Box 1.1

THE GLOBAL IMPACT OF A HYPOTHETICAL ECONOMIC SLOWDOWN IN CHINA

As a result of China's strong growth between 2000 and 2011, exceeding 10% in annual average terms, its economy has become the second-largest in the world, only behind that of the United States. This expansionary phase was underpinned by a government-directed economic model based on investment and on the external sector. However, this model, increasingly reliant on credit and fiscal stimuli, began to show signs of waning at the start of this decade, prompting the government to shift away from short-term growth towards sustainable growth in the medium and long term. To this end, the political authorities initiated an economic rebalancing process, set out in the 12th Five-Year Plan (2011-2015), which sought to promote private consumption over investment, domestic demand over external demand and services over industry.

The implementation of the plan has resulted in a significant slowdown in activity, with growth rates falling to close to 6.5% in 2018. This downturn in output has been compounded in the last two years by the authorities' efforts to reduce the high level of corporate and local government debt, given the risks they pose to financial stability, which have led to credit constraints, particularly aimed at controlling the shadow banking sector.

More recently, these domestic developments have been accompanied by new trade disputes between the United States and China, further curtailing growth. Given that sales to the United States account for almost 23% of total Chinese exports and close to 4.2% of the country's GDP, the possibility of escalating tariff disputes could seriously damage economy activity.[1] Specifically, an increase in trade barriers would further weaken profits and employment in the manufacturing industry and would have a negative impact on confidence, with the consequent adverse effects on private income, investment and consumption. In the longer term, a slowdown in trade and the displacement of Chinese firms in the global production chains could affect total factor productivity and potential growth.

The Chinese economy has come to represent a very significant share of global GDP (almost one-fifth of the total, in terms of purchasing power parity), and its contribution to GDP growth is also substantial, at close to 1 percentage point (pp) in annual average terms since 2005. Moreover, the country's interconnectedness with other geographical regions is rapidly increasing. As a result, the global repercussions of developments in the Chinese economy are increasingly important. A possible further slowdown in activity in China would be transmitted to the rest of the world through various direct and indirect channels.

Direct channels include those that operate through the international trade in final goods and services, and the demand for commodities (particularly oil and metals), areas in which China plays a dominant role. A third direct channel, that of financial exposures, is less significant, since capital account liberalisation in China remains limited. Indirect channels, whose impact would be all the greater the more unexpected, abrupt and persistent the slowdown of China's economy, include higher uncertainty and a decline in global confidence which could give rise to episodes of risk aversion in the international financial markets, entailing stock market falls and rising risk premia. Lastly, trade tensions with the United States may lead to changes in the location of global production chains, in which China has a dominant position, affecting activity in third countries, positively or negatively, depending on its degree of complementarity or substitutability with respect to China's production.

To assess the impact on the rest of the world of a possible sharp slowdown of the Chinese economy, a simulation was conducted using the NiGEM general equilibrium model, which takes into account interdependencies between economies.[2] This hypothetical scenario includes a series of permanent shocks associated with the aforementioned transmission channels, which have a simultaneous impact starting in 2019. Specifically, the

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1 Following the initial phase of tariff rises imposed by the United States on its imports from China in July 2018 (which affected a volume of purchases of USD 50 billion), the Trump Administration placed a 10% tariff on another group of Chinese imports (with a value of USD 200 billion). This tariff could rise to 25% if the negotiations currently under way between the two countries are not successfully concluded. Moreover, the United States has threatened to impose tariffs on the remaining USD 267 billion of Chinese imports. Before these measures, the average tariff imposed by the United States on Chinese products was of around 3%. In response to the US tariffs, China has imposed tariffs on US imports amounting to USD 110 billion.

2 A number of assumptions are used in the simulation. Specifically, it is considered that expectations are adaptive, nominal exchange rates remain constant, monetary policy follows (in most countries) a Taylor rule and fiscal policy acts as an automatic stabiliser (simultaneously maintaining a medium-term budgetary target).

Box 1.1

THE GLOBAL IMPACT OF A HYPOTHETICAL ECONOMIC SLOWDOWN IN CHINA (cont'd)

Table 1
IMPACT ON REAL GDP GROWTH (%) IN THE EVENT OF DIFFERENT SHOCKS (in pp)

| | Combined shock | | | | Trade channel | | | | Commodities channel | | | | Financial channel | | | |
| | | | | | 1 pp fall in potential growth and rebalancing of final demand | | | | −6.9 % in oil prices and −7.8 % in metal prices | | | | 10 % fall in stocks, 50 bp rise of equity risk premium and 60 bp rise in long-term interest rates in emerging economies | | | |
	China	Adv. eco.	Emer. eco.	World	China	Adv. eco.	Emer. eco.	World	China	Adv. eco.	Emer. eco.	World	China	Adv. eco.	Emer. eco.	World
t+1	-0.69	-0.27	-0.52	-0.41	-0.60	-0.07	-0.27	-0.19	0.07	0.08	-0.04	0.01	-0.09	-0.25	-0.15	-0.19
t+2	-0.68	0.14	-0.29	-0.11	-0.72	-0.04	-0.31	-0.20	0.15	0.18	0.15	0.16	-0.01	-0.02	-0.03	-0.02
Average	-0.68	-0.06	-0.40	-0.26	-0.66	-0.06	-0.29	-0.20	0.11	0.13	0.05	0.08	-0.05	-0.14	-0.09	-0.11

Table 2
CHANGE IN INFLATION (%) IN THE EVENT OF DIFFERENT SHOCKS (in pp)

| | Combined shock | | | | Trade channel | | | | Commodities channel | | | | Financial channel | | | |
| | | | | | 1 pp fall in potential growth and rebalancing of final demand | | | | −6.9 % in oil prices and −7.8 % in metal prices | | | | 10 % fall in stocks, 50 bp rise of equity risk premium and 60 bp rise in long-term interest rates in emerging economies | | | |
	China	Adv. eco.	Emer. eco.	World	China	Adv. eco.	Emer. eco.	World	China	Adv. eco.	Emer. eco.	World	China	Adv. eco.	Emer. eco.	World
t+1	-0.48	-0.34	-0.98	-0.71	0.00	-0.02	-0.10	-0.07	-0.45	-0.25	-0.72	-0.52	-0.02	-0.07	-0.14	-0.11
t+2	-0.27	-0.40	-1.11	-0.82	0.02	-0.05	-0.22	-0.15	-0.17	-0.11	-0.41	-0.29	-0.01	-0.05	-0.09	-0.07
Average	-0.37	-0.37	-1.04	-0.77	0.01	-0.04	-0.16	-0.11	-0.31	-0.18	-0.56	-0.41	-0.02	-0.06	-0.11	-0.09

SOURCE: Banco de España.
NOTE: Simulations conducted using the quarterly macroeconomic model NiGEM. Shocks begin to have an impact in 2019 Q1.

Further slowdown in China would lead to a significant decline in world growth. While the expansionary effect of commodity prices would curb the effects of other shocks in advanced economies, the contraction in activity in emerging economies would be more marked among commodity producers and Asian economies.
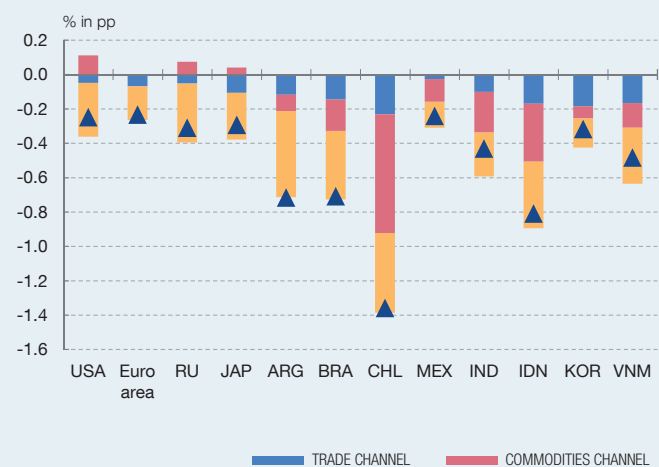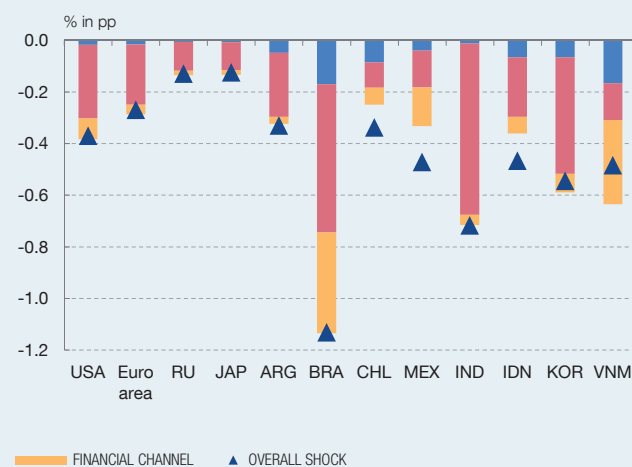
Chart 1
IMPACT ON REAL GDP GROWTH - FIRST YEAR

Chart 2
IMPACT ON ANNUAL INFLATION - FIRST YEAR

SOURCE: Banco de España.

scenario has three types of ingredients: i) a 1 pp fall in China's potential growth and a drop of the same magnitude in its domestic demand, to which investment contributes 80% (activating the "trade channel"); ii) a reduction of 7% in oil prices and of 8% in metal prices, associated with the slowing growth in China, which translates into a decline in final demand in commodity-producing economies (impacting on the "commodity channel"), and iii) adverse effects on financial markets, reflecting a decline in confidence ("financial channel"). These effects would hypothetically give rise to a stock market correction of 10% in China, Europe, Japan and the United States, an increase of 50 basis points (bp) in the equity risk premium and a rise of 60 bp in long-term interest rates in emerging economies.[3] To assess the significance of each of the three channels, combined and individual simulations were conducted.[4]

The results of the exercise are shown in Table 1 and Chart 1. The combined scenario would result in a decline in global growth of 0.4 pp after one year. This impact is delivered in equal measure by the trade and financial channels, with the channel of lower commodity prices being less relevant at global level. In fact, in advanced economies, the latter channel would have an expansionary effect, due to cheaper imports of commodities, curbing the effects of other shocks, so that the combined impact on the GDP would be -0.3 pp. The contraction in activity would be more pronounced in emerging economies (-0.5 pp), mainly affecting

commodity producers and some Asian economies that have strong ties with China. This scenario would generate disinflationary pressures, more pronounced in emerging economies and, particularly, in commodity-producing countries. Broadly, the effects of the simulations are greater than those obtained in an exercise conducted recently by the European Central Bank (ECB),[5] in which the commodity price channel predominates and the financial channel is absent.

There are, however, a number of factors which could mitigate these effects. First, the exercise does not take into account the foreseeable expansionary reaction of monetary and fiscal policy in China, although, admittedly, the effects could even be amplified if one of the consequences of monetary expansion was a substantial depreciation of the renminbi. Second, the simulation carried out may have underestimated the recent transformation in China's productive, trade and financial structure. Despite the fact that China has become a major driver of the global trade in goods in recent years (it is currently the largest exporter and the second-largest importer), its potential for spillovers is declining for various reasons. On one hand, economic development has in itself led to a more diversified productive structure and thus to a lower import content of Chinese exports. On the other, the decrease in import intensity is also reinforced by changes in China's economic structure, with a shift away from investment towards a greater weight of consumption and a growing tertiary sector.

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3 The calibration was based on various papers: Asian Development Bank (2016), "Structural Change and Moderating Growth in the People's Republic of China: Implications for Developing Asia and Beyond" (trade channel); A. Ghoshray and M. Pundit (2016), *The impact of a People's Republic of China slowdown on commodity prices and detecting the asymmetric responses of economic activity in Asian countries to commodity price shocks,* ADB Economics Working Paper Series, no. 493, Asian Development Bank (ADB), Manila (impact on oil and metal prices); World Bank and *International Council on Mining and Metals*, Caldara, Cavallo and Iacoviello (2018) and Stuermer (2017) (effects of changes in those prices on final demand in producing countries), and L. Metelli and F. Natoli (2017), "The effect of a Chinese slowdown on inflation in the euro area and the United States", *Economic Modelling,* no. 62, pp. 16-22 (rise in the risk premium). Finally, the rise in the EMBI (emerging markets bond index) is similar to that observed during the financial turbulence of early 2016, caused by the uncertainties surrounding the slowdown in China at the time.

4 Owing to the presence of non-linearities, the impact obtained in the combined simulation is somewhat greater than the sum of the effects obtained in the individual simulations. However, the difference is not quantitatively very relevant.

5 A. Dieppe, J. Han, R. Gilhooly, L. Korhonen and D. Lodge (eds.) (2018), *The Transition of China to Sustainable Growth – Implications for the Global Economy and the Euro Area,* Occasional Papers, no. 206, ECB.