

### The era of *quantitative tightening* (QT)

- The global *quantitative easing* is about to change to global *quantitative tightening* which will change the global financial regime in a dramatic way.
- At the same time, China is struggling to find its direction. It is heading towards a “Minsky moment”, but the question is, when?
- These developments indicate that the bull markets of bonds and stocks are almost over. What will follow is a chaotic correction towards the *market economy*.
- We forecast that the global economic expansion will still continue this year although it will slowdown clearly.

January exhibited a marked change in the post-GFC (Global Financial Crisis) regime. In late January, the central bank of the US, Fed, enacted its *quantitative tightening* (QT) program in full force as its holdings of the US treasury and mortgage-backed securities fell by 18 billion dollars. Fed thus became the first central bank ever to start a program which reduces its balance sheet. Because the other central banks are expected to follow, January also marks the month when the central bank stimulus to the global economy, after the prevalence of nine years, started to roll off.

Since the GFC (2007 – 2009), the world economy has been under constant resuscitation. The central banks and the governments (most notably China) have pumped massive amounts of liquidity to the economy. Combined with the boost from the business and consumer confidence induced by President Trump, these have set the stage for the celebrated “synchronized global growth”. But now we have reached the point when the main component of this growth, the central bank stimulus, starts to fade. What happens next?

In this Q-review, we analyze how the *quantitative tightening* is expected to work in comparison to *quantitative easing* (QE) and what it means for the asset markets and for the global economy. We also update the situation of the second major driver of the global economic spurt, namely China.

#### Quantitative easing tightening

As we have noted several times,<sup>2</sup> the central banks have made a mess of market price signals with their bond buying programs (quantitative easing). But, in addition to distorting the asset prices, these programs have altered the behavior of the private market participants to increase their risk taking. In QT, however, a central bank either sells its holdings or lets some of its bond holdings to mature, meaning that it will roll them out of its balance sheet instead of renewing them. Thus, in technical terms, the QT-program is the exact opposite of the QE -programs.

How will it affect the economy? To give a clearer image of the different effects of these two programs, we show their main causal channels in Figure 1 (see the Appendix).

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<sup>1</sup> GnS Economics wishes to thank Dr. Heikki Koskenkylä and Dr. Peter Nyberg for their insightful comments on the part describing the causative channels of quantitative easing/tightening. Any remaining errors are our own.

<sup>2</sup> See, e.g., [Q-review 2/2013](#) and [Q-review 4/2017](#).

The very aim of the QE-programs was to stimulate the economy by low interest rates and through wealth accumulation (wealth effect). These programs targeted to lower the interest rates further than what could be done by normal monetary policy means, such as setting the central bank's deposit and marginal lending interest rates. When the central banks lower the interest rates, they effectively lower the funding costs. This tends to translate into larger borrowing, leading to higher demand for financial assets, especially when the debt level is originally low. The prices rise because the private market participants, who weight the risk of the financial investments against the lower costs of credit, increase their holdings of financial assets.

**In QE**, the central bank buys bonds from the financial markets (usually through commercial banks). This rises the price of bonds and thus lowers their yields. The main difference is that, while the private market participants search for the market price (based on their budget constraints and risks/yields of the asset), the central banks seek to modify it. When the central banks use their money creation power to actively buy assets, their prices is biased away from their market values, hiding, for example, the underlying risks of the assets (see [Q-review 1/2017](#)). This is why QE distorts the price discovery and *artificially* lowers the risk premiums, thus increasing the prices of the financial assets.

Because the central banks can, for now at least, buy only investment grade bonds, QE artificially increases their demand and pushes their price up (yields down).<sup>3</sup> Because the investors try to profit from their holdings, they start to look for higher yielding (and riskier) products when the prices of the investment grade bonds fall. This leads to *yield compression*, where the prices (and yields) of both

investment and non-investment grade assets start to close one and other. Thus, the artificial demand, created by the purchases of the central bank (QE) raises the prices of basically all asset classes, both financial and real. An *'everything bubble'* emerges.<sup>4</sup>

In the financial markets, the quantitative easing leads to an *excess liquidity* environment. What this means is that when the central bank buys investment grade bonds, it increases the liquidity (money) among the private investors, which will lower the premium for illiquidity. The majority of this money starts to look for profitable investments. As the demand and thus the price for the investment grade assets are elevated, the investors look for higher yielding products such as equities.<sup>5</sup> Because there is a persistent buyer who does not care about the rising prices and provides an ample liquidity for the private market participants, the market volatility decreases which encourages the investors to take more risks. Since there is also effectively a 'central banker's put', meaning that the central banks react to falling markets by increasing purchases, the investors get accustomed to the 'buy and win' strategies. This means that the central banks guarantee market-wide profits. Machines (algorithms), passive investment funds and active investors get accustomed to this and engage in 'buy the dip' strategies every time as the market falls. Complacency takes hold.

In addition, the ample liquidity suppresses interest rates, which encourages the investors to increased risk taking through increasing leverage. Also, as QE works through the commercial banks, it greatly increases the excess reserves the commercial banks hold on the central bank. This increases especially the high-risk lending of the commercial banks.<sup>6</sup> The

wide effect on the asset portfolio and liquidity of the financial markets.

<sup>6</sup> See Kandrac and Schulesche (2017).

<sup>3</sup> See, e.g., Herrenbrueck and Fraser (2016).

<sup>4</sup> See Fratzscher, Lo Duca and Straub (2018) for empirical evidence.

<sup>5</sup> Analyzing the effects of the QE of the Bank of England, Joyce and Lasaosa (2011) conclude that QE is likely to have a

falling returns of bonds also increases the incentive to invest in equities.

So, the QE affects financial markets and the equity prices through two channels.

- 1) Low volatility and the role of the central bank as a persistent buyer and as a loss stopper increases the risk taking among the private investors.
- 2) The exuberant liquidity suppresses the interest rates, which induces higher leverage and investments in higher yielding (riskier) assets. The excess reserves of the banks encourage them to higher and more riskier lending activities.

Through these channels, QE leads to higher equity (stock) prices, to lower risk premiums and thus increases risks in the asset market and banking sector. Moreover, because QE provides an exuberant flow of liquidity and encourages risk taking, the assets are likely to remain at an elevated level for some time even after it ends (see also below).

**With QT**, the whole process reverses. Because the central bank rolls off the investment grade assets from its balance sheet, there will be over-supply of the investment grade assets. This will push their price down (yields up) and this is followed by even higher increases in the prices of the non-investment grade assets because their risk/profit ratio will worsen with the increasing yields of the investment grade assets. This starts a flight to quality which disperses the yields and spreads of the investment and non-investment grade assets further (towards normal levels). Because this leads to over-supply of the investment grade and non-investment grade assets, QT will lead to deflation across the whole asset universe.

Quantitative tightening affects the financial markets in many ways. QT leads to *liquidity deprivation* as the central bank perpetually decreases its bond holdings, indicating that it becomes a *persistent*

*seller*. Unless the government simultaneously cuts its expenditures and thus its need for debt, more investment grade debt will hit the markets. This will decrease the liquidity in the financial markets. Moreover, as the excess reserves of the banks diminish (see above), the growth of total lending levels off and may even turn negative. More competition between the banks on shrinking funding, increases the rates.

With the rising interest rates and decreasing liquidity, the persistent seller brings the risk premium back to balance. The normal price discovery leads to higher volatility. The investors start to look for safety at the bond markets and cover against the losses from the futures markets. The machines as well as the passive and active investors start to learn that the market has become more uncertain. The increasing interest rates decrease the availability of credit. Fear takes hold.

Unless there is a strong economic expansion creating hefty earnings growth and liquidity from the gains from the growth of the real economy and thus compensating the effects of QT, equities will start to fall. Because QT is enacted after QE, the asset values are likely to be stretched and the indebtedness as well as interest rates are high, for which reason a recovery through real economic growth is unlikely

To make the matters worse, the assets do not tend to move steadily up and down. Especially the values of the equities tend to move up in a trend-wise manner, but come down more or less chaotically. To simplify, after reaching their pinnacle, the financial assets have a tendency to come down very rapidly, that is, to crash. Such a behavior is clearly visible, for example, in the S&P 500 stock index (see Figure 2). Its values tend to rise for a long-periods, but when the “bear market” begins, the fall to the bottom tends to be steep. Historically, the extended (five or more years) low volatility periods

have also led to financial crises and higher volatility.<sup>7</sup>

So, with QE-programs, the central banks directly *alter* the price of bonds while the standard monetary policy or interest rate channel operates by influencing the budget restrictions (the cost of credit) of the market participants. Still, the low interest rate environment, LIRE, is able to create serious financial misallocations and risks in the long-run by itself. There are two main mechanisms for this:<sup>8</sup>

1. Profitability
2. Search for yield

In the short-run, the lower rates translate into lower funding costs, to higher asset and collateral prices and to lower risk of default on new or repriced old loans. In the long-run, however, LIRE reduces the margins from the maturity transformation. First, it leads to the flattening of the yield curve which reduces the margins that banks and other financial institutions can obtain between long-term assets and short-term liabilities. This reduces the net interest margin. Second, the effective lower bound on nominal rates creates rigidity at the funding rates and reduces profitability of, especially, the levered financial institutions. Third, a prolonged LIRE diminishes returns from fixed-income investments, which causes problems for guaranteed value investors, like life-insurers and pension funds. All these diminish the profitability of the banks and other financial institutions thus making them fragile. Like QE, also a prolonged LIRE alters the risk aversion of the financial institutions and these investors turn towards a “hunt for yield”, where they increase their risk profile in an attempt to boost the returns.

Low volatility, over-demand for investment grade assets and excess liquidity induced by QE-programs and a prolonged LIRE environment have

also affected the non-financial business sector. The low interest rates and easy funding have made it possible for the non- and low-profitable firms to roll-over their debt and keep operating. This has hindered the creation of new profitable businesses and *zombified* the global economy (see [Q-review 3/2017](#)). At the same time, also the profitable firms have been able to load up on debt. This has, effectively, made also the non-financial business sector vulnerable to interest rate rises.

Now, as all the major central banks are planning to tighten (see Figure 3), we are about to enter a completely new financial regime where the risks of the assets will once again be priced by the markets. It is likely that it will take some time before the effects of QT move through the system, but ultimately they will. The losses on bonds and especially on the high yielding products will slowly start to cascade. The balance sheets will deteriorate and some small runs, mostly unnoticeable by the general public and the media, will start to appear in the hidden corners of the financial markets. But, after the (unknown) critical point is reached, the cascading losses will ignite a run in one of the major asset markets, the most likely candidate being the high yield (junk bond) market. This will start a collapse of the financial sector described in our latest Q-review (see [Q-review 4/2017](#)).

So, to summarize, during the past nine years, the global central bankers have constructed a ‘financial doomsday machine’, which consists of the unknown but large swathes of asset bubbles, widespread financial fragility and zombie companies. Especially the asset markets are highly overvalued and are in a great risk of a chaotic correction, a crash. If the central banks go through with their planned tightening (ending QE) and QT, the interest rates will raise, the markets will crash and the global economy will suffer. To make the matters worse, very little can be done to stop the crash from cascading into a global asset deflation and

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<sup>7</sup> See Danielsson, Valenzuela and Zer (2016).

<sup>8</sup> See, Carletti and Ferrero (2017) for more detailed analysis.

depression (see [Q-review 4/2017](#)). In January, Fed started the countdown towards all this by enacting its QT-program.

### China in uncharted waters

We have been analyzing and writing about China quite extensively in our recent reports (see [Q-review 1/2017](#) and [Q-review 4/2017](#)). This has been for two reasons. China has been driving the global recovery since 2008 (see Figure 4) and it has achieved this by an unsustainable credit stimulus.

Although the household debt is still growing rapidly, China has had some success in curbing the growth of indebtedness of the non-financial corporations through the traditional banking sector (see Figure 5). Some reports also suggest that China has step up its efforts to curb lending through the large 'shadow banking sector', which has reached epic proportions (see Figure 6). However, doubts linger.

The banks of China have become very skilled in circumventing the credit using methods that are not shown in the official Total Social Financing (TSF) figures.<sup>9</sup> One such mean is public-private partnership. These collaborative projects of private and government organizations have been especially active after the mini-recession that occurred in late 2015. Most of these projects are constructed in such ways which help banks to keep the debts of these projects outside of their balance sheets. The other channel is the *securitization*, where debt is transferred to different financial instruments and sold to consumers. Like vividly shown during the GFC, these products do not reduce the debt burden of the economy nor the riskiness of the financial sector. They just hide the risk from the plain view of the financial authorities.

An indication that the crackdown of the shadow banks may be bearing fruit is that the new yuan loans issued by Chinese banks reached a new record (CNY 2900 billion) in January. Especially so, as the corporate lending saw the biggest increase (from CNY 243.3 billion to CNY 1.78 trillion). It thus seems that China first diverted the credit stimulus from traditional banks to the shadow banking sector and now returns it to the banks again. What happens next is anybody's question.

Still, despite some national accounting gimmicks, China is following a classical boom-and-bust cycle.<sup>10</sup> After the euphoric phase of investment and consumption booms becomes a stand-still because, for example, a change in the government policy or a failure of a firm though to be successful, the investors start to reconsider their positions. The investors who had financed most of their purchases with borrowed money become distressed sellers because the money their borrowed becomes more expensive than their investments. Their selling activities decrease the value of the assets below their purchasing prices and the amount owed for the financial assets becomes larger than the value of the assets for the stressed investors (this is the 'Minsky moment'). Panic and asset fire sales commence, leading the market to crash. The investors and the lending sectors (banks and non-banking financial institutions) suffer crippling losses. A wave of bankruptcies follows, suffocating investments and consumption. The real economy takes a hit, tumbling into a recession or even to a depression.

Probably the most perplexing issue is that, despite the rhetoric, there is little evidence from actual tightening. This raises some serious questions. Are the central authorities still in control of the aggregate lending? If not, the Chinese economy is in autopilot and runs off the cliff whenever the boom cycle reaches its peak. If authorities are still

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<sup>9</sup> See, e.g., <http://carnegieendowment.org/chinafinancialmarkets/7535>  
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<sup>10</sup> See Kindleberger and Aliber (2011).

in control, why is more not done? Have they decided to run the credit stimulus to the bitter end or are they still afraid of doing too much too early? These are crucial questions for the world economy. Unfortunately, definite answers are not available currently.

**Forecasts**

Although Fed has started the QT, China has not removed or tightened its stimulus in any meaningful way. We have now to consider the option that the Chinese leaders have lost the control of the financial sector or that they are unwilling to take the necessary measures to curp the lending spree. In either case, the Chinese economy keeps building the financial bubble until it bursts. Because China is not tightening, we will extend the horizon of the market crash to Q2 – Q3.

Still, because of the huge financial imbalances build during the nine years of extreme monetary stimulus, the risks of a global financial meltdown have probably never been bigger. The likelihood of a market crash during the next 12 months has risen to 90 % (see the Trends and Topics warning in 1/29/2018). We estimate that the likelihood of a global financial crisis to start within the next 12 months is 75 %. We estimate that the financial crisis will morph into a systemic crisis within the next 12 months with the likelihood of 35 %.

In Table 1 we present the *nowcasts* and the growth forecasts for the real GDP of Eurozone, Finland, and the United States under the consensus scenario. The forecasts presented in Table 1 show that, because China has not tightened in any meaningful way, the expansion will cool but continue throughout this year. The US will grow around 1.8 percent this year and around 1.3 percent next year. Eurozone will grow around 1.5 percent this year and 0.2 percent in 2019. Finland will grow around 1.5 percent this year, but the economy would diminish by around 0.1 percent in 2019.

Table 1. *Nowcasts* (nc) and forecasts for the growth rate of real GDP in the US, Eurozone and Finland under consensus scenario. Source: OECD, Bureau of Statistics and GnS Economics.

Quarter	Finland	Eurozone	USA
2017	2.7	2.6	2.5
2018:1 (nc)	1.2	1.1	0.7
2018:2	0.4	0.3	0.5
2018:3	0.1	0.1	0.3
2018:4 (nc)	-0.1	0.1	0.3
2018	1.5	1.5	1.8
2019	-0.1	0.2	1.3

As we have mentioned several times over the course of last year, growth forecasts currently include a large amount of uncertainty. This time is no different and the above forecasts should be taken with a ‘grain of salt’.

**Conclusions**

The world is entering into a new, unstable financial regime. The onset of global quantitative tightening will be followed by the massive fiscal stimulus (tax cuts) enacted by president Trump and the emerging inflation. The rates will rise and volatility will return. The bull market of nine years will end, probably in a spectacular fashion and the world will struggle to avoid a global depression.

The central banks have supported the markets for several decades. During the rule of Fed Chairman Alan Greenspan, their market-saving efforts became known as the ‘Greenspan’s put’. Usually these included cutting the interest rate, but possible actions of the Fed in the futures market have been widely speculated over the years. After 2008, BoJ and SNB took the market manipulation at a whole new level by directly buying stocks. Those who argue that these have been “for monetary policy purposes” are really being naïve or then the idea is

to “muddle the waters” around the issue.<sup>11</sup> In reality, there cannot be no other reason than to support the over-extended financial markets. Currently, the global pool of the artificial central bank liquidity still continues to grow due to active QE-programs of the ECB and BoJ. The coming tapering and QT programs are also likely to have somewhat differing effects, for example, in the US and in the euro area.

The tax cuts are the last “sugar high” for the equity markets and the global economy sowing their own demise at the same time. The fiscal deficits combined with the QT will increase the interest

rates undermining both economic and corporate profit growth.

It is in practice impossible to forecast accurately when the QT -programs will ‘start to bite’, but bite they will. As effective as QE-programs were in rising asset values, as effective QT-programs will bring them down. Because of the market mechanism, they are likely to do it in a very uncontrolled manner. If central banks do not make a drastic u-turn towards more stimulus, look out below!

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<sup>11</sup> See, e.g.,

<https://money.usnews.com/investing/news/articles/2018-01-26/abe-says-boj-buying-etfs-for-monetary-policy-not-to-influence-stocks>.

Appendix: Figures

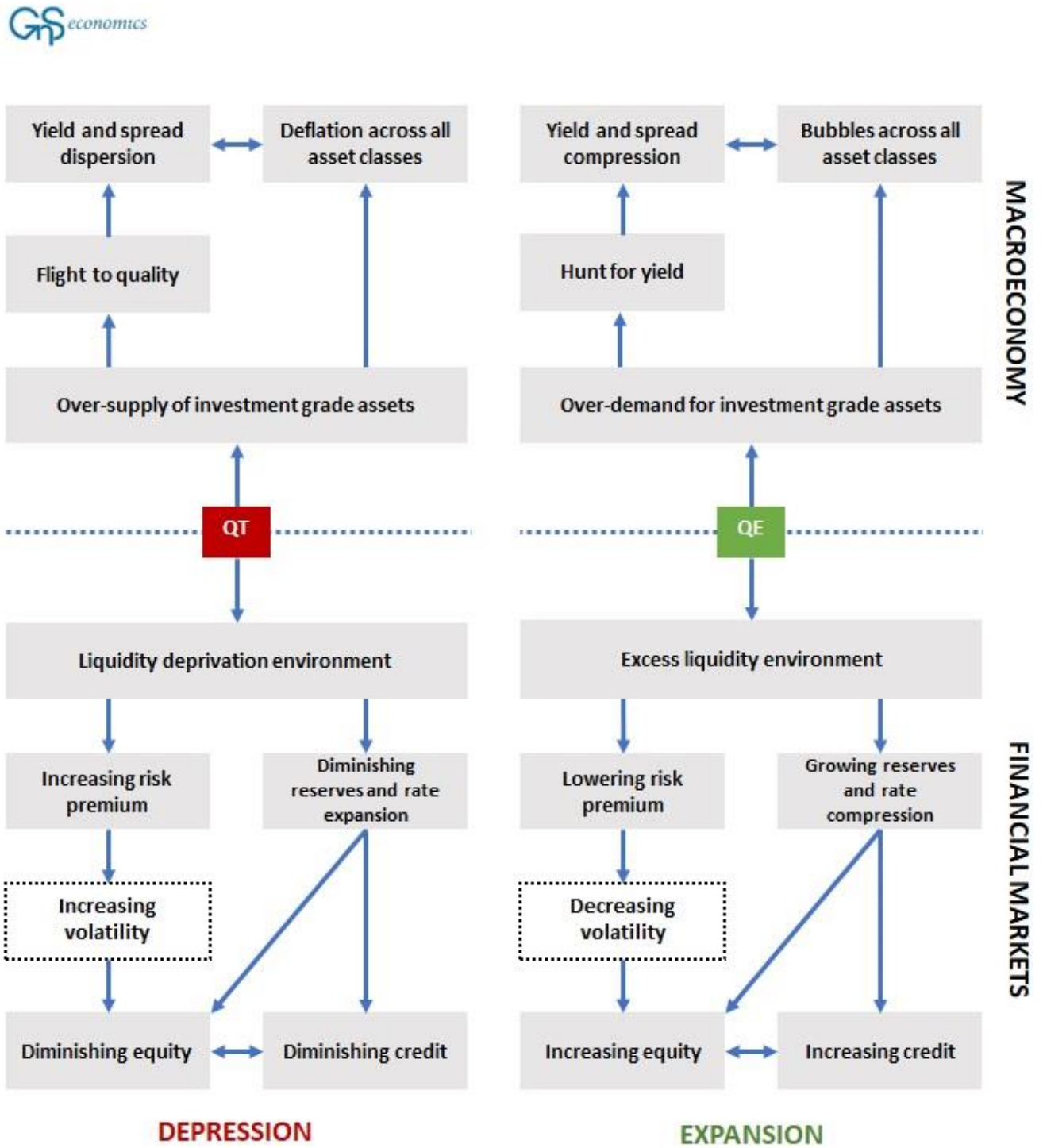


Figure 1. The causative channels of quantitative easing (QE) and quantitative tightening (QT) in the macroeconomy and in financial markets. Source: GnS Economics.



S&P 500 (LOGARITHMIC)

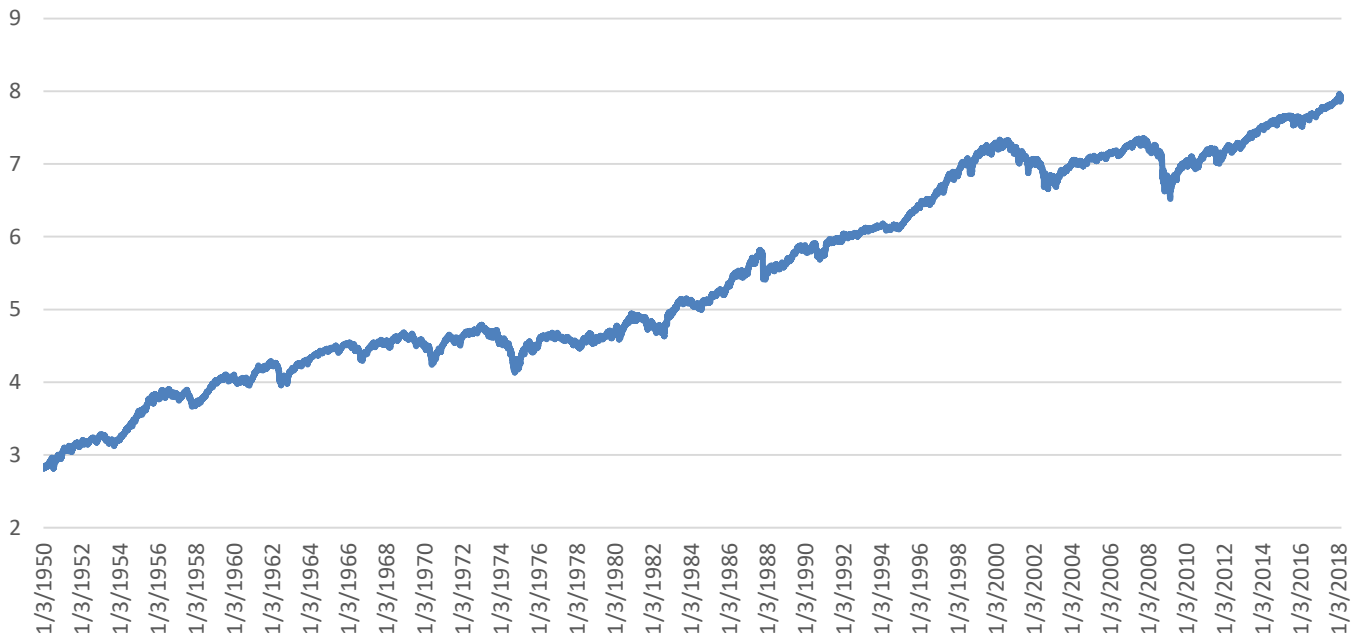


Figure 2. The logarithmic daily closing value of S&P 500 stock market index from 1/1/1950 till 3/5/2018. Source: GnS Economics, Yahoo Finance

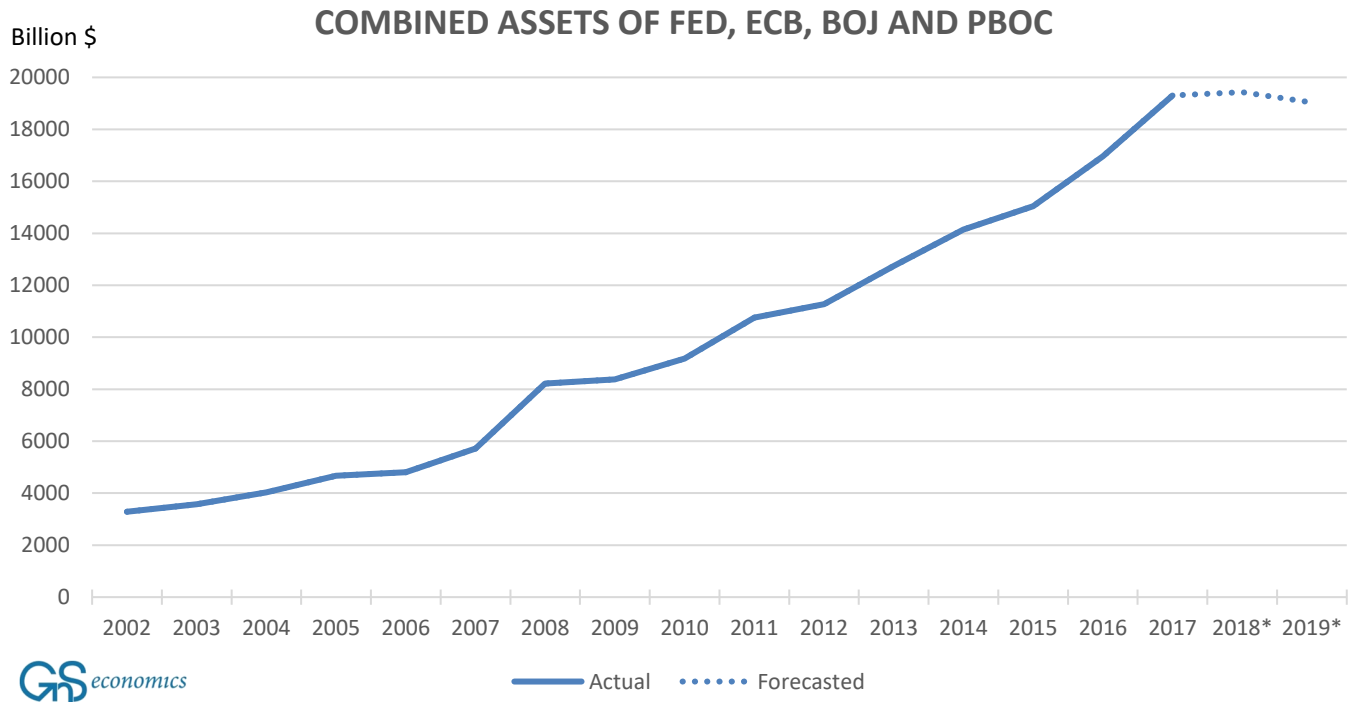


Figure 3. The value of actual and forecasted value of the balance sheets of the BoJ, ECB, Fed and the PBoC. Source: GnS Economics, BoJ, ECB, Fed, Trading Economics

REAL GROSS CAPITAL FORMATION IN MAJOR ECONOMIES, 1999 - 2016

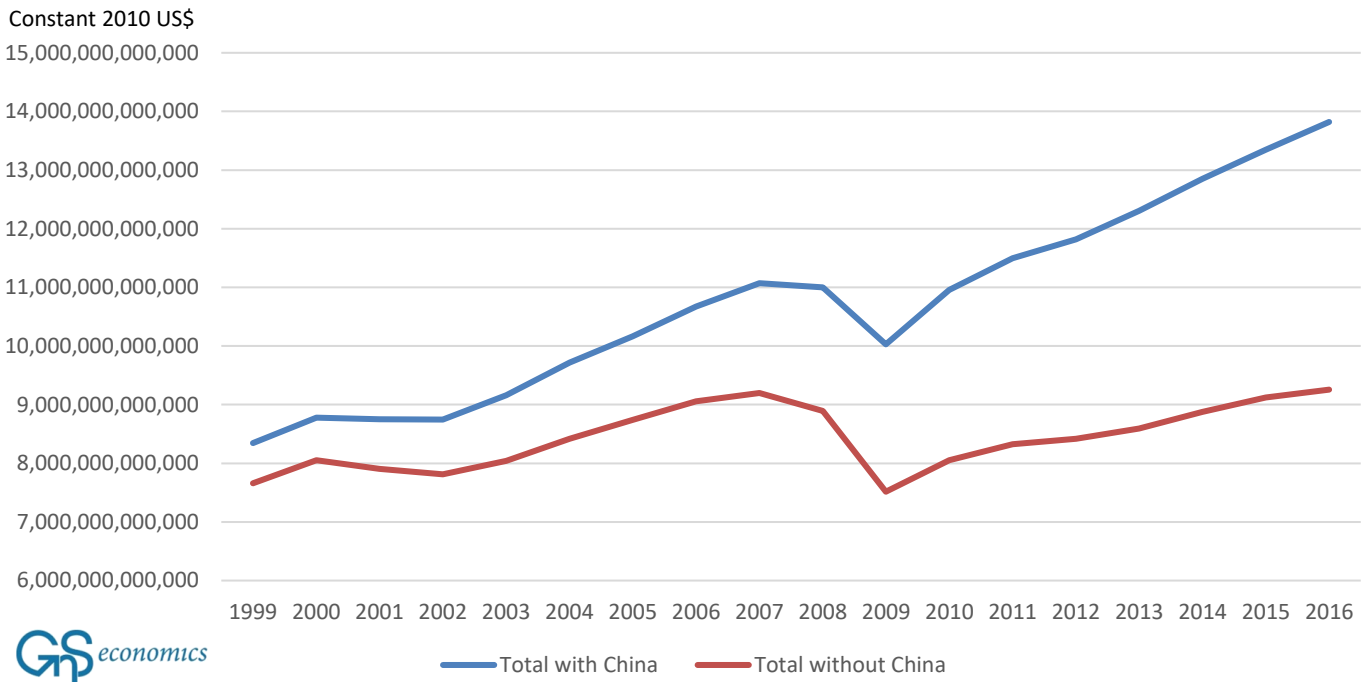


Figure 4. Real gross capital formation in Australia, Canada, China, euro area, Japan, South Korea, the United Kingdom and the United States in constant (2010) US dollars. Sources: GnS Economics, World Bank

DEBT OF HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS AS A SHARE OF GDP (%) IN CHINA

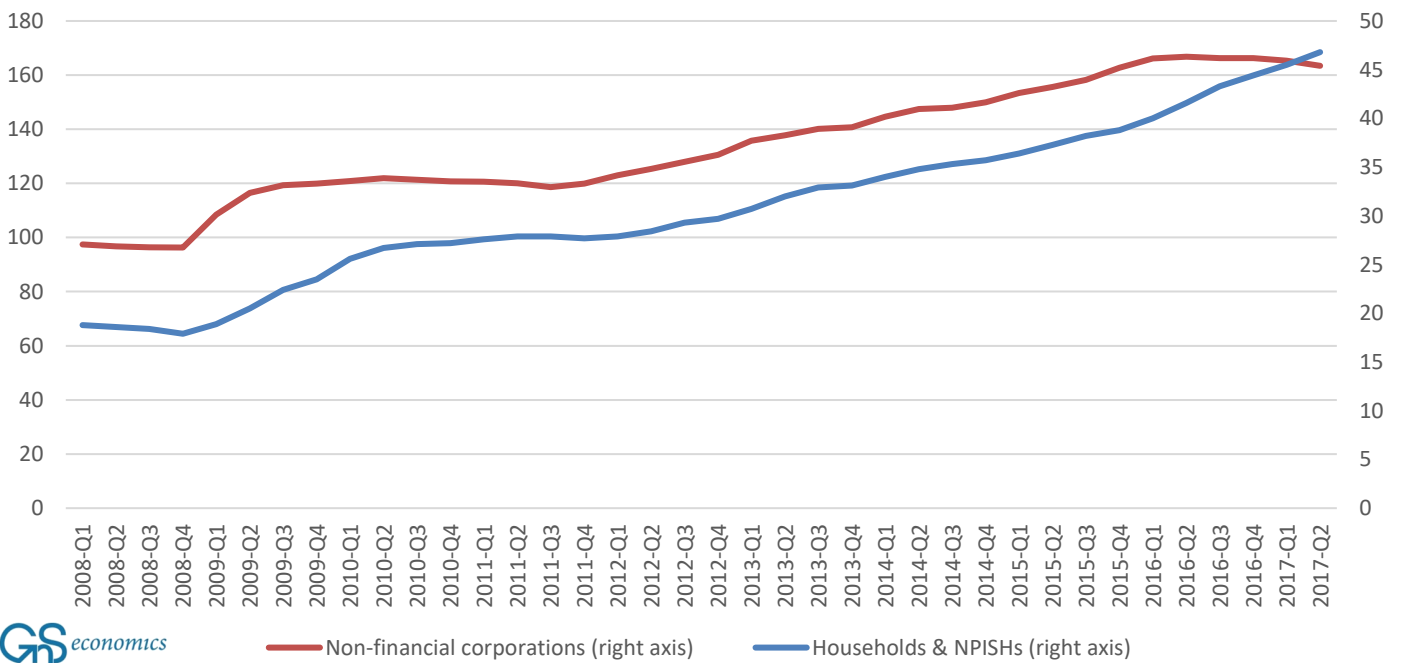


Figure 5. Debt (credit and debt securities) of non-financial corporations and households as a share (%) of GDP. Source: GnS Economics, BIS

### ASSETS OF TRADITIONAL AND SHADOW BANKS AS A SHARE OF GDP (%) IN CHINA

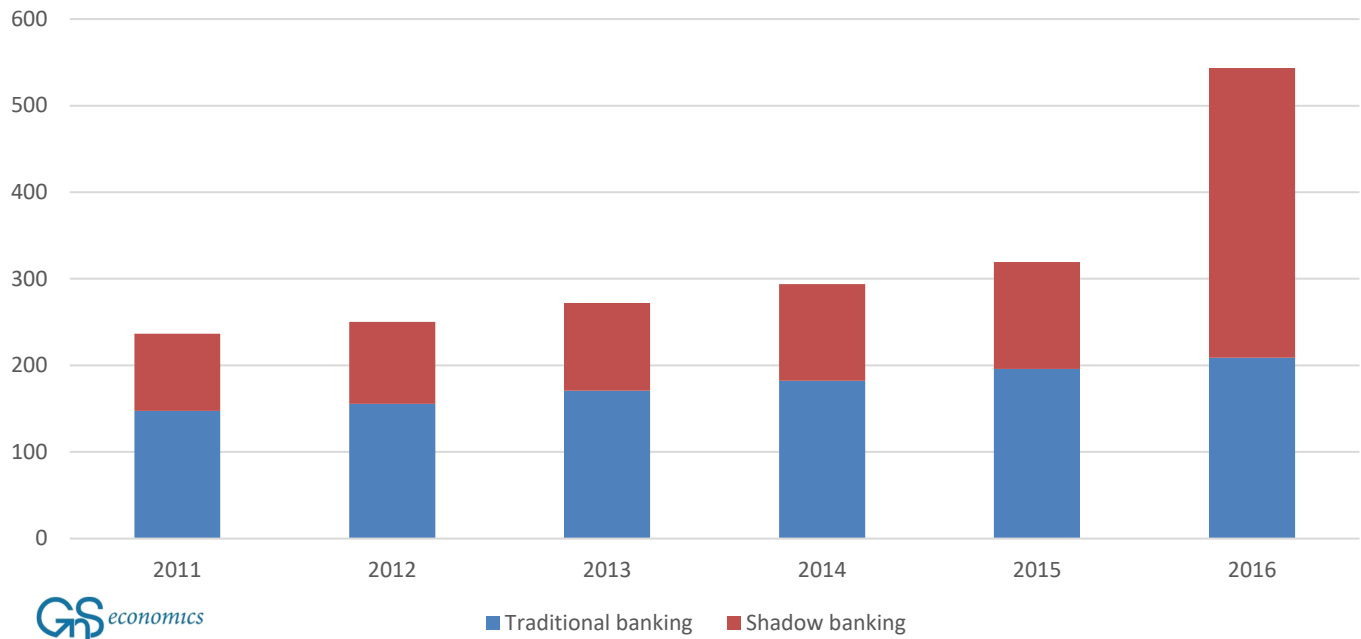


Figure 6. Asset of traditional bank and the shadow banking sector as a share of GDP (%) in China. Source: GnS Economics, BIS PBoC

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**Process descriptions**

The forecasts reported in this Q-review are based on the statistical modeling methods from the most recent academic research on predicting business cycle fluctuations. Nowcasts refer to the forecasts of the growth rates of the real Gross Domestic Product (GDP) for the current quarter. Nowcasts are needed because the standard measures for the GDP are published after a considerable lag and are typically subject to subsequent revisions, indicating that the coincident state of the economy is always uncertain. Our nowcasts for the current quarter are based on statistical models where all relevant information available at the time of nowcasting is utilized.

The GDP forecasts for longer horizons (over the current quarter) are based on the dynamic forecasting models where forecasts are constructed iteratively. This means, for example, that the three-quarter forecast is essentially based on the two-quarter forecasts and so on. Forecasts are constructed for all three economic areas (the Eurozone, Finland and the US) indicating that they depend on each other. Finally, note that the forecast scenarios considered in this Q-review are based on the expert view of GnS Economics.

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The next Q-review will be published in June 2018.  
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