INTERNATIONAL CENTRE FOR ECONOMIC RESEARCH
ICER

WORKING PAPER SERIES

A. Hoffmann

ZERO-INTEREST RATE POLICY AND THE UNINTENDED CONSEQUENCES IN EMERGING MARKETS

Working Paper No.2/2014

Zero-Interest Rate Policy and Unintended Consequences in Emerging Markets

Andreas Hoffmann

University of Leipzig
Institute for Economic Policy
Grimmaische Str. 12, D-04109 Leipzig, Germany
Tel. +49 341 97 33 566—Fax. +49 341 97 33 569
E-mail: ahoffmann@wifa.uni-leipzig.de

10 February 2014

Abstract
Since 2009, central banks in the major advanced economies have held interest rates at very low levels to stabilize financial markets and support the recovery of their economies. Based on a Mises-Hayek-BIS view on credit booms and Mises' law of unintended consequences, this paper suggests that the prolonged period of very low interest rates in the large advanced economies (unintentionally) spurs volatile capital flows and fuels asset market bubbles in fast-growing emerging markets. The resulting inflationary pressure and risks of capital flow reversals gives rise to a new wave of interventionism as policymakers in emerging markets increasingly reintroduce financially repressive measures to isolate the economies from foreign capital inflows.

JEL: B53, E32, E44, F41, F43.
Keywords: Monetary Policy, Emerging Markets, Financial Repression.

Zero-Interest Rate Policy and Unintended Consequences in Emerging Markets[1]

Andreas Hoffmann

University of Leipzig

1. INTRODUCTION

Five years after the Lehman collapse, an exit from very low interest rates and accommodative monetary policy in the advanced economies seems a rather long-term project that is hard to maneuver and subject to controversial discussions. On the one side, there are economists that stress the need for a prolonged period of low interest rates and monetary expansion to stabilize financial markets, to step up growth, or to help finance high levels of government debt (e.g. Bernanke 2010; Blanchard 2010; Summers 2013). On the other side, there are economists that warn of unintended distortions caused by the low interest rate environment that may actually impede the recovery of the economy (e.g. White 2012; McKinnon 2009).

Whichever side of the discussion may finally call itself the winner, it is widely recognized that the low interest rate policy has implications beyond the advanced economies (e.g. Portes 2012; Sanchez 2013; Reinhart 2013) that are addressed in this paper. Informed by a Mises-Hayek-BIS credit boom view and Mises' (1929) *law of unintended consequences*, this paper outlines the unintended consequences of the prolonged period of very low interest rates in emerging markets. The paper suggests that *even if* very low interest rates are justified

[1] I would like to express my gratitude to Edward Chancellor (GMO Investment), John Cochrane (MS University of Denver), Enrico Colombatto (Turin University, ICER), Mario Rizzo (New York University), Joseph Salerno (Pace University), and Gunther Schnabl (University of Leipzig) for insightful discussions on the topic, encouragement, and valuable support.

by policy goals in advanced economies, in today's integrated world financial system, they contribute to *unintended* destabilizing financial flows to the emerging market economies. The resulting inflationary pressure and risk of capital flow reversals is an incentive for emerging market policymakers to isolate their economies from financial inflows using repressive policy measures.

The paper remainder of the paper is as follows. I begin with an introduction of what I call the Mises-Hayek-BIS credit boom perspective (section 2). This sets the stage for a discussion of the impact of the low interest rate environment on emerging market economies. In section 3, I apply the credit boom view to detect *unintended consequences* of the prolonged period of very low interest rates since 2009 in emerging markets. I show that financial flows to emerging markets have accelerated and credit bubbles have started to swell in the aftermath of the financial crisis of 2008-9, given that emerging market business cycles have decoupled from those in the advanced world.

I maintain that, in a world of very low interest rates, emerging markets are under pressure to follow the interest rate policy of the large economies. Policy autonomy is undermined and inflationary pressure hard to fight unless capital controls are installed. Therefore, consistent with Mises' law of unintended consequences, section 4 provides evidence that this policy dilemma has triggered a new wave of interventionist policies in the emerging markets as policymakers have returned to financial repression to stem volatile capital inflows. As a consequence, past trends in financial openness have reversed in many emerging markets. Section 5 concludes.

2. MONETARY POLICY AND CREDIT BOOMS

a. The Mises-Hayek-BIS Credit Boom Theory

The Mises-Hayek or "Austrian" business cycle theory was originally developed to provide an explanation of the credit boom of the 1920s and 1930s that led to the Great Depression (Young 2013). The original theory is widely recognized to have problems in explaining the depth or severity of recessions, as well as flaws in its theoretical core. Therefore, it should not be considered a general theory of the credit cycle (without some serious updating) (Laidler 2003; Sraffa 1932; Young 2013).[2] The Mises-Hayek view of crisis events as the result of an unsustainable "credit booms gone bust," however, is still appealing to many economists.

In particular, economists at the Bank of International Settlements (BIS) have repeatedly warned of the emergence of dangerous asset and credit booms in the run-up to recent financial crises (Borio 2008; Borio and Lowe 2002; White 2006). Consequently, William White (2009) finds that much can be learned from e.g. the older Austrian view, and Borio and Disyatat (2011) broadly outline a somewhat modernized credit boom view that gives credit to the Austrians and is by and large compatible with their original theory .

Since the 2000s, the credit boom view that is based on the writings of the Austrians and the BIS economists has gained attention from academics (e.g. Oppers 2002; Eichengreen and Mitchener 2003). With the bursting of the housing bubble, even the original Austrian view has seen a renaissance (Ferguson 2009), as it seems to provide some understanding of the building of the U.S. subprime market bubble (O'Driscoll 2009; Salerno 2012; Lejivonhuvud 2009) as well as of recent developments and crises in emerging markets (Hoffmann 2010; Hoffmann and Schnabl 2011; Cachanosky 2012). Further, in line with the Mises-Hayek and BIS view, a growing number of econometric studies relates financial crises

[2] There is, of course, some empirical literature that provides evidence that the original theory has some explanatory power (see e.g. Keeler 2003 or Mulligan 2006).

to preceding credit booms and periods of low interest rates (e.g. Jorda et al. 2011; Schularick and Taylor 2012; Jorda et al. 2013; Bordo and Meissner 2012).

In the following I outline a credit boom theory that is based on the writings of the Austrians and the more modern BIS economists. I shall then apply this Mises-Hayek-BIS credit boom theory to detect and explain unintended consequences of very low world funding interest rates in emerging markets.

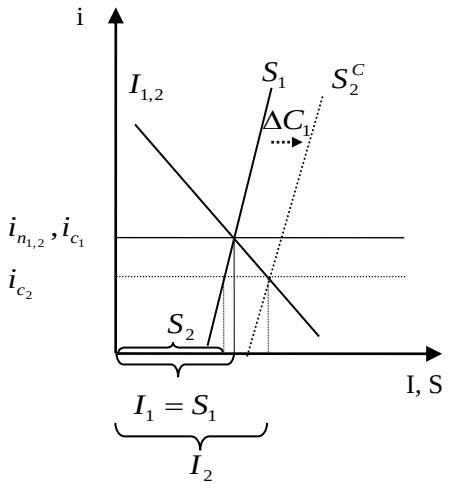
The Mises-Hayek-BIS credit boom theory is based on Wicksell's ideas of the "cumulative process" that gives the interest rate mechanism a central role in coordinating planned savings and investment. The theory distinguishes between a *natural rate of interest* and a *market rate of interest*.

At the natural interest rate i_n, planned saving and investment demand are balanced as illustrated in Figure 1 ($I_1 = S_1$). Thus, the natural rate of interest is the interest rate that emerges in goods market equilibrium. It more or less represents the interest rate considered in real macroeconomic models (Borio and Disyatat 2011). If households decide to forgo current consumption, the preference change shifts the planned saving curve to the right. The natural rate of interest falls. At the lower natural rate of interest, investment demand is higher. A rise in investment will allow households to obtain additional consumption goods in the future. Planned saving and investment are inter-temporally coordinated.

In the real world, however, we cannot observe the natural rate of interest but only the *market rate of interest* i_c. This market rate of interest is the financing interest rate in the economy. This financing interest rate is not only influenced by people's consumption preferences but also by monetary and financial factors. According to Mises (1928, pp. 53-58) and Hayek (1976 [1929], p. 79), the central bank has a great impact on the market interest rate. Borio and Disyatat (2011) explain that the risk-free short-run market interest rate is controlled by the central bank, while the long-run market rate reflects expectations

concerning future monetary policy. However, financial market conditions also matter. For instance, risk perception (credit, liquidity, or market risk) adds a premium to the risk-free market interest rate.[3] For simplicity, however, in the following, I shall abstract from possible changes in risk perception. I assume that only the central bank influences the market rate of interest.

FIGURE 1
Illustration of the Credit Boom



If the central bank holds the market rate of interest equal to the natural rate of interest $(i_{n_1} - i_{c_1} = 0)$, the economy's financing conditions reflect the plans of savers and investors. Financing conditions are neutral with respect to consumption and investment plans. If, by contrast, the central bank pushes the market rate of interest i_c below the natural interest rate i_n, e.g. to stimulate the economy temporarily, the financing conditions are not in line with goods market equilibrium. This is the central cause of the credit boom in the Mises-Hayek-BIS view.

[3] Hayek (1976 [1929], pp. 83-106) offers several reasons for changes in the market rate of interest. He stresses the crucial role of the elasticity of the credit system and the effects of fierce bank competition for larger market shares in bringing on credit cycles. A too-expansionary monetary policy is seen as a possible trigger but not a necessary condition for pushing the market rate below the natural rate of interest.

A fall in the market interest rate triggers additional investment demand. While household saving decisions may be less interest rate-elastic than investment demand, at lower market interest rates, planned saving tends to fall, not rise. Therefore, projects are financed that are not backed by respective planned saving. The difference has to be financed by credit. Figure 1 shows that, at $i_{n_2} - i_{c_2} > 0$, planned investment exceeds planned saving by $I_2 - S_2 > 0$. The credit expansion is illustrated by a right shift of the savings curve to S_2^C, which then represents planned savings S_1 plus the additional credit supply ΔC_1 at the fallen market interest rate.

In Wicksell's theory, the credit expansion results in a cumulative process during which forced saving, in the form of increases in consumer price inflation, re-establishes the saving-investment equilibrium. The Mises-Hayek-BIS view, however, suggests that a general rise in the price level is not a necessary consequence. Instead, the divergence of the market interest rate from natural interest rate manifests itself in a distortion of relative prices and the building of an unsustainable credit boom. In particular, in the Austrian theory of Mises and Hayek, a fall in market interest rates does not affect all investment projects in the same manner but distorts the economy's production structure (Mises 1912, pp. 430-432; Hayek 1976 [1929], p. 101; Hayek 1967 [1935], p. 89) as the value of capital goods rises relative to that of consumer goods.[4]

In this regard, e.g. O'Driscoll and Rizzo (1996, pp. 205-206) suggest that the present value formula for capital goods can help make sense of the change in the production structure following a drop in market interest rates. Under the assumption that expected returns on future output rise with the fall in market interest rates implying an increase in future demand for consumer goods (in goods market equilibrium, this would be the case), the present value

[4] For a more complete depiction of the Austrian theory, see Garrison (2006), Salerno (2012), and Young (2013).

of durable capital goods with multi-period income streams rises relative to that of consumer goods. The capitalization formula can be summarized as follows:

$$PV = \frac{C_1}{(1+i_c)} + \frac{C_2}{(1+i_c)^2} + ... + \frac{C_t}{(1+i_c)^t},$$

with PV being the present value of a capital good with income streams over t periods. $C_1 \,..\, C_t$ are the expected income streams that are discounted using the interest rate i_c.[5] It is easy to see that the present value of durable capital goods rises relative to the present value of less durable capital goods with a fall in interest rates.

The rise in net present value can fuel the asset prices of the respective firms and bring about an overinvestment boom in capital goods. Unemployed capacities and labor are drawn into the production of capital goods. Rising employment, wages, and income stimulate consumption. Given low interest rates, the demand for consumer goods—particularly durable goods—rises as well (consumer credit is cheaper, too). Rising demand provides an incentive to increase capacities further (Garrison 2004). Rising demand stimulates expectations of high returns in capital goods industries (Hayek 1937a). When households aim at participating in rising enterprise profits in an environment of low interest rates, planned saving may be channeled into asset markets more than before.

When households provide additional capital for investment, the savings curve endogenously shifts to the right and the inflationary pressure in the consumer goods sectors is dampened. With an increase in firm equity, banks are inclined to lend even more at the low market interest rate. The profitability and sustainability of investment becomes more and more dependent on low market interest rates and the high level of asset prices. The longer the

[5] See Machlup (1935) for the impact of a change in interest rates on the capitalization factors of capital goods. Further, Garrison (2004; 2006, pp. 67-83) presents a graphical model including the Hayekian triangle to illustrate the distortionary effects of monetary expansion. Young (2013) adds triangles to incorporate changes in consumption and risk in the Mises-Hayek-Garrison framework.

process lasts, the more vulnerable the economy is to a shock in financing conditions, and the bigger is the coming "catastrophe" (Mises 1912, p. 436).

The boom turns bust when consumer prices finally move upward. Then the net present value of durable capital goods declines relative to consumer goods. As relative prices adjust, overinvested industries see a correction, the economy goes into crisis, and unemployment soars. Further, if the central bank raises market interest rates to stem inflation, the worsening of financing conditions lifts the threshold for the profitability of investment projects. The more modern BIS view implies that there are many possible triggers of a bust, such as an increase in the risk perception of market participants. The depth of the crisis following the bursting of the credit boom may be explained by a Keynesian story of falling demand and balance sheet recessions (O'Driscoll and Rizzo 1996; Hoffmann and Schnabl 2011).

The policy implication is not an easy one. As the distortion of relative prices and an unsustainable credit boom are *unintended consequences* of holding market interest rates too low, a general monetary policy rule should be to hold market interest rates close to an *unknown* "natural rate of interest." This, of course, poses some problems. Borio and Disyatat (2011) suggest monitoring phenomena that usually go along with a divergence of the market and the natural interest rate. Central bankers should closely watch the liquidity conditions of the banking sector, credit growth, and the development of asset prices to safeguard the economy against volatility and severe crisis. Note that the Mises-Hayek-BIS perspective on credit booms implies that an expansionary monetary policy may cause problems even if inflation is at the targeted levels.

b. Downward Trend in Global Funding Interest Rates: A Mises-Hayek-BIS View

The Mises-Hayek-BIS credit view seems not to have found its way into monetary policy decisions of the major economies of the recent past. During the 1990s and 2000s, central banks—above all the U.S. Federal Reserve (Fed), the Bank of Japan (BoJ), and the European

Central Bank (ECB)—have cut interest rates decisively when a major asset bubble collapsed and a downturn in the business cycle was expected. However, they have not raised interest rates to the same extent in asset boom periods, as inflation rates remained at moderate levels. This behavior reflects the so-called *Jackson Hole Consensus view* on dealing with asset booms according to which severe asset market busts have to be addressed by appropriate interest rate cuts to prevent spill-overs into the real economy (Blinder and Reis 2005). By contrast, accelerating credit growth and rising asset prices per se are not seen as matters of particular concern. Asset prices are mainly considered a transmission channel of monetary policy to stabilize inflation and output (Bernanke and Gertler 2001).

The implied asymmetric intervention pattern with respect to asset markets can be observed in Japan in the aftermath of the Japanese crisis. Over the course of the 1990s, real interest rates fell and allowed the financing of investment projects with lower returns (Figure 2). Even when the Japanese economy stabilized in the years prior to the East Asian crisis, the BoJ did not lift policy interest rates to stimulate the recovery further. It is well-known that easy credit conditions then fuelled financial flows and credit and asset market bubbles in the tiger economies. When the over-expanded Japanese banking and export sectors were hit during the East Asian crisis of 1997-98, by contrast, the BoJ pushed market interest rates further down and bailed out banks and enterprises.

In the U.S., the asymmetric pattern is particularly obvious following the bursting of the U.S. dot-com bubble. The Fed cut interest rates decisively to a (then) unprecedented low of 1 percent (Figure 2). However, when economic growth picked up in 2003, the Fed hesitated in raising policy interest rates to promote employment and preserve growth. Too-low interest rates gave momentum to the building of the U.S. subprime market bubble (Taylor 2009; Salerno 2012). On the other side of the Atlantic, the ECB seems to have followed the Fed's policy in the aftermath of the dot-com crash. Thus, low interest rates fuelled credit and asset market booms in the inner and outer periphery of the euro area. Capital flows to Central,

Eastern, Southern, and Western Europe stimulated credit booms until 2007-08 (Hoffmann 2010).

Overall, the asymmetric intervention scheme contributed to a decline in nominal and real interest rates in the large advanced countries (corresponding to bursting asset bubbles). From a Mises-Hayek-BIS perspective, the decline in interest rates is sustainable only if the natural rate of interest declined over the same period. However, the growth potential of the advanced economies, which may be seen as a proxy for the long-term natural interest rate, has not declined to the same extent (Laubach and Williams 2003). Further, recurring sectoral investment bubbles in stock and real estate markets suggest that the downward trend in market interest rates has not reflected that in natural interest rates from the credit boom perspective. Instead, market interest rates seem to have been held below natural interest rates over and over again.

In the U.S., the downward trend in market interest rates came to an end with the Lehman collapse in 2008 when the U.S. Federal Reserve (Fed) began to slash policy interest rates toward zero to prevent the deleveraging of the financial sector and stabilize output and price levels. With interest rates approaching the zero bound, the Fed started to make use of unconventional monetary policy measures or quantitative easing to prevent a collapse in the money supply and a major balance-sheet recession as seen during the Great Depression (Bernanke 2010). As a consequence, the Federal Reserve's balance sheets exploded. Monetary stimulus was flanked by substantial expansionary fiscal policy to stabilize markets and employment.

The ECB dealt with the crisis in a similar fashion and cut policy interest rates, albeit not as rapidly, to an all-time low. Because the financial crisis of 2008 was followed by a sovereign debt crisis in some Eastern and Southern European countries, interest rate cuts were followed by IMF credit facilities, public capital injections to euro-area commercial banks with large credit exposure in the region, and ECB government bonds purchases of crisis

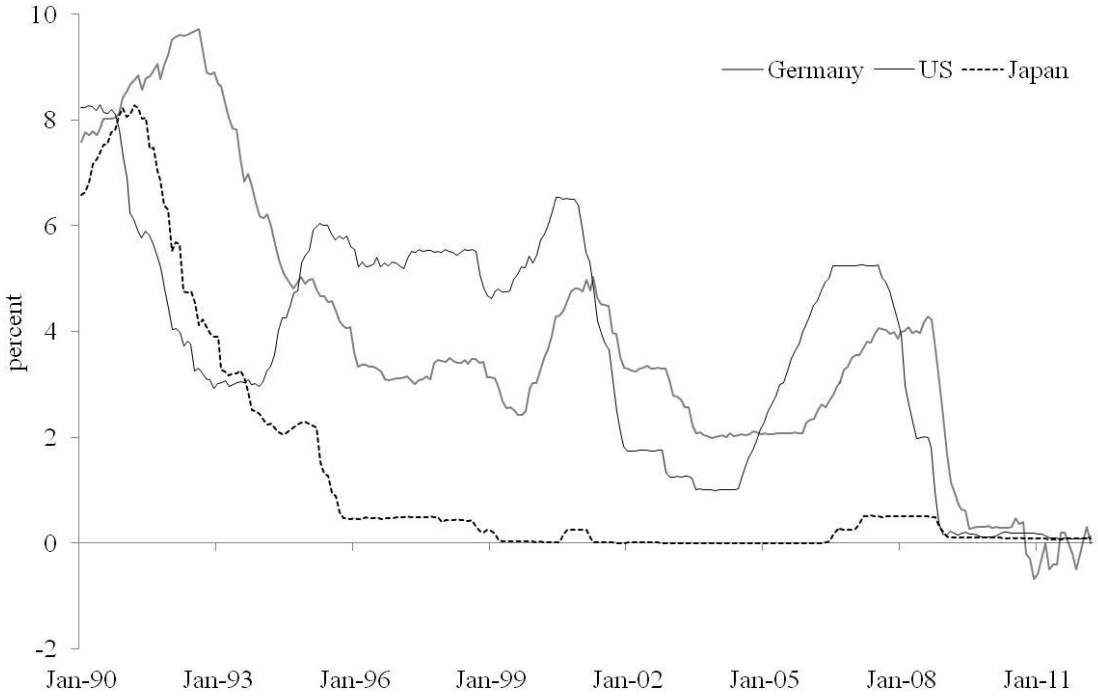
countries as well as the European crisis management facilities that injected credit to keep government bond yields below market yields. Not surprisingly, ECB balance sheets lengthened as well. Currently, the European Union is discussing further measures to deal with the fiscal disaster and potential spill-over effects on the banking system.

Again, from the perspective of the Mises-Hayek-BIS credit boom theory, pushing real interest rates to zero or below presupposes that the natural rate of interest is zero such that the saving-investment balance is re-established and the economy prepared to take off. A dramatic monetary accommodation is reasonable as long as a bank panic has dramatically raised banks' lending and borrowing rates in the inter-banking market (Hayek 1967 [1935], pp. 108-109) and the central bank aims at aligning financing interest rates to the natural rate. However, although inter-banking rates converged back toward the policy interest rate in 2009, the monetary accommodation was not reversed as investment and growth in the crisis economies did not pick up and unemployment continued to soar.

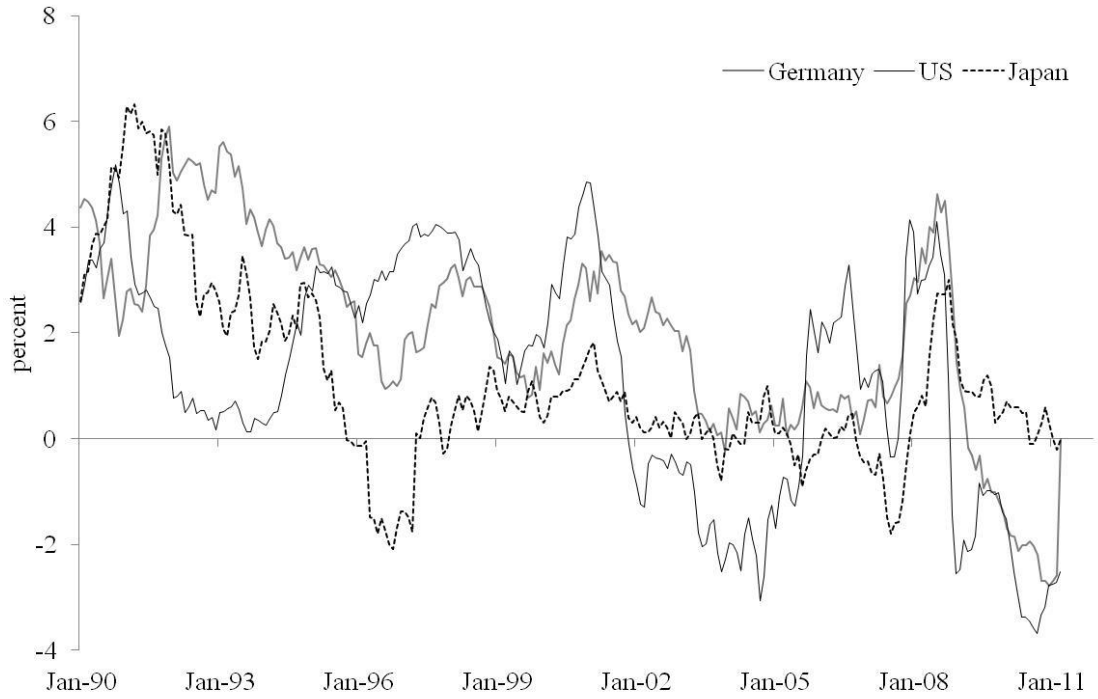
In line with historical accounts of the development of economies in the aftermath of a severe financial crisis, growth in the crisis economies has not picked up much (Reinhart and Reinhart 2010). Given the slow recovery (and even though growth and inflation rates are positve), Larry Summers (2013) suggests that the natural interest rate has even fallen below zero. Summers (2013), therefore, calls for some unconventional macroeconomic thinking, an expansion of the crisis policies and a prolonged period of very low nominal and real interest rates is unavoidable.

FIGURE 2
Nominal and Real Interest Rates in the U.S., Germany, and Japan

Nominal Rates



Real Rates



Data Source: IMF, IFS, 2012, Money Market Rates.

c. Depressed Natural Interest Rate as Unintended Consequence of Crisis Policies?

From the Mises-Hayek-BIS perspective, too, the slow recovery of the economies may be viewed as evidence that the natural interest rate has fallen. But the Austrians would not see crisis policies as the cure but rather as the reason for a sluggish re-adjustment of the economy.

According to Mises' *law of unintended consequences*, well-intended price interventions, such as a reduction in market interest rates, that prevent a rapid re-adjustment of distorted relative prices during crisis periods, may help fix some problems (at least temporarily). However, such interventions often have even worse *unintended* consequences in some other parts of the market as price distortions feed themselves through the price system (Mises 1929). From this perspective, the zero-interest rate policy that aims at stabilizing the economy may in fact worsen the problems and make necessary a series of further interventions (as proposed by Summers (2013)) to deal with the unintended adjustment costs.[6]

McKinnon (2009) describes a very direct negative side-effect for small local banks in the U.S. that can be attributed to holding market interest rates at the zero bound. Even though small local banks may have access to customers, they may be priced out of the market for funds by the central bank. McKinnon (2009) reasons that it is not possible to get funding from larger banks at close to zero costs, as any borrowing risk is larger than the market interest rate and borrowing to other banks is always more speculative than holding excess reserves at the Fed.

Further, from a particular Austrian point of view, the recent history of financial excesses may increase uncertainty about investment prospects if no visible market cleansing and restructuring of the economy is allowed for. Well-intended monetary accommodation to prevent deleveraging may prevent the re-bounce of the economy if investment expectations become less elastic with respect to the change in market interest rates, as market participants

[6] See White (2012) for an extensive account on unintended side-effects of zero-interest rate policy in the U.S. economy.

"*will avoid using for an expansion of their operations the easy money available, because they will keep in mind the inevitable end of the boom"* (Mises 1943).[7]

If this Austrian depiction is valid, the U.S. and European economies are at a point at which holding market interest rates low does not by itself restore confidence to bring about a take-off of investment—at least in the short run. When factor prices in the mal-invested sectors are not allowed to fall during the recession, a rational fear of future adjustments prevails. This may result in a lower growth potential of the crisis economies for some time and a very low natural interest rate with little planned investment. In the medium and long run, it is plausible that the profitability in other sectors and new real or financial innovations raise investment demand and thereby the natural rate of interest in the economy (Hayek 1937a).

However, when fear of an adjustment in the crisis sectors prevents central banks from lifting the policy interest rate again, another credit boom period can be fuelled, when as Schumpeter (1989, p.117) put it, *"artificial stimulus leaves part of the work of depressions undone and adds, to an undigested remnant of maladjustment, new maladjustment of its own which has to be liquidated in turn, thus threatening business with another crisis ahead."*

In Japan, policy interest rates have been close to zero since 1999. The profitability of all sectors fell. Today, a rise in market interest rates puts entire industries at risk. In the U.S., the financial sector rebounded following the stimuli in 2011. Given that the U.S. financial markets are the deepest and most innovative in the world, they are a safe haven for international capital and help the recovery process. In Europe, the recovery of the crisis

[7] In line with Mises (1943), Salerno (2012) reasons that "*the recession will be further prolonged by the fact that entrepreneurs, after experiencing massive losses and capital write-downs will temporarily lose confidence both in their ability to forecast future market conditions and in the reliability of monetary calculation.*" Argues Salerno (2012), "*It is precisely the rise of the natural interest rate implicit in the relative decline of factor prices that restores the entrepreneurs' natural optimism and venturesomeness.*"

economies is still out of sight. In both Europe and the U.S. even the sluggish investment demand hinges on low interest rates. Increases in market interest rates are widely considered to cause major damage. This suggests–from a Mises-Hayek-BIS perspective–that the natural rate of interest has declined and that there seems to be little danger of fueling another credit boom in the advanced economies in the short run. However, it may also be interpreted as a sign that the adjustment of the economy is incomplete. Then the development of asset markets may, of course, be a concern.

3. UNINTENDED CONSEQUENCES OF THE PROLONGED LOW INTEREST RATE ENVIRONMENT IN EMERGING MARKETS

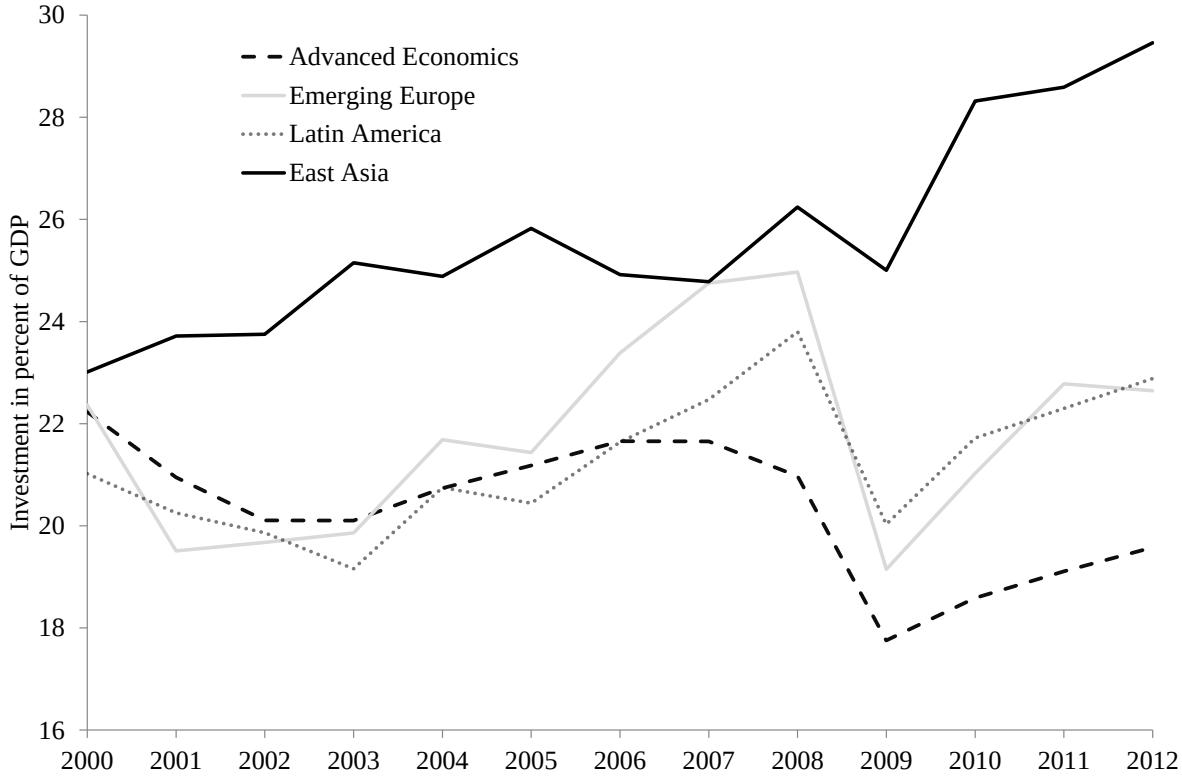
a. Global Natural Rate Gap and Financial Flows to Emerging Markets

Whereas policy interest rates in the world's major funding economies are close to zero, which may reflect the depressed natural rate of interest, the world GDP has grown several percent per annum since 2009. In particular, the economies of East Asia and Latin America were barely hit by the crisis (Reinhart 2013). The fast recovery of investment in emerging regions in comparison with the investment recovery in advanced economies is captured in Figure 3. The clear gap in investment as a percentage of GDP between the advanced economies and emerging markets since the 2000s is indicative of a decoupling of emerging market business cycles from those in the advanced economies (Kose et al. 2012). This trend seems to have been reinforced by the recent crisis, as evidenced by the further rising investment gap since 2009.

While the low funding interest rates in the world's major financial markets may reflect the depressed investment demand in the advanced economies, the low interest rate level does not leave the emerging markets unaffected (Portes 2012). Taking the natural interest rate concept to a global level, real-world funding rates should be aligned with the world natural

rate of interest. The world's trend in GDP growth may be a proxy for the trend of the natural rate of interest (Laubach and Williams 2003).[8]

FIGURE 3
Investment as Percentage of GDP

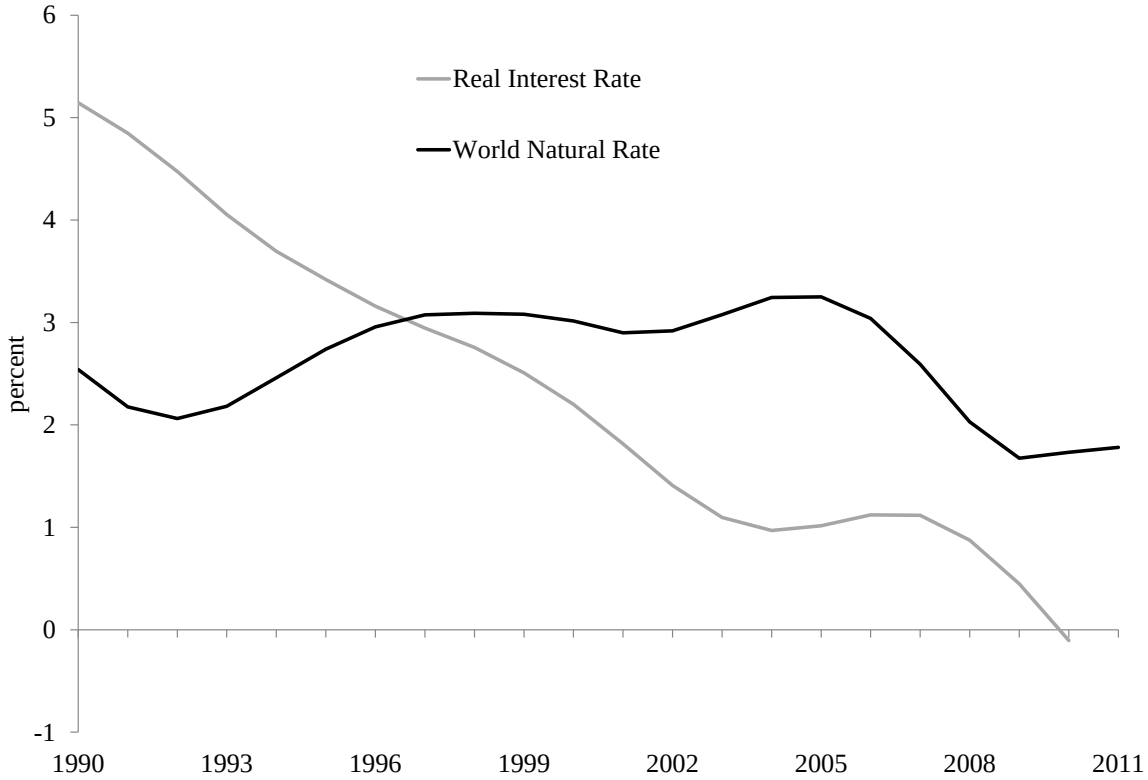


Data Source: IMF, World Economic Outlook, 2012.

Figure 4 illustrates the Hodrick-Prescott (HP) filtered trend of the world growth rate and the HP trend of the weighted average of the real money market rates in the G7 from 1990 to 2011. Based on this approximation, the gap between the world financing and natural interest rate has been persistent in the 2000s. According to the Mises-Hayek-BIS view, the divergence between funding and natural interest rates on a global level should be associated with rising elasticity in the credit system that reveals itself in amplifying financial flows and swelling credit and asset market bubbles that have the potential to turn bust rapidly when financing conditions worsen (Borio and Disyatat 2011).

[8] According to neoclassical growth theory, the equilibrium interest rate is equal to the long-term growth of capital accumulation.

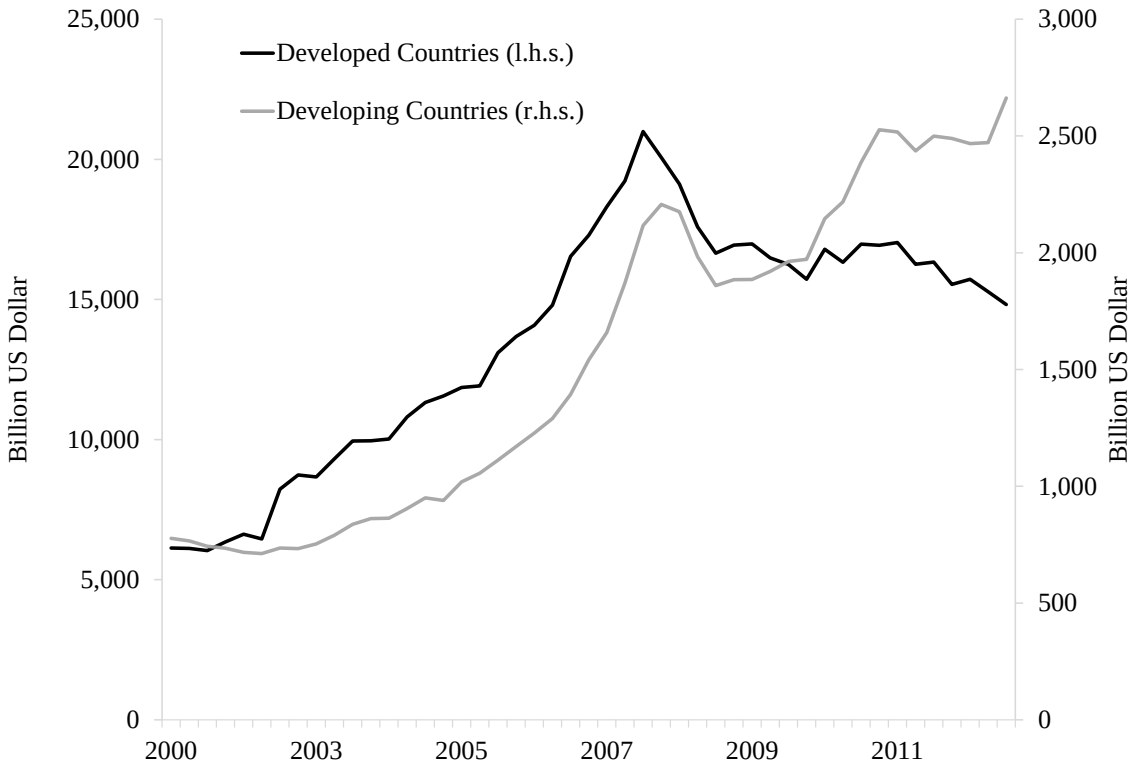
FIGURE 4
Trend of Real Interest Rates and World Natural Rate



Data Source: IMF, IFS, Oxford Economics, 2012.

When it comes to financial flows, the recent literature suggests that debt-led capital flow episodes in particular are drivers of rapid credit growth (Lane and McQuade 2013) and forerunners of episodes of severe capital flow volatility and financial crises (Forbes and Warnock 2012). In Figure 5, I illustrate the development of the stock of outstanding cross-border loans in developed and developing economies. In advanced economies, gross liabilities have tripled, and in developing countries, they have quadrupled when considering the full period from 2001 to 2012. The general increases seem to go along with periods of low funding interest rates and risk perception in advanced economies. Since the recent financial crisis, however, the amount of outstanding claims to advanced economies has dropped with the fall in investment demand. Developing regions, by contrast, saw a further increase in cross-border loans, as would be expected by the credit boom perspective.

FIGURE 5
Cross-Border (Gross) Bank Loans in Developed and Developing Countries

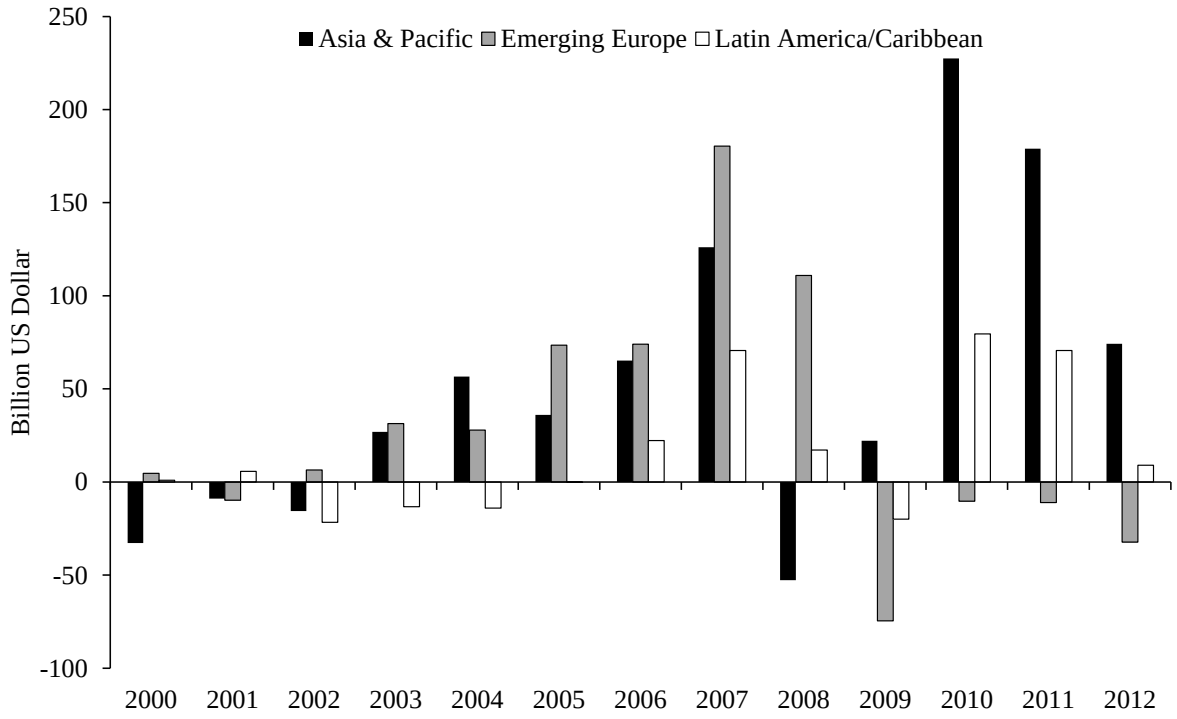


Data Source: BIS Locational Statistics, 2013.

Figure 6 depicts the development of cross-border bank flows to three important groups of emerging markets, namely emerging Europe, Latin America, and East Asia. For all three groups, cross-border lending picked up in the 2000s. While bank flows to emerging Europe accelerated rapidly until 2008, bank flows have not picked up again, as many emerging European countries have been greatly affected by the crisis. Further, the predominance of troubled euro-area banks may impede the recovery of many Central and Eastern European economies. In contrast, cross-border loans to the emerging markets of Latin America and East Asia increased from 2000 to 2012, only to be interrupted briefly by the global financial crisis.[9]

[9] The BIS Consolidated Banking Statistics show that net bank flows and net outstanding loans also picked up.

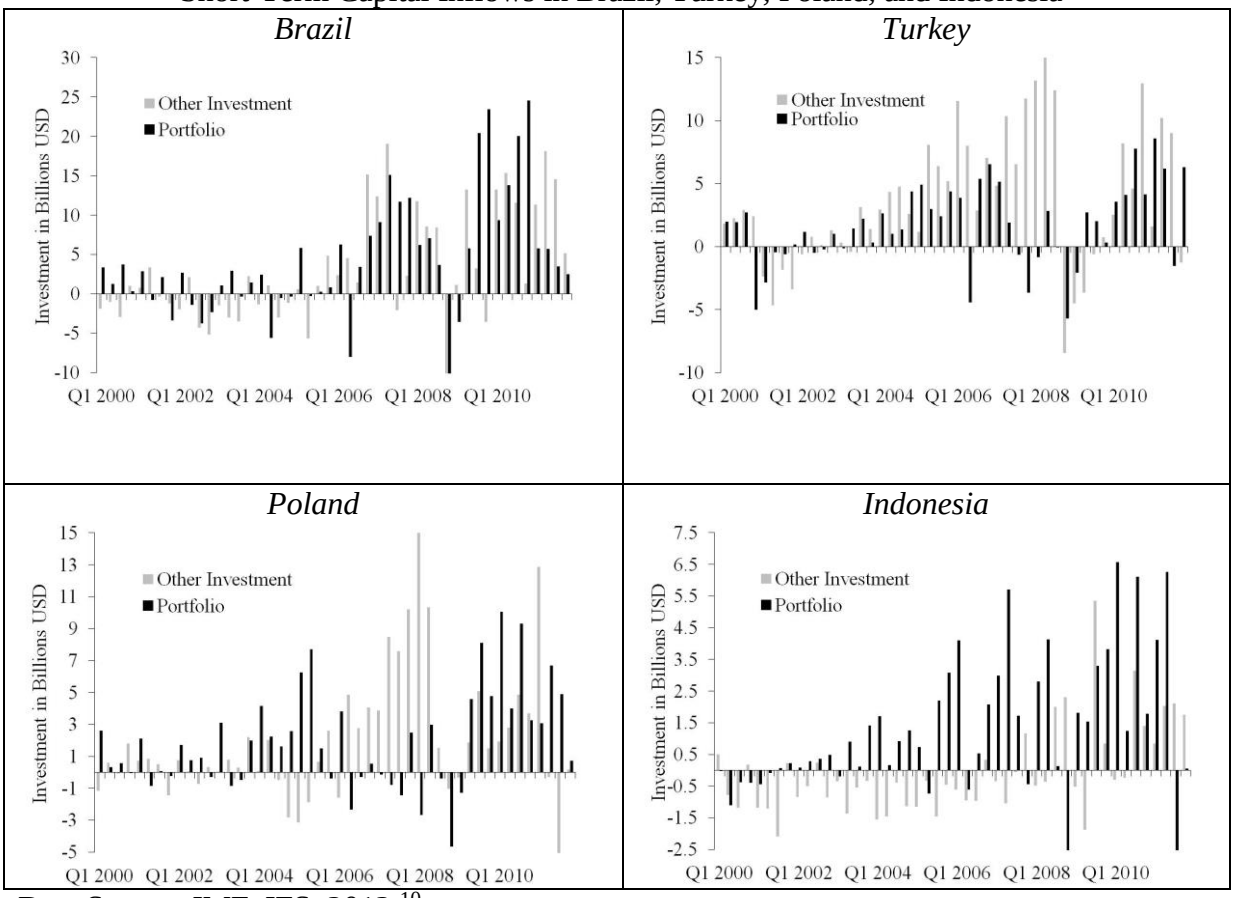
FIGURE 6
Gross Debt Flows to Emerging Markets



Data Source: BIS Locational Statistics, 2013.

While planned investment continues to lag in the advanced economies and therefore the market interest rate remains at low levels, the fastest-growing emerging market economies, in particular, saw a substantial rise in volatile equity and debt flows that was hardly intended by low funding interest rates in the major advanced economies. Figure 7 shows that e.g. Turkey and Poland experienced large capital inflows from 2004 to 2006, in 2008, and since 2010. Further short-term capital flows to Brazil and Indonesia have accelerated since 2010 in an environment of low world funding interest rates (Figure 7).

FIGURE 7
Short-Term Capital Inflows in Brazil, Turkey, Poland, and Indonesia



Data Source: IMF, IFS, 2012.[10]

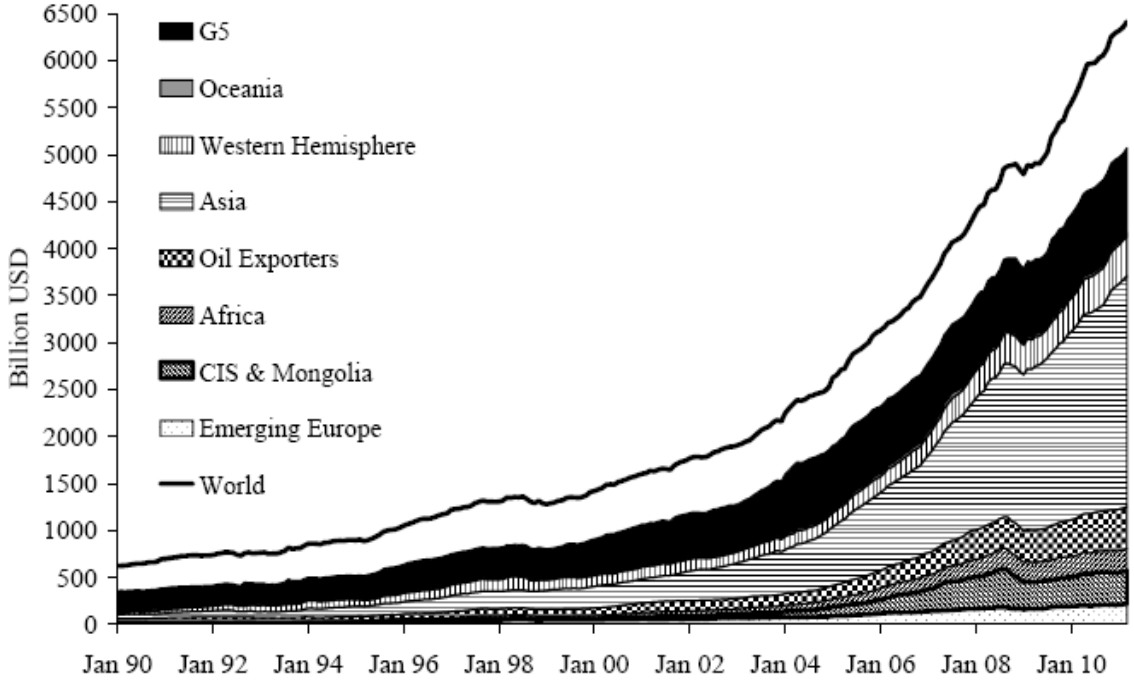
b. Loss of Monetary Autonomy and Swelling Credit Booms in Emerging Markets

Financial inflows make it hard for emerging market policymakers to fight inflation and preserve financial stability at the same time. Naturally, emerging markets that peg exchange rates attract capital inflows absent the exchange rate risk. Facing capital inflows and appreciation pressure, they have to follow the monetary expansion of the anchor (advanced) economies via foreign reserve accumulation. While foreign (dollar or euro) liquidity is absorbed in their central bank balance sheets, monetary expansion pushes down domestic interest rates toward the level of world funding interest rates. Since 2009, the world's foreign

[10] Poland in Central and Eastern Europe, Brazil among the BRICS and in Latin America, Indonesia in East Asia, and Turkey have had the highest growth rates in Europe from 2010 onward.

reserve accumulation has accelerated. The largest share of additional reserves was accumulated by emerging market economies in East Asia (Figure 8).

FIGURE 8
Reserve Accumulation 1990–2011



Data Source: Datastream, IFS, 2012.

In a prolonged period of very low world interest rates, emerging market central banks with rather flexible exchange rates also face limits in sovereignty. Now, it is well known that currency appreciation or exchange rate volatility may depress international trade (Goldberg and Tille 2009). However, the excessive debt inflows may put a greater burden on policymakers and substantially increase the "fear of floating" (Calvo and Reinhart 2002; Reinhart 2013):

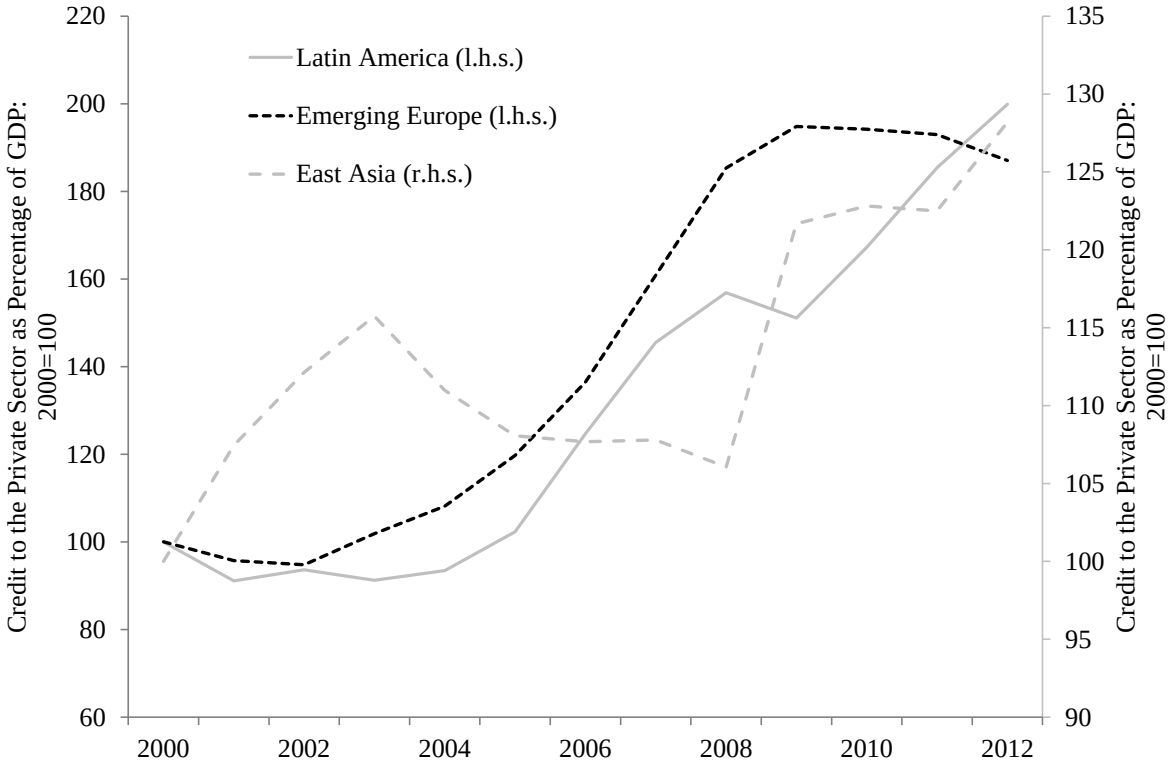
McKinnon (2010) argues that flexible exchange rates in an environment of benign global liquidity conditions foster one-way bets on appreciation and asset market bubbles in emerging markets. In the 1930s, Hayek (1937b, p. 63-64) observed that *"every suspicion that exchange rates were likely to change in the near future would create an additional powerful motive for shifting funds."* The rise in financial flows suggests that bank borrowing in

international wholesale markets picked up along with lending in domestic currency. The appreciation of the domestic currency will lower the value of foreign liabilities and can contribute to over-borrowing (McKinnon and Pill 1997; McKinnon and Schnabl 2004). Given very low world interest rates, the margin of temptation is high, and maturity mismatches are the likely consequence. Therefore, policymakers of countries with large foreign currency exposure may increasingly depend on exchange rate stability.

Further excessive financial inflows undermine the independence of central banks in countries with floating exchange rates as they increase future capital flow volatility and thereby vulnerability to rapid exchange rate depreciation and crisis. Whereas domestic credit growth and inflation would suggest that emerging market policymakers should increase the market interest rate, financial stability concerns make even inflation-targeting central banks depart from their strategy (Reinhart 2013). To act as a lender of last resort in a country where most borrowing includes foreign loans, central banks have accumulated a significant amount of dollar reserves to preserve the financial stability of the economy in case of a sudden reversal.

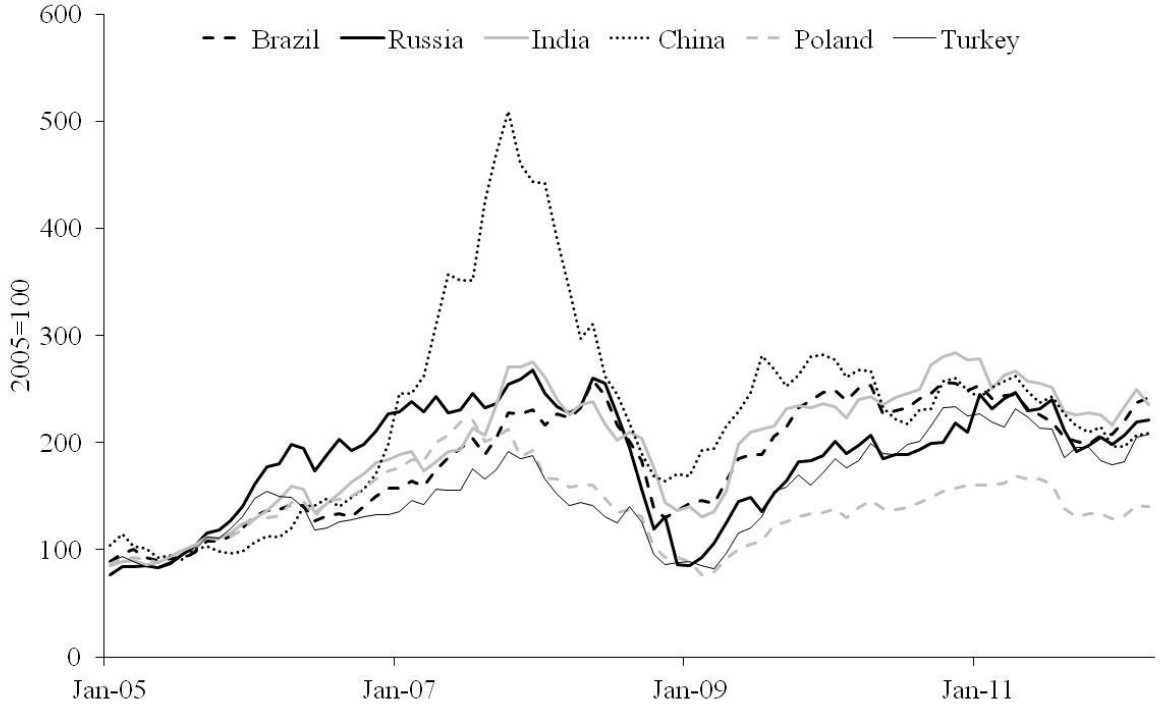
Because, in a world of very low interest rates in the major funding economies, emerging market policymakers can hardly prevent a fall in the market interest rate below the natural interest rate, in line with the Mises-Hayek-BIS view, planned investment exceeds planned saving (as in Figure 1) and credit to the private sector grows at a rapid pace (Figure 9). Much of the additional investment is made in capital-intensive industries, in stock markets, and in durable assets such as in real estate, as indicated by the rebounding share prices following 2009, shown in Figure 10.

FIGURE 9
Credit to the Private Sector as a Percentage of GDP in Emerging Markets



Data Source: World Development Indicators, Weighted Averages of Countries, 2013.

FIGURE 10
Share Prices in Emerging Markets



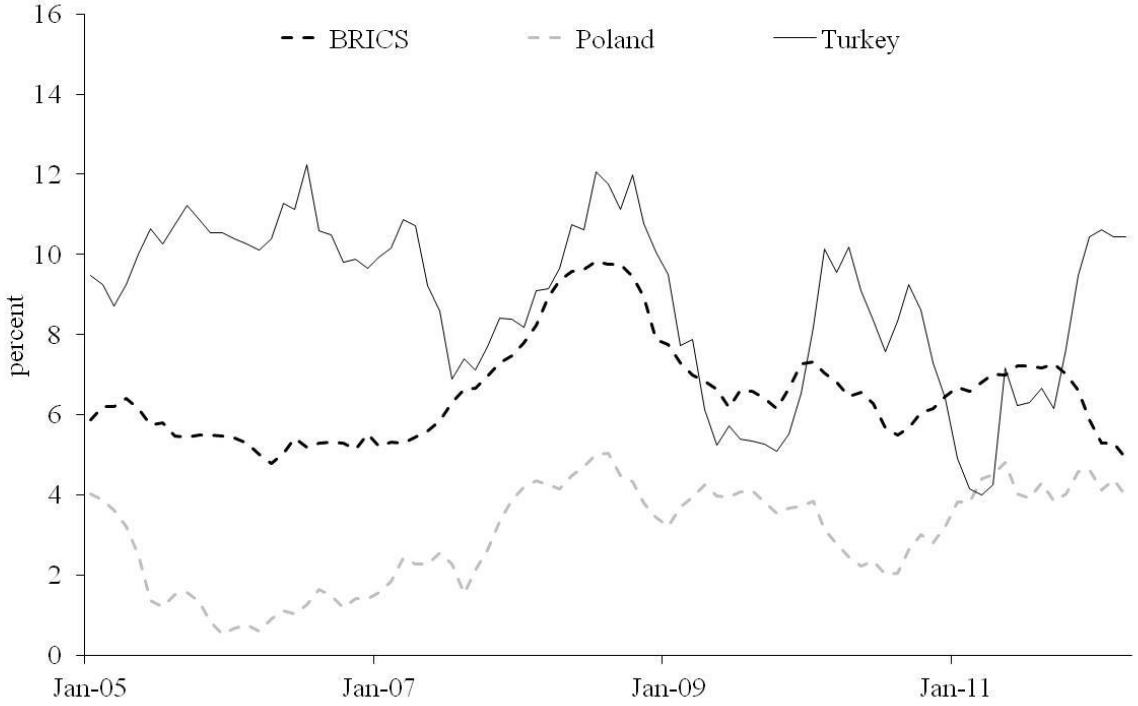
Data Source: IMF, IFS, 2012.

Further, investors target e.g. precious metals, and in raw-material exporting countries that benefit from the rise in e.g. oil revenues, rising fiscal expenditures or thriving stabilization funds guide structural change and cause sectoral booms. For instance, the Saudi Arabian General Investment Authority sets up new cities in the hope of creating jobs. The construction sector booms. Russia invests in the pharmaceutical and military industries, and Venezuela and Algeria finance social security systems to create political stability.

In line with the Mises-Hayek-BIS credit boom perspective, investment booms go along with consumption booms. In countries with pegged currencies, foreign investment and credit expansion translate into higher wages. Given some flexibility in exchange rates, interest rate cuts to tame appreciation expectations stimulate the economy. The drop in interest rates is an incentive to increase investment and consumption and borrow against future income. As imports accelerate and the current accounts turn negative, emerging markets face the risk of over-borrowing. Consequently, in many fast-growing emerging market economies, inflation continues to soar at pre-crisis rates despite the slowdown in world growth (Figure 11). While the economic engines in the advanced economies stutter, credit booms are fuelled that are likely to go bust as soon as market interest rates in the world's major economies rise (Sanchez 2013; Reinhart 2013).

The increases in vulnerability caused by the rise in bank lending and asset prices in emerging markets revealed e.g. when Ben Bernanke announced that he would stop purchasing bonds in May 2013. Immediately, U.S. bond prices rallied up one percent and worldwide asset markets showed signs of turbulence.

FIGURE 11
Inflation in the BRICS, Poland, and Turkey



Data Source: IMF, IFS, 2012.

4. SECOND-ROUND INTERVENTIONISM

a. Advanced Economies

Steil (2007) warns that *"monetary nationalists"* who aim at stimulating domestic growth even at the expense of instability abroad will not stop when capital outflows render the policy ineffective. Instead, they further increase accommodation and support capital controls. Building upon Hayek (1937b, p. 67), Steil (2007) argues that policymakers will tend to control or encourage to prevent the outflow of capital and, on the contrary, the inflow of capital into emerging markets because it may make the monetary expansion more effective.

The return of financial repression in advanced economies shows e.g. (1) in the Fed's consideration of using non-market based instruments to absorb liquidity once inflation expectations increase, (2) in crisis-hit countries such as Spain that have introduced de facto interest rate ceilings on deposits, (3) in Basel III, which encourages banks to hold government

debt, and (4) in debt that is placed at below-market interest rates in pension funds and other more captive domestic financial institutions (Reinhart et al. 2011).

Reinhart and Sbrancia (2011) suggest that, given the historical record, it is likely that financial repression will also be used to liquidate high government debt. Low nominal interest rates may reduce government bond yields and thereby debt-servicing costs. Positive inflation rates—e.g. the suggested four percent by Blanchard et al. (2010)—turn real interest rates negative and liquidate debt. Because financial repression stretches the adjustment in government debt levels over a longer period, it may face less opposition when implemented gradually than a reform package. This is in the interest of policymakers that aim at re-election and preventing stirring things up with major spending cuts, as recently seen in Greece and Spain.

b. Emerging Markets

In line with Mises' (1929) law of unintended consequences, the inflationary consequences in emerging markets are followed by a new round of interventionism and industrial policy in emerging markets. Emerging market central banks have used various ways to stem capital flows and asset and consumer price pressure, as evidenced in Table 1.

Market-based sterilization such as bond sales cause rising market interest rates and stem inflation. The increasing spread between funding and investment currencies could, however, reinforce financial inflows. Hence, to prevent inflationary pressure and capital inflows, non-market based sterilization measures such legal reserve requirements with low remuneration[11] and capital controls have been lifted since 2009 (Jara et al. 2011; Reinhart 2012; Sanchez 2013).

Further, particularly in countries with large raw material sectors, emerging market central banks tend to coordinate policies with the government. While central banks absorb

[11] Reserve requirements of this sort can have similar effects as capital controls (Reinhart and Reinhart 1999).

foreign liquidity in exchange for domestic liquidity, fiscal authorities agree to sell more government securities than necessary and hold additional revenues in central banks to provide a buffer against revaluation losses of reserves in case of capital flow reversals (Löffler et al. 2010).

For instance Brazilian president Dilma Rousseff has often complained about the global liquidity glut. She blamed the U.S. for bringing on a "global currency war" by keeping interest rates near zero. Accelerating portfolio investments in Brazilian asset markets caused *fear of overheating*, leading Brazil to strengthen capital controls. While Brazil's capital controls (e.g. in foreign exchange markets) kill off some speculative distortionary investment and may help contain inflationary pressure, they create further distortions, as they prevent the free allocation of capital and cause distortions in the real sectors of the economy e.g. by widening bid-ask spreads in foreign exchange hedging for Brazilian companies.

TABLE 1
Stricter Controls on Capital Inflows in Emerging Markets (2008–2011)

Brazil	2008, 2009, 2010
Czech Republic	2008
Hungary	2011
Indonesia	2010
Korea	2009, 2010
Peru	2009, 2010
Philippines	2010
Poland	2011
Russia	2010, 2011
South Africa	2010
Thailand	2010
Turkey	2010

Source: Reinhart et al. 2012.

Countries with fixed exchange rates, such as China, have used non-market-based sterilization in combination with credit rationing to contain inflation. In China, foreign portfolio investment is not allowed for. However, the import of U.S. interest rate policy was followed by repressive measures because sterilization policies and credit rationing allowed China to stabilize employment and shield the overinvested export sector. Chinese state banks

provide credit to state-owned enterprises and the export industry, and the sterilization policies stabilize real exchange rates at depreciated values. In contrast, the small and medium-sized companies of the private sector are repressed and heavily rely on informal markets (Pettis 2011).

Given negative real deposit rates and closed capital accounts, Chinese savers have few options. They invest in durable assets, such as housing, thereby fuelling a bubble in the Chinese real estate market (Pettis 2012). Recently, China signaled a more moderate but guided appreciation of the yuan to kill off inflationary pressure. As appreciation is expected, restrictions on foreign exchange and capital inflows are likely to remain in place despite current discussions on whether or not to make the renminbi convertible to gain international influence.

Further, e.g. Turkey saw itself forced to pursue some unconventional policy measures. To prevent a rise in market interest rates and an additional shift of funds into Turkish markets, the Central Bank of the Republic of Turkey first reduced policy rates to shield capital inflows and then raised unremunerated reserve requirements to stem credit growth in early 2011. Theoretically, the effect is a quasi-tax on lending rates. As firms in underdeveloped capital markets cannot issue bonds (they like to refinance because corporate bond markets are not well developed), funding e.g. in Turkey depends largely on banks' credit for the private sector. Thus, banks can pass the costs of the reserve requirements on to the customers. Shortly after the central bank implemented the measures, financial stocks lost about 20 percent. The depreciation of the currency led foreign investors to sell from their portfolios, but the markets rebounded.

In October 2011, the Turkish central bank raised the overnight lending rate to restrict lending again but kept borrowing rates low to allow financial institutions to get funds easily when in need. While capital inflows are capped, financial sector distortions are evidenced in lending-deposit rate spreads and financial disintermediation. Even though markets seemed

relatively stable and the growth performance was at a high level in 2012, the recurring short turbulences and the y-o-y inflation rate of 11 percent (April 2012) signaled that the risks taken by investors in emerging markets around the world might be very high and that the economies had started to overheat. The Mises-Hayek-BIS credit boom perspective suggests that a more moderate monetary policy stance in the advanced economies might turn the Turkish boom into a bust.

5. SUMMARY

In response to the Great Recession, central banks in most large advanced economies have cut interest rates to zero and increased monetary accommodation to stabilize domestic markets. This paper has outlined unintended consequences of the current low interest rate policies for emerging markets. Based on the Mises-Hayek-BIS credit boom view, I have argued that the current monetary policy stance in advanced economies may have planted the seeds of new bubbles and given rise to interventionist cycles in emerging markets.

In particular, I have argued–along the lines of the Mises-Hayek-BIS credit boom theory–that the low interest rate environment unintentionally encourages financial flows that feed credit and asset market bubbles in fast-growing emerging markets. In fear of destabilizing financial inflows, emerging market central banks tend to follow the interest rate policies in advanced economies. This triggers mal-investment and overheating pressure in emerging markets. With the increased dependence of global lending on low interest rates, a return to orthodox policies in the advanced economies brings about severe risks for capital reversals. To stem rising inflationary pressure and kill off buoyant capital flows, financial markets in emerging markets are increasingly repressed.

From the point of view of the credit boom theories, the prolonged period of very low interest rates in economies with major funding currencies may prove incompatible with financial integration and globalization, as global business cycles are not synchronized and

emerging markets are likely to take additional measures to stem the risks associated with financial inflows and reversals (Sanchez 2013). Therefore, the paper suggests that the growth objectives of central banks in large advanced economies may–as Benn Steil (2007) put it metaphorically–become the "Achilles' heel of globalization" if more and more small emerging market countries see themselves forced to implement capital flow restrictions to deal with inflationary pressure and financial volatility.

REFERENCES

Bernanke, B. and M. Gertler (2001), 'Should Central Banks Respond to Movements in Asset Prices?', *The American Economic Review Papers and Proceedings* 91, 2, 253-257.

Bernanke, B. (2010), 'Economic Policy: Lessons from History', April 8th, 2010, Remarks at the 43rd. Annual Hamilton Awards Dinner, Center for the Study of the Presidency and Congress, Washington.

Blanchard, O., G. Dell'Ariccia and P. Mauro (2010), 'Rethinking Macroeconomic Policy', IMF Staff Position Note, February 12, 2010.

Blinder, A. and R. Reis (2005), 'Understanding the Greenspan standard', *Princeton University Working Paper 88*. Department of Economics, Center for Economic Policy Studies.

Bordo, M and C. Meissner (2012). 'Does Inequality Lead to a Financial Crisis?', *Journal of International Money and Finance* 31, 8, 2147-2161.

Borio, C. (2008). 'The Financial Turmoil of 2007? A Preliminary Assessment of Some Policy Recommendations', *BIS Working Paper* No. 251.

Borio C. and P. Lowe (2002), 'Asset Prices, Financial and Monetary Stability: Exploring the Nexus', *BIS Working Paper* No 114.

Borio, C. and P. Disyatat (2011), 'Global Imbalances and the Financial Crisis: Link or no Link?', *BIS Working Papers* 346.

Cachanosky, N. (2012), 'The International Effects of Monetary Policy in the Capital Structure of Production: The Cases of Colombia and Panama (2002-2007)', *SSRN Working Paper*.

Calvo, G. and C. Reinhart (2002), 'Fear of Floating', *Quarterly Journal of Economics* 107, 2, 379-408.

Eichengreen, B. and K. Mitchener (2003), 'The Great Depression as a Credit Boom Gone Wrong', *BIS Working Papers* No 137.

Ferguson, N. (2009), 'Dead Men Walking', *Foreign Policy*, December 2009.

Forbes, K. and F. Warnock (2012), 'Debt- and Equity-Led Capital Flow Episodes', *NBER Working Papers* 18329.

Garrison, R. (2004), 'Overconsumption and Forced Saving in the Mises-Hayek Theory of the Business Cycle', *History of Political Economy* 36, 2, 323-349.

Garrison, R. (2006), *Time and Money. The Macroeconomics of Capital Structure*, Routledge, London and New York.

Hayek, F. (1937a), 'Investment that Raises the Demand for Capital', *The Review of Economic Statistics* 19, 4, 174-177.

Hayek, F. (1937b), *Monetary Nationalism and International Stability*, London, Longmans.

Hayek, F. (1976 [1929]), *Geldtheorie und Konjunkturtheorie*, Salzburg, Philosophia Verlag, Reprint.

Hayek, F. (1967) [1935], *Prices and Production*, 2nd ed. Augustus M. Kelley, Clifton, NJ.

Hoffmann, A. (2010), 'An Overinvestment Cycle in Central and Eastern Europe?' *Metroeconomica* 61, 4, 711-34.

Hoffmann, A. and G. Schnabl (2011), 'A Vicious Cycle of Manias, Crises and Asymmetric Policy Responses—An Overinvestment View', *The World Economy* 34, 3, 382-403.

Jara, A., R. Moreno and C. Tovar (2009), 'The Global Crisis and Latin America: Financial Impact and Policy Responses', *BIS Quarterly Review*, 53-68.

Jorda, O., M. Schularick and A. Taylor (2011), 'Financial Crises, Credit Booms, and External Imbalances: 140 Years of Lessons', *IMF Economic Review* 59, 2, 340-378.

Jorda, O., M. Schularick and A. Taylor (2013), 'When Credit Bites Back: Leverage, Business Cycles and Crises', *Journal of Money, Credit and Banking* 45, 2, 3-28.

Keeler J. (2001): 'Empirical Evidence on the Austrian Business Cycle Theory', *The Review of Austrian Economics*, 14, 4, pp. 331-351.

Kose, A., Ch. Otrok and E. Prasad (2012), 'Global Business Cycles: Convergence or Decoupling?', *International Economic Review* 53, 2, 511-538.

Laidler, D. (2003), 'The Price Level, Relative Prices and Economic Stability: Aspects of the Interwar Debate', *BIS Working Paper* No 136.

Lane, P. and P. McQuade (2013), 'Domestic Credit Growth and International Capital Flows', *ECB Working Paper* 1566.

Laubach, T. and J. Williams (2003), 'Measuring the Natural Rate of Interest', *Review of Economics and Statistics* 85, 4, 1063-1070.

Leijonhufvud, A. (2009), 'Out of the Corridor: Keynes and the Crisis', *Cambridge Journal of Economics* 33, 4, 741-757.

Löffler, A., G. Schnabl and F. Schobert (2010), 'Inflation Targeting by Debtor Central Banks in Emerging Market Economies', *CESifo Working Paper* 3138.

Machlup, F. (1935), 'The Rate of Interest as Cost Factor and as Capitalization Factor', *American Economic Review* 25, 3, 459-465.

McKinnon, R. (2009), 'Why Banks Aren't Lending: The Unintended Consequences of a Zero-Interest Rate Policy', *The International Economy* 3, 20-23.

McKinnon, R. (2010), 'Rehabilitating the Unloved Dollar Standard', *Asian-Pacific Economic Literature* 24, 2, 1-18.

McKinnon, R. and H. Pill (1997), 'Credible Economic Liberalizations and Overborrowing', *The American Economic Review Papers and Proceedings* 87, 2, 189-193.

McKinnon, R. and G. Schnabl (2004), 'The East Asian Dollar Standard, Fear of Floating, and Original Sin', *Review of Development Economics* 8, 3, 331-360.

Mises, L. (1912), *Die Theorie des Geldes und der Umlaufmittel*, Duncker und Humblot, Leipzig.

Mises, L. (1929), *Kritik des Interventionismus.* Gustav Fischer, Jena.

Mises, L. (1943), '"Elastic Expectations" and the Austrian Theory of the Trade Cycle', *Economica* 10, 39, 251-252.

Mulligan, R. (2006), 'An Empirical Examination of Austrian Business Cycle Theory', *The Quarterly Journal of Austrian Economics,* 9, 2, pp. 69-93.

Oppers, E. (2002), 'The Austrian Theory of the Business Cycle: Old Lessons for Modern Economic Policy?', *IMF Working Paper* 02/2.

O'Driscoll, G. (2009), 'Money and the Present Crisis', *Cato Journal* 29, 1, 167-186.

O'Driscoll, G. and M. Rizzo (1996), *The Economics of Time and Ignorance*, Routledge, New York.

Pettis, M. (2011), 'Small Companies Feel the Pain in China', Michael Pettis Finance Blog: *China Financial Markets*, 28 June 2011.

Pettis, M. (2012), 'The Japan Debt Disaster and China's (Non) Rebalancing', Michael Pettis Finance Blog: *China Financial Markets*, 20 March 2012.

Portes, R. (2012), 'Monetary Policies and Exchange Rates at the Zero Lower Bound', *Journal of Money, Credit and Banking* 44, 157-163.

Reinhart, C. and V. Reinhart (1999), 'On the Use of Reserve Requirements in Dealing with Capital Flow Problems', *International Journal of Finance and Economics*, 4(1), 27-54.

Reinhart, C. and V. Reinhart (2010), 'After the Fall', Federal Reserve Bank of Kansas City Economic Policy Symposium Volume, *Macroeconomic Challenges: The Decade Ahead* at Jackson Hole, Wyoming, on August 26-28, 2010.

Reinhart, C. and M. Sbrancia (2011), 'The Liquidation of Government Debt', *NBER Working Paper* 16893.

Reinhart, C. (2012), 'The Return to Financial Repression', *Banque de France Financial Stability Review* No. 16, April 2012.

Reinhart, C. (2013), 'Goodbye Inflation Targeting, Hello Fear of Floating? Latin America after the Global Financial Crisis', *MPRA Working Paper* 51282.

Salerno, J. (2012), ‘A Reformulation of Austrian Business Cycle Theory in Light of the Financial Crisis', *The Quarterly Journal of Austrian Economics* 15, 1, 3-44.

Sanchez, M. (2013), ‘The Impact of Monetary Policies of Advanced Countries on Emerging Markets’, 55th Annual Meeting of the National Association of Business Economics, San Francisco, 9 September 2013, BIS Central Bankers Speeches.

Schumpeter, J. (1989), *Essays on Entrepreneurs, Innovations, Business Cycles and the Evolution of Capitalism*, Ed: R. Clemence, Transaction Publishers, NY.

Sraffa, P. (1932), ‘Dr. Hayek on Money and Capital’, *Economic Journal* 42, 42–53.

Summers, L. (2013), *Speech at the IMF Economic Forum*, November 8, 2013.

Steil, B. (2007), 'Monetary Sovereignty as Globalization's Achilles' Heel’, *Cato Journal* 27, 2, 203-217.

Taylor, J. (2009), *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis*, Hoover Institution Press, Stanford University.

White, W. (2006): ‘Is Price Stability Enough?’, *BIS Working Paper* No 205.

White, W. (2009), ‘Modern Macroeconomics Is on the Wrong Track’, *Finance and Development*, December 2009, 15-18, IMF.

White, W. (2012), ‘Ultra Easy Monetary Policy and the Law of Unintended Consequences’, Federal Reserve Bank of Dallas, Globalization and Monetary Policy Institute Working Paper 126.

Young, A. (forthcoming), ‘Austrian Business Cycle Theory: A Modern Perspective’, in P. Boettke and C. Coyne (eds.) *Oxford Handbook of Austrian Economics*, Oxford University Press.