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Rebalancing in China—Progress and Prospects

by Longmei Zhang

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Abstract

China is transitioning to a greener, more inclusive, more consumer and service based, and less credit-driven economy. This paper defines a framework for assessing rebalancing, reviews progress, and discusses medium-term prospects.

External rebalancing has advanced well, while progress on internal rebalancing has been mixed, with substantial progress on the supply side, moderate progress on the demand side, and limited progress on the credit side. Rebalancing on income equality and environment has also been mixed, with the energy intensity of growth falling and labor's share of income rising, but income inequality and local air pollution remaining very high.

Going forward, the high national saving is expected to fall owing to demographic change and a stronger social safety net, while the investment ratio is expected to fall similarly, with increasing competition and profit normalization as growth slows. The service sector will continue to gain importance, helping reduce the carbon intensity of output and increase labor's share of national income and household consumption. Reducing the credit intensity of growth is likely to progress slowly unless decisive corporate restructuring and SOE reforms are implemented.

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I. Introduction

1. **China has relied on an investment/export-led growth model in the past decade.** China has achieved huge economic success in the past two decades, with GDP growth averaging about 10 percent and per capita income more than tripled. Before the global financial crisis (GFC), growth relied heavily on exports. With World Trade Organization (WTO) entry in 2001, China quickly became the world's manufacturing hub and the largest exporter by 2008. After the GFC, as external demand collapsed, China transitioned from an export-based to investment-driven economy, relying heavily on investment to boost GDP growth.

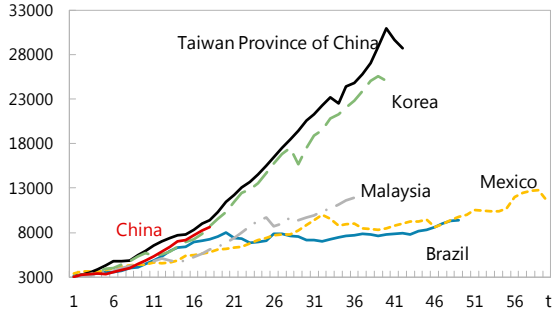
2. **Imbalances have similarly rotated from external to internal over the past decade.** Before the GFC, export-driven growth contributed to large external imbalances, with the current account surplus peaking at 10 percent of GDP in 2007. This reflected both an undervalued exchange rate and structural distortions that depressed consumption (such as financial and wage repression). After the GFC, the current account surplus gradually unwound, while the investment ratio has surged to 45 percent, significantly higher than international norms, including similar fast-growth episodes in Korea and Japan. Such high investment contributed to falling efficiency, and made the economy rely heavily on credit to generate economic growth. Credit intensity, the amount of new lending needed for an additional unit of output, has more than doubled in the post-GFC period.

3. **Rapid economic growth has come at the cost of rising inequality and a deteriorating environment.** While high growth has helped China lift millions out of poverty, income inequality has risen significantly, with the Gini index rising from 0.3 in the 1980s to 0.53 in 2013, one of the largest increase in the world. Environmental pollution, both in terms of carbon emission and local air pollution has worsened significantly.

4. **China has reached an inflection point, where continuing with the old-growth model will likely either drag the economy into the middle-income trap or trigger a financial crisis.** Continued excessive investment and resource misallocation will lower efficiency, drive up credit intensity, and expand debt to an unsustainable level with an elevated risk of a financial crisis. Even if a crisis case can be avoided given the state-dominance of the financial sector and the high savings rate, falling efficiency will lead to a sustained growth slowdown and drag the economy into the middle-income trap. Such risk is particularly high given China has reached an income level at which many fast-growing economies stagnated in the past.

China Income Convergence at Cross Road

(GDP/Capita, in PPP U.S. dollars)



Source: Aiyar et al (2013).

[1] t=0 is defined as the year when the GDP per capita for a particular country reached 3000 U.S. dollars in PPP terms.

5. **A comprehensive rebalancing of the economy is thus needed to ensure the sustainability of China's strong growth and income convergence.** As outlined in the twelfth and thirteenth five-year plans, the government is committed to transform the economy into a greener, more inclusive, more consumer and service based, and less credit-driven economy. Nonetheless, implementation is key. A comprehensive plan, which covers various aspects of rebalancing and takes into account their intrinsic linkages, is needed to achieve the government goals.

6. **The rest of paper is organized as following.** Section II presents a framework for assessing rebalancing, defining various elements of rebalancing and analyzing their interconnections. Section III examines the progress made on rebalancing. Section IV projects the rebalancing path in the medium term. Section V concludes with policy recommendations.

I. Framework of Rebalancing

A. Definition of Rebalancing

7. **Rebalancing in China contains four key elements:** external, internal, environmental, and distributional rebalancing. They are closely interlinked and often reinforce each other.

8. **External/internal rebalancing:** While external rebalancing simply focuses on the role of external versus domestic demand, internal rebalancing has a much richer content. It entails shifting from investment to consumption on the demand side, transitioning from industry to services on the supply side, as well as reducing credit intensity and improving allocative efficiency on the input side.

9. **Environmental/income distribution rebalancing:** Environmental rebalancing aims to reduce the energy and carbon emission intensity of output, as well as local air pollution. Income distribution rebalancing aims to create a more equal society by increasing the share of labor income in GDP and reducing income inequality.

B. Indicators of Rebalancing

10. **External:** External imbalance is measured by the current account balance as a percent of GDP. Given this measure is sensitive to terms-of-trade shocks, an alternative is to use the contribution of net exports to GDP growth (which strips out the price effect and focuses on volumes).

11. **Internal:** On the demand side, two indicators are used to gauge the relative importance of consumption to investment. One is their nominal share in GDP, and the other is their relative contribution to GDP growth in real terms. Similar indicators are used on the supply side to measure the role of industry versus services. On the credit side, credit intensity (the amount of credit needed for an additional unit of output) is used to measure the degree growth relies on credit and the credit to GDP ratio used to measure the stock of credit and financial stability risk. On credit allocation efficiency, the difference in return on assets between state-owned firms and private firms is further used to gauge the asset allocation efficiency.

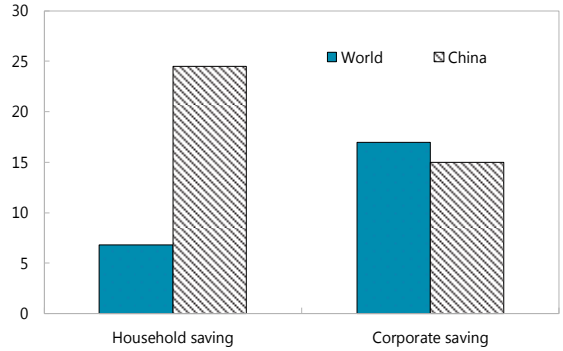
12. **Environment:** Three indicators are used to measure environmental rebalancing: (1) energy intensity, defined as electricity consumption per unit of output; (2) carbon emission intensity, defined as carbon emission per unit of output; and (3) PM2.5 (particulate matter that is 2.5 micrometers in diameter and smaller, which is particularly hazardous to health) is used to measure local air pollution.

13. **Income distribution:** Income inequality is measured by the Gini index, the urban-rural income gap, and the labor income share of GDP.

C. Interlinkages of Rebalancing

14. **The crux of China's external and internal demand imbalance is its high saving rate.** China has one of the world's highest national saving rates, mostly driven by households. Corporate saving also surged in the early 2000, but has gradually come down to around international norms as profits normalized. When savings more than meet the need of domestic investment, they tend to flow out of the country and are associated with a large current account surplus. As seen in the pre-GFC period, extra savings from China contributed to the "global saving glut" and put downward pressure on world interest rates. After the GFC, external balance was gradually restored and savings were mostly absorbed domestically, but this relied on excessive high investment ratio. Hence, a successful rebalancing necessitates lower saving rates. Another key driver of imbalance was the labor income ratio, which fell sharply since early 2000 reflecting various policy distortions and depressed household consumption, but has recovered since the GFC and has now broadly converged to international norms.

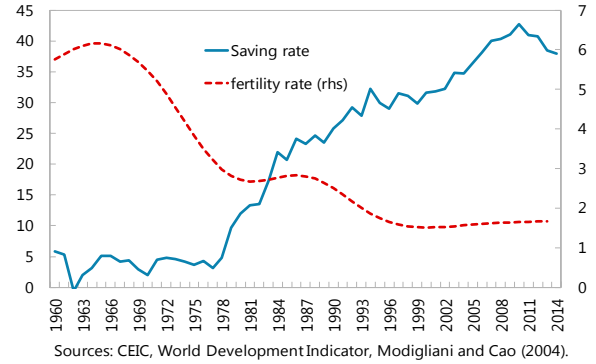
Very High Household Saving Rate
(in percent of GNI)



Sources: CEIC and Grigoli et al (2014) .

15. **The high household saving rate was mostly driven by demographic and precautionary factors.** The household saving rate surged from 5 percent in the mid-1970s to 40 percent in recent years, with two noticeable trend breaks: the first was in the late 1970s and the second in the late 1990s.This pattern reflects mostly two factors.[1] First, *demographic change* (Modigliani and Cao, 2004; Choukhmane and others, 2013; and Curtis, Lugauer, and Mark, 2012). With the introduction of the one-child policy in the late 1970s, urban fertility fell sharply, which increased household savings as people spent less on raising children (the "expenditure" effect) saved more for their retirement (the "transfer"

Rising household saving amid falling fertility
(saving in percent of disposable income; fertility rate in number of births)



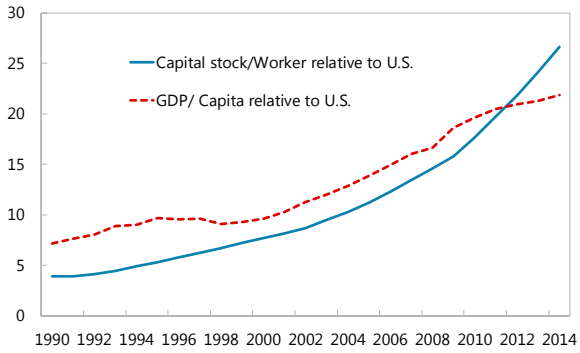
Sources: CEIC, World Development Indicator, Modigliani and Cao (2004).

[1] Gender imbalance is also mentioned as one factor behind the high saving rate. See Wei and Zhang (2011).

effect, substituting for the anticipated diminished role of children in providing old-age support). At the aggregate level, saving increased further due to the rising share of the working age population. Second, the *precautionary motive* (Blanchard and Giavazzi, 2005; Liu and others, 2014). This was particularly the case after the healthcare reform in the early 1990s, which required households to bear a larger share of healthcare spending; as well as the SOE reform in the late 1990s, when job security fell for most workers with the breaking of the "iron rice bowl" (the system of guaranteed lifetime employment in state-owned enterprises).

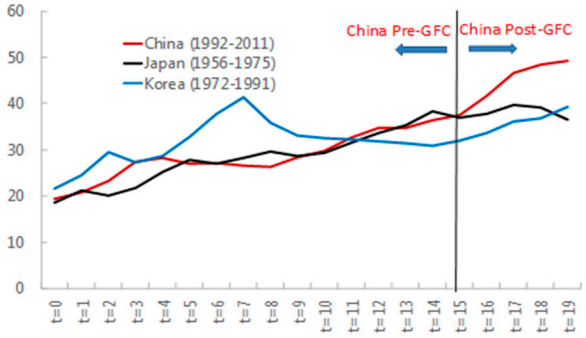
16. **Successful rebalancing requires a lower savings rate and a commensurate fall in investment.** China's current economic structure features a significantly higher investment ratio, and lower consumption ratio, than most other countries. Given the saving rate is essentially a household decision, subject to strong habit persistence; its fall is more likely to be gradual. This implies investment adjustment should also be gradual (e.g., to avoid external imbalance). The key is to improve the efficiency of investment. China's capital stock per worker is still significantly lower than advanced countries (less than 30 percent of U.S. level), hence capital deepening will continue and there are plenty of opportunities for better investment. But the speed of capital deepening needs to slow. As shown in the chart, capital stock deepening has outpaced income convergence since the GFC. Before the GFC, while the investment rate was higher in China than the global average, it was broadly in line with other fast-growing Asian economies at similar development stage. However, the post-crisis policy stimulus has pushed investment ratio far above its Asian peers. While the optimal investment rate may differ across countries, such high investment in China appeared to be excessive as shown in the sharp decline of capital returns. Hence, the investment ratio needs to fall overtime and its efficiency improved.

Capital Deepening Outpaced Income Convergence
(capital stock per worker and GDP per capita, in percent of U.S. level)



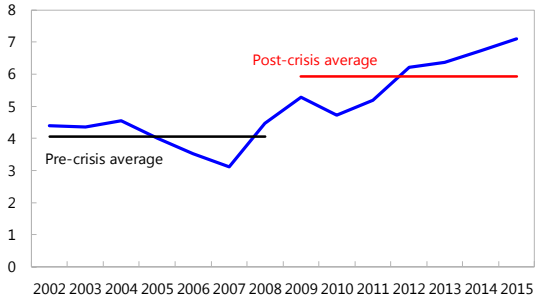
Sources: Penn world table 8.1 and IMF staff calculations.

Excessive Investment after the GFC
(Investment ratio, in percent of GDP)



Sources: Penn world table 8.1

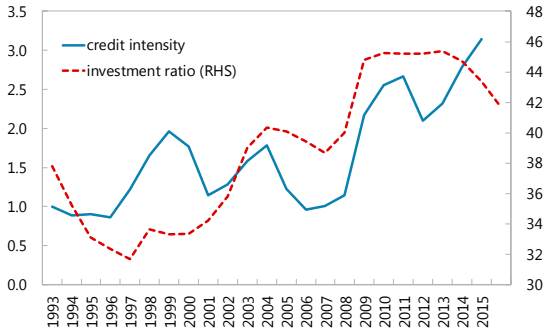
Falling Investment Efficiency
(Incremental capital output ratio 1/)



Sources: CEIC Data Company Ltd and IMF staff estimates.
1/ The incremental capital output ratio (ICOR) is a proxy of the inverse marginal product of capital. The higher the index, the less productive the capital.

17. **Less investment and better credit allocation will help bring down credit intensity.** Given the high propensity to save of Chinese households, consumption-related credit has been very low. Instead, most of the credit is used to finance investment activities. Hence the composition of GDP growth in terms of investment versus consumption has a significant impact on overall credit intensity of output. Regression analysis suggests changes in the investment ratio alone can explain about 70 percent of variation of credit intensity in the past. In the recent three years, rising credit intensity despite falling investment ratio reflects worsening allocation efficiency, especially with respect to SOEs, as shown in the widening gap in asset returns compared to private firms.

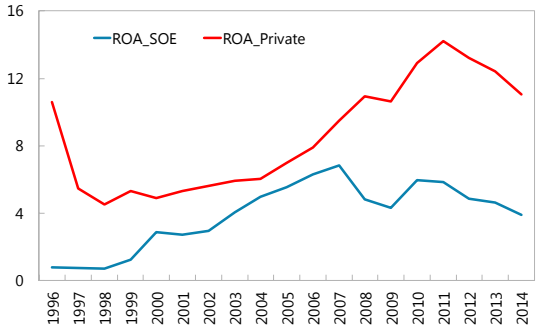
Rising Credit Intensity with Higher Investment



Source: IMF staff estimates.

Widening Gap in Asset Returns: SOE vs Private

(ROA, in percent)



Sources: CEIC and IMF staff calculations.

18. **Demand side and supply side internal rebalancing complement each other.** A more consumption driven economy will have less demand for heavy industrial goods, and increasing demand for consumer goods, including services. As well documented in the development literature, the share of services in consumption expenditure tends to rise with the level of development. Hence stronger consumption growth will increasingly benefit the service sector. In turn, a higher service share in the economy will enhance the labor income share in GDP and boost consumption. In addition, improvements in service sector productivity would lower the relative price of market services versus home production and promote household consumption of market services (Buera and Kaboski, 2012).

19. **Supply-side internal rebalancing will promote environmental and income distribution rebalancing.** Staff analysis suggests that the service sector is 85 percent less energy intensitve than the industrial sector, and a one percentage point rise of the service sector share in GDP will reduce electricity growth by 2 percentage points for the same output growth. Given the heavy reliance on coal for electricity production, this will also reduce the energy and carbon intensity. In addition, the transition to services will also increase the share of labor income in GDP, given its higher labor intensity than the industrial sector.

II. Progress on Rebalancing

External rebalancing has advanced well, while progress on internal rebalancing has been mixed, with substantial progress on the supply side, moderate progress on the demand side, and

limited progress on the credit side. Progress has also been mixed on income equality and environment rebalancing, with the energy intensity of growth falling and labor's share of income rising, but income inequality and local air pollution remaining very high (see detailed rebalancing scorecard in appendix)

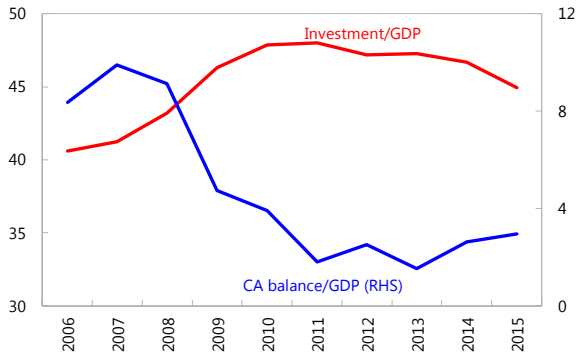
Rebalancing Scorecard

External		Internal			Environment		Income Distribution	
Current acc.	Net exports contrib.	Demand	Supply	Credit	Energy	Air pollution	Labor income ratio	Income inequality

20. **External rebalancing has advanced well, but at the cost of growing internal demand imbalances.** After the GFC, substantial progress has been made on external rebalancing. China's current account surplus has come down from the peak of 10 percent of GDP in 2007 to around 2–3 percent in recent years, and the contribution of net exports to growth has been fluctuating around zero (from 2 percentage points of GDP annually in the pre-GFC peak). Nonetheless, the narrower external imbalance has come at the cost of growing internal imbalances, with the investment ratio surging to 45 percent of GDP by 2011 (from about 38 percent in the pre-GFC years).

21. **Progress on internal rebalancing has been moderate on the demand side…** Since 2012, progress has been made on demand side rebalancing from investment to consumption, with notable acceleration in 2015 and 2016:H1. Consumption growth has been strong (contributing about two thirds of overall GDP growth), supported by both high income growth and pro-consumption reforms. Investment growth has also moderated from the post-crisis peak. Nonetheless, China remains a global outlier in its demand structure, with the investment ratio elevated at 43 percent of GDP, while private consumption accounts for only 38 percent of GDP. Hence, there remains plenty of scope for further rebalancing.

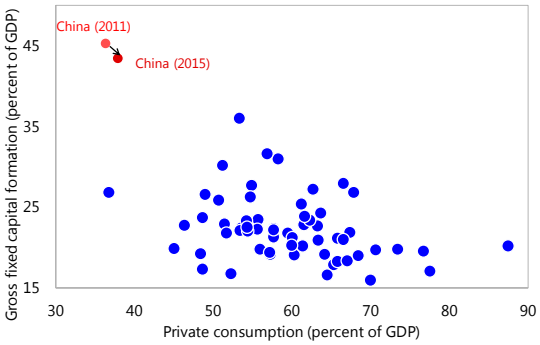
Rotation from External to Internal Imbalance
(In percent of GDP)



Sources: CEIC Data Company Ltd.; and IMF staff calculations.

22. **…limited on the credit side...**High investment, together with credit misallocation, has led to falling efficiency: the credit intensity of output has doubled compared to the pre-GFC period and has continued to rise. Credit misallocation has, to a large extent, been driven by financing of weak firms, especially state-owned firms in overcapacity sectors, such as construction, steel, etc. Since 2016, there have been early signs

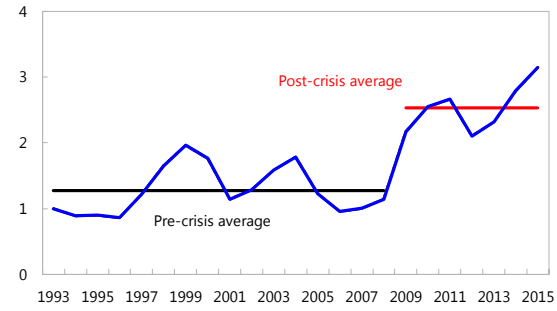
Slowly Switching from Investment to Consumption
(Industrial Countries and Emerging Markets; average, 2008-14)



Sources: *World Economic Outlook (WEO);* and IMF staff estimates.

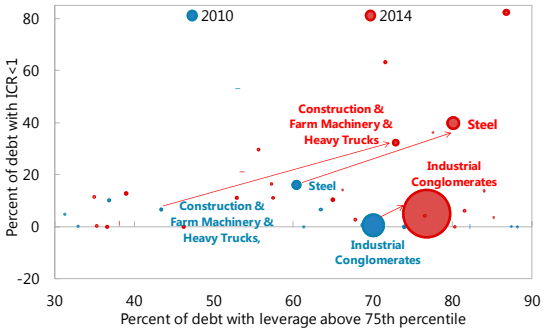
of improving credit structure, with a shift of lending from overcapacity sectors to the "new economy," but overall credit misallocation remains significant.

Credit Intensity Rising Further 1/
(New credit per unit of additional GDP)



Sources: CEIC Data Company Ltd.; and *World Economic Outlook (WEO)* and IMF staff estimates.
1/ Plotted as 3-year rolling average.

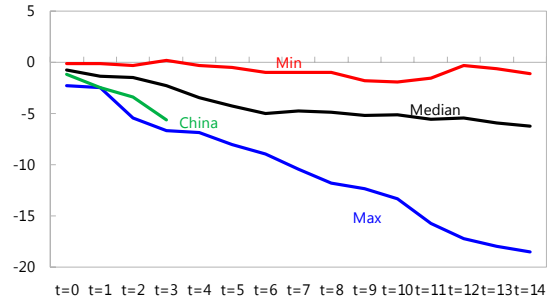
Rising Leverage in Stressed Sectors



Sources: WIND database; and IMF staff calculations.
Note: Dot size indicates the size of debt in the sector.

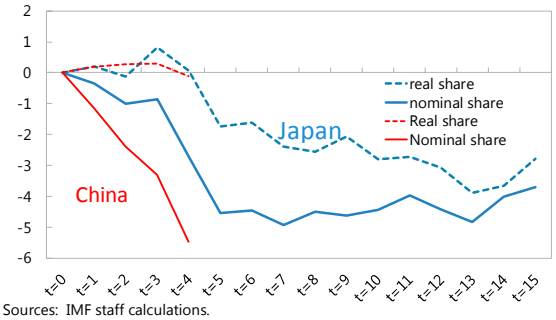
23. **…but substantial on the supply side.** Similar to the experience of other advanced economies, China started to de-industrialize at an income level of about US$ 9,000 (in 1990 international prices), with the output share of the industrial sector peaking in 2011. Since 2012, the nominal share of industry has been on a steady decline, with the pace of decline similar to the experience of advanced economies. The falling nominal share reflects to a large extent the price effect so far, as the decline in the real share has been much more muted. This is also in line with international experience, as relative price change is an essential part of deindustrialization, especially at the beginning. Resource reallocation will typically accelerate after these price movements. In Japan, for example, the nominal industrial share fell sharply once deindustrialization started, while the real share remained stable and only started to decline four years later. Another indicator for real adjustment is the industrial employment share, which peaked in 2012 and has been on a steady decline since.

Deindustrialization Similar to Other Countries
(Change in nominal industrial share after Peak, in percent of GDP)



Sources: Maddison database, GGDC database, IMF staff calculations.
Note: t=0 is defined as the year when the nominal share of industrial sector in GDP peaked. Countries in the sample include nine advanced economies.

Falling Industrial Share Driven by Price Effect
(Change in industrial share: nominal vs. real)



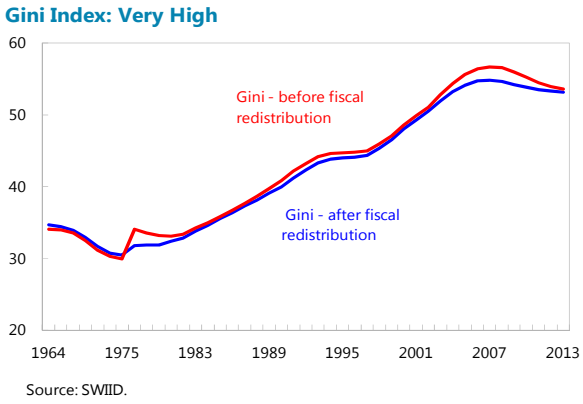
Sources: IMF staff calculations.
Note: t=0 is defined as the year when the nominal share of industrial sector in GDP peaked.

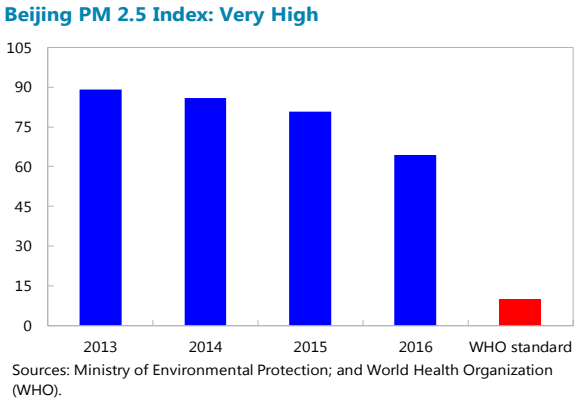
Cross-Country Experience on Deindustrialization

peak of industrial sector	year	GDP/Capita	industry share of output	service share of output
United States	1953	10,613	33	60
UK	1960	8,645	49	44
France	1970	11,410	41	48
Germany	1970	10,839	47	48
Japan	1970	9,714	42	51
Spain	1975	8,346	46	42
Italy	1976	11,308	46	45
Taiwan	1986	7,477	49	44
Korea	1992	9,877	44	47
China	2012	9,719	46	46

Sources: Maddison database; CCGD database: and IMF staff calculations.

24. **Rebalancing progress on the environment and inequality has been mixed.** Progress has been made in reducing the carbon emission, and especially electricity, intensity of GDP, however, PM 2.5 indexes (fine particle air pollution) in cities remain very high. Rapid economic growth has been accompanied by growing income inequality, with the Gini index[2] rising from 0.3 in the 1980s to 0.53 in 2013—among the highest in the world. Progress has been made in recent years with labor income gaining a larger share in GDP, but the redistributive role of fiscal policy remains limited as shown in the small difference between gross and net Gini index.





III. Prospects for Rebalancing

A. Baseline

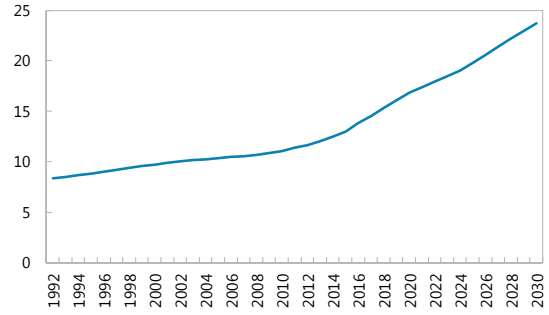
The baseline projection assumes substantial progress in pro-consumption and services reform, but a lack of decisive SOE reforms and slow progress on hardening budget constraints. This will support continued internal rebalancing on the demand and supply sides, but less on the credit side. The improvement in external balancing is likely to continue.

25. **The household saving rate is projected to fall gradually, reflecting demographic changes and pro-consumption reforms.** China will experience rapid ageing in the next 15 years, with the old-age dependence ratio forecast to double from its current level by 2030. Based on cross-country

[2] The Gini index is based on the Standardized World Income Inequality Database (SWIID).

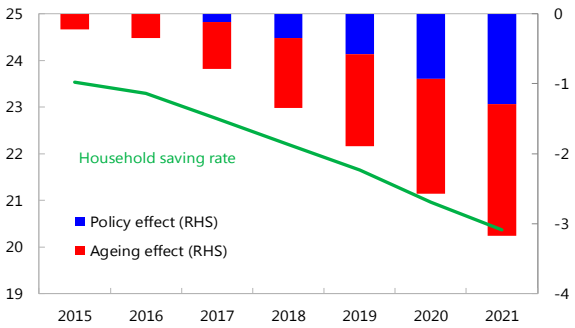
experience, such demographic change would significantly reduce the saving rate. As shown in Grigoli and others (2014), one percentage point increase in the old-age dependence ratio lowers the saving rate by 0.4 to 1 percentage point. In addition, precautionary saving is expected to fall with the strengthening of the social safety net, achieved through higher government spending on health care (rising from current 1.5 percent of GDP to 2.1 percent by 2020). With the combined ageing and policy effect, household saving is expected to fall from 24 percent of GDP to about 21 percent of GDP by 2021. The recent lifting of the one-child policy may induce the savings rate to fall faster than this, depending on the effect on the fertility.

Ageing to Accerlerate
(old-age dependence ratio 1/)



Sources: United Nation.
1/ Defined as the ratio of old-age to working-age populaton.

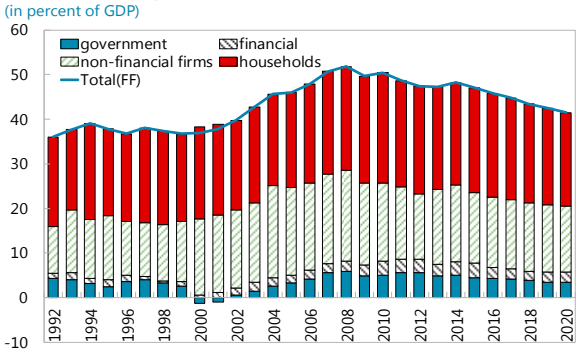
Household Saving Rate to Fall
(In percent of GDP)



Source: IMF staff estimates and projections.

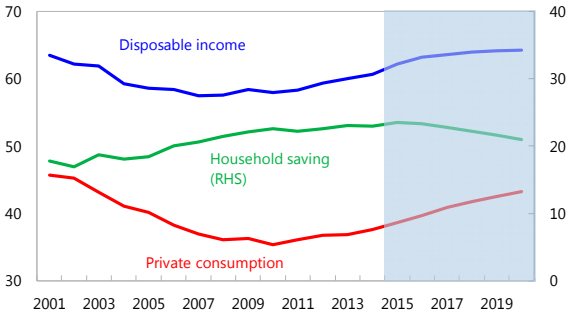
26. **National saving is expected to fall, reflecting lower household savings and some moderation in corporate and government savings**. In addition to falling household saving, government saving is envisaged to decline with higher spending on healthcare and education and broadly unchanged revenue to GDP ratio. Savings of nonfinancial firms and financial institutions are also likely to decline with increasing competition and normalization of profits when growth slows. Altogether, national saving is projected to fall to 41 percent of GDP by 2021.

National Saving Rate to Fall
(in percent of GDP)



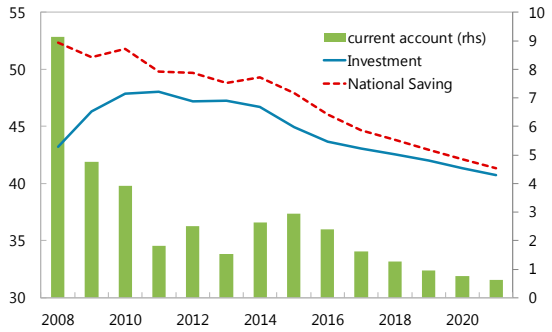
Sources: Flow of funds, IMF staff estimates and projections.

Consumption Share to Rise
(In percent of GDP)



Source: IMF staff estimates and projections.

Investment to Fall with Saving
(in percent of GDP)



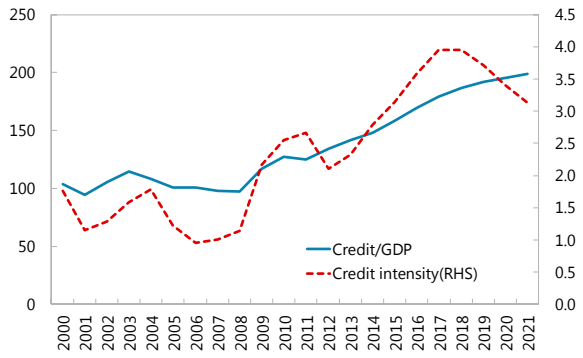
Sources: CEIC and IMF staff estimates.

27. **The investment ratio is expected to fall broadly in line with national saving, with external rebalancing becoming more entrenched.** Gross fixed asset formation in GDP is projected to fall gradually to below 40 percent of GDP by 2021. With the broadly commensurate fall in investment and national saving, the current account surplus is projected to remain low, and decline further to less than 1 percent of GDP in the medium-term. The fall in investment will reflect both moderating private investment as returns diminish in a slowing economy and a reduction in off-budget public investment.

28. **Consumption's share is expected to increase with rising labor income share and falling household savings.** Private consumption is projected to gain importance, with its share in output rising from around 38 percent in 2015 to 43 percent in 2021. The increase will come from rising labor income share in GDP as well as declining household saving out of disposable income. The transition from industry to services on the supply side is expected to provide an important boost to the labor income ratio, as services are much more labor intensive.

29. **Credit intensity, although expected to fall, will remain high in the medium term; as a result, the private debt-to-GDP ratio continues to rise.** Credit intensity is forecast to fall modestly, owing to lower investment ratio and some improvement in efficiency, but remains high in the medium-term, reflecting a lack of decisive progress on SOE reforms and hardening budget constraints. By 2021, the private credit to GDP ratio (excluding LGFVs) is expected to reach 200 percent, up from about 160 percent in 2015 (assuming loan write-offs in the amount of 5 percent GDP in the next five years), despite some improvement in credit intensity.

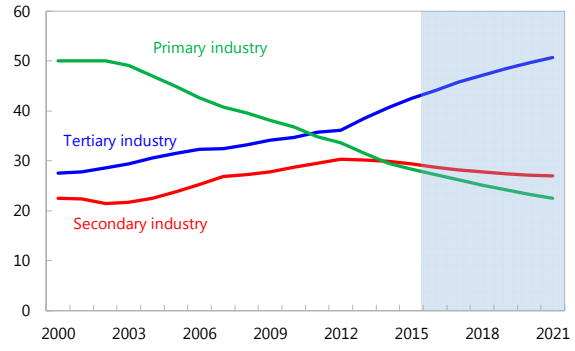
Credit Rebalancing Likely to be Slow



Sources: CEIC and IMF staff estimates and projections.

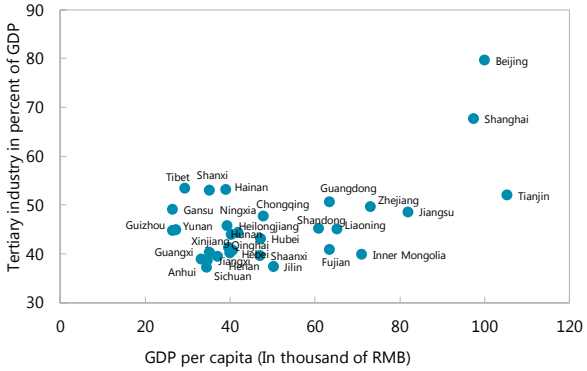
30. **Services will become an even more important pillar of the economy.** The nominal share of services in GDP is projected to rise from current 50 percent to 55 percent by 2021. This will be achieved through both the price effect (higher service deflator than industrial deflator, reflecting the productivity growth differential) and the real effect as shown in increasing share in real terms and employment. By 2021, the share of industrial employment is forecast to decline to 27 percent, while the share of service will rise to 51 percent, absorbing reallocated labor from both the primary and industrial sectors. Indeed, the service sector share has already reached the level of advanced economies in large cities like Beijing and Shanghai. The national rebalancing will hence mostly reflect the rising service sector share in interior regions.

Services to Rise...
(In percent of total employment)



Sources: CEIC Data Company Ltd.; and IMF staff estimates.

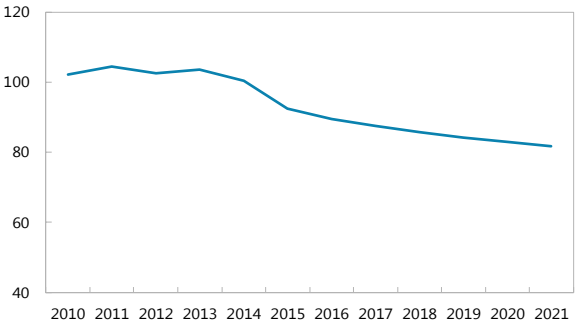
... Driven by Interior Provinces



Sources: CEIC Data Company Ltd.; and IMF staff calculations.

31. **The changing economic structure will facilitate enviromental and income distribution rebalancing,**. The transition from industry towards services will naturally reduce the energy and carbon emission intensity of output. With the projected increase in the service sector share, energy intensity of the economy is expected to fall by 15 percent from the current level in 2021. Similarly, a more service-oriented economy will give rise to higher share of labor income in GDP, but a more redistributive fiscal policy is necessary to bring down income inequality, and provide more equal opportunities to both urban and rural households.

Energy Intensity to Fall
(Electricity consumption per unit of output)

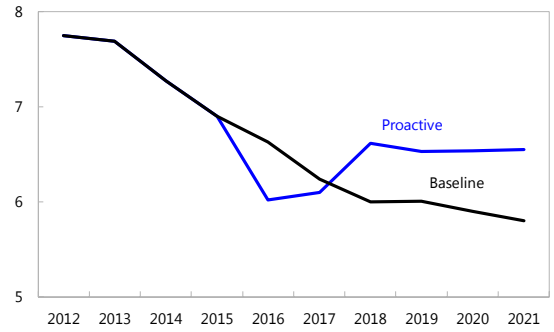


Sources: CEIC and IMF staff estimates and projections.

B. Proactive Scenario

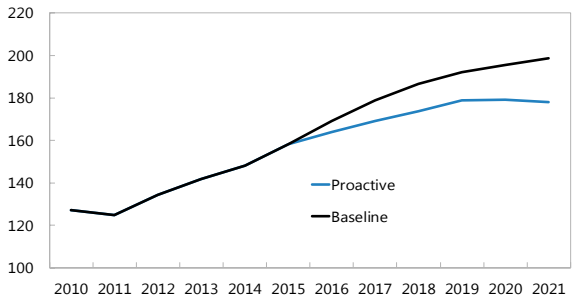
32. **A faster pace of internal rebalancing could be achieved via more proactive policies, especially in areas where progress has been lacking.** On the credit side, with faster NPL write-offs and corporate restructuring (especially the exit of nonviable firms in overcapacity sectors) , as well as more forceful hardening the budget constraints, private credit could stablize at a much lower level in the medium-term (some 20 percentage points of GDP lower than baseline), while growth would be higher reflecting the higher Total Factor Productivity growth (Lam and others (2016)). On the demand side, a larger increase of government spending on healthcare would further reduce household saving and boost consumption. On the supply side, faster deregulation of service sector could facilitate service sector productivity growth and accelerate resource reallocation from the industrial to service sector.

Proactive policies give rise to higher growth...
(In percent, year-on-year GDP growth)



Sources: CEIC Data Company Ltd.; and IMF staff estimates.

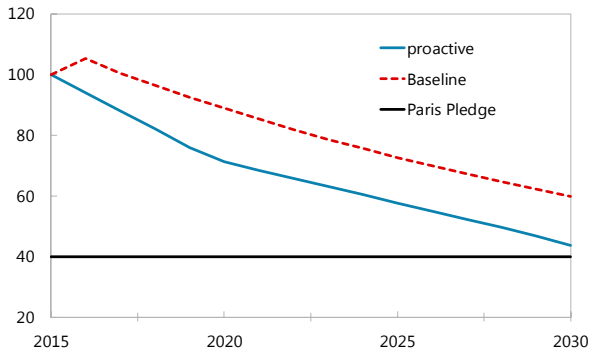
... and lower debt in the medium-term
(Nonfinancial private sector debt 1/, in percent of GDP)



Sources: BIS. WEO and IMF staff estimates.
1/ Excluding LGFV borrowings.

33. **Achieving enviromental rebalancing targets requires a substantial carbon tax.** While the changing economic structure and continued technological improvement will bring down the energy and carbon emission intensity of GDP, China still needs more proactive policy measures to reach the target set at the 2015 Paris climate summit. In particular, the pledges include lowering the CO_2 intensity of GDP by 60–65 percent by 2030 from the 2005 level. Nonetheless, as shown in Parry and others (2016), the changing economic structure is expected to lower the CO_2 intensity by 45 percent by 2030. To reach the 60–65 percent target, a progressive carbon tax is needed. Their analysis suggests that by increasing the carbon tax from $5 per ton in 2017 to $70 per ton in 2030, the reduction in CO_2 intensity will be accelerated and reach the Paris target by 2030. Such a tax would also generate additional fiscal revenue of about 2 percent of GDP, providing fiscal space for more social spending. In addition, it will also facilitate the supply side rebalancing by shifting resources away from heavy polluting industries.

Carbon Tax Needed to Reach Paris Pledge
(CO2 intensity of GDP, 2015=100)



Sources: Parry et al (2016).

C. Rebalancing Going Astray

Successful rebalancing requires coordinated progress on various fronts. Going too fast on one area, while too slow on others, may derail the whole process.

34. **Slowdown in investment without commensurate fall in saving.** If the saving rate falls less than expected, due to either policy inaction or a smaller than estimated demographic impact, while investment adjustment continues, the imbalance will then shift abroad, with China still running a large current account surplus in the medium term. This would have important implications for global saving and investment imbalances, and put sustained downward pressure on global interest rates.

35. **Faster decline in saving with continued high investment.** The saving rate may decline faster than currently projected, reflecting the recent lifting of the one-child policy or faster progress on strenghthening the social safety net. If the government also continues to rely on high investment to boost growth, China is likely to turn to a current account deficit country in the medium term, and import foreign capital to finance its investment. This could expose China to balance of payments crises, especially as investment returns would likely fall further.

36. **Premature deindustrialization.** While transitioning from industry to services is a natural path as an economy develops, the speed and timing matters. Many developing countries stagnated in the past simply because they started to deindustralize too early and too fast (Rodrik, 2015). Given labor productivity is much higher in the industrial sectors (both in terms of level and growth), re-engineering the economy towards services too fast may lead to a sharper growth slowdown and stall the convergence process. Despite rapid progress in the past decade, industrial productivity in China is still much lower than that of advanced economies, hence , there is still a need, and scope for, increasing industrial productivity.

37. **Continued debt overhang.** A key risk to the rebalancing process is continued build-up of credit and the associated financial risks. This may happen dispite good progress on demand and supply rebalancing, as long as budget constraint are not hardened forcefully. With rising leverage, deteoriarating asset quality, and the increasingly complex, opaque and interconnected financial system, the risk of a disruptive adjustment will increase significantly in the medium-term. While buffers (e.g., FX reserves and government debt) are still large and would help absorb potential financial shocks, they will likely diminish over time, especially if reforms lag.

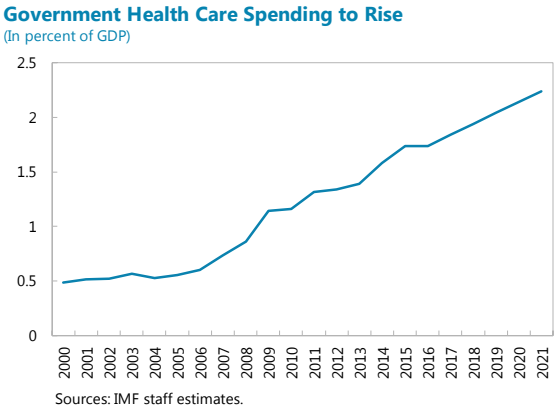
IV. POLICY IMPLICATIONS

While demograpic and structural changes will provide tailwinds to China's rebalancing, significant policy efforts are needed to achieve a successful transition.

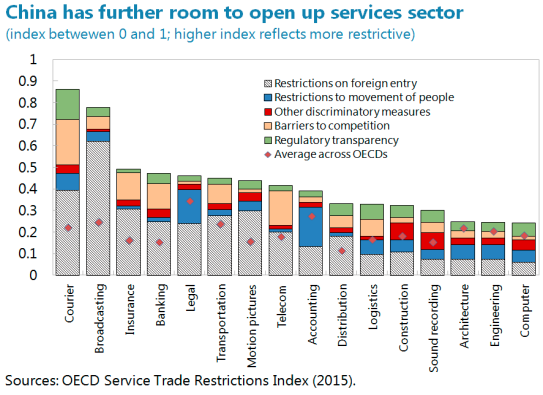
38. **Exchange rate policy is key to continued external rebalancing.** The undervalued exchange rate was a big driver of external imbalance in the pre-GFC period. After significant appreciation since 2005, China's exchange rate has now broadly reached an equlibrium. Going forward, it is important to continue to move to an effectively floating exchange rate regime to prevent future misalignments.

39. **Internal rebalancing requires policy efforts on three fronts:**

- **Higher health care spending.** To lower the household saving rate, the government especially needs to increase its health care spending. As shown in a recent empirical study based on provincial data in China (Barnett and Brooks, 2010), a one RMB increase in government health care spending tends to reduce household saving by two RMB. To achieve the projected decline in the saving rate, health care spending needs to increase from 1.7 percent of GDP in 2015 to 2.3 percent of GDP by 2021.

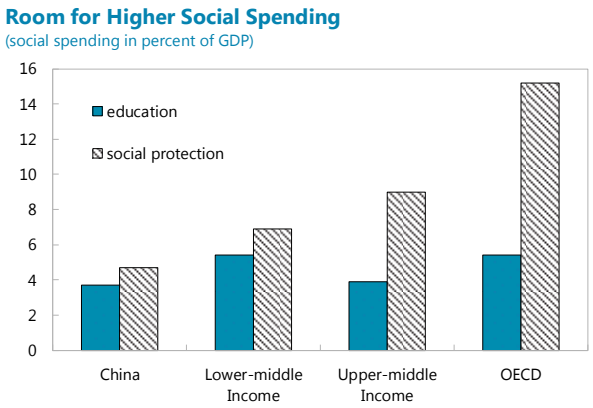


- **Deregulate the service sector.** While transition from industry to services is a natural process of economic development, it would also typically drag down productivity growth, as labor is rellocated from the high-productivity industrial sector to the low-productivity service sector. Hence, to maintain high TFP growth during the transition requires significant reform to improve the productivity of the service sector. Compared to OECD countries, China has very strict regulation on most of the service sectors. As shown in Duval and others (2015), such deregulation will increase the level of productivity by at least 20 percent in a five-year horizon. A recent paper based on Chinese provincial data has also shown that higher productivity would lower the relative price of services, and promote their consumpton (Nabar and Yan, 2013).



- **Hardening budget constraints.** To improve the efficiency of credit allocation, budget constraints of SOEs need to be hardened. Especially, nonviable firms should exit the market, instead of surviving on rolled-over loans from state-owned banks. Reallocating these assets to more productive sectors will boost productivity and reduce credit intensity. China still has huge potential for productivity gains if the efficiency of SOEs can be improved to the level of the private sector. Currently, 40 percent of industrial assets are managed by SOEs, with asset returns some 7 percentage points lower than their private counterparts. Narrowing the gap in return on assets to its pre-crisis level of 2 percentage points could provide a significant boost to industrial growth.

40. **Income distribution rebalancing requires more redistributive fiscal policy.** To improve the redistributive role of fiscal policy, the government should adopt a more progressive tax structure, increase transfers, and strengthen the social safety net. In particular, the government should increase its spending on education to ensure income inequality does not translate into inequality in access to education. Currently, government spending on education and social protection is still much lower than peers, so there is ample room for improvement (for instance, China spends around 4 percent of GDP on social protection, which is less than half the ratio for upper-middle income economies).



Source: World Bank, *China 2030*.

41. With decisive implementation of these policies, China can sustainably maintain strong economic growth and achieve its economic transition, and become a greener, more inclusive, and more consumption and service driven economy.

Table 1. Rebalancing Score Card

	Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
								Projection					
1. External rebalancing													
Contribution of net exports to GDP growth	%	-0.2	-0.8	0.2	-0.1	0.3	-0.1	-0.5	-0.2	-0.1	0.0	0.0	0.0
Current account balance	% of GDP	3.9	1.8	2.5	1.5	2.6	3.0	2.4	1.6	1.3	1.0	0.8	0.6
FX reserve coverage	months of imports	34.0	28.3	22.3	24.0	22.1	18.1	18.7	18.4	16.8	15.3	14.1	13.0
National saving rate	% of GDP	51.8	49.8	49.7	48.8	49.3	47.9	46.3	44.9	44.1	43.2	42.4	41.6
2. Internal rebalancing													
Demand side													
Growth contribution of consumption vs investment	%	0.7	1.3	1.3	0.8	1.1	1.4	1.3	1.6	1.5	1.4	1.4	1.4
Share of private consumption (Nominal)	% of GDP	35.6	36.3	36.7	36.8	37.4	38.0	39.1	40.2	41.1	41.9	42.6	43.2
Share of investment (Nominal)	% of GDP	47.9	48.0	47.2	47.3	46.7	45.0	43.9	43.3	42.8	42.2	41.6	41.0
Supply side													
Real growth rate of Tertiary vs Secondary sector	%	0.8	0.9	0.9	1.0	1.1	1.4	1.3	1.2	1.1	1.1	1.0	1.0
Share of Tertiary sector in GDP (Nominal)	% of GDP	44.1	44.2	45.3	46.7	47.8	50.2	51.9	52.9	53.7	54.5	55.0	55.4
Share of Tertiary sector in total employment	%	34.6	35.7	36.1	38.5	40.6	42.4	44.1	45.7	47.2	48.5	49.6	50.6
Credit Side													
Private credit	% of GDP	127	125	134	142	148	158	169	179	187	192	195	199
Credit intensity		2.2	1.5	2.6	2.8	2.9	3.7	4.1	4.0	3.7	3.4	3.1	2.9
SOE share in credit stock	%	61.6	58.8	56.8	54.8	55.6	...						
Difference in return on asset	%	-7.0	-8.4	-8.4	-7.8	-7.1	...						
3. Environmental rebalancing													
Energy intensity of output	per unit of output	102	105	103	104	100	92	89	87	86	84	83	82
Carbon emission intensity	kg CO2 per output	0.17	0.19	0.18	0.17	...	...						
PM 2.5	mcg per cubic metre	...	...	...	67.4	64.1	55.0						
4. Income distribution													
Gini	index number	0.54	0.53	0.53	0.53	0.47	0.46						
Labor income	% of GDP	58.5	58.3	60.1	60.7	61.7	62.5	63.2	63.6	63.9	64.2	64.2	64.2
Urban/rural income gap	income ratio	...	...		2.8	2.7	2.9						

Sources: CEIC Data Company Ltd.; and IMF staff estimates.

Table 2. Rebalancing Scorecard: Heat Map Descriptors

Categories	Indicators			Benchmark		
1. External Rebalancing	Contribution of net exports to GDP growth		Level	>0.5	0.2-0.5	<0.2
	Current account balance		Level	>3.2	2.5-3.2	<2.5
	FX reserve coverage		Level	>30	20-30	<20
	National saving rate		Level	>50	[45,50]	<45
2. Internal Rebalancing	**Demand side**	Growth contribution of consumption vs investment	Level	<1	[1-1.2]	>1.2
		Share of private consumption (nominal)	Annual change	<0	0-1	>1
		Share of investment (nominal)	Level	>45	[40,45]	<40
	Supply side	Real growth rate of tertiary vs secondary sector	Level	<0.9	[0.9, 1]	>1
		Share of tertiary sector in GDP (nominal)	Annual change	<0	[0,0.5]	>0.5
		Share of tertiary sector in total employment	Annual change	<0	[0,1]	>1
	Credit side	Private credit	Annual change	>5	[0,5]	<0
		Credit intensity	Annual change	>0.05	[0,0.05]	<0
		SOE share in credit stock	Annual change	>0	[-1,0]	<-1
		Difference in return on asset	Level	>0	[-1,0]	<-1
3. Environmental Rebalancing	Energy intensity of output		Annual change	>0	[-1,0]	<-1
	Carbon emission intensity		Annual change	>0	[-0.1,0]	<-0.1
	PM 2.5		Level	>10	[5,10]	<5
4. Income Distribution	Gini		Annual change	>0	[-0.1,0]	<-0.1
	Labor income		Annual change	<0	[0,0.2]	>0.2
	Rural/urban income gap		Annual change	>0	[-0.1,0]	<-0.1

Sources: CEIC Data Company Ltd.; and IMF staff estimates.

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