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ADB Working Paper Series

**ULTRA-LOW INTEREST RATES,
OVERINVESTMENT, AND GROWTH
IN EMERGING EAST ASIA**

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Abstract

The paper explores business cycles and growth dynamics in emerging East Asia within an ultra-low interest rate environment from the perspective of the monetary overinvestment theories of Mises and Hayek. It argues that, given a low interest rate environment in the large industrialized countries, the likelihood of overinvestment and therefore a crisis in emerging East Asia has increased independently from the exchange rate regime. Overinvestment can take the form of unsustainable booms on stock and real estate markets (as in Southeast Asia prior to the Asian crisis) or the misallocation of funds due to subsidized state-directed capital allocation (as is currently occurring in the People's Republic of China). If further credit expansion counteracts a crisis triggered by a preceding overinvestment boom, it paralyzes growth in the long term, as Japan experienced.

JEL Classification: E52, E58, F31

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1. INTRODUCTION

Emerging East Asia is at a crossroads. Following the expectation of a rise in interest rates in the US, private capital flows are heading back to the US, which is the core of the world dollar standard. The decline of the foreign reserves in emerging East Asia, which had been rising fast since the turn of the millennium, reflects the reversal of the international capital flows. The slowing growth in the People's Republic of China (PRC), which until now has served as the engine of growth for this highly economically integrated region, represents a possibly fundamental reversal in growth perspectives in emerging East Asia.

It is necessary to understand the slowing growth in the emerging East Asian countries in the context of the ultra-low interest rates in the large industrialized countries, which are the result of asymmetric interest rate setting policies since the mid-1980s (Hoffmann and Schnabl 2016). Given the shrinking responsiveness of consumer price inflation to monetary expansion, the central banks of the large industrialized countries cut their interest rates fast during the (financial) crisis, whereas they tended to increase their interest rates hesitantly during the recovery after the boom. After reaching zero interest rates, asymmetric monetary policies continued in the form of unconventional monetary policies, which increasingly inflated the central bank balance sheets.

Within an asymmetric world monetary system, the emerging East Asian countries have responded to the gradual monetary expansion in the US and Japan (and Europe) by importing the ever-lower interest rate levels independently from the exchange rate regime. According to Fleming (1962) and Mundell (1963), fixed exchange rates—which prevailed in most emerging markets in East Asia prior to the Asian crisis—imply the convergence of low interest rate policies. However, as Rey (2015: 1) put it, the growth and increasing cyclicity of international capital markets have transformed Mundell's (1963) trilemma into an "irreconcilable duo": only if they manage the capital account can central banks pursue independent monetary policies.¹ Otherwise, the countries at the periphery of the world monetary system have to follow the monetary policies of the large industrialized countries, even with flexible exchange rate regimes.

The paper analyzes the effects of the declining and ultra-low interest rates in the large industrialized countries on investment, asset prices, and growth in emerging East Asia² from the point of view of the overinvestment theories of Mises (1912) and Hayek (1929, 1931). These theories allow a theoretical understanding of boom-and-bust cycles, which monetary policy impulses drive and transmit to financial markets. It is possible to view the overinvestment theories as counterhypotheses to the theories that consider declining growth to be predetermined due to structurally declining marginal productivity of investment and slowing population growth (Summers 2014).

¹ See also Klein and Shambaugh (2015).

² The definition of Emerging East Asia includes the People's Republic of China (PRC); Hong Kong, China; Indonesia; Malaysia; the Philippines; Singapore; the Republic of Korea; Taipei, China; Thailand, and Viet Nam. This country group stands out due to similar structural characteristics and strong economic integration.

2. MISES–HAYEK OVERINVESTMENT FRAMEWORK FOR CLOSED AND OPEN ECONOMIES

The monetary overinvestment theories of Mises (1912) and Hayek (1929, 1931) (which they fitted to closed-economy settings) can explain how monetary policies that are too expansionary cause unsustainable overinvestment and financial market booms. Their international extension can show how, in the large industrialized countries, gradual interest rate cuts increased the likelihood of boom and bust in the emerging East Asian economies.

2.1 Boom and Bust in a Closed-Economy Mises–Hayek Overinvestment Framework

Mises (1912) and Hayek (1929, 1931) distinguished three types of interest rates. The central banks determine the central bank interest rate i_{cb} to influence the interest rates on short-term money markets. The private banking (financial) sector sets the interest rate for credit provided to households and enterprises i_c (capital market interest rate), which is presumably strongly linked to the central bank interest rate. The natural interest rate i_n is a theoretical concept that balances the domestic capital market's supply (savings S) and demand (investment I) ($I=S$)³ and that assumes that the savings–investment decisions in an economy are in equilibrium when the natural rate of interest is equal to the central bank and capital market interest rates.

In the monetary overinvestment theories, an overinvestment boom occurs when the capital market rate falls below the natural rate, for instance caused by monetary expansion ($i_c=i_{cb}<i_n$). This can be due to the central bank's aim to stimulate economic activity via the Phillips curve effect or to stabilize the financial markets. The current high savings (due to the low interest rate) produce the expectation of higher future consumption, which triggers growing investment (Mises 1912: 430–432; Hayek 1929: 101). In the left panel of Figure 1, the investment curve shifts to the right (from I_1 to I_2). In the capital goods sector, an overinvestment boom occurs, which draws unemployed labor into the production of investment goods.

If the employment, wages, and income rise, they stimulate consumption. Because the interest rates are low, the demand for consumer goods—particularly durable goods—grows. Increasing investment and consumption provide an incentive to expand capacities further. The boom in the real sector of the economy can spill over to the financial sector, because the profit expectations of enterprises have improved. Speculation commences, and the expectations for stocks and other real asset prices can become disconnected from the real economic development. As Schumpeter (1934: 226) stated, “The symptoms of prosperity themselves finally become, in the well-known manner, a factor of prosperity.” Similar developments were apparent during the Japanese bubble economy, which involved fast-growing investment as well as unsustainable increases in stock and real estate prices.

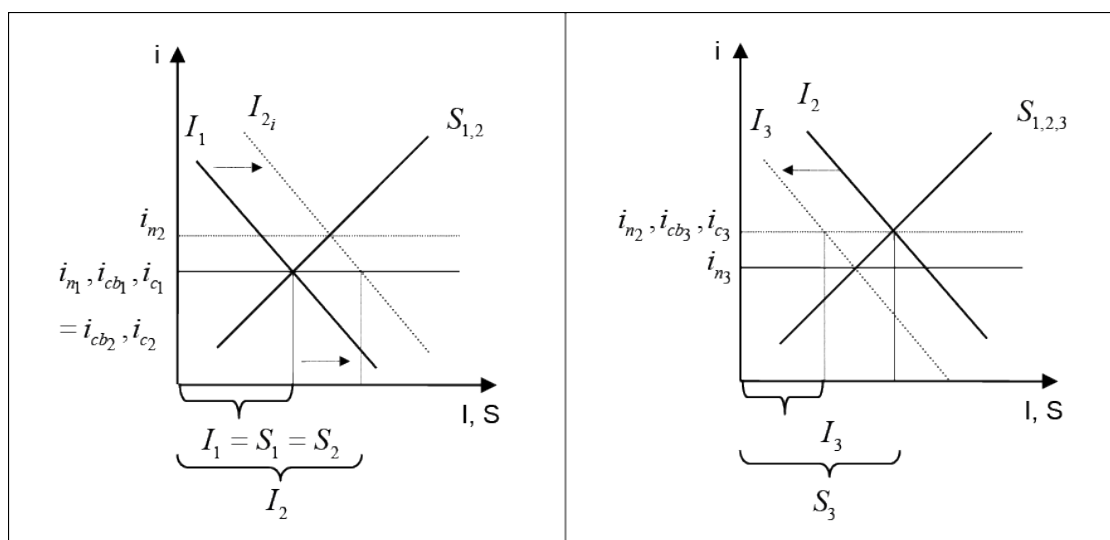
³ For Hayek (1929, 1931) the natural interest rate does not cause structural distortions in the economy. The definition of the natural interest rate by Summers (2014) or Laubach and Williams (2015) differs from the definition by Hayek (1929, 1931).

The turnaround occurs when the central bank lifts the interest rates in response to rising inflation. This was the case in Japan, where the Bank of Japan started to increase the interest rates in 1988 to deflate the bubble. Alternatively, the financial sector tightens the credit conditions, because the sentiment concerning the sustainability of the upswing changes. Given that central bank and capital market interest rates are rising, it is necessary to dismantle investment projects with expected returns below the increased capital market rate. In the right panel of Figure 1, the investment curve shifts to the left from I_2 to I_3 . Enterprises suffer from a fall in equity positions and creditworthiness. The stock and real estate prices decline.

With investment dropping, the natural interest rate falls below the central bank and capital market rates, which the central bank keeps high ($i_n < i_{cb} = i_c$) (see the right panel of Figure 1). Now savings are larger than investment, because savings seem more lucrative at relatively higher interest rates than investment ($I_3 < I_2$). The output declines, overcapacities emerge, and unemployment grows while wages decline. As consumption falls, inflation declines. Schumpeter's (1934) "cleansing effect"—that is, the dismantling of low-return investment projects—accompanies the falling wages and prices. Mises (1912) and Hayek (1929, 1931) saw the dismantling of investment projects with low marginal efficiency as a precondition for economic recovery. The reason is that it frees production factors, which become available for new, higher-yield investment projects.

Since the mid-1980s, the monetary policy mistakes that the monetary overinvestment theories identify seem to have been asymmetric. Because consumer price inflation decreasingly reflected monetary expansion, the central banks in the industrialized countries could increasingly engage in other goals than price stability, such as financial crisis management. During the crisis central banks cut their interest rates fast.⁴ In contrast, during the recovery after the boom, they hesitated to increase their interest rates to avoid any threat for the economic recovery.

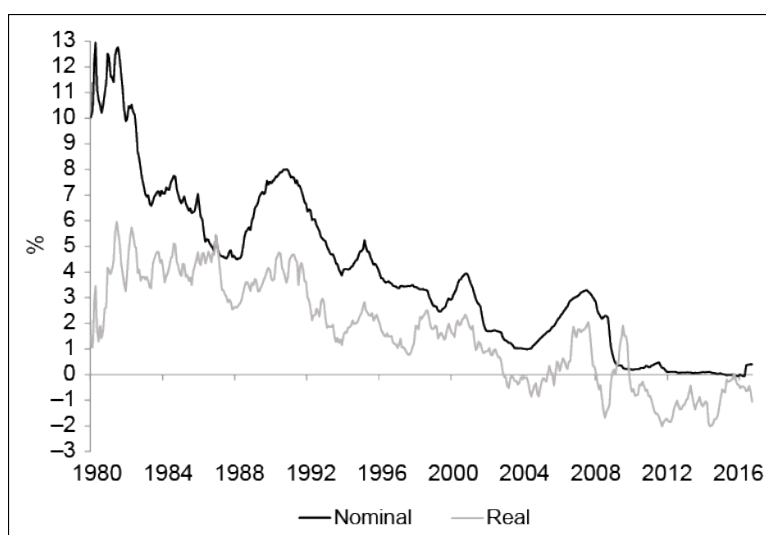
Figure 1: Boom and Bust in the Monetary Overinvestment Theory



⁴ The use of monetary policy as an active tool to stabilize financial markets started under Alan Greenspan in 1987. Later, the relatively tight monetary policy stance of the Federal Reserve in response to the October 1929 crash on the US stock market served as justification. Bernanke (1995) argued that the US Fed had kept the monetary policy too tight during the early years of the 1930s' world economic crisis, which Friedman and Schwartz (1963) argued to have aggravated the crisis.

The result was—invariably—a gradual decline towards zero in central banks' interest rate. Figure 2 shows the arithmetic average of the prime interest rates that the Federal Reserve, the Bank of Japan, and the European Central Bank set (before 1999 the Deutsche Bundesbank). As the interest rates on capital markets in the large industrialized countries converged towards zero, from the point of view of the monetary overinvestment theories, this increased the likelihood that the central bank interest rates would fall below the natural interest rates.⁵ After the short-term interest rates reached the zero bound (first in Japan in March 1999), the central bank balance sheets were inflated by asset purchases (in particular government bonds) to lower the interest rates further at the longer end of the yield curves. Figure 3 shows the gradual expansion of the balance sheets of the large central banks, which has progressed particularly far in the case of the Bank of Japan in the context of the Abenomics (see Yoshino and Taghizadeh-Hesary 2016).

Figure 2: Average Short-Term Interest Rates: The US, Japan, and the Euro Area



Source: IMF, IFS. Euro area (Germany before 1998). Arithmetic averages.

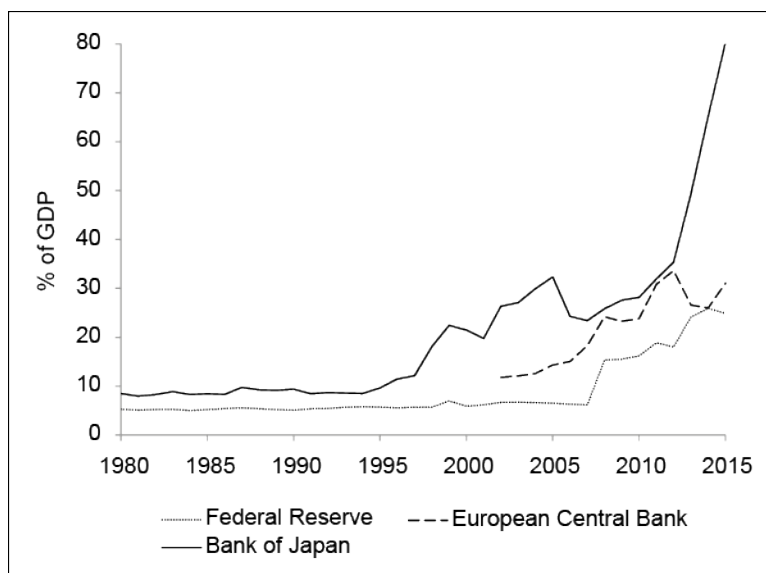
In all large industrialized countries, monetary policies have contributed to unsustainable financial market booms. The Japanese bubble economy (1985–1989) was the result of the interest rate cuts from 8% in September 1985 to 3.5% in September 1987 that the post-Plaza yen appreciation triggered.⁶ As the monetary overinvestment theories suggest, the Bank of Japan pricked the bubble by lifting interest rates from the year 1988. In the US, the bursting of the so-called dotcom bubble in December 2000 prompted the Federal Reserve to cut the interest rate from 6.5% in May 2000 to 1.0% in June 2003. The generous liquidity injection favored a speculation boom in the real estate market, which financial liberalization and tax incentives promoted. The US subprime market boom peaked in autumn 2007, after the Federal Reserve Bank

⁵ Because, in the view of Mises (1912) and Hayek (1929, 1931), the interest rate is the outcome of time preference (human beings prefer to consume specific goods today rather than tomorrow), an interest rate originating in market forces cannot be zero or negative.

⁶ After the strong Plaza appreciation of the yen against the dollar (50% between September 1985 and September 1987) had caused a severe recession in Japan, the Bank of Japan felt forced to move towards monetary expansion to slow down the capital inflows, aiming to appreciate the yen and to facilitate the adjustment of the Japanese export industry to the tremendous terms-of-trade shock. The interest rate cuts not only placed Japan back on the path towards high growth but also triggered a speculation boom in the stock and real estate markets, which reached its peak in December 1989.

increased the interest rates stepwise. Additionally, it is possible to associate the boom in the European peripheral countries before the European financial and debt crisis (2003–2007) with an unprecedented monetary expansion, and it ended after the interest rate increases.⁷

Figure 3: Central Bank Assets (Shares of the Gross Domestic Product)



Sources: Eurostat, European Central Bank, Cabinet Office of Japan, and IMF.

2.2 An International Extension of the Mises–Hayek Overinvestment Framework

Whereas Mises (1912) and Hayek (1929, 1931) fitted their overinvestment theories to a closed-economy setting, today goods and capital markets are globalized. The industrialized countries have liberalized the national and international capital markets since the mid-1970s and the emerging market economies since the 1990s. Although in some countries, such as the PRC, capital controls—on both inward- and outward-bound flows—have remained in place, since the turn of the millennium emerging markets have become the goal of increasing capital inflows, which have tended to be translated into buoyant credit growth.

Emerging market economies' liberalization of international capital in the first phase prepared for more efficient international capital allocation, because the structure of international capital markets is asymmetric. The capital markets in the US, Europe, and Japan are highly developed and deep. They offer many investment opportunities at a broad range of maturities. The costs for transactions are low, and a wide variety of hedging instruments for foreign exchange risk exists. A high degree of macroeconomic stability, paired with high savings, implies low and stable levels of interest rates. Central banks smooth the short-term interest rates, aiming to maintain low inflation.

⁷ The European Central Bank cut its interest rates in response to the bursting dotcom bubble from 4.75% in October 2000 to 2% in June 2003. The interest rate cuts favored real estate and stock market booms on the periphery of the European Monetary Union, in particular in Greece, Spain, Portugal, and Ireland (Holinski, Kool, and Muysken 2012). The overconsumption and speculation boom peaked with the outbreak of the US subprime crisis in 2007 after the European Central Bank had increased its interest rates stepwise.

In contrast, fragmented and underdeveloped capital markets prevail in emerging markets and developing countries (Eichengreen and Hausmann 1999). Due to comparatively low levels of income, the aggregate savings are low. The transaction volumes in the financial markets are small, and the investment opportunities are limited. Given the comparatively high degree of macroeconomic instability, particularly long-term maturities are rare. Instruments to hedge foreign exchange risk are scarce and costly, which provides central banks with an incentive to smooth exchange rate fluctuations. Considering the comparatively high macroeconomic instability and low savings, the interest rates tend to be high and volatile.

Before the liberalization of the capital markets of emerging market economies in the 1990s, tight financing conditions coupled with destabilizing macroeconomic policies and distortive capital market controls constituted an impediment to investment and growth in emerging market economies (McKinnon 1973). To revive economic activity, the Washington Consensus proposed stability-oriented macroeconomic policies paired with the removal of interest rate and price controls (Williamson 1989). These also implied the liberalization of international capital flows. The macroeconomic consolidation process foreseen in the Washington Consensus may be a necessary condition (pull factor) for significant capital inflows into the emerging market economies. Having attracted international capital inflows, they contribute—as a kind of self-fulfilling prophecy—to macroeconomic stabilization, because they induce increasing investment, higher growth, and more tax revenues through declining interest rates.

Prior to the liberalization of capital flows, low real interest rates in the industrialized countries indicated low marginal efficiency of investment, whereas high real interest rate levels in the emerging markets indicated high marginal efficiency of investment. The substantial interest rate gap between industrialized countries and emerging market economies implied, from the point of view of the neo-classical growth model (as for instance Solow (1956) and Swan (1956) suggested), substantial potential efficiency gains, which promised to contribute to growing income levels in both industrialized countries and emerging market economies.

This “neoclassical moment” of capital market liberalization was most evident for the PRC but also for many smaller East Asian countries, which increasingly liberalized their economies (including capital flows) during the 1990s. Due to its motivated labor force and low wage level, the PRC could attract growing foreign direct investment from the industrialized countries, thereby achieving substantial productivity gains. Eventually the lower production costs in the PRC resulted in declining prices for manufacturing goods in both industrialized countries and emerging market economies, while the real wage levels in both the PRC and the industrialized world could (potentially) increase.

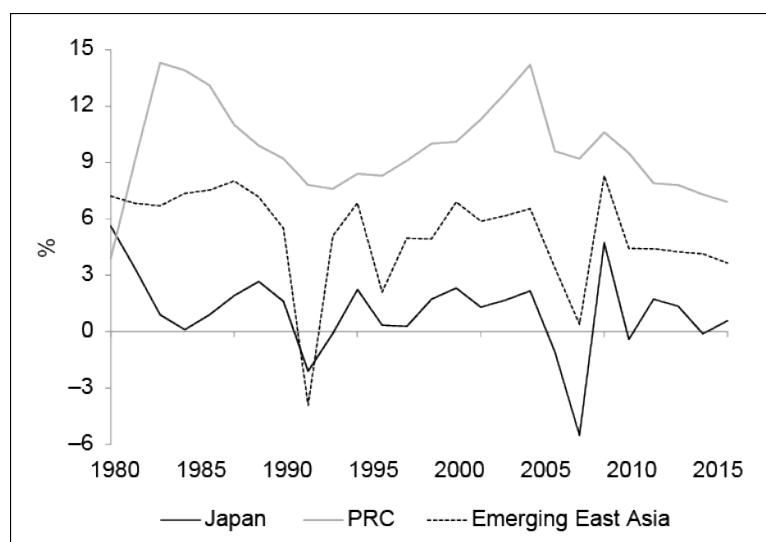
However, the gradually declining interest rates in the large industrialized countries resulted in an increasing likelihood that central banks in emerging markets would set interest rates below the natural interest rate of Mises and Hayek for two reasons. First, given an asymmetric world monetary system, the emerging market economies tended to import the interest rate levels of the industrialized countries independently from the exchange rate regime (see section 3.1). Because the growth rates are higher in the emerging market economies, the implied natural interest rates also tend to be higher. Second, given the different degrees of development of capital markets, the absorption capacity of capital markets for money supply growth tended to be smaller in the emerging market economies. This implied that the interest rates would fall faster and the prices in the capital markets would respond more sensibly to capital inflows.

3. ULTRA-LOW INTEREST RATES IN THE US AND JAPAN AND BOOM AND BUST IN EMERGING EAST ASIA

East Asia is part of the world dollar standard (McKinnon 2013). Dollar invoicing is dominant in international trade, including the burgeoning intra-regional East Asian trade. Among banks the dollar is the most important means of settling international payments (McKinnon and Schnabl 2004a,b). For East Asian governments, the dollar is the intervention currency to smooth exchange rate fluctuations. Whereas the Federal Reserve has been inactive in the foreign exchange markets, leaving the exchange rate to market forces, the emerging East Asian countries have continued—directly or indirectly as well as more or less tightly—to peg their exchange rates to the dollar to reduce the transaction costs for international trade and capital flows. As a result, central banks in emerging East Asia have accumulated increasing amounts of US dollar reserves, which have become—at different points of time—the origin of unsustainable credit growth and overinvestment booms.

Within East Asia, Japan took a special role in business cycle fluctuations mainly for three reasons. First, the Japanese yen floated against the dollar, thereby influencing the business cycle of the smaller emerging East Asian economies (McKinnon and Schnabl 2003). Second, as the Japanese monetary policy tended to follow the US and because Japan is an important net capital exporter, the capital outflows from Japan remained—given sluggish growth perspectives since 1990—an important determinant of growth in the emerging East Asian countries. Third, considering the strong economic linkages, the business cycles of Japan, the PRC, and the smaller emerging East Asian countries remained intertwined (Figure 4).

Figure 4: Growth Rates: Japan, the People’s Republic of China, and Emerging East Asia



PRC = People’s Republic of China.

Source: IMF.

3.1 Capital Inflows, Fixed Exchange Rates, and Uncontrolled Credit Booms

The gradually declining interest rate in Japan and other large industrialized countries has triggered growing portfolio capital inflows and foreign direct investment (FDI) to emerging East Asia since the 1990s. These capital inflows were further encouraged by exchange rate pegs, as foreign exchange risk was subdued. Carry traders were encouraged to take credit at low interest rates in the large industrialized countries to invest at higher interest rates in emerging East Asia.

Until the 1997–98 Asian crisis, the emerging Asian countries tended to stabilize their exchange rates tightly to the dollar. There are several reasons for exchange rate stabilization in emerging markets. First, in small open economies such as the smaller East Asian economies, exchange rate stabilization is an important tool of macroeconomic stabilization (McKinnon 1963). Given stable world market prices, stable exchange rates help to fix inflation at low and constant levels. It is possible to consider this as a prerequisite for capital inflows, investment, and growth. Second, the industrial sector provided the basis for the economic catch-up process in emerging East Asia. Therefore, the large markets of the US and other industrialized countries were important export destinations. Exchange rate stabilization against the dollar could promote export-led growth.

Third, as McKinnon and Schnabl (2004a) stressed, a growing motivation for exchange rate stabilization originated in underdeveloped capital markets, which do not provide sufficient instruments to hedge foreign exchange risk. If hedging instruments exist, they are costly. As for this reason the aggregated foreign exchange risk of banks and enterprises of emerging market economies remains unhedged in reality, governments aim to provide a substitute for missing hedging instruments by stabilizing the exchange rates. Fourth, large stocks of foreign-currency-denominated debt constitute an incentive for exchange rate stabilization, because strong depreciation would inflate foreign debt in relation to the domestic currency (Calvo and Reinhart 2002).

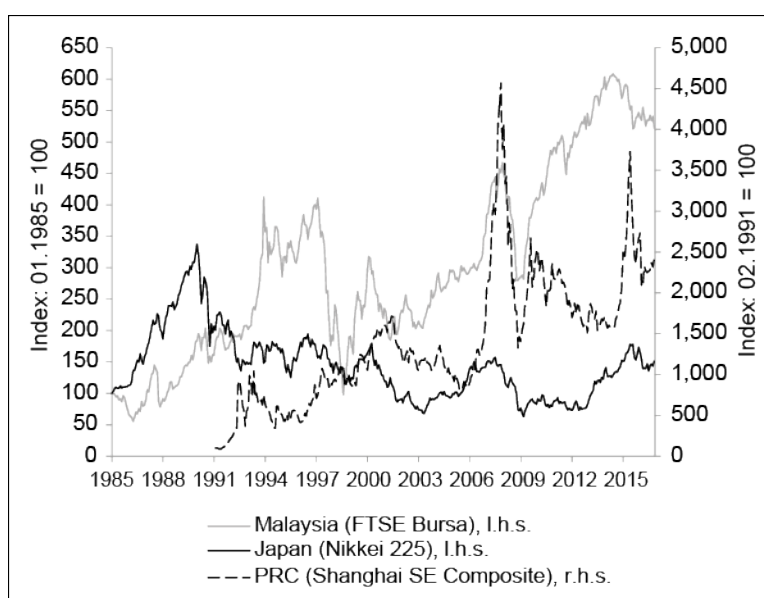
When Japan started to cut interest rates in 1991 to stabilize the domestic economy after the end of the Japanese bubble, the capital inflows into the smaller emerging Asian economies accelerated. While the falling stock and real estate prices in Japan constituted a growing bad loan problem, Japanese banks could consolidate their balance sheets by providing credit to banks in the high-yield emerging Southeast Asian economies. Japanese enterprises investing in the Southeast Asian tiger economies profited from easy financing conditions in Japan to build up new production sites in low-wage countries. This helped to improve the business perspectives of large Japanese corporations in the face of yen appreciation pressure. The tight dollar pegs of the emerging Southeast Asian tiger economies (Indonesia, Malaysia, the Philippines, the Republic of Korea, and Thailand) seemed to eliminate the exchange rate risk for the international credit provision to the region.

The growing capital inflows into Southeast Asia constituted a Mises–Hayek-type overinvestment boom, which was labeled by the World Bank (1993) the “East Asian economic miracle.” Figure 5 shows that the stock market boom in Japan was followed by a stock market boom in Southeast Asia, a representative being the Malaysian stock market. Buoyant capital inflows made an increasing number of investment projects look profitable as the financing costs declined. With more investment projects being realized, the average marginal efficiency of investment in the tiger economies fell. With the benefit of hindsight, Krugman (1998) as well as Corsetti, Pesenti, and Roubini

(1999) modeled the Asian crisis as an overinvestment crisis, with investment being financed by foreign-currency-denominated debt.

In line with the monetary overinvestment theories, exuberant boom phases in the stock and real estate markets accompanied the growing (potential) overcapacities in the Southeast Asian miracle countries. Fast-growing wages and consumption booms contributed to rising inflation. Given tight dollar pegs, the real exchange rates of the Southeast Asian countries gradually appreciated, leading to increasing current account deficits. In the mid-1990s, the depreciation of the Japanese yen started to undermine the competitiveness of the exports of the Southeast Asian countries to Japan and third markets, such as the US and Europe (McKinnon and Schnabl 2003).

Figure 5: Stock Market Indices of Japan, Malaysia, and the People's Republic of China



PRC = People's Republic of China.

Sources: IMF, IFS.

With foreign-currency-denominated foreign debt gradually inflating, the international capital markets finally lost confidence in the Southeast Asian boom. As the monetary overinvestment theories suggest, the crisis broke out when the international credit provision was reversed, which forced central banks to increase their interest rates. In June 1997 the crisis started in Thailand with the collapse of the dollar peg and was transmitted fast to the other Southeast Asian tiger countries as well as several other former target destinations of carry trades, such as the Russian Federation and Brazil.

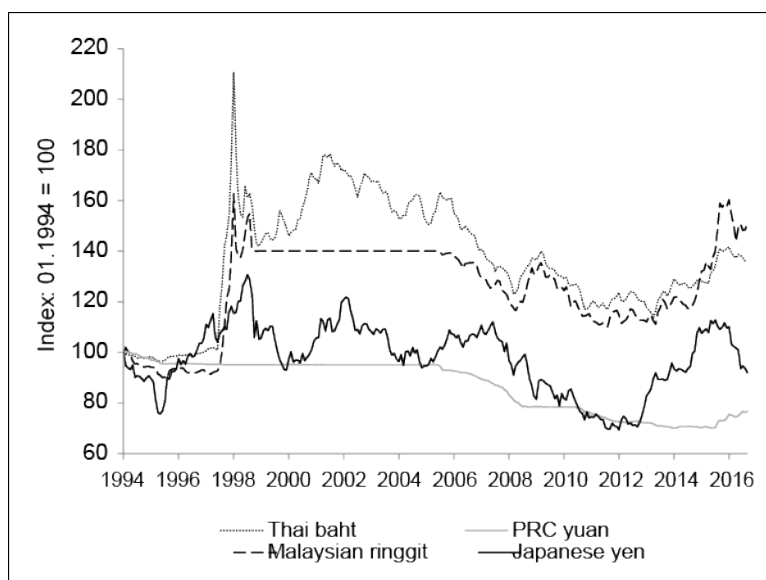
3.2 Capital Inflows, Flexible Exchange Rates, and Credit Booms

One major policy implication drawn from the Asian crisis was that exchange rate pegs caused undue risk taking in international credit markets, because the dollar pegs of the Southeast Asian economies had created the illusion of absent exchange rate risk (Fischer 2001). For this reason the IMF urged the emerging Asian economies to pursue (more) flexible exchange rate regimes (McKinnon and Schnabl 2004a). However, because the monetary conditions in the large industrialized countries became even

more expansionary (the large industrialized countries cut interest rates in response to the Asian crisis), the capital inflows into emerging East Asia continued, in particular after the dotcom bubble burst in 2000 in the industrialized countries (Hoffmann and Schnabl 2011).

Given that emerging East Asian countries (partially) allowed for more flexible exchange rates,⁸ the benign liquidity conditions led to gradual appreciation paths (see Figure 6), which attracted additional capital inflows and thereby increased the likelihood of overinvestment booms. The open interest rate parity suggests for countries with persistent appreciation expectations of the domestic currency a lower interest rate compared with the (potential) anchor country. For instance, since the early 1980s, Japan has experienced a long-term appreciation path against the dollar, which was—albeit with substantial swings—matched for more than 30 years with lower (long-term) interest rate levels than those in the US (see Goyal and McKinnon 2003).

Figure 6: Exchange Rates against the Dollar



PRC = People's Republic of China.

Sources: IMF, IFS.

Persistent current account surpluses can constitute persistent appreciation expectations, as observable for instance in Japan; Hong Kong, China; Singapore; Taipei, China; the PRC, and, since the Asian crisis, several other emerging East Asian economies (McKinnon and Schnabl 2012). They lead to growing international assets, which tend to be monetary system denominated in foreign currency (mainly dollars) within an asymmetric world. In the case that these international assets are reconverted into domestic currencies, the domestic currencies would appreciate. If this process is anticipated by private investors or speculators, strengthening appreciation expectations can lead to runs in the domestic currency.⁹ Appreciation pressure can become self-fulfilling if countries signal—as occurred in the PRC from 2005 to 2010 and from 2012 to 2014—a predictable appreciation path. As shown in Figure 6, after the PRC

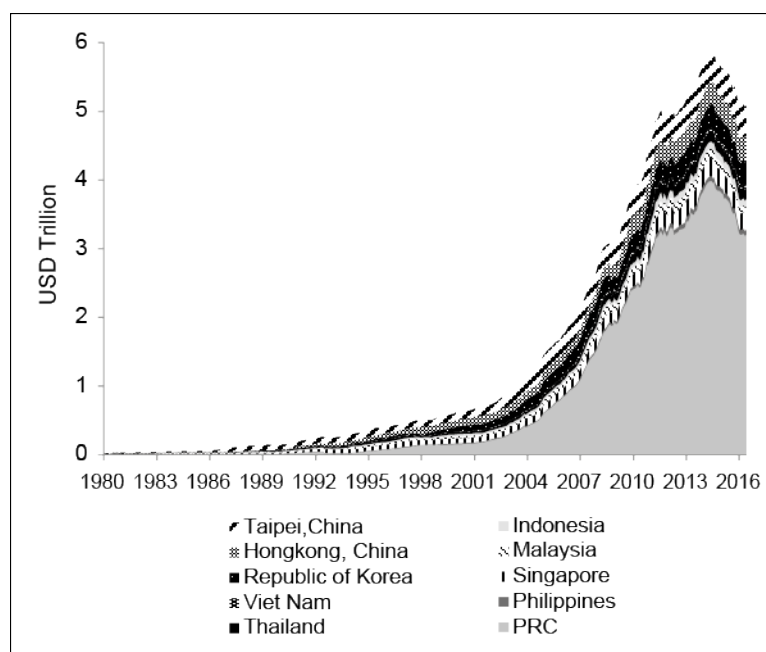
⁸ With the major exceptions of Malaysia (until February 2006); Hong Kong, China; and the PRC (until July 2005).

⁹ As was apparent in the course of the post-Plaza yen appreciation.

had allowed its currency to appreciate since July 2005, several emerging East Asian countries, such as Malaysia and Thailand, followed this appreciation path.

The larger is the appreciation pressure, the larger is the likelihood of foreign exchange interventions and/or interest rate cuts, which aim to soften the appreciation pressure. This was the case in Japan in response to the post-Plaza yen appreciation (with a focus on interest rate cuts) and has increasingly been the case in the emerging East Asian economies since the turn of the millennium (with a focus on foreign exchange intervention). In particular, the PRC's move towards a gradual appreciation path after July 2005 until 2014, with a major interruption between July 2010 and July 2012, is an important case study. Despite the gradual appreciation of the PRC yuan against the dollar and the inward-bound capital controls, the foreign reserves increased fast, indicating an acceleration of speculative hot money inflows (Figure 7).¹⁰ The foreign reserves of the PRC reached their peak, close to 4 trillion dollars, in July 2014. A similar acceleration of foreign reserve accumulation is apparent in the other emerging East Asian countries.

Figure 7: Foreign Reserves of Emerging East Asian Countries



PRC = People's Republic of China.

Sources: IMF, IFS.

The acceleration of capital inflows occurred through various channels, for instance foreign direct investment, the repatriation of receipts from exports, and hot money inflows. All these capital inflows in the emerging East Asian economies after the turn of the millennium nurtured overinvestment and hiking real estate prices. Depending on the sterilization policies of the respective countries (see section 4), the resulting overinvestment booms took different forms. In countries with open capital accounts, such as Hong Kong, China, the reserve accumulation translated directly into interest rate convergence towards the US, which stimulated investment and asset market

¹⁰ Thus, it is possible to view monetary policy in large industrialized countries as the common driving factor of reserve accumulation in emerging East Asia. Cheung and Qian (2009) provided an alternative explanation: countries imitate each other in accumulating a war chest against crises.

booms. In the PRC, where capital controls sterilized and impeded the capital inflows, the overinvestment boom tended to take a detour via state-controlled capital allocation (Schnabl 2016).

Starting in 2005, the People's Bank of China sterilized the monetary effects of foreign reserve accumulation. It sold central bank bonds, increased the share of reserve requirements, and extended the basis for reserve requirements (McKinnon and Schnabl 2012). The People's Bank of China kept the remuneration rate for required reserves substantially below the inflation rate, which helped to minimize the sterilization costs. The non-market-based sterilization not only helped to contain inflationary pressure in the PRC but also created the basis for a state-directed investment promotion, the so-called *window guidance*.¹¹ Because the lending rate maintained a ceiling below the market clearing level,¹² a surplus demand in the capital market emerged. Then, the government could allocate credit discretionarily to specific enterprises through a state-controlled banking sector.¹³ The investment of the enterprise sector, rather than households (which tend to finance consumption), seems to have received preferential treatment. Within the enterprise sector, large state-owned enterprises and export enterprises were the main beneficiaries. Private small and medium enterprises tended to be short of credit.

The upshot was a gradually changing economic structure of the PRC since the turn of the millennium. Investment as a share of the GDP grew gradually from 33% in 2000 to 44% in 2014. Large capacities developed. In particular, in the PRC's manufacturing sector, the preferential allocation of capital at below-market rates (i.e. below the natural interest rate) seems to have produced overinvestment. The resulting output, other things being equal, could not be fully absorbed by the foreign or domestic demand. However, by keeping the price level of the PRC's manufacturing products low through sterilization policies with low-cost credit provision, the real exchange rate of the PRC yuan remained undervalued, which helped to clear the overcapacities in the international markets (McKinnon and Schnabl 2012). The overinvestment boom in the PRC presumably also had positive spillover effects on the smaller emerging Asian economies, which have participated in the PRC's growth dynamics by supplying inputs to the giant PRC industrial sector (Thorbecke and Smith 2010).

Furthermore, the preferential capital allocation via window guidance fostered the build-up of overcapacities in the real estate sector. Un- or low-remunerated reserve requirements create opportunity costs for banks in the form of the difference between the lending rate and the remuneration rate. In the PRC, this spread has been roughly 4.5 percentage points since 2005. The banks have to shift these costs to their customers to maintain profitability, in the form of either higher lending rates or lower deposit rates (Löffler, Schnabl, and Schobert 2016). Because the PRC maintained a ceiling on lending rates, the deposit rates remained low.

¹¹ The window guidance (*madoguchi shidô*) was a way of allocating credit during the catch-up process of Japan. It allowed preferential treatment of specific sectors and enterprises (Hamada and Horiuchi 1987: 244–246).

¹² This is equivalent to non-market-based sterilization. Market-based sterilization is difficult within a global low interest rate environment, because any monetary tightening resulting from sterilization triggers an increase in domestic interest rates, attracting new capital inflows and thereby making new foreign exchange intervention and sterilization measures necessary.

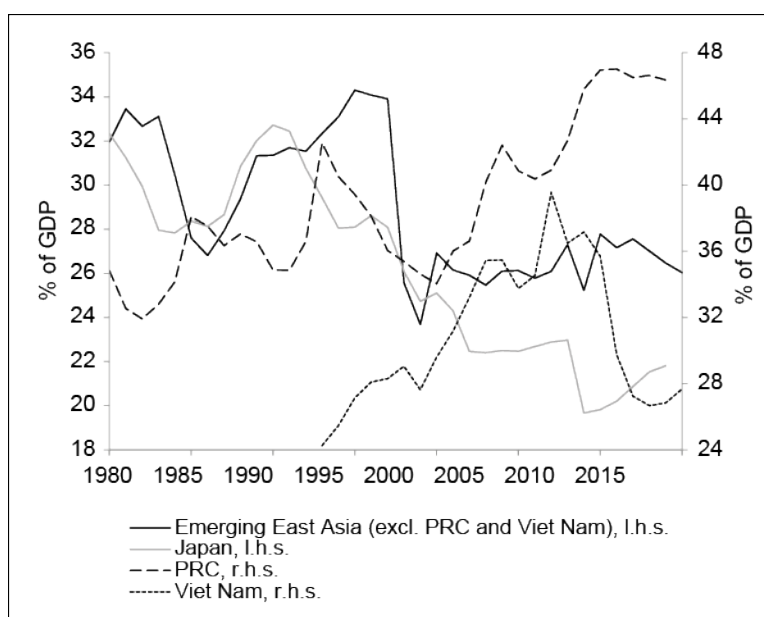
¹³ "The PBC will strengthen window guidance and credit guidance to intensify efforts to adjust the credit structure. Efforts will be made to optimize the credit structure, to encourage growth in some sectors while discouraging growth in others" (People's Bank of China 2008: 13).

Since 2012 the deposit rates in the PRC of around 3% for one-year time deposits have been below the inflation rate, creating an incentive to transfer deposits from state-owned banks to the shadow banking sector. The shadow banks tended to use these funds to finance real estate projects and to provide credit to small and medium enterprises. This is likely to have contributed to rising real estate prices. In 2014 the overinvestment boom in the PRC started to stagger. Since then capital outflows and depreciation pressure on the PRC yuan have indicated a change of sentiment concerning the sustainability of the PRC's boom.

3.3 Wandering Overinvestment Cycles in East Asia

Figure 8 shows the wandering investment cycles in East Asia based on the shares of investment in the GDP for different countries or country groups. The first overinvestment cycle is evident in Japan in the second half of the 1980s, accompanying the Japanese bubble economy. Investment as a percentage of the GDP grew from 28% in 1985 to 33% in 1990. After the bursting of the bubble, investment as a percentage of the GDP gradually declined to 22% in 2014.

Figure 8: (Over-)Investment Cycles in East Asia



PRC = People's Republic of China.

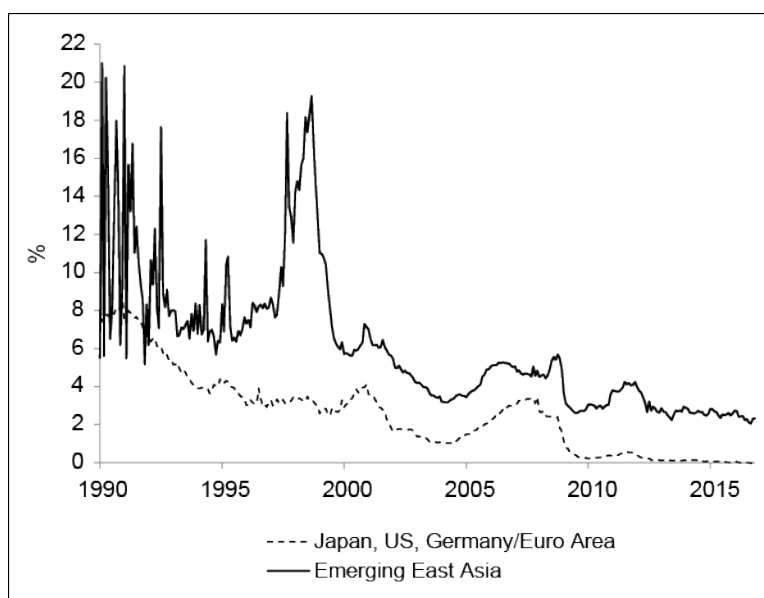
Source: IMF, IFS.

After the bursting of the Japanese bubble, an overinvestment boom of the Southeast Asian countries (Indonesia, Malaysia, the Philippines, the Republic of Korea, and Thailand) developed. Investment as a share of the GDP of the emerging East Asian countries, excluding Viet Nam and the PRC, increased from 31% in 1992 to 34% in 1997. After the Asian crisis, the average share of investment in the GDP of the emerging East Asian countries declined to 26% in 2015. It increased in Viet Nam from 28% in 1997 to close to 40% in 2007 and subsequently dramatically declined to 28% in 2015. After the turn of the millennium, investment as a share of the GDP in the PRC grew from 34% in 2000 to 46% currently, remaining close to the historical peak. The People's Bank of China aims to maintain the high level of investment by injecting large amounts of cheap credit into the PRC's economy (Ma 2015).

4. ECONOMIC POLICY RESPONSE, GROWTH, AND REDISTRIBUTION EFFECTS

The outcome was that the fast foreign reserve accumulation in emerging Asia led to a convergence of interest rates towards the ultra-low levels of the large, low-growth, industrialized countries, as shown in Figure 9. From the point of view of the monetary overinvestment theories, this enhanced the likelihood of overinvestment booms, which usually occur alongside stock and real estate market booms. In the 1990s Japan and several emerging East Asian countries, including the PRC, experienced overinvestment crises at different points of time. This poses a question about the adequate policy response, which is linked to the likelihood of success of crisis prevention policies and the growth effects of crisis therapies.

Figure 9: Short-Term Interest Rates, G3, and Emerging East Asia



Source: IMF. Arithmetic averages.

4.1 The Failure of Sterilization and Capital Controls as Crisis Prevention Policies

In a world of ultra-low interest rates in large industrialized countries, the scope to prevent undue spillover effects in the form of exuberant speculation booms and/or distorted economic structures is limited. Because, prior to the Asian crisis, unsterilized foreign exchange intervention produced unsustainable overinvestment booms (section 3.1.), post-crisis emerging East Asian governments responded to the re-emerging capital inflows by sterilizing the monetary effects of accelerating foreign exchange accumulation. If the central bank wants to contain the risks for price and financial stability originating in capital inflows from the large industrialized countries, it can manage the liquidity and potential credit creation originating in foreign reserve accumulation through three sets of instruments (Gray 2011; Löffler, Schnabl, and Schobert 2016).

First, market-oriented monetary policy operations, for instance central bank bond sales or reverse repos, can absorb liquidity and thereby potential credit creation. For instance, the Republic of Korea, where not only foreign reserves but also central bank bonds on the central bank balance sheet have significantly increased since the turn of the millennium, has used these instruments. The fact that the yield on the so-called monetary stabilization bonds has remained close to the interbank rate is an indication that these sterilization measures were market based. The downside is that the monetary tightening resulting from sterilization measures attracts new capital inflows, which lead to additional appreciation pressure on the domestic currency. This increases the likelihood of a vicious circle of foreign reserve accumulation and sterilization. The only way to break this circle is to cut the interest rate toward the interest level of the anchor country at the core of the international monetary system. The resulting decline in the interest rate increases the likelihood of an overinvestment boom.

Second, there are non-market-based measures. For example, central banks can use reserve requirements with low or no remuneration or the coercive sale of central bank bonds below the market rates. The People's Bank of China used mainly non-market-based instruments to absorb liquidity.¹⁴ By combining non-market-based sterilization measures with capital controls, the People's Bank of China could prevent the domestic interest rate from converging towards the level in the United States. Zero interest rates would have been a breeding ground for unsustainable credit growth in the fast-growing PRC economy. However, taking a detour through state-directed subsidized credit allocation and the shadow banking sector, the PRC authorities created structural distortions in the economy, which have the characteristics of a Hayek–Mises-type overinvestment boom (see section 3.2).

Third, the central bank can coordinate liquidity management with the government in the case that the central bank is storing foreign reserves on behalf of the government. Foreign reserve purchases of the central bank from the private sector provide liquidity to the domestic banking system. The government can sell more government securities than necessary to cover the budget deficit. It can hold the revenues from these operations as government deposits at the central bank, which is equivalent to sterilization. Alternatively, government-owned sovereign wealth funds can sterilize the monetary effects of foreign reserve accumulation by investing foreign reserves in foreign financial markets.

The Monetary Authority of Singapore absorbed a large share of the money created by foreign reserve accumulation through government deposits at the central bank. Taking stock prices as an indication of the success of sterilization measures, Singapore seems to have been more successful than other emerging Asian countries in preventing overheating. The stock prices have increased much less than in other emerging East Asian economies but nevertheless by 120% since January 2003.

Thus, although the sterilization operations of the emerging markets at the periphery of the world dollar standard can help to prevent overinvestment cycles in a world of ultra-low interest rates in large industrialized countries, there are two downsides. First, if sterilization operations are market based, they are merely ineffective. Second, combining non-market-based sterilization with capital controls distorts the national and international capital market structure. State-directed interest rate controls lead to financial repression, which constitutes a drag on growth (McKinnon 1973).

¹⁴ See Hoffmann and Löffler (2014) and Schobert and Yu (2014).

4.2 Growth Effects

The fast credit growth, growing shares of investment in the GDP, and hiking stock prices in emerging Asia indicate that low interest rates in the large industrialized countries may have contributed—at one time or another—to unsustainable overinvestment booms. Currently, the declining growth rates that appear with high levels of stock prices (Figure 4 and 5) may indicate potential economic turnarounds. These can arise once the monetary conditions in the United States are further tightened and the East Asian currencies depreciate. The reason is that the enterprises of emerging East Asia, in the course of speculative capital inflows, have accumulated large stocks of foreign-currency-denominated debt.¹⁵ In particular, the PRC seems to be counter-steering such a crisis by extending further credit to the private sector. Accordingly, it is embarking on similar crisis management strategies to Japan since the bursting of the Japanese bubble (1989), the US since the start of the US subprime crisis (2007), and the European Central Bank since the outbreak of the European financial and debt crisis (2008).

Mises (1949: 572) argued that “the wavelike movement effecting the economic system, the recurrence of periods of boom which are followed by periods of depression is the unavoidable outcome of the attempts, repeated again and again, to lower the gross market rate of interest by means of credit expansion.” According to Hayek (1929), “to combat the depression by a forced credit expansion is to attempt to cure the evil by the very means which brought it about.” Hayek (1931: 98) also argued that if “voluntary decisions of individuals are distorted by the creation of artificial demand, it must mean that part of the available resources is again led into a wrong direction and a definite and lasting adjustment is again postponed.”

This is most visible in Japan, where expansionary macroeconomic policies have contributed to preventing a deeper recession in the short term.¹⁶ Nevertheless, in the view of the monetary overinvestment theories, they have paralyzed growth in the long term. The bursting of the Japanese bubble economy and the Asian crisis had created a large stock of bad loans in the Japanese banking sector. Therefore, the stability of the Japanese banking sector strongly depended on a low level of interest rates. However, given the expectations that zero-cost liquidity provision would persist, Japanese banks became tempted to perpetuate loans to enterprises independently from their profitability. Otherwise, more bad loans would have become visible. Caballero, Hoshi, and Kashyap (2008) argued that such zombie lending had a negative impact on the profitability of the Japanese enterprise sector. It kept low-profit enterprises alive, which conserved distorted economic structures.¹⁷

During the past two-and-a-half decades, emerging East Asia has profited from the Japanese economic stagnation, because Japan’s sluggish domestic economic development has been at the root of Japan’s net capital exports—in the form of portfolio investment and FDI—boosting economic development and growth in its less developed neighboring countries, including the PRC. However, Japanese net capital exports are likely to have contributed to asset market speculation and overinvestment with low marginal returns in its neighboring countries. Both factors can constitute

¹⁵ The public capital outflows matched the private capital inflows, that is, foreign reserve accumulation.

¹⁶ As, for instance, Koo (2003) stressed.

¹⁷ Sekine, Kobayashi, and Saita (2003) referred to forbearance lending. Peek and Rosengren (2005) linked the misallocation of capital with low or negative profit expectations and the mispricing of risk (“evergreening”).

a drag on long-term growth, because quasi-unlimited, low-cost liquidity provision can affect the productivity of enterprises.

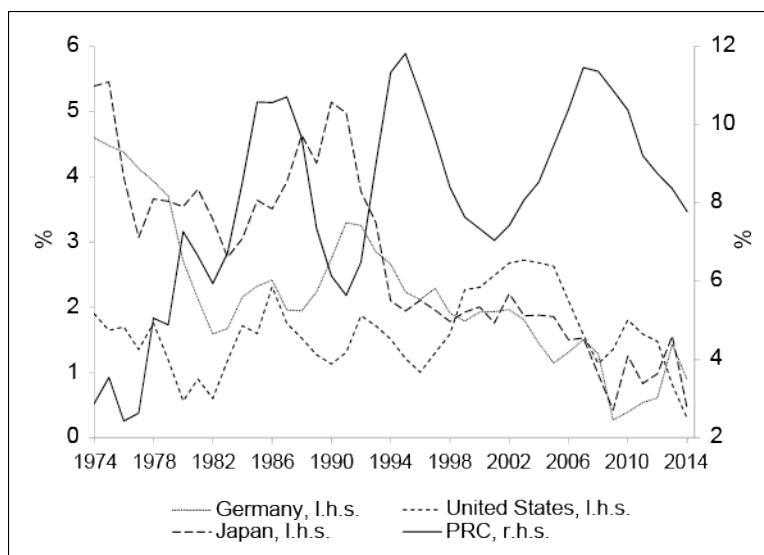
Solow (1956) and Swan (1956) created growth models with long-term growth being dependent on innovation and technological progress (i.e. productivity gains). In such a neoclassical growth model, the ultra-low interest rate policies of the large industrialized countries have a negative impact on productivity growth: efforts to innovate and to increase efficiency decrease if countries anticipate further monetary expansion. If they shift resources and bind them to sectors with low or negative productivity gains, a negative allocative effect is the consequence. The overall productivity level (defined as output per unit of labor) declines. The additional amounts of goods and services, which a constant amount of labor produces, shrink or may even become negative. Declining output and income also lead to declining savings, which result in an additional negative growth effect.¹⁸ In the case of the emerging East Asian countries, in the economic catch-up process, these effects presumably materialized in slowing productivity growth.

The core problem is the misallocation of funds, because low interest rates encourage structural distortions in the speculative upswing. During the downswing the crisis therapy focused on the monetary policy conserves these distortions. The monetary policy crisis therapy destroys the signaling function of the interest rate (which indicates risk). It also undermines the allocation function of the interest rate, which separates investment projects with low expected returns from investment projects with high expected returns. The upshot is that the liability principle of market economies is suspended: banks and enterprises that would not be able to survive at a higher interest rate remain alive, which paralyzes growth.

Figure 10 shows that the productivity growth in Japan has declined strongly since the bursting of the bubble. In the PRC, the previously high levels of productivity growth have also gradually slowed down since 2007. Given the tremendous credit expansion as a response to the end of capital inflows and the slowdown of growth, the PRC may be returning to “soft budget constraints” (Kornai 1986) as they prevailed before the far-reaching reforms. Quian and Xu (1998) showed that these soft-budget constraints made it difficult to distinguish profitable from unprofitable projects.¹⁹ A similar process might take place now, because credit provision through the state-owned banking system intends to conserve employment in the industrial sector. In this case the PRC and thereby emerging East Asia as a whole would follow—albeit from a higher level—the ultra-low interest-rate-induced anemic growth of the large industrialized countries.

¹⁸ Household savings and gross investment have declined in all the major industrialized countries since the mid-1980s.

¹⁹ According to He (2016), today “over 70 per cent of PRC debt overhang is held by state-owned enterprises, many of whom comprise a vast tribe of walking dead, propped up by bad loans from state-owned banks that they are never likely to be able to repay. By 2016, following the downturn in the PRC’s economy, the PRC’s industrial companies had developed huge overcapacity problems. Industrial overcapacity has risen from negligible levels before the global financial crisis to levels higher than 30 per cent in industries such as steel and cement. At this year’s National People’s Congress, the PRC government recognized the issue of ‘zombie enterprises’ and declared that it will shut down or reorganize many state-owned industrial companies by 2020.”

Figure 10: Productivity Increases in Japan, Germany, the US, and the PRC

PRC = People's Republic of China.

Source: OECD.

5. ECONOMIC POLICY IMPLICATIONS

Researchers have argued that the ultra-low interest rate policies in the large industrialized countries have been at the root of foreign reserve accumulation and thereby monetary expansion in the emerging East Asian economies. High growth accompanied declining interest rate levels in emerging East Asia for a considerable time. However, in the view of the monetary overinvestment theories, the low interest rate levels in emerging Asia have become the breeding ground for financial crises and economic distortions, which constitute a drag on long-term growth. Inflated stock prices paired with slowing growth signal the economic turnaround.

Given motivated and qualified labor and dynamic innovative power, the emerging East Asian economies should not rely on low-cost liquidity provision as a means to conserve distorted structures that constitute an impediment to long-term growth. Instead, they should accept a—possibly painful—adjustment crisis, which could be the base for a sustained economic recovery founded on the market principles that the allocation and signaling function of interest rates represents. This is particularly the case as the expansionary macroeconomic policies and financial repression were the cause of low growth in emerging East Asia during the 1960s and 1970s (McKinnon 1973).

In contrast to the large industrialized countries, the emerging East Asian economies have better conditions to exit from the low-interest-rate policies, because the government debt is still low. This facilitates interest rate increases. However, given the asymmetry of the world dollar standard, an exit of the United States is the prerequisite for interest rate increases in emerging East Asia. In contrast to the Bank of Japan and the European Central Bank, the US Federal Reserve has ceased to expand its balance sheet and aims to increase interest rates further. A slow but decisive increase in interest rates could constitute the basis for a global economic recovery, as it would restore private market forces. The emerging East Asian countries could support this process by keeping the monetary conditions tight, which would prevent their currencies from depreciating. This would be also a signal to Japan to consider rethinking its ultra-loose monetary policy approach, which has been the origin of its lasting stagnation.

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