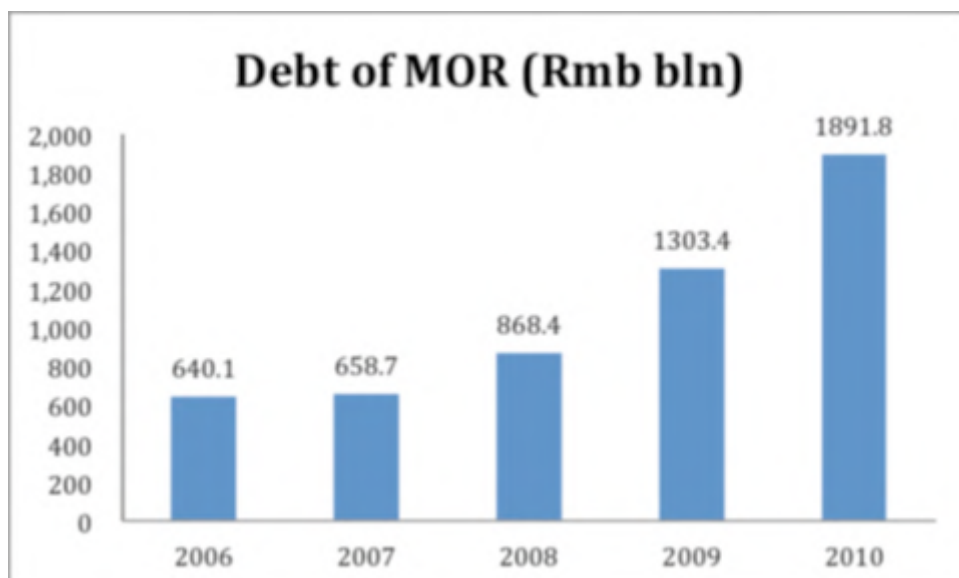
2012 could be a good year for Anhui Conch to pick up distressed assets in the western parts of the country, where cement markets are less aggregated.

China Railway Construction (1186.HK)

Modest earnings growth at CRCC is possible, driven by its non-rail business.

CSR Times Electric (3898.HK)

Focusing on import replacement, especially now targeting Siemens' 9,600 KW electric locomotive components and whole systems. This could generate growth for CSR.



Source: News reports, J Capital Research

A researcher with the NDRC Transportation Institute points out in an interview in Yicai⁵ that the illiquidity of railway assets makes it more sensible to look at cash flow rather than asset value. On that metric, the railways look perilous: the researcher, Li Bin, estimates that on the most liberal calculation, MOR has 200 billion a year in operating cash flow but 250 billion in debt service, including principal. By end of 2010, MOR's current liabilities were 581.2 billion RMB and assets 294.9 billion RMB.

MOR has had easy access to cheap credit.

- Government-directed credit agencies give MOR the same triple-A rating as the banks
- As part of the stimulus program in 2008, capital requirements for railway projects were lowered from 50% of the total project capital to 30%. Of the 30% capital contribution, MOR needs to pay 51% and local governments are responsible for the rest. The 70% balance of the capital is raised from bond issues or loans. This policy has increased the leverage ratio from 2 to 3.3.
- MOR has allowed investment by private companies, based on two State Council directives, but the minority shareholders have achieved virtually no return.⁶

After the Wenzhou high-speed rail accident last July, the central government seems to have realized that current investment is poorly planned. Borrowing became harder.

⁵ <http://www.yicai.com/news/2012/02/1439528.html>

⁶ http://money.163.com/11/0815/15/7BGQSEQK00253DC8_2.html

<http://news.sohu.com/20070929/n252433908.shtml>



Source: China Ministry of Railways

For bondholders—which include many large Chinese pension funds—the value of investment in railways is dubious.

Out of Sight, Out of Mind

China extends local government debt

Back in September of 2011, banking regulators quietly extended the terms on an unknown number of the loans that had been taken by Local Government Financing Vehicles (LGFV) since 2008, in order to reduce the impact of the peak payments periods coming up this year. CBRC officials took applications from the LGFVs and reviewed them for free cash flow and collateralization. Platform companies with lower FCF and high coverage by either guarantees or collateral got an extension, but the CBRC has not divulged for how long, to what proportion of the LGFVs, or on what terms.

Domestic reports put the number of LGFVs at 10,468 as of September 2011, holding 9.1 trillion RMB in outstanding debt. The number is an estimate: some central government economists put the figure at a minimum of 14T. The amount can be difficult to count, since many of the financing platforms are organized as companies, indistinguishable in the statistics from private enterprises.

Following the audit last summer that led to loan extensions, another 1,974 of the LGFVs, holding 2.9T of the loans, were reorganized as companies. Of the remaining loans, about 35% are unsecured. The report also said that about 2.2T in LGFV debt comes from non-bank sources, mostly bonds.

Winding down the LGFVs is a key goal of the CBRC this year. The problem is, given that many of the projects undertaken by the LGFVs are incomplete, what to do? It is worth noting that only about 10% of the LGFV platform financing was actually used for the matching funds required by the 4T stimulus program, far less than the central authorities had hoped. The money has gone in large part to projects like pedestrian malls and real estate developments. But even so, half a pedestrian mall is not useful. Where to find the further financing?

Part of the answer is in aggressive issues of new bonds. Recently, Shanghai, Guangdong and Zhejiang governments issued 22.9 billion in independent bonds, the first that have been issued independently of the MOF, and the bonds accordingly yield 10-20 bps less than the MOF bond of similar duration.

But, considering that banks buy over 50% of the bonds, it is not clear they offer much diversification of risk. They do, probably, add positively to bank balance sheets.

Ominously, a Shenzhen-listed company announced January 7 that it had defaulted on 397 million in bank loans. One of Shadong Helon's major shareholders is the Weifang City LGFV, which holds 16%. The company restated its financials in December and went from profit to three years of losses and negative equity of 246 million RMB as of Q3 2011. Before December, the rating on its 400 million in bonds was A+.

The Necessity Question

Infrastructure in the developing world is hard to hate—do you criticize Mother Theresa for building too many hospices? But, in the rush to build, many seemingly gratuitous but expensive features have crept into the projects. An increase in the passenger rail top speeds from 200 to 350 kph, for example, is hard to justify on the basis of utility, particularly in a large country that is geographically poorly suited to HSR. Likewise, China demonstrates that it is possible to have too many airports. We took a look at some of the decisions that have caused budget overruns.

Speed freaks

The aggressive railway build-out began in 2004 with the Medium- to Long-Term Railway Development Plan, which targeted 12,000 km of new, high-speed passenger lines by 2020 in a system of 100,000 km. At that time, “high-speed” was defined as 200 kph.

But Minister Liu raised the target from 200 to 350 kph—faster than Japanese trains. The higher speed targets have been extremely costly. Next, the stimulus plan put forth in Q4 2008 compressed the Medium- to Long-Term Plan by five years and increased targets for rail lines by 20%. MOR was given authorization for increased spending through bond issues.

Enjoy those 900 million RMB minutes

Many of China’s signature infrastructure projects have been built for reasons other than market demand and without market research and projections. The Beijing-Tianjin Express Railway is a prime example of the how desire for speed overruled common sense: the cost for the 300 kph line that has been built was almost double that for a 200 kph line. The original plan for the slower line forecast spending of 12.34 billion RMB, while actual spending for the accelerated line was 21.55 billion RMB. The 75% higher budget shortened the ride by 10 minutes. But since the acceleration-deceleration cycle of a 300 km/hour train is 26.2 kilometers, compared to 8.9 kilometers for a 200 km/hour train, the advantage of this extra speed for the short 120-kilometer trip is next to none.

Media reports say the project was approved in a short meeting in 2003 between Dai Xianglong, then the mayor of Tianjin (he is currently the chairman of the National Council for the Social Security Fund), and Liu Zhijun, the former minister of railways. In 2004, a joint venture company between Beijing, Tianjin, the Railway Ministry, and China National Offshore Oil Corporation (CNOOC) was established. Land acquisition began in 2005, and construction took place between 2006 and 2008. The line was officially launched in August 2008. One year later, the annual net loss of this line is reported at 700 million RMB, of which 600 million is from interest on bank loans.

Beijing-Tianjin line: 0.9 billion RMB per minute of reduced travel time—but it wasn’t actually reduced.

The Beijing-Tianjin Express, originating at the Beijing South Station and ending at Tianjin Station, measuring 114 km, was the first train to travel over 300 km/hour in China. (The showcase Maglev in Shanghai is a different technology and runs only a few kilometers between the airport and the Zhangjiang Technology Park.) Estimated traffic flow in project proposal was set at an optimistic level. Projections placed annual passenger volume at 30 million⁷, with sales income of 1.84 billion RMB. In the first three years of the railway, the actual total number of passenger was only 61 million⁸, 32% fewer than the projected number.

Beijing-Tianjin Express Ticket Revenue

First Class Ticket Price (RMB)	Second Class Ticket Price (RMB)	Avg. Ticket Price (RMB)	Number of Passengers Per Year (mln)	Est. Ticket Revenue (mln RMB)	Variance From Projected Revenue
66	55	56.4	20.3	1146.3	37.80%

Source: news reports, J Capital Research

Since Sheng Guangzu became minister, the HSR target has been vaguely renamed “express rail,” but public targets have not been reduced. Whether or not China will continue to pursue 350-km rated lines is unclear.

Oops, done it again

Overestimated traffic and underestimated costs are the main reasons for the loss compared to projections. Meanwhile, the government has a bias toward low ticket prices, while costs, especially electricity, have been growing. Because the passenger rail was to be self-supporting, new subsidy allocations have not been made. An expert at the China Academy of Railway Sciences has commented publicly that income to the system is so low that it cannot as cover loan interest and operating costs, much less construction costs and loan principal.

Beijing-Tianjin Express Annual Expense

Cost Item	Amount (mln RMB/year)
Bank loan interest	600
Depreciation	500
Equipment maintenance, electricity etc	400
Others	300
Total	1800

Source: news reports, J Capital Research

⁷ <http://www.eeo.com.cn/industry/shipping/2010/04/05/166786.shtml>

⁸ http://www.tianjinwe.com/tianjin/jsbb/201108/t20110801_4098599.html

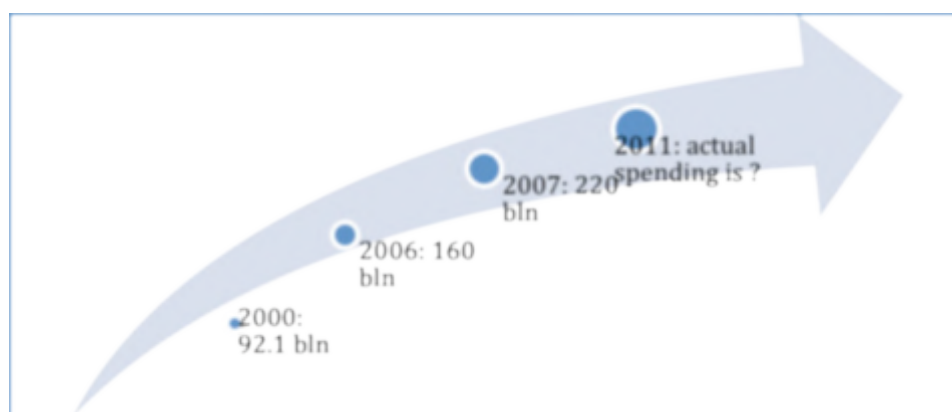
According to a railway executive, project participants simply estimated revenue by using a straight-line projection of current traffic levels. They dramatically underestimated costs.

A case study in overruns: the Beijing-Shanghai line

The “Jing-Hu” or Beijing-Shanghai HSR is the largest high-speed railway project to be completed in a single phase in the world. The line took 18 years of research and planning and three years for construction, culminating in its opening in June 2011. The investment of 220 billion RMB made the line one of the most expensive projects in China.

But the completed project exceeded the projected investment by 240%.

BJ-SH Investment Plan Increases



Source: News reports, J Capital Research

According to Mr. Sun Zhang, a professor with the Urban Mass Transit Railway Research Institute at Tongji, the cost overruns resulted from construction of 21 new stations along the line. “At the very beginning, the project plan didn’t include building new train stations,” he said.

MOR originally predicted that the Beijing-Shanghai HSR would turn profitable after 16 years of operation.⁹ But industry experts now question whether the line can ever break even. According to Li Changhong, a professor at the Beijing Jiaotong University Economics and Management School, the chances are slim. He calculates:

- **Total investment is 220.9 billion RMB.** Contributed capital accounted for 50%. The 110 billion RMB balance came from bank loans and bonds.
- The loans have been extended at one point below the prevailing bank rate. This yields **interest payments of 6.6 billion RMB per year**, or 18 million RMB a day. Given that most loan terms are 20 years, principal alone will cost 5.5 billion RMB per year.

⁹ <http://news.163.com/09/0730/12/5FFJIFDA000120GU.html>

- Average depreciation for rail lines is 3-4% a year. That indicates an **annual depreciation expense of 6.6-8.8 billion RMB**.
- **Operating costs amount to approximately 6 billion RMB**. Beside these costs, the Beijing-Shanghai HSR is responsible for paying roughly 3 bln RMB per year to local railway bureaus as a management fee.
- With electricity and fuel prices increase, operating costs are rising without a corresponding increase in fares, as depicted in the chart below.

Rail Revenue and Costs



Source: Wind, CEIC, J Capital Research

In order for the Jing-Hu line to break even, we estimate that the average ticket price would have to be 600 RMB, with 100% utilization rates, or 1,004 full-fare tickets per trip and 131,000 passengers a day. When we make the following assumptions, even supposing that the trains operate at 100% utilization, it becomes clear that the Beijing to Shanghai HSR will not break even.

1. The full fare for an HSR trip from Beijing to Shanghai is 600 RMB (roughly the same as an undiscounted air ticket). Given that many passengers ride part way, and there are lower classes of service, we estimate the current average blended price at 305 RMB
2. 100% utilization, so 1,004 seats are occupied on each trip.
3. Interest rates of 5.9% per year, 1 point below the benchmark.
4. Depreciation of 3.5% per year.
5. Constant travel volume.
6. Loan terms of 20 years.

7. Management fees paid to local railway bureaus by the center as service and operating fees. This is because the line belongs to the center, which collects ticket revenue, but is operated by localities, which are reimbursed for a negotiated annual fee. The current reimbursement is 3 billion RMB per year.
8. Operating expenses of 6 billion RMB per year.
9. No principal to be paid for two years, in accordance with MOR's loan terms
10. One-week maintenance time each year for the rail.

	During first two years	After two years
Average ticket price (RMB)	600	600
Number of passengers per trip	1,004	1,004
Number of trips per day	108	133
Revenue per year (RMB bln)	23.22	28.72
Total investment (RMB bln)	220.90	220.90
Total loan (RMB bln)	110.45	110.45
Interest rate (%)	5.90	5.90
Interest payment per year (RMB bln)	6.49	6.49
Daily interest (RMB bln)	0.02	0.02
Principal payment per year (RMB bln)	0.00	5.50
Depreciation rate (%)	3.50	3.50
Depreciation expense per year (RMB bln)	7.73	7.73
Managing fee paid to railway bureaus (RMB bln)	3.00	3.00
Operating expense (RMB bln)	6.00	6.00
Total expense per year (RMB bln)	23.22	28.72
Profit/(Loss)	0	0

Source: J Capital

With the assumptions above, the trains would have to run 108 times per day in order to break even during the first two years. Assuming that the time between trains on a given line is 30 minutes, to run the required number of trips the high-speed line would have to be in operation for 27 hours a day in the first two years and 33.25 hours per day after than period. Even if the line could grow into the price and volume assumptions, this concentration makes the proposition completely illogical.

The other assumptions, too, look optimistic.

- A train conductor told us that only one-third of passengers on the Jing-Hu line travel end to end. The majority travel shorter distances, pay lower fares, and ensure that some seats are vacant during the trip.
- While thee before paying loan principal, after that, MOR faces a heavier-than-usual burden of repayment.
- The HSR stations are very distant from city centers and often not served by public transportation. So the very reason why passengers often choose rail—because it is more convenient than air—is not applicable. The Beijing South Railway Station and the Shanghai Hongqiao Station on the Jing-Hu line, for example, are farther from the business centers of the two cities than are the airports.

After speaking with train conductors and other train personnel, we've adjusted some of the assumptions based on the above realities.

1. 130,000 passengers a day
2. Average ticket price 300-310 RMB per person

(RMB bln)	During first two years	After two years
Average ticket price (RMB)	305	305
Number of passengers per day	130,000	130,000
Revenue per year	14.47	14.47
Total investment	220.90	220.90
Total loan	110.45	110.45
Interest rate (%)	5.90	5.90
Interest payment per year	6.49	6.49
Daily interest	0.02	0.02
Principal payment per year	0.00	5.50
Depreciation rate (%)	3.50	3.50
Depreciation expense per year	7.73	7.73
Management fee paid to railway bureaus	3.00	3.00
Operating expense	6.00	6.00
Total expense per year	23.22	28.72
Profit/(Loss)	(8.75)	(14.25)

Source: J Capital

The results show that the HSR will post an initial loss of 8.75 billion RMB and 14.25 billion RMB after the first two years. Because rail ticket prices are fixed and therefore cannot compete directly with airlines, unless the demand for rail travel increases to 208,592 per day—implying 60% increase during the

first two years – the railway will not be profitable.

(RMB bln)	During first two years	After two years
Average ticket price (RMB)	305	305
Number of passengers per day	208,592	257,997
Revenue per year	23.22	28.72
Total investment	220.90	220.90
Total loan	110.45	110.45
Interest rate (%)	5.90	5.90
Interest payment per year	6.49	6.49
Daily interest	0.02	0.02
Principal payment per year	0.00	5.50
Depreciation rate (%)	3.50	3.50
Depreciation expense per year	7.73	7.73
Managing fee paid to railway bureaus	3.00	3.00
Operating expense	6.00	6.00
Total expense per year	23.22	28.72

Source: J Capital

Graft

The answer to the necessity question may not be simple, but one factor has pushed through bizarre infrastructure projects regardless of their practicability: corruption. The information released to the public hardly touches on the depth of graft in the system of instigating infrastructure projects in China. The National Audit Office has released some major violations for Jinghu High-speed Railway that they discovered in the 2010 audit.¹⁰

- Fixed bids worth 4.47 billion RMB.
- Embezzlement totaling 187 million RMB.
- Some 1,297 counterfeit invoices adding up to 324 million RMB. From 2008 March to 2010 July, six suppliers alone counterfeited expenses of 216 million RMB.
- 560.8 million RMB paid in advance to construction companies for work that has not started.

¹⁰ <http://www.audit.gov.cn/n1992130/n1992150/n1992500/2667369.html>

- 555.9 million RMB of collateral turned out to be worthless when 11 suppliers broke contracts. The average implementation rate on the audited contracts was 22%, and in some places was as low as 0.8%.
- Some construction supervisors were not certified.

High-speed rail expert Wang Mengnu, an academician of the Chinese Academy of Engineering, said that rigged bids and irregularities are the rule rather than the exception.

Here are just some of the officials who were removed from their posts over incidents of railway fraud:

2006.3: The Wuhai Railway Bureau Deputy Chief Liu Zhixiang embezzled 122.7 million RMB and received a bribe of 143.9 million. He also had over 100 million assets without a designated source listed for that income.

2008.1: The Beijing Railway Bureau Chief Li Shutian and his wife, Wang Shuqin, were sentenced 13 years and 5 years due to abuse of privileges.

2008.3: Urumqi Railway Bureau Chief Song Dexi was found guilty of corruption and the embezzlement of 24 million RMB, taking a 1.1 million RMB bribe, and general abuse of privileges involving 16 million RMB.

2009.11: The Railway Ministry's Politic Department head, He Hongda, was sentenced to 14 years when he was found guilty of corruption and taking bribes.

2011.2: Railway Minister Liu Zhijun was dismissed and is still under investigation.

2011.2: The Railway Ministry's Transportation Bureau Chief and Deputy Chief Engineer Zhang Shuguang was suspended. Recently media reports said his personal bank savings are as high as US\$2.8 billion.

Zoned Out

Land appreciation has been the principal currency of the stimulus period. Many cities in China have built brand-new city centers as far as 100 kilometers from the old city centers, because the forced move of government offices leads to land appreciation.

The most famous of these is probably Kangbashi, the new city at Ordos in Inner Mongolia, complete with a square larger than Tiananmen, a huge county library that has very few books, an opera house (without performances), a man-made lake and yacht club, and only construction workers as residents. But there are new cities all over, from Zhengzhou in Henan Province and Nantong in Jiangsu all the way to fourth-tier cities in poor provinces like Guizhou, where more “Bird’s Nest” stadiums have been built.

Political and bureaucratic incentives are also often more powerful than economic ones. This is especially so when it comes to large building projects, which are easily quantifiable. As the Chinese nobility once built great palaces for the benefit of a touring emperor’s retinue, so present-day bureaucrats ignore economic benefit and build to catch the attention of higher-level authorities.

“Most of industrial zones in Suzhou are built or driven by the government of Suzhou. Those projects can be described as ‘face’ projects, or projects for GDP,” said a manager we met in Suzhou’s Wuzhong District Technical Zone. “Before, many factories were built in the city center, but with the city’s expansion and the shortage of land, the government found a solution: build industrial zones in rural areas. By providing favorable policies, more and more factories have moved into those zones and more land was cleared for sale. It was a win-win strategy, as leaders earned both face and performance awards.”

This month, we traveled across Suzhou and were told about hundreds of zones including “Technical,” “Innovation,” “Industrial,” and “Culture” zones.

The Xujiang No. 1 Culture and Innovation Zone, initiated by the local government, was designed first to have an amusement park facility then to attract investment. The government has already spent 300 million RMB, excluding on land acquisition, and the construction is expected to be completed by end of 2012. But when we saw the site, there were no workers and construction seems to be at a complete halt. It seems doubtful that this empty rural site will be transformed into even an empty amusement park by next winter.



*Above: The project plan
Below: The actual site*

An onsite administrator told us that their project has been postponed and that investors were cool to the project, while local people did not want to relocate to the area.

The manager at the Wuzhong District Tech-zone told us that the government is able to divert new and old businesses to these zones with a basket of carrots and sticks, including tax credits and rent discounts. He said that eventually, most zones ultimately succeed.

On the other hand, many areas become ghost towns once the government discontinues financial backing and support. The Geographic Asia Center, a planned park dating back to 1992, had the ambitious goal of turning Urumqi in Xinjiang into a thriving tourist city. Construction kicked off in 2001, with investment of 65 million RMB. But the area did not attract investors. In 2006, the government withdrew from the project, and now only scrap remains to remind a visitor of the area's planned glory. Except for the nearby villagers, no one remembers the Asia Center Park.



Abandoned Geographic Asia Center Park

Lots of infrastructure projects are one-off projects: local governments don't sustain contributions in cash or manpower, so many such projects even after successful completion of construction end up idle or abandoned.

- ***The Yunnan Dali Longshan Park cost the government a total of 58 million RMB***, of which 39 million was for the main construction, 7.2 million for service facilities, 8.4 million forest clearing and landscaping, 1.6 million for the park's statuary, and 1.55 million for parking lots and bus stations. Since this park has not attracted any tourists whatsoever, the square has been turned into a public recreation venue for local residents.
- ***The Changchun Zhenzhuxi Park***, with a total area of 13.4 hectares was built in 2007, with investment of 30 million RMB. Due to lack of funds for maintenance, this park now resembles a dump more than a scenic area. Garbage is everywhere, the lake smells, and not a single public toilet can be found in the park. Changchun Construction Center didn't transfer the supervision responsibilities to the Landscaping Bureau but declined to care for the facility itself.

Empty Airports

Government statistics indicate that 70% of China's airports currently fail to cover their own costs, and yet more airports are being built, in smaller cities.

In addition to new airports, many existing airports are undergoing expansion. Expansion plans in Harbin, Dalian, Tianjin, and Qingdao have attracted investment commitments of over 10 billion RMB. Harbin's expansion plan is based on projections that annual passenger traffic will be 15 million and cargo throughput of 175,000 tons by 2020--about the same as the volume of the Chongqing Airport, which now has an annual passenger volume of 7.3 million and cargo throughput of 71,000 tons. Required investment is estimated at 3.47 billion RMB. Dalian, Tianjin, and Qinhuangdao will need 2.26 billion, 5.69 billion, and 0.49 billion RMB respectively.

These four are only a fraction of the nationwide airport construction leap forward. Dozens of airports are under construction or being expanded. According to the CAAC plan, China will build 56 new airports, move and rebuild 16 airports, expand 91 airports in the current five-year period. Infrastructure investment throughout this industry will reach as much as 425 billion RMB. Most of these new airports are located in central and western China, with local governments being the main drivers of these projects.

Contrasting with these big plans is the fact that airports face huge losses. CAAC Chief Li Jiaxiang disclosed¹¹ that, in 2010, 120 out of 175 airports were in the red, and total losses amounted to 1.68 billion RMB. Many airports survive off of government subsidies, but many governments also face fiscal shortfalls. As one executive of a western Chinese airport put it:

“Financial backing all comes from the government, through bonds and loans. A few airports with good assets can attract strategic investors, and it's unlikely we can raise money from stock market. So far we only have six domestic airports listed and new IPOs are unlikely.”

Here are some miseries of regional airports.

- **Guizhou Province Qiannan County Libo Airport:** This is the fifth regional airport in Guizhou Province located in a national park. Starting from its operation in 2007, the airport has lost 5 million RMB a year, as it did not create the expected surge in tourist traffic.

The airport was built based on projected annual traffic of 220,000 trips. However, there are only two flights from Guiyang, capital of Guizhou province, to Libo every week, with total actual passengers numbering

¹¹ <http://www.cah.com.cn/news.php?id=4018>

The impoverished county of Qiannan, Guizhou built an airport that served a total of 151 passengers in Year 1.

4,387 in 2010 and only 151 in 2009. Revenue in 2010 was a mere 530,000 RMB, while operation costs totaled over 5 million RMB.

- **Hebei Province Zhangbei airport:** Zhangbei is not a county many would describe as airport-worthy:
 - Zhangbei is one of 529 counties officially designated as impoverished. With an annual income of 2,700 RMB per capita in 2008, its people measure poorly against even the average income of a farmer – 4,700 RMB per capita in 2008.
 - Fiscal income of Zhangbei County was 600 million RMB in 2010, while total expenses were 1.2 billion RMB.
 - Zhangbei is only 225 km away from Beijing. The total population is only 370,000.
 - Despite the small size and relative poverty of this county, 100 million RMB was invested in an airport with an eye to improving tourism, according to official statements. After the airport becomes operational, the plan is to have helicopters fly the one-hour Zhangbei-to-Beijing route. The fee to charter a flight will be as much as 25,000 RMB and so is unlikely to encourage travel to Zhangbei.

Highways to Nowhere

Local governments are still vying for highway construction projects. Provincial governments are trying to exceed the mileage goals in the 12th Five Year Plan as quickly as possible. If projects continue as planned throughout this year, by the end of 2012, China will find itself only 2,000 km short of the goal that was due to be reached in 2015.

Highway Mileage Plan for 2012

	Current highway mileage (km)	Mileage to be added in 2012 (km)
Henan	5,196	600
Guangdong	5,049	319
Hebei	4,700	768
Shandong	4,244	490
Jiangsu	4,059	110
Shanxi	4,010	1,000
Hubei	4,009	2,250
Heilongjiang	4,000	327
Shaanxi	3,800	895
Jiangxi	3,642	554
Zhejiang	3,382	309
Sichuan	3,300	700
Liaoning	3,300	600
Fujian	2,700	800
Hunan	2,666	1,000
Yunnan	2,500	1,300
Guangxi	2,416	2,584
Inner Mongolia	2,183	417
Gansu	2,000	200
Chongqing	1,953	200
Jilin	1,795	1,505
Guizhou	1,578	600
Qinghai	1,400	1,600
Ningxia	1,300	258
Tianjin	1,100	267
Xinjiang	1,459	3,541
Beijing	770	230
Hainan	659	58
Shanghai	637	40
Anhui	3,000	119
Total	82,807	23,641

Source: China-highway.com, News reports, J Capital Research estimates

Ports

Ports are another bit of transportation infrastructure that seems to have been built without regard for need. We took a look at the Taicang Port in Suzhou:

- The first three construction phases for Taicang Port totaled 52 berths. Of those, 10 are designated for containers and the rest for wood, iron ore, petroleum, chemical raw materials, and other types of loose bulk cargo.
- With all three of the first three phases completed, the port now sees a total container output of 3 million TEU, iron ore measuring 30 million tons, and 4 million m³ of timber. An executive of the project told us that “the previous three phases were not profitable at all, as the average usage rate is only 30%-40%. We can barely break even.”
- The fourth phase of construction will begin this June. The three investors are all provincial or city-level SOEs.
- If the first three phases are under-utilized, why is a fourth going forward? “This is an order from Suzhou Municipal government. They asked us to invest more, and they want to see a large-scale project. Only when we have the same size and facilities as Ningbo or Shanghai can we compete with them.”

For now, government and investors are apparently not concerned about returns. But we have some concerns.

In January 2010, Taicang Port Development Investment Corporation issued 600 million RMB in 10-year bonds for the new harbor city projects, which mainly comprise roads, bridges, and public facilities. Apart from the 600 million RMB bonds issued, the corporation also took out a 400 million RMB loan.

The planned construction period was from January 2007 to June 2010, but it is interesting to note that the projects did not receive approval until the end of November 2008. What is more, the bonds were issued with only a year and a half until the scheduled completion of the project.

Under current projections Taicang Port could theoretically pay back its debt, but only barely, and that will happen only in the absence of re-investment and repairs, significant cost inflation, and other factors. The following chart shows its projected financial situation.

Financial Figures of Taicang Port

Unit: million RMB	2010
Revenue	187.5
Gross profit	82.3
Bank Loans	400.0
Interest rate	6.0%
Annual interest payments	24.0
Corporate bond	600.0
Interest rate	7.1%
Interest payment on the bond	42.6
Total interest expense	66.6

Source: Company bond prospectus

Note: We assume the interest on the loan is 6%.

The company has to pay 1 billion RMB after 10 years. Even if the company retained every cent it earned during the next 10 years without any reinvestment, it could only barely pay back the principal.

This Month in Numbers

The truth is in the numbers. The trends in the macroeconomic world are the stimuli for our topic selection each month, but we don't delve into every trend. To provide a sense of the trends shaping China's economy in the background our each month's topic, we've compiled some of these indicators. We've also picked a few particularly surprising trends to highlight in the Charts section below.

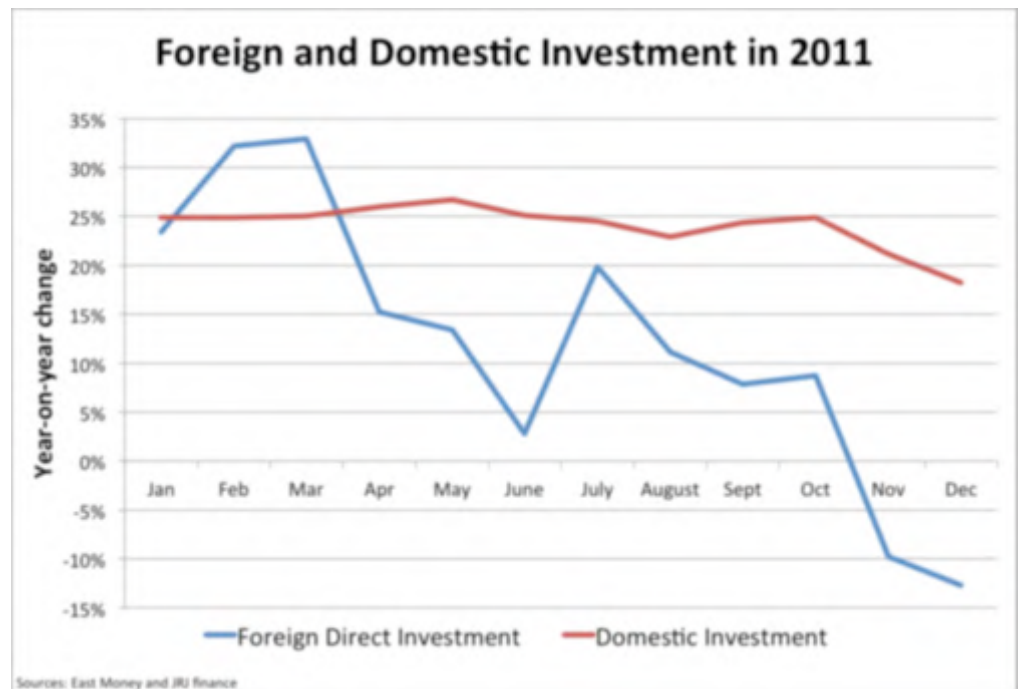
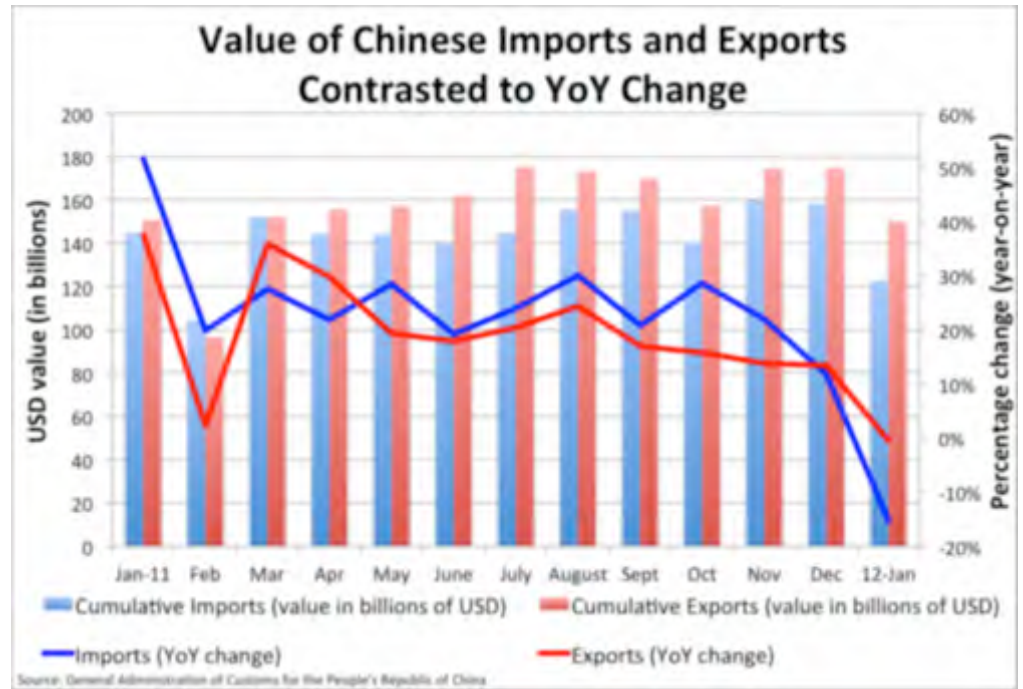
China's macro numbers since the start of Q4

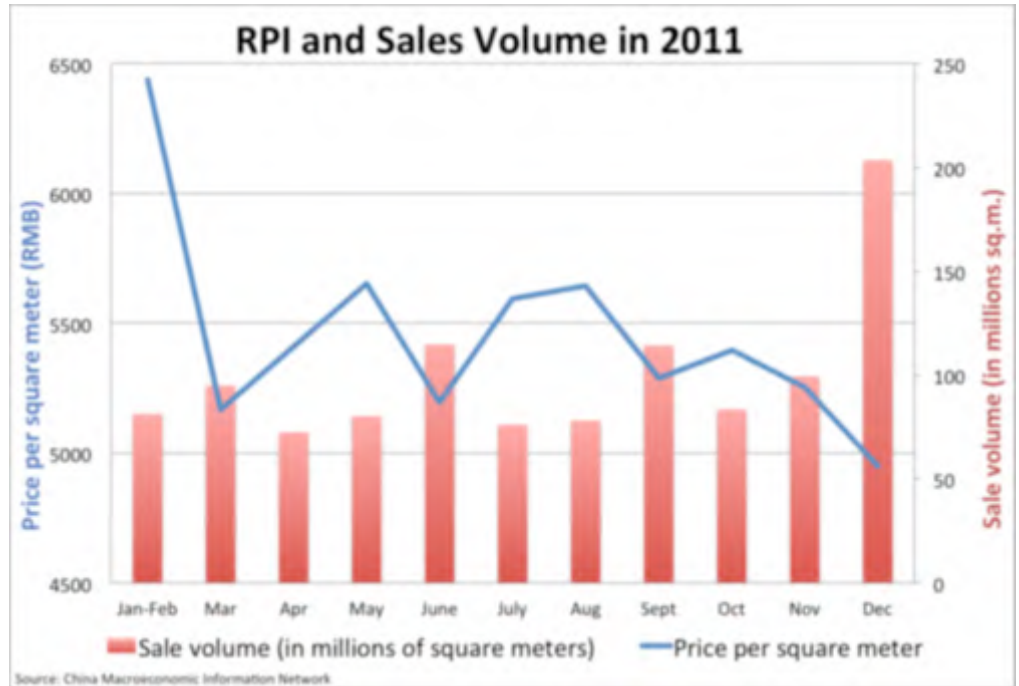
	Oct-11	Nov-11	Dec-11	Jan-12
Total loans outstanding (for large SOE banks) (trillion RMB)	53.5	54.06	54.79	55.53
Loan growth YoY	15.8%	15.6%	15.8%	15.0%
New Monthly Loans (billion RMB)	586.8	562.2	747	738.1
HSBC PMI (absolute)	51	47.7	50.8	49.7
HSBC PMI (MoM change)	1.1	-3.3	3.1	-1.5
China PMI manufacturing (absolute)	50.4	49	50.3	50.5
China PMI manufacturing (MoM)	-0.8%	-1.4%	1.3%	0.2%
China PMI services (absolute)	57.7	49.7	56	52.9
China PMI services (MoM)	-1.6%	-8.0%	6.3%	-3.1
Industrial value-added YoY	13.2%	12.4%	14.0%	12.8%
Total Investment Value - yearly cumulative (trillion RMB)	30.19			
Total Investment Growth YoY (Fixed Asset)	24.9%	21.17%	18.23%	not released
Investment growth in residential property – yearly cumulative (trillion RMB)	6.174			
RPI - house price (RMB/sq.m)	5396.94	5251.99	4948.9	not yet released
RPI - house area (millions of sq.m)	83.64	99.41	203.52	not yet released

	Oct-11	Nov-11	Dec-11	Jan-12
Cumulative Imports (value, USD in billions)	140.33	159.85	158.2	122.66
Cumulative Exports (value, USD in billions)	157.39	174.44	174.72	149.94
Trade Balance (billion USD)	17.03	14.53	16.52	27.28
Imports (YoY change)	28.60%	22.00%	11.80%	-15.30%
Exports (YoY change)	15.80%	13.80%	13.40%	-0.50%
FDI (YoY change)	8.75%	-9.76%	-12.73%	-0.30%
Tax Revenue YoY Growth (cumulative quarterly)	22.60%			
PPI	105	102.7	101.7	100.7
PPI MoM	5.00%	2.70%	1.70%	0.70%
CPI (cumulative)	105.6	105.5	105.4	105.5
CPI MoM	5.5%	4.2%	4.1%	4.50%
Food CPI	111.6	108.9	110.6	110.5
GDP in trillion RMB (2011 cumulative)	47.16			
GDP growth YoY (quarterly)	9.2%			
FAI in trillion RMB	2.91	2.81	3.25	not yet released
FAI MoM	-8.13%	-3.45%	15.64%	not yet released
M0 Value (trillion)	4.66	4.73	5.07	5.98
M0 YoY growth	11.9%	12.0%	13.8%	3.0%
M1 Value (trillion)	27.66	28.14	28.98	26.99
M1 YoY Growth	8.4%	7.8%	7.9%	3.1%
M2 Value (trillion)	81.68	82.55	85.16	85.58
M2 YoY growth	12.9%	12.7%	13.6%	12.4%
Bank Deposits (trillion RMB)	79.21	79.51	80.94	80.13
Bank Deposits YoY growth	13.6%	13.1%	13.5%	12.4%

Sources: National Bureau of Statistics China, People's Bank of China, Sina, Customs Bureau China and Eastmoney.

The Charts This Month





Facts are stubborn

... but statistics are more pliable

Number of days in advance that train tickets go on sale in China

10

Number of mouse clicks made to book train tickets on the first day of ticket sales for Chinese New Year

1,400,000,000

Total investment in Shanghai Hongqiao High-Speed Railway Station in RMB

15,000,000,000

Total cost of Tian'anmen Square 1998 restoration in RMB

100,000,000

Number of times Tian'anmen Square can fit into Shanghai Hongqiao Station

3

Projected number of travelers transiting Shanghai Hongqiao Station annually

78,400,000

Number of visitors to Tian'anmen Square annually

144,400,000

Cost to outfit a bathroom on a high-speed railcar in RMB

1,200,000

Price of the vacuum component of the railcar toilet in RMB

200,000

Price of most expensive commercially available toilet in RMB

40,320

Percentage increase in kilometers of track between 2005 and 2010

21

Percentage increase in railway passenger volume between 2005 and 2010

45

Percentage increase in total investment in national railway fixed assets between 2005 and 2010

518

Average annual salary for national railway workers in RMB

24,661

Estimated total offshore assets of the Railway Ministry's deputy chief, Zhang Shuguang, in USD

2,600,000,000

Total air passenger volume in 2010

564,312,300

Average passenger volume in ten largest airports

31,039,421

Number of airports in China

175

Number of airports with an annual passenger volume of under 100,000 passengers

50

Total number of departures and arrivals at those airports in 2010

1,072

Average daily departures and arrivals at all of the fifty bottom airports

3

Total passenger volume at Anshun Huangguoshu Airport in 2010

219

Total cargo

0

Number of new airports to be built by 2015

55

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