Special Report

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HIGHLIGHTS

- **While China's economic growth should ease to 9.0-9.5% in 2011-13, orchestrating a soft landing is not guaranteed. We explore the likely consequences for Canada of a more severe slowdown in China, where real GDP growth drops to 5% in 2012 before edging up to 7% in 2013. This is for illustrative purposes only and does not reflect base-case expectations.**
- **A hard-landing for China's economy would weaken world GDP growth to a mere 2% in 2012, which historically represents a global recession.**
- **For Canada, the direct trade impact would be modest. However, Canada's indirect exposure is significant. A recession in China would depress commodity prices and investment. It would erode Canada's terms of trade and external balance. The Canadian dollar would fall, which could boost U.S.-bound exports, but the positive economic offset would only be partial.**
- **From a base case of 2.5% growth, Canadian real GDP growth would weaken by 1.0-1.5 percentage points. Nominal GDP growth would be lower by roughly 6 percentage points – an income loss to the country of roughly $100 billion.**

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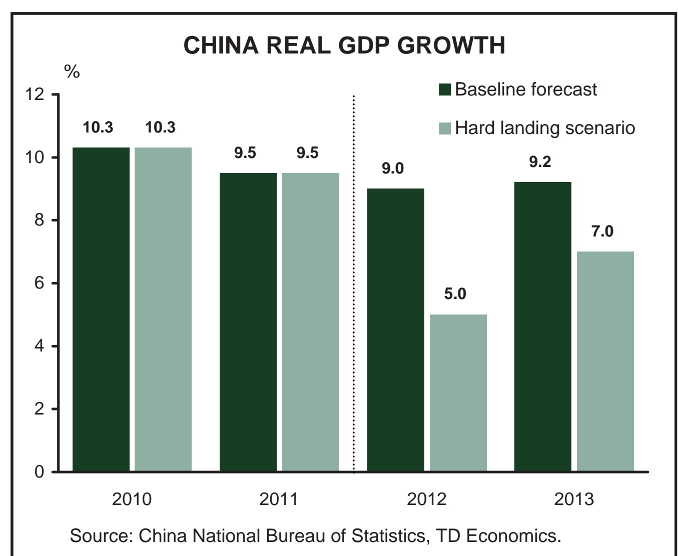
EXPLORING WHAT A 'HARD LANDING' IN CHINA WOULD MEAN FOR THE CANADIAN ECONOMY

The explosive growth of China's economy has been one of the dominant economic and financial themes over the last decade. In the past year, however, China has been imposing policies to keep real estate prices and consumer inflation in check. While TD Economics believes that the most likely scenario is for China's economic growth to moderate to 9.0-9.5% in 2011 to 2013, there is always a risk when policy is being tightened that it could lead to an unexpected softening of economic conditions. Given this possibility, we felt that it would be timely to investigate how an unanticipated sharp decline in the rate of China's economic growth might impact Canada.

The main conclusion is that the Canadian economy would be quite vulnerable. Given Canada's modest exports to China, the direct impact on trade would be limited. However, there would be enormous indirect effects. First, a dramatic slowing in China's economy would be a blow to the world economy. Indeed, a global recession would be a material risk. Second, China has had an enormous impact in raising commodity prices in recent years. A hard landing in China would spark a substantial commodity correction. The risk scenario presented is one where China's economic growth falls to 5% in 2012 and then edges back up to 7% in 2013. Under this scenario, world economic growth would be almost cut in half to 2% and commodity prices could fall by 30-40%. This would shave 1.0 to 1.5 percentage points from Canadian economic growth. It would also impact commodity-rich provincial economies the most. The analysis shows that Canada's economic fortunes are deeply tied to developments in China.

A hard landing scenario

China appears on track for a mild slowdown this year. So far, we have little reason to depart from our last (December) forecast of 9.5% real GDP growth for 2011, 9.0% in 2012, and 9.2% in 2013. However, suppose the Chinese economy slows down more dramatically, and a hard landing ensues, with economic growth dropping to 5% in 2012, with a mild pickup to 7% in 2013.



Source: China National Bureau of Statistics, TD Economics.

It bears noting that growth of 5-7% represents a deep recession for an economy where rising population and productivity support potential (long-term trend) growth at 8-9%. In addition, the two year duration would make it

a protracted recession. This is in contrast to China's experience in the wake of the financial crisis, when economic growth slowed only temporarily to 6-7%. Such a scenario should only be viewed as a risk, albeit a non-negligible one, akin to 'stress-testing' the world and Canadian economies.

As our interest lies in analyzing the outward ripple effect onto global and Canadian shores, the slowdown is assumed to originate from within China, rather than from a global or external shock. The specific trigger and nature of a domestic-led recession matter when trying to ascertain how it would feed through the rest of the world. A plausible trigger could be an overshooting in the tightening of monetary policy and lending, followed by a collapse in real estate market valuations, private investment, and large losses for the domestic financial system.

In order to dampen inflation, currently around 5%, the People's Bank of China raised the policy interest rate by a full percentage point since late 2010. Yet, real (inflation-adjusted) interest rates remain close to zero. With recent spikes in the price of energy and agricultural commodities, inflationary pressures for sizeable portions of the consumption basket are unlikely to abate in the near-term. By all accounts, some significant monetary policy tightening is still in store this year. Chinese regulators have also increased bank reserve ratios and tightened lending conditions through other means, all in an effort to cool the real estate sector and the overall economy. While a 'soft landing' scenario remains the most likely outcome in our view, it is not assured. Legitimate concerns exist over China's ability to rein in growth and stifle inflationary pressures without triggering a harder landing that could derail a fragile global recovery.

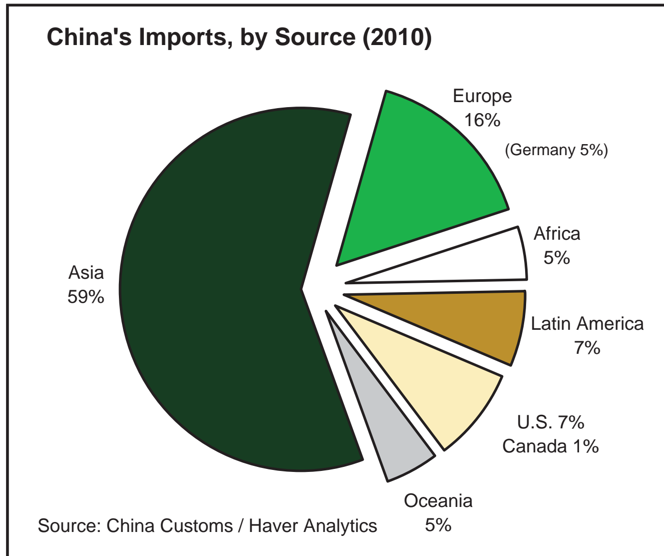
First round effects

At first pass, the impact on Canada of a hard landing in China may appear minor. The direct trade with China (and countries other than the U.S.) is relatively small. Canadian trade with China and emerging Asia has certainly been expanding at a brisker pace than with developed economies, but it has been doing so from a tiny base. China's share of Canadian international trade (exports and imports combined) was roughly 7% in 2010. Direct exports to China were roughly $13 billion last year, representing about 3% of Canada's total merchandise exports. Examples of leading Canadian exports to China that have grown dramatically over the last decade are raw and industrial materials (led by metals), organic chemicals, fertilizers, forestry products (wood pulp, lumber), plastics, agriculture and fish/seafood products, and industrial machinery. Tourism-related services have also been expanding rapidly.

While total Canadian export volumes would suffer from a hard landing in China, the direct hit would subtract only marginally from Canadian real GDP. Meanwhile, imports from China would likely be less affected. The combined result of weaker exports than imports would mean that Canada's merchandise trade deficit with China would widen. In the very worst case scenario – albeit unrealistic – where Canadian exports to China dry up entirely in 2012, while imports continue to grow at their previous pace, Canadian real GDP growth would be 0.8 percentage points lower as a result. A far more realistic, yet still pessimistic, impact of a 50% drop in exports to China would subtract 0.4 percentage points. In addition, Chinese companies would likely invest less in Canada's resources sector. At nearly $9 billion, China accounted for 1.6% of foreign direct investment (FDI) in Canada in 2009. This year it will likely make up roughly 3% of total FDI. The direct trade and FDI impacts would not be insignificant by any means; but, they would not derail the Canadian economy. Unfortunately, these immediate impacts are just the tip of the iceberg.

Canada's Merchandise Imports from China, 2009 (%)	
Electrical machinery and equipment	21.5
Boilers, mechanical appliances, etc.	17.9
Toys, games, sports equipment	7.9
Furniture and stuffed furnishings	6.2
Woven clothing and apparel articles	5.3
Knitted or crocheted apparel	5.1
Iron or steel articles	4.1
Footwear	3.4
Plastic and plastic articles	3.1
Motor vehicles, trailers, bicycles, motorcycles	2.4
Top 10 as % of total from China	76.9
Chinese imports as % of Cdn total	10.9
Source: Trade Data Online (TDO), Industry Canada.	

Canada's Merchandise Exports to China, 2009 (%)	
Oil seeds and misc. fruit, grain, etc.	14.3
Woodpulp; paper or paperboard scraps	13.3
Ores, slag and ash	12.8
Mineral fuels, oils	8.0
Boilers, mechanical appliances, etc.	7.8
Nickel and nickel articles	6.4
Fats, oils and waxes	3.7
Wood and wood articles, charcoal	3.5
Organic chemicals	3.4
Plastic and plastic articles	2.9
Top 10 as % of total to China	76.2
Chinese exports as % of Cdn total	3.3
Source: Trade Data Online (TDO), Industry Canada.	



The hit to global growth

With China expected to make up near 15% of world GDP by 2012, the hard landing envisaged here would, by itself, shave off a substantial 0.6 and 0.3 percentage points to global GDP growth in 2012 and 2013, respectively. The impact would not end at China's border, however. The knock-on impact to other economies, particular in the Asia-Pacific region, would also hit global growth. Research by the IMF suggests that real GDP growth in the rest of the world varies (in the same direction) by about a quarter percentage point per year for every percentage point change in China's real GDP growth. Our scenario therefore suggests real GDP growth in the rest of the world would ease by about one percentage point in 2012 and 0.6 percentage points in 2013. Economies in the Asia-Pacific region would be hardest hit. Most Chinese imports are sourced in countries such as Japan, South Korea, Taiwan, Thailand, Malaysia, and Australia.

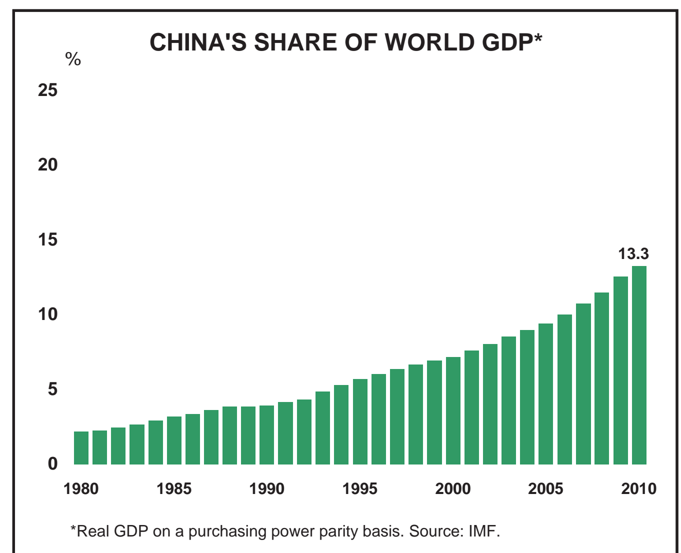
Moreover, the economic models used to derive the global economic impact do not account for the current stage of the economic cycle. Even by the end of 2012, economic recoveries in many developed nations will still be fragile. This makes them less resilient to external shocks. Two weak links in particular are Japan and Europe. Outside of Germany and Northern Europe, current expectations for growth in these nations are typically below 2%, with many economies already flirting with recession. Even absent sizeable negative shocks, current expectations for Euro-zone growth are pegged at only 1.5% over the next couple of years, so it would not take much to tilt into recession. Its growth engine has been Germany, an economy whose recent outperformance is in large part tied to manufacturing exports to China and Asian emerging economies. Though they represent only about 5% of the country's overall exports, Germany alone accounts for a third of European (and nearly half of the European Union's) exports to China. Most of these exports are intermediate goods, machinery, and discretionary consumer goods such as vehicles. That recent pillar of growth would falter if China was to experience a hard landing, and a recession in Europe as a whole would no doubt ensue.

Hence, to better reflect feedback effects than simple add-up growth accounting can, adjustments need to be made for (1) the increased sensitivity of global growth to China's economy over time, (2) the fragile state of the recovery in many developed economies, and (3) potentially substantial second-round financial spillover effects. All of these would tend to amplify the negative impact to global growth. All said, we estimate that world GDP growth would slow to a mere 2% in 2012, with a pick up to 3% in 2013. By historical standards, this would represent a global recession.

China's increasing clout

Over the past few decades, the Canadian economy has become increasingly leveraged to natural resources. The Canadian equity market is highly tilted toward energy and materials stocks, with market capitalization accounting for roughly 50% of the S&P/TSX composite. By contrast, these sectors account for a much smaller portion of equities in the United States and globally, with a respective 16% of the S&P500 and 19% of the MSCI World Index.

As a share of overall economic and financial activity, the commodity industry – defined broadly as the extraction and transformation of natural resources – yields the most clout of any industry group in Canada, outside the finance/insur-



ance/real estate combination. At roughly 11%, the natural resources industry's share of real GDP (by industry) is second only to Norway and Australia among advanced economies. Within Canada, natural resources make up as much as 30-40% of the provincial economies of Newfoundland & Labrador, Alberta, and Saskatchewan. On the export side, energy products were essentially responsible for Canada posting a merchandise trade surplus in the decade leading up to the recession. The energy and commodity sector is also leading the way back toward a trade surplus in the current recovery, after having dipped during the recession.

The strength of the resource sector – particularly commodity prices for energy, base metals, and agriculture – has been fuelled by robust economic growth in emerging economies, itself spearheaded by China. On net, this has been largely beneficial, by boosting Canada's terms of trade (price of exports relative to the price of imports) and gross domestic income. Within Canada, it also underpins the outperformance in economic growth of commodity-heavy regions, a theme predicted to continue, as outlined in the December 2010 edition of our Provincial Economic Forecast.

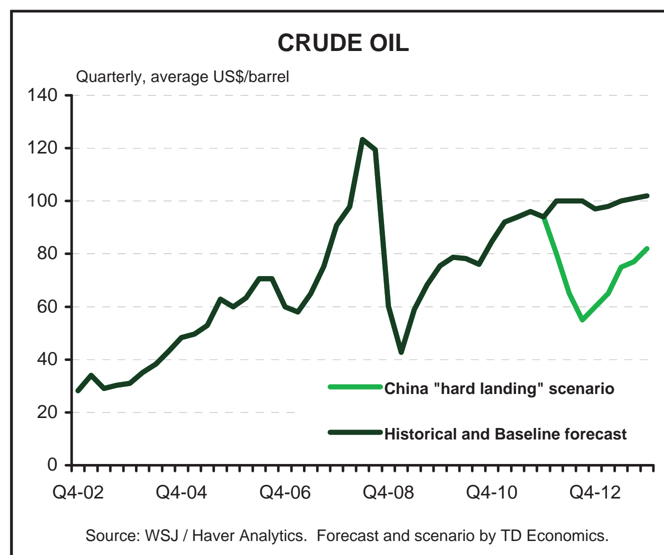
China's share of world GDP (as measured in U.S. dollars at purchasing power parity) has surged from less than 3% in 1980 to 13% last year. China's share of world commodity imports has risen even more, from next to nothing in 1980 to over 10% in recent years, as economic growth has surged. Because it is in the midst of a massive industrialization process, China's share of world commodity demand also punches significantly above its real GDP weight. Incremental world demand for crude oil over the past decade is nearly all attributable to emerging economies, with China the single largest contributor. As of 2009, it consumed half or more of the world's manganese alloy, iron ore, and methane coal; around 40% of thermal coal, aluminum, copper, and nickel; 20% of potash and fertilizers; and 15% of wheat and grains.

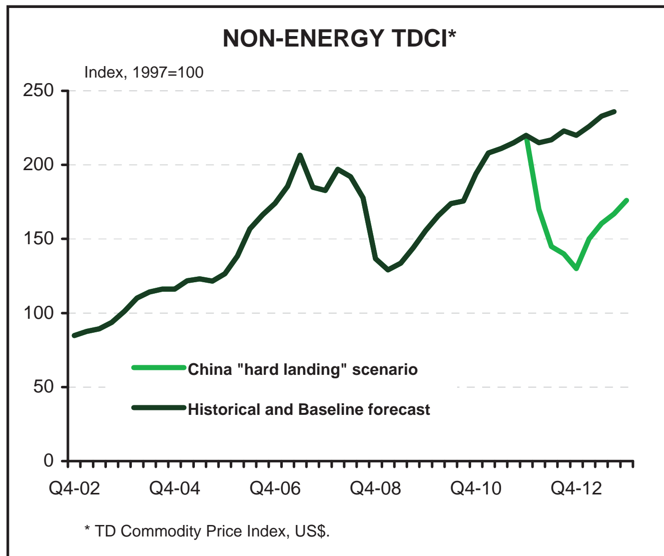
In turn, Canada is fortunate to be richly endowed with many of these commodities and others where China's demand is also significant (e.g. 10% of crude oil) on the global scale. Yet higher leverage of the Canadian economy to natural resources is inevitably accompanied by more sizeable impacts from commodity price swings in either direction. Commodity prices certainly reaffirmed their strong positive linkage to global growth in the last recession and recovery. Research by the China Center for Economic Research and the Bank of Canada support the notion that the influence of China's industrial production over the evolution of commodity prices has increased over the past two decades, while that of the U.S. and the OECD as a whole – while still high – has diminished. Moreover, because of data restrictions requiring the use of long enough time series to derive meaningful empirical results, most estimates of China's impact on commodity prices likely underestimate its current clout.

The two 'C's: Commodities and Currency

We estimate that by 2012, a hard landing to 5% economic growth in China would cause a 30-40% drop in crude oil and other commodity prices – we benchmark the latter to our TD non-energy commodity price index (TDCI, in US$). The ensuing modest rebound to 7% growth in China in 2013 would normally be accompanied by a partial recovery in commodity prices. We arrive at these admittedly rough forecasts using historical sensitivities that we adjust to reflect more recent data. They are meant to provide a rough assessment of the impact of a Chinese recession, but the high volatility of commodity prices should be kept in mind when assessing these figures.

In this context, and given its historical ties to commodity prices, the Canadian dollar would not hold near parity against the U.S. currency in our scenario. It would also suffer from a downturn in commodity prices. Recent sensitivities of the Canadian currency to crude oil, base metal and other non-energy (e.g. agricultural) prices suggests the China hard-landing scenario could push the Canadian dollar to a range of 80-85 U.S. cents in 2012. In effect, the currency would act as a shock absorber, helping to offset roughly half of the drop in commodity prices. It would also render our exports more competitive. Depending on what happens with other currencies against the U.S. dollar, this could potentially mean regaining some U.S. export market share.





Impact on the United States

As an outsized trading partner to Canada, the impact of a hard landing in China has on the U.S. economy requires special attention. Here, the impact is considerably more mixed. A severe slowdown in global growth would negatively impact U.S. exports. Under our scenario of a domestically-led slowdown in China, U.S. exports would decline more than its imports. Moreover, China would likely lower its currency peg in an effort to prop up its exports to offset domestic weakness. Regardless, the impact of a significant global slowdown is a net negative for the U.S. economy.

Moreover, American multinational corporations would repatriate fewer profits, and business investment would suffer. We suspect this to be of particular relevance at a time when American corporations have, for good reason, increased their reliance on emerging market growth. A higher U.S. dollar (on a trade-weighted basis) would only exacerbate the issue. The negative impact on corporate profits and household incomes would weaken – albeit not derail – business investment and consumer spending. Yet, because of its larger reliance on domestic consumer spending, real U.S. GDP growth would not suffer as dramatically as in many other economies. There are also some near-term positive offsets. These also would be felt in other economies, but are of greater importance for the United States. Lower commodity prices, particularly crude oil, are a net positive for the U.S. economy – which imports the bulk of its oil consumption. Every discretionary consumer dollar not spent on gasoline can be spent elsewhere. In current U.S. dollar terms, a $35 drop in the price of crude oil would free up roughly $140 billion in disposable income to be spent on other items or saved. This is roughly $580 per working-age person. In real terms, we estimate that crude oil dropping from around $100 to $65 per barrel due to a China hard landing would boost U.S. consumer spending and real GDP by just under a half percentage point in 2012. Businesses also benefit through lower input prices (higher margins / profits), and investment generally increases as a result. As the price of crude oil inches back up in 2013, however, the stimulus from cheaper energy starts to wash away. Putting these two elements of significantly weaker global growth accompanied by lower commodity prices, we estimate that U.S. real GDP growth would be impacted negatively by a net 0.8 percentage points in the first year of a Chinese recession and a full percentage points in the year after.

While U.S. real GDP growth is instrumental to the Canadian economy, a more precise measure of how U.S. economic activity impacts Canadian output, through its exports, is provided by the Bank of Canada's U.S. activity index. Using the index we can better estimate the impact to the Canadian economy through the export channel. For Canadian exports as a whole, we find that the net impact in the first year is to reduce export growth by close to 4 percentage points, from our baseline near 7% to roughly 3%. By the second year, the waning of the partial stateside offset from lower oil prices exposes the global weakness more evidently, however, and Canadian export growth gets downgraded by 5 percentage points from a baseline forecast near 5% down to stagnation.

Financial linkages

Within China, we recognize policymakers' ability to deploy vast reserves if its real estate and financial sectors were to falter. They could quickly recapitalize the banking system as needed and/or reverse the course of monetary policy. Yet we lack hard reliable data that would allow a transparent assessment of credit growth and quality. The inability to credibly stress-test China's financial system precludes us from having confidence that systemic financial fallout could easily be prevented. Moreover, while it could temporarily plug a financial hole, the legacy from any massive fiscal and monetary stimulus would only be to postpone an eventual day of reckoning by artificially propping up insolvent lenders and fuelling unsound credit and asset price growth in the interim.

In so far as external financial linkages go, particularly within Asia, we attempt to capture some negative feedback effects in our estimates. Yet the specific channels and magnitude of impacts will only be fully understood if, and when, China's economy goes into reverse. While it is highly doubtful that financial linkages have the same breadth and

depth as they did with U.S. mortgage-backed securities, we also doubt that sizeable financial fallout in China would be 'contained' solely within its borders.

The net net for Canada

Pulling it all together, a hard landing in China would deal a significant blow to Canada's economy. Canadian export volumes would be negatively impacted. However, the second-round effects would quickly accumulate and make matters worse for Canada. A swift decline in commodity prices would dramatically impact Canada's terms of trade and aggregate income, with these impacts being especially pronounced among resource-based regions of the country. While a falling Canadian dollar and flight to safety toward government bonds would help to cushion some of the blow, other financial headwinds would result from increased global risk aversion, falling equity prices, and wider corporate bond yield spreads.

By our calculations, the Canadian economy could still eke out some modest real economic growth, but even with an annual gain of 1% there could be one or more quarters of contraction. Moreover, the impact of falling commodity prices would generate a dramatic decline in Canadian income. Using the broadest current dollar measure of economic activity (i.e. nominal GDP), we find that growth would likely be slashed by nearly 6 percentage points in the first year. This would represent about $100 billion lower income for the overall Canadian economy. The hit to corporate profits, particularly in the resource sector, would also lead to weaker tax and royalty revenues for governments.

There are risks to our assessment. On the upside, a large and generalized drop in commodity prices could prove to be a bigger benefit than modeled to many economies, reducing inflationary pressures. A flight to safety towards U.S. and Canada government bonds could result in lower borrowing costs for the corporate and household sectors – though some of this would be offset by wider credit spreads that accompany risk aversion. We have also imposed the scenario for China's economic growth. It is possible that the government could response to a hard-landing could be more effective at turning economic conditions around in a timely fashion.

However, the downside risks are more important. We have established our estimates of the impacts with the aid of available research on the subject. We have put forward our best efforts to build in adjustments for China's increased importance, the stage of the economic cycle and the state of the global economy as well. But, there are many unknowns. As was seen in spades during the last global financial crisis, models can fall well short by underestimating the complex financial linkages of the modern global economy. And, while models are based on historical relationships, the world economy and global financial system have never been so leveraged to China. Then there is the difficulty of assessing the psychological impact of a hard-landing in China.

Base Case^, China "Soft Landing"

	2010	2011	2012	2013
Real GDP, % chg.				
China	10.3	9.5	9.0	9.2
World	4.6	4.0	3.8	4.0
United States	3.0	3.3	3.1	3.6
Canada	3.0	2.9	2.6	2.1
Canada (nominal GDP)	6.2	6.1	4.3	3.9
Canada (current account**)	-2.8	-0.7	-0.4	-0.5
Crude oil (USD per barrel)	79	95	100	100
TDCI* non-energy (% chg.)	19.2	20.4	2.5	7.3
USD per CAD ($)	0.97	1.03	0.99	0.95

China "Hard Landing" Scenario

	2010	2011	2012	2013
Real GDP, % chg.				
China	10.3	9.5	5.0	7.0
World	4.6	4.0	2.0	3.0
United States	3.0	3.3	2.3	2.6
Canada	3.0	2.9	1.3	2.0
Canada (nominal GDP)	6.2	6.1	-1.9	4.1
Canada (current account**)	-2.8	-0.7	-1.5	-0.9
Crude oil (USD per barrel)	79	95	65	75
TDCI* non-energy (% chg.)	19.2	20.4	-31.5	11.7
USD per CAD ($)	0.97	1.03	0.83	0.88

^TD Economics, as of February 2010. *TD Commodity Price Index. **As % of GDP.

In other words, there are myriad reasons that could limit the global economy's ability to withstand a hard landing in China, or even amplify its downside effects. For instance, advanced economies are in no position to use the levers of monetary and fiscal stimulus to any great extent. Policy interest rates are already extremely low and won't be much higher by year-end 2011. That limits the extent to which they can be lowered again. While extraordinary measures could be deployed once the zero interest rate bound is reached, it is unclear in practice how effective further rounds of quantitative easing would be and whether there would be an appetite to deploy them.

Moreover, the scope for further fiscal stimulus is limited in the United States, Europe, and Japan. Even Canada, with its relatively enviable fiscal position, could not by itself reasonably deploy sufficiently large amounts of fiscal stimulus to offset the slump in private-sector activity.

For firms, without the prospect of renewed growth in demand and revenues on a domestic or global front, it is

also unclear that 'easy money' would translate into higher investment and/or employment. More likely, the additional liquidity would be hoarded until the uncertainty fades.

Many scars remain from the recession of only two years ago, so the resilience of the world economy to absorb such a blow remains in question. To the extent that financial market contagion results, actual impacts could turn out worse than our assessment suggests. If the last global financial crisis is any guide, markets could dramatically overshoot in their bearish reaction, only to rebound once the dust settles. A cloud would likely linger until markets could better assess the long-term health of the Chinese economy. Unbridled enthusiasm with regards to emerging market growth prospects would be left in pieces. More patient and realistic expectations may emerge from the ashes of such a downturn in China. But only time could heal such wounds, and some scars would no doubt remain.

The purpose of this stress-testing exercise is not to engender fears or worries. The objective is to illustrate how deeply the fortunes of the world economy and the Canadian economy are tied to China. China's rapid economic development is one of the great positive stories of this century. It is raising millions of people out of poverty every year. It is creating enormous economic opportunity for its people and for other nations. However, it also means that China will play a greater role in impacting the global and Canadian economies, in good times and bad.

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