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Why has ECB's very accommodative monetary policy not yet triggered a rebound of investment?

Monetary Dialogue
June 2016

COMPILATION OF NOTES

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Abstract

As one of the most dynamic components of demand, the rebound of investment is key for a sustained euro-area the recovery. However, in spite of ECB's very accommodative monetary policy, attractive financing conditions and a still large investment gap compared to pre-crisis levels (albeit with considerable cross-country heterogeneity), companies remain very reluctant to step up investment plans. The compilation of notes requested by the Committee on Economic and Monetary Affairs as an input for the June 2016 session of the Monetary Dialogue provide an in-depth analysis on the key factors behind the persistent weakness of euro-area investment and discuss policy options to foster investment spending.

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AUTHORS

Christophe BLOT, Jérôme CREEL, Paul HUBERT, Fabien LABONDANCE (OFCE, Observatoire Français des Conjonctures Économiques)
Christopher HARTWELL (CASE, Centre for Social and Economic Research)
Nils JANNSEN, Martin PLÖDT (Kiel Institute for the World Economy)
Jacob KIRKEGAARD (PIIE, Peterson Institute for International Economics)
Karl WHELAN (University of Dublin)

RESPONSIBLE ADMINISTRATOR

Dario PATERNOSTER

EDITORIAL ASSISTANT

Irene VERNACOTOLA

LINGUISTIC VERSIONS

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ABOUT THE EDITOR

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To contact the Policy Department or to subscribe to its newsletter please write to:
Policy Department A: Economic and Scientific Policy
European Parliament
B-1047 Brussels
E-mail: poldep-economy-science@europarl.europa.eu

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DISCLAIMER

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INTRODUCTION

The ECB has adopted a series of unconventional monetary policy measures (i.e. asset purchase programmes, forward guidance) to combat the financial crisis and ward off the risks of a too prolonged period of low inflation. The policy package has led to a tangible improvement in borrowing conditions for both households and firms. Sovereign bond rates have reached record low levels even at relative long maturities in several euro-area countries and particularly in Germany.

In theory, lower financing costs should support consumption and investment via the increase in bank lending and bond or stock issuance. In practice, the main beneficiaries of ECB very accommodative monetary policy seem to be governments via lower interest payments, while the effects on private spending and, in particular, capital formation have been limited, so far.

Notwithstanding very attractive financing conditions, a mildly improving economy and a still large investment gap compared to pre-crisis levels (albeit with considerable cross-country heterogeneity), companies remain very reluctant to step up their investment plans. To explain the depth of the fall as well as the delay in the rebound of investment, structural factors related to private balance-sheet adjustments from the debt overhang are likely to be at work. As one of the most dynamic components of demand, the rebound of investment is key for a sustained recovery of the euro area and an increase in inflation towards the ECB target.

An in-depth analysis on the potential factors behind the persistent weakness of euro-area investment despite very accommodative ECB monetary policy is provided in this compilation. The main conclusions and policy options are summarised below.

The papers prepared by monetary experts (members of the Monetary Expert Panel) have been requested by the Committee on Economic and Monetary Affairs as an input for the June 2016 session of the Monetary Dialogue.

According to Christophe Blot et al. (OFCE), ECB (unconventional) monetary policy has strongly impacted the real economy. Their estimates suggest that if the policy rate had remained at its level of 2008, investment would have been 5.5 points lower than its actual level. At least three lessons/policy implications follow:

(i) The use of a wide array of policy instruments has permitted the ECB to target different objectives: an improvement in borrowing conditions; a sharp decrease in sovereign bond yields; and support to consumption and investment;

(ii) Erratic credit demand calls for a stimulus on aggregate demand. A closer cooperation between euro area governments and the ECB to support investment, via e.g. an extended public investment programme, would contribute to the sustained rise of credit demand and to the rise of inflation towards its target. It would therefore contribute to higher expected interest rates and would shorten the risk that low interest rates pose on financial markets.

(iii) The recent period shows a fragile improvement in credit supply which requires to be strengthened in order for the ECB policy measures to be fully transmitted to households and non-financial corporations.

Christopher Hartwell (CASE) makes recourse to the vast economics literature on the determinants of investment to diagnose what ails European investment. It appears that the continued weakness of firms and their financial intermediaries is playing a major role in stifling investment growth, even in an environment of ample liquidity, much as the extant literature would predict. While these microeconomic factors appear to predominate,

there is an added wrinkle at the macroeconomic level, as the policies of the ECB have also created their own costs and promoted further economic policy uncertainty, both of which are negatively affecting firms' perceptions of the future (and their own profitability). This attempted use of additional monetary policies to what is at heart a structural problem is not addressing the actual causes of weakness, and in many ways, the cure promoted by the ECB appears to be worse than the disease. Thus, structural reforms that are pro-growth are a more prudent course to follow, and a course that will actually result in increased investment, rather than continued monetary stimulus, balance-sheet support, and unconventional monetary policy.

According to Nils Jannsen and Martin Plödt (Kiel Institute for the World Economy) business investment in the euro area has developed broadly in line with historical patterns. A comparison of the path of economic activity and business investment after the Global Financial Crisis even suggests that business investment has been relatively robust compared to other financial crises, given the low level of economic activity.

Evidence on the effectiveness of monetary policy during and in the aftermath of financial crises also suggests that monetary policy can do little to further stimulate economic activity and business investment. Even though monetary policy is typically very effective at the beginning of financial crises by reducing uncertainty and financial constraints, it is likely to be ineffective in the aftermath of crises since these are usually associated with specific characteristics that hamper important transmission channels, such as private indebtedness, long-lasting balance-sheet adjustment processes, and boom-and-bust cycles in investment.

Altogether, business investment will likely remain weak for some time to come and stay below its pre-crisis trend. This seems to be a normal consequence of a financial crisis. Monetary policy may have significantly contributed to stabilize business investment at the beginning of the Global Financial Crisis and the Sovereign Debt Crisis in the euro area; at present, however, there seems to be little scope for the ECB to further stimulate investment. Consequently, structural policies aiming at improving potential output seem the most promising way in order to achieve a sustainable acceleration in investment activity in the future.

For Jacob Kirkegaard (Peterson Institute of International Economics) there are two explanations for low private investment levels in the euro area, one shared by other developed economies and one specific to the euro area.

(i) First, the significant recorded decline in euro area potential growth rates since 2008, a feature shared with many other economies in the world. Private firms faced with lower long-term future growth rates will often rationally conclude that they will need less productive capacity to satisfy future market demand, and pare back investments accordingly. As changes to potential growth rates, however, are driven mostly by long-term demographic and productivity developments, the ECB (and other central banks) do not have effective tools with which to address this issue. Only elected euro area governments through continuing reform programs can boost labour supply and innovation.

(ii) Second and specific to the euro area, the inadequate fiscal policy response, persistent national banking sector weaknesses and low corporate profitability. Regarding fiscal policy, during the second economic contraction from 2011-13, euro area general government final consumption and especially fixed investment levels were merely flat and severely contracting respectively. With governments unwilling to counter a downturn and invest more, private businesses will also be less likely to invest. Again, this is a policy issue outside

the remit of the ECB, although it should be noted that the recent large-scale purchases of euro area sovereign bonds by the central bank have generated substantial interest savings for governments, hereby creating additional fiscal space which could be used to increase public investments. Regarding monetary and financial issues, national banking sector weaknesses were allowed to fester in the years after 2008-09. This resulted in persistent higher bank borrowing costs in the euro area crisis countries with directly negative effects for the ability of bank-dependent borrowers here to finance new investments. Only the concerted efforts of both the monetary policy and banking supervisory arms of the ECB has since late 2015 managed to close this gap in funding costs and reduce borrowing costs in the entire euro area to record lows. This successful, though belatedly so, policy response from the ECB will be increasingly beneficial to investment levels in the euro area periphery, but may not materially increase aggregate private investment in the euro area. And lastly, the relatively low levels of corporate profit growth in the euro area in recent years makes it less likely that the regions' corporations are able to self-finance new investments. Only continuing profit growth, again often much more dependent on broader government policies than central bank actions, can credibly hope to help push of self-financed private investments in the euro area.

For Karl Whelan (University of Dublin) the ECB is to be credited for taking key actions that have boosted financing conditions and are likely contributing to the strengthening of business investment. These actions include:

(iv) The introduction of the OMT (Outright Monetary Transactions) policy, which has reduced fears of a break-up of the euro and contributed to lower costs of funding for banks and lower interest rates for businesses.

(v) The comprehensive assessment of the euro area's banks which has boosted transparency and increased confidence in the capital levels of these banks.

(vi) The TLTRO (Targeted Long-Term Refinancing Operations) policy which incentivises banks to maintain or expand their balance sheet.

(vii) The move towards purchasing corporate bonds, which will reduce the cost of investment for large corporations.

That said, monetary policy actions can only do so much to boost business investment, particularly in the kind of environment many European businesses are operating in, with weak demographics, poor productivity growth and an overhang of debt from the pre-crisis era.

This still leaves plenty of room for fiscal policy and, in particular, public sector investment to play a role in boosting the euro area economy and reducing the unemployment rate, which, while falling, remains unacceptably high. Public investment is running about one percent of GDP lower than during the pre-crisis period. There is little sign that the Juncker plan, which involves small amounts of public money and relies on co-financing investment projects, is going to have much impact.

Instead of relying on this half-hearted approach, there is a strong argument that with interest rates on government debt so low and infrastructural deficits evident in many countries, there has never been a better time for a large, co-ordinated increase in public infrastructural spending. The European Commission could assist with a programme of this type being executed by reforming the Union's fiscal rules to acknowledge the beneficial role played by public capital investment.

European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

The impact of ECB policies on euro area investment

Christophe BLOT, Jérôme CREEL
Paul HUBERT, Fabien LABONDANCE

IN-DEPTH ANALYSIS

Abstract

We analyze the reasons for which the very accommodative policy led by the ECB has not triggered a rebound of investment. After examining the evolutions of investment in the euro area, we observe a large heterogeneity both across sectors and countries. Consequently, it is questionable that the ECB's monetary policy can increase investment in the whole area. Therefore, we study the extent to which monetary policy impacts investment. We use a counterfactual analysis and compute the level of investment had the ECB's decisions been different. We observe the importance of the ECB in support to investment. Indeed, the investment in the euro area would have sunk without accommodative – first conventional, then unconventional – monetary policy. Finally, we lay the emphasis on the role of credit demand as one of the main determinants of investment since the 2008 crisis, which has depended among others on the impact of deleveraging and fiscal consolidation.

CONTENTS

EXECUTIVE SUMMARY

- Since 2009, central banks have implemented highly expansionary policies to support activity and prevent industrialized economies from falling into deflation. The euro area recovery has been sluggish though. Investment in the construction sector and, to a lesser extent, in machinery and equipment was sharply hit by the crisis and the gap has remained large ever since. The investment gap has also been sizable and long-lasting in the South of the euro area whereas it has been temporary in the North.

- Macro trends in the euro area seem in sharp contrast with the ECB monetary stance, although they cannot be fully and directly attributed to monetary policy for they also depend on financial conditions for firms, including bank credit supply, and on aggregate demand.

- To assess the direct impact of monetary policy on investment in the euro area, we estimate an equation of total investment. It shows that in the long run, the cost of funding (measured by the indicator of monetary policy and the bank spread) affects negatively and significantly investment. Then we run a counterfactual exercise: we simulate the investment equation under two different scenarios of monetary policy. In the first, we assume that monetary policy has not been expansionary at all since 2008. In the second, we assume that ECB has not implemented non-standard measures. Consequently, we identify the path of investment which would have occurred if monetary policy had been different from the one that prevailed.

- Simulations suggest that monetary policy has effectively sustained the investment rate in the euro area. According to our assessment, at the end of the sample in 2015Q4, the investment rate would have been 5.5 points lower than its actual level without monetary policy. The crisis would have been much more severe without the monetary policy stimulus.

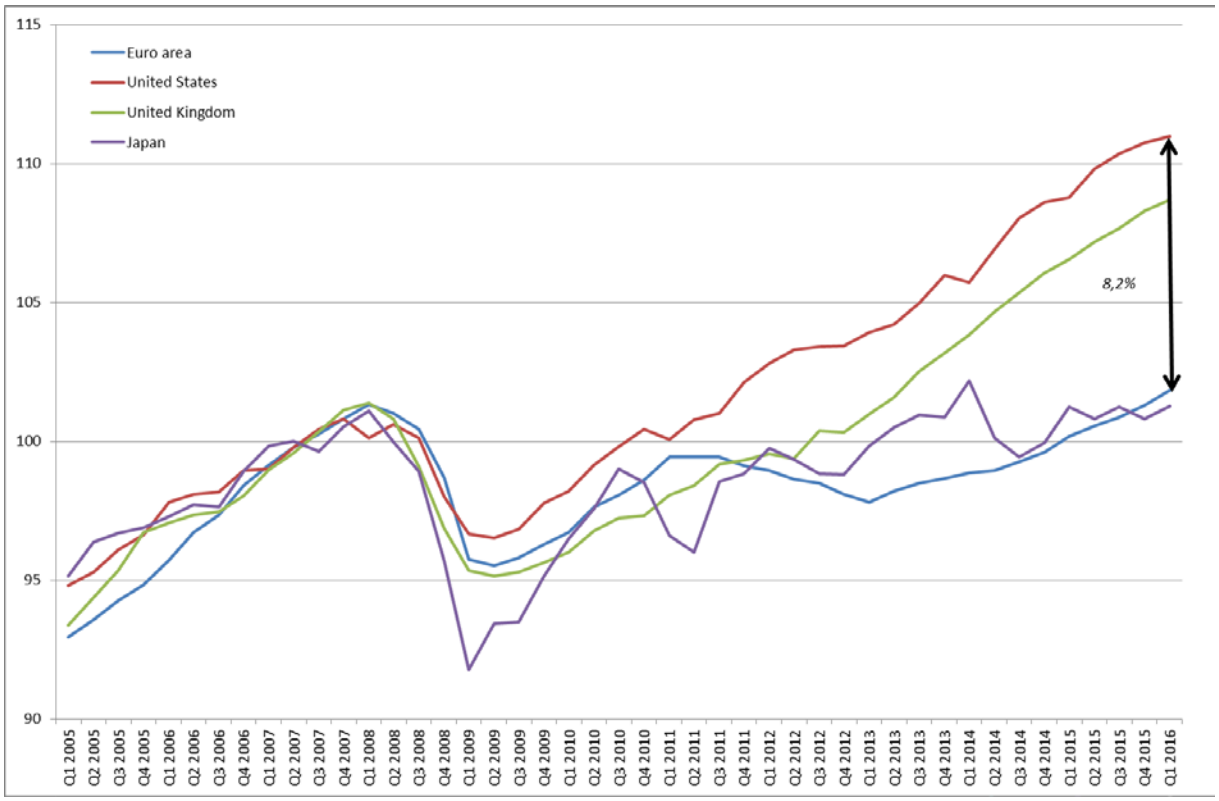
- Other factors have contributed to curb and delay the rebound of investment. The tightening of credit supply in 2009 and 2012 and the contraction of credit demand in 2010, 2012 and 2013, due to deleveraging and fiscal contraction, may have offset the impact of monetary policy on investment and they have weakened the recovery.

1. INTRODUCTION

Since 2009, central banks have implemented highly expansionary policies to support activity and prevent industrialized economies from falling into deflation. In a recessionary environment, policy rates reached a zero lower bound (ZLB) which has led central banks to resort to unconventional measures. These policies have resulted in an expansion of their balance sheets, reflecting liquidities provided by central banks to the financial system. These actions have raised many questions in the euro area about their impact on real activity because recovery has only been sluggish and weak, notably compared to the United States and the United Kingdom (Figure 1). Recovery is now reinforcing and GDP growth for 2016 is expected to reach 1.8% according to the OFCE. It is yet insufficient to reduce the euro area-US gap in terms of GDP per capita which widened after the European fiscal austerity episode of 2011.

Figure 1. GDP after the Great Recession

2007=100



***Sources**: National accounts*

After a brief review of the literature on the relationship between monetary policy and investment, this briefing paper aims at providing some key elements on the recent developments of investment in the euro area. Then it provides an assessment of the impact of monetary policy on investment during the crisis by building a counterfactual scenario for investment in the euro area. One should always bear in mind that the low growth of investment (or of GDP) does not indicate *per se* that policies are not effective: things could have turned differently, and maybe worst, without these expansionary measures. Finally, the effectiveness of monetary policy may also have been thwarted by other decisions (notably fiscal consolidation) or shocks (financial shocks).

2. MONETARY POLICY AND INVESTMENT

Considering the expansionary measures taken by the ECB, sluggish growth in the euro area questions the effectiveness of ECB's monetary policies. While legitimate, arguments against ECB's efficacy remain disputable. First, the ECB has not been the only actor responsible for growth in the euro area and other factors, like high corporate leverage, policy uncertainty and fiscal austerity (then neutrality) can be invoked as contributors to the weak growth. Second, monetary policy has had a long list of objectives and channels of transmission among which those related to the real economy may not be of the utmost importance. Blot et al. (2015) argue, among others, that QE impacts the economy through several channels: signalling, portfolio-balance, liquidity, default, credit and exchange rate channels. The first four channels impact financing conditions while the last two directly impact the real economy. Friedman (2015) reports that empirical studies perform on the US have concluded that large-scale asset purchases had been successful in reducing two different spreads: short vs. long term and more-risky vs. less risky bonds, hence two channels related to financing conditions rather than directly related to consumption or investment. As a matter of fact, most of the recent empirical literature on QE experiences has focused on the impact of unconventional monetary policies on financial markets. Less has been done on macroeconomic variables and on the component of economic activity. The reasons for this "partial" assessment of the effectiveness of monetary policy during the crisis are twofold. On the one hand, taking into account the delayed transmission of monetary policy, which is generally estimated around 18 months,[1] researchers had no sufficient information to run robust analyses on the macroeconomic impact of unconventional monetary policies. On the other hand, the effectiveness of monetary policy may have been blurred by other policy decisions and shocks during this period, which makes it more difficult to identify precisely the effect of monetary policy *per se*. Third, as far as the real impact of monetary policy, on investment for example, is concerned, asymmetries may appear across countries and/or across sectors. The aggregate impact of monetary policy on investment -be it low or high- may well hide a large discrepancy among countries and/or sectors.

Considering the latter point, Barigozzi et al. (2014) have shown that the impact of monetary policy shocks on investment has changed over time in some euro area countries – Korobilis (2013) found a similar result for the US- but the change has been uneven across these countries. In Germany, the reaction of investment to shocks was lower (in absolute terms) before adopting the Euro whereas the opposite is true for Spain and the Netherlands. In France, Belgium and Italy, reaction has been the same before and after adopting the Euro. Moreover, the reaction of investment to monetary shocks has been quite different between Germany and other euro area countries since Euro adoption: a restrictive shock on monetary policy produces a sharp contraction in Germany and a more moderate one in the other countries. According to Ducoudré et al. (2015), the predictive power of investment equations for Germany, France, Italy, Spain, the UK and the US, drawing on usual determinants –cost of capital, mark-up, capacity utilization rate, and expected demand- has been very good until the-before-the-crisis investment peak. If they do not find changes in the determinants of investment over time, they show different elasticities of investment across countries. For instance, in the long run the cost of capital elasticity is twice higher in France than in the UK and almost three times higher than in Germany, Italy or Spain. Finally, Barkbu et al. (2015) study the implications of output dynamics, the cost of capital, high corporate leverage, corporate bond spreads, firms' cash flows and the Baker,

[1] According to Peersman (2011), it would even be slightly longer for unconventional measures.

Bloom and Davis index for policy uncertainty on investment. They show that investment does not respond to the same factors in the euro area countries. While output dynamics explains almost entirely investment in Spain and highly contributes to investment in France and Germany, financial constraints are particularly important in Italy and, to a lesser extent, in Portugal.

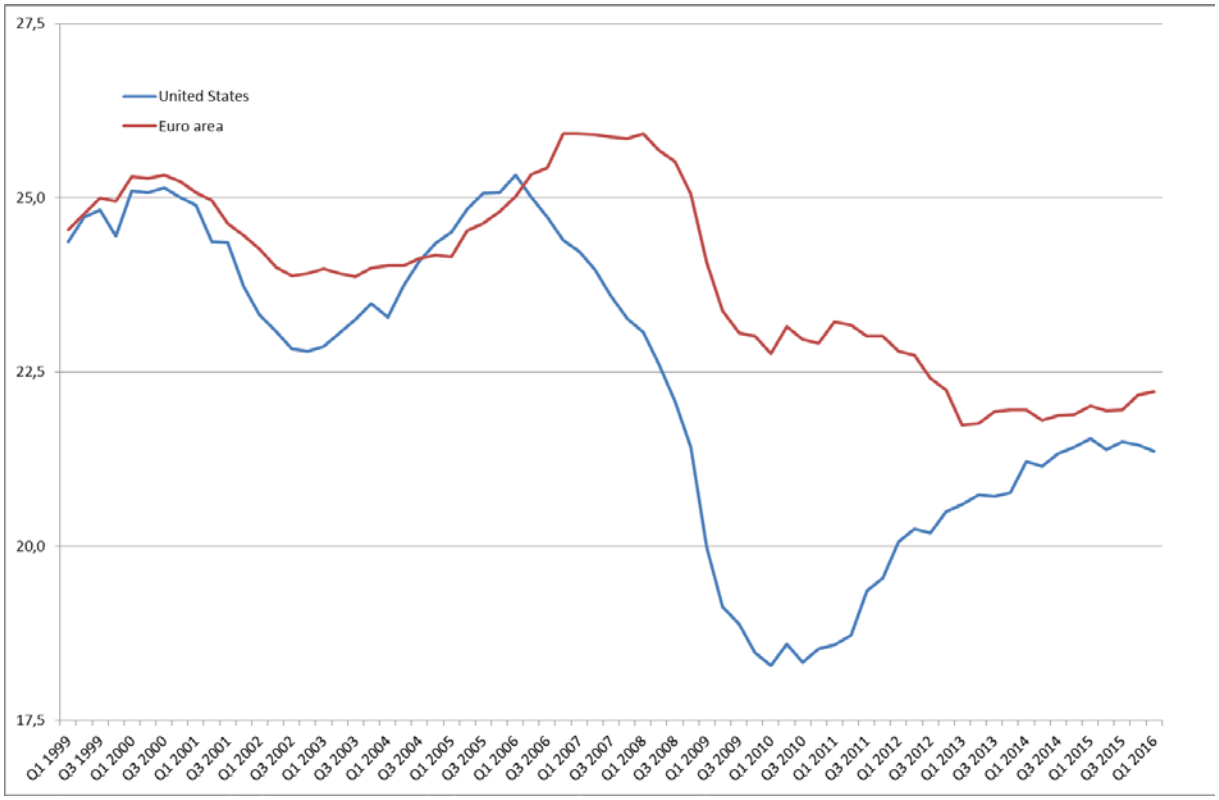
These different papers do not converge on the key determinants of country-by-country investment but they all point to the heterogeneity among euro area member states. The investment dynamics since 2007 in the euro area also illustrates significant discrepancies across countries but also across the main components of investment.

3. INVESTMENT DYNAMICS IN THE EURO AREA

Before investigating the impact of ECB's policies on investment, it is useful to have in mind several key points about investment in the euro area. Investment accounts for around 20% of the Euro area GDP. Total investment in volume has decreased by 13% from a peak observed in 2008Q1 until 2015Q4. The investment rate, measuring the ratio of total investment over value added, was at 26% in 2008Q1 and then fell at 21.7% in 2013Q1 (Figure 2). It has then stabilized around that value despite the ongoing recovery of economic activity. The difference with the situation in the United States is still striking. The fall started earlier and was more abrupt in the US but it recovered faster and significantly – from 18.3% at the end of 2010 to 21.5 at the end of 2015 – while it has stalled for several quarters in the euro area.

Figure 2. Investment rate in the euro area and in the United States

2007=100



***Sources**: Eurostat, Bureau of Economic Analysis.*

Beyond this global picture, it is also informative to analyse the composition of investment to assess whether the observed decline in investment stems mainly from some countries or has mainly concentrated on some components (housing investment versus investment in machinery for instance). Two striking features are worth mentioning:

i. Since 2008Q1, the decrease concerned almost all components of investment but intellectual property products (Figure 3). The bulk of the decrease stems from the construction sector (residential[2] and other construction) whose contribution contracted by 12.4 points – with nearly half from residential investment – out of an overall 13% decline. The contribution of machinery

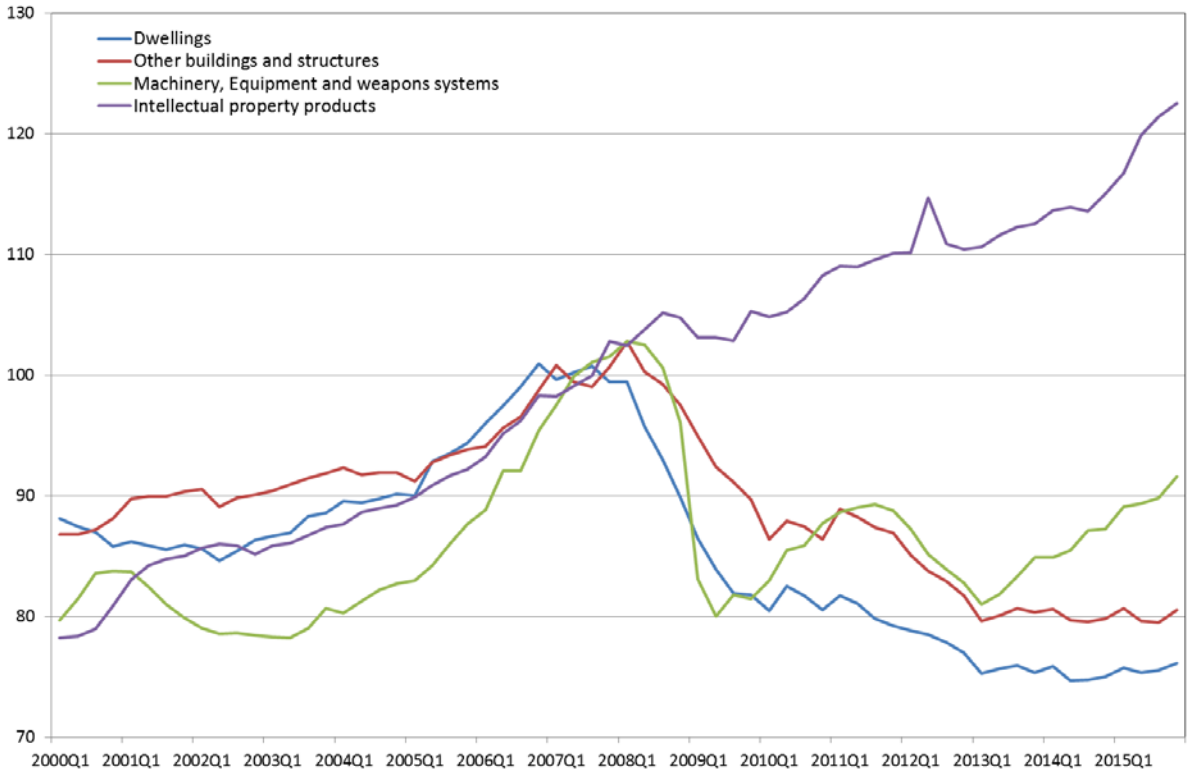
[2] Residential investment is realized by households.

and equipment investment contracted by (-3.3 points) while it was positive for intellectual property products (+2.8).

ii. If we look at the evolution for euro area countries, we observe that investment was badly hurt by the crisis almost everywhere. But the divergence in the investment path between countries in the core and in the periphery is striking. The negative cumulative contribution of the decrease of investment in Italy, Spain, Portugal and Greece is close to 11 points (-4.8 for Italy, -4.0 for Spain and -2.2 for Portugal and Greece). Investment in Germany contributed positively at the global dynamics (+1.1) while the contribution was negative for France (-1.7). For most euro area countries, investment in volume is still below its pre-crisis level. The only exception is Germany whereas it is close to its pre-crisis level in other Northern euro-area countries (Belgium, Finland, Austria and Luxemburg).

Figure 3. Investment in the euro area – Asset breakdown

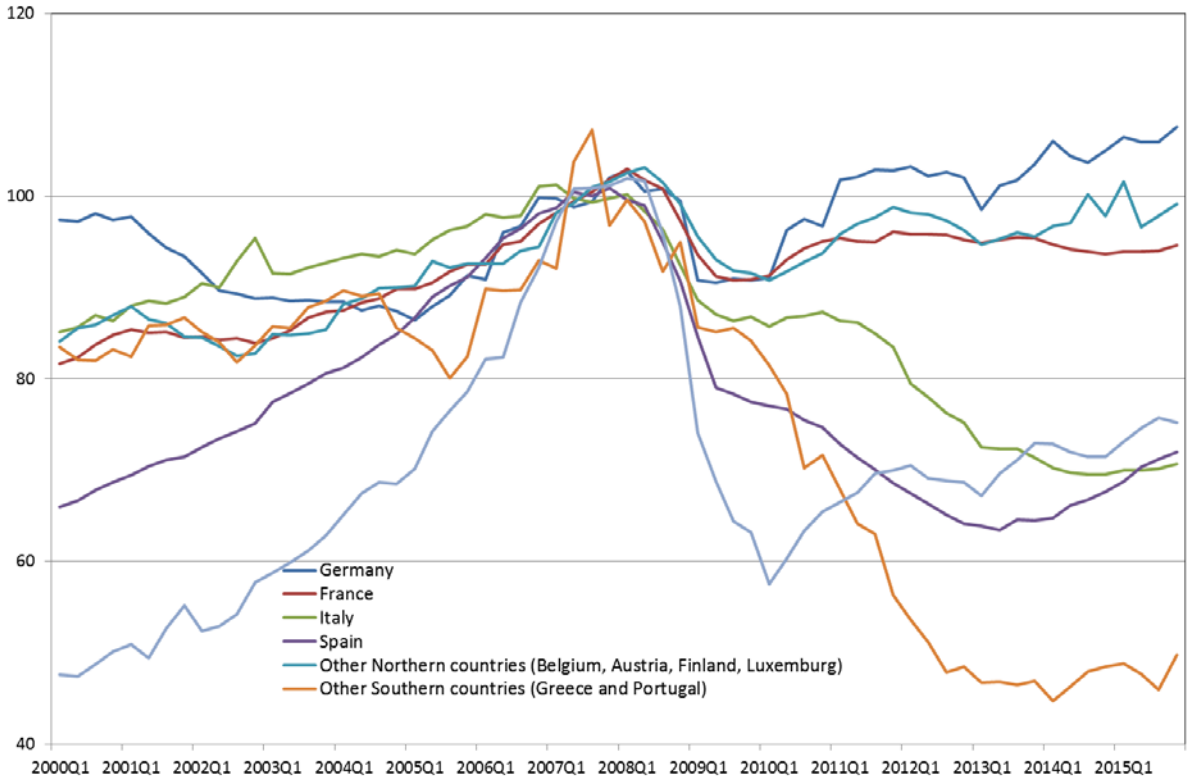
2007=100



***Source**: Eurostat.*

Figure 4. Investment in the euro area – Geographical breakdown

2007=100



***Source**: Eurostat.*

4. HAS ECB MONETARY POLICY IMPACTED INVESTMENT SO FAR?

Assessing the effectiveness of monetary policy to spur growth cannot be seriously inferred through the correlation between investment (or any other GDP component) and monetary policy stance. Clearly, the stance of monetary policy has been very expansionary in the euro area since the end of 2008 when the ECB first cut its policy rate, which rapidly reached the zero lower bound, and then resorted to a large set of exceptional measures to address the liquidity problems in the banking system, the sovereign debt crisis, the slump in economic activity and the risk of deflation. At the same time, the previous section has documented the investment gap. From this negative correlation, it might be tempting to conclude that monetary policy failed to provide support to investment despite the sharp stimulus.

Yet such a conclusion would bring confusion between correlation and causality. Things might have turned worse without the ECB's action. To assess more robustly the effectiveness of monetary policy, we need to resort to a counterfactual analysis.[3] What would have been the investment outlook had the ECB not decreased the policy rate and not implemented unconventional monetary policy? To illustrate this, we first estimate an equation linking investment to its standard determinants identified in the literature. It is generally supposed that in the long run, the investment rate (gross investment divided by the gross value added) depends on the margin rate and the cost of capital.[4] Firms tend to increase investment when their profitability increases and when the cost of raising funds – either through the banking system or from financial markets – decreases. Considering the investment rate as the endogenous variable implies that total investment is also related to demand. The short run dynamics of the investment may also be influenced by total demand, the change in the cost of funding and the rate of capacity utilization. The role of demand is fundamental as firms not only invest because of the return on investment but also because they expect that increasing their capacity of production will meet future demand.

Monetary policy influences the investment rate through the cost of funding. The estimated equation (see Appendix for details) makes a distinction between the impact of monetary policy in the long-run and in the short run. Monetary policy is measured by the shadow rate, which is the implicit interest rate set by the ECB and taking into account the unconventional monetary measures. For sake of simplicity, the total cost of capital only takes into account the interest rate set by banks on loans to non-financial corporations. Hereafter, we do not account for a potential effect of monetary policy on banks' spread, which may also be another channel through which monetary policy has influenced credit conditions and final demand. Consequently, the measured impact of monetary policy on investment that we compute may be considered as a lower bound.

Based on the estimated determinants of the investment rate and their coefficient, we can simulate the path of the investment rate in two alternative scenarios from 2008 onwards. In the first scenario, the interest rate is fixed at its 2008Q3 value that is at 4.2% before the reduction that started in September 2008. This scenario builds on the gap between the status-quo and standard –the reduction in the interest rate– and

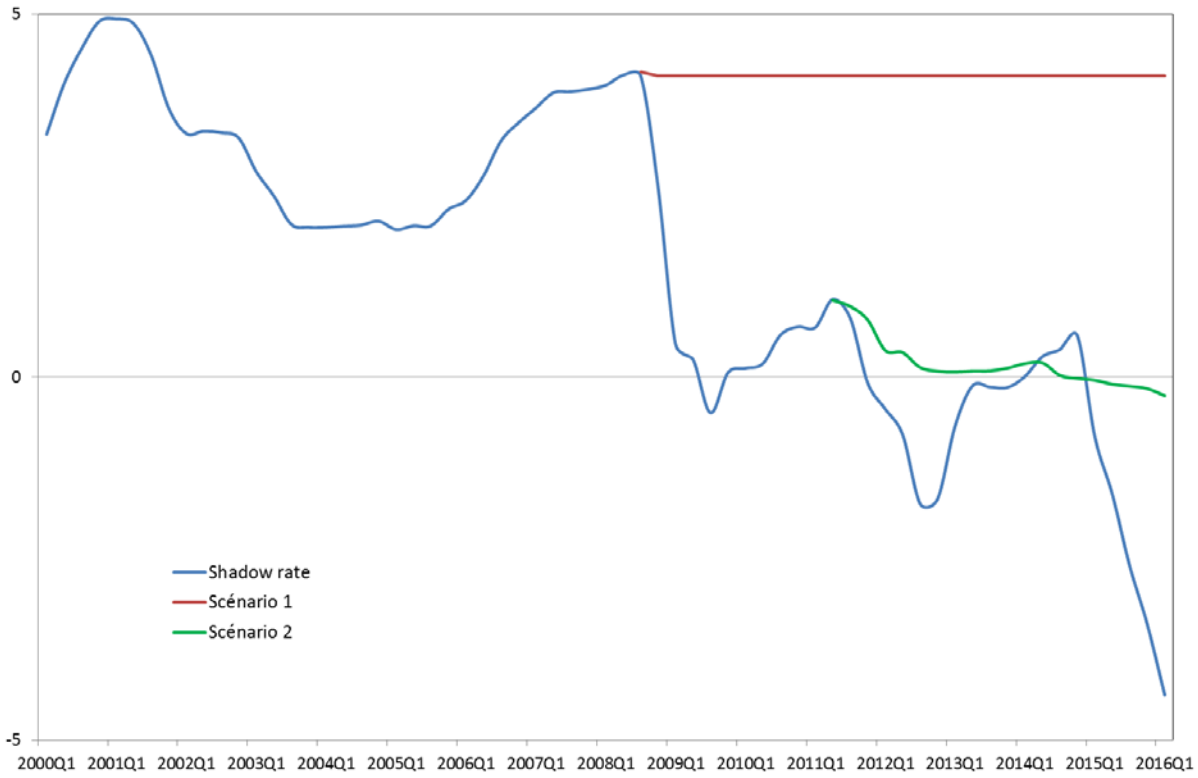
[3] For a recent use of counterfactual analysis to assess the impact of monetary policy on GDP growth, see Pesaran and Smith (2016).

[4] As our aim is specifically to gauge the effectiveness of monetary policy, we introduce explicitly an indicator for monetary policy stance. The cost of capital is proxied by this variable and an indicator measuring the spread between the interest rate fixed by banks and the monetary policy rate.

non-standard monetary policy measures which have led the shadow rate to negative values (Figure 5). This scenario does not distinguish between conventional and unconventional policies and makes the (strong) assumption that the very expansionary monetary policy has not existed. The second scenario deals explicitly with the impact of unconventional measures. From 2011Q3, we simulate the investment rate under the assumption that the shadow rate has remained equal to the EONIA rate, which is the standard measure of monetary policy stance when there are no unconventional monetary measures.

Figure 5. Monetary policy stance under alternative scenarios

(percentage changes, %)



Sources: *ECB, Wu and Xia (2016).*

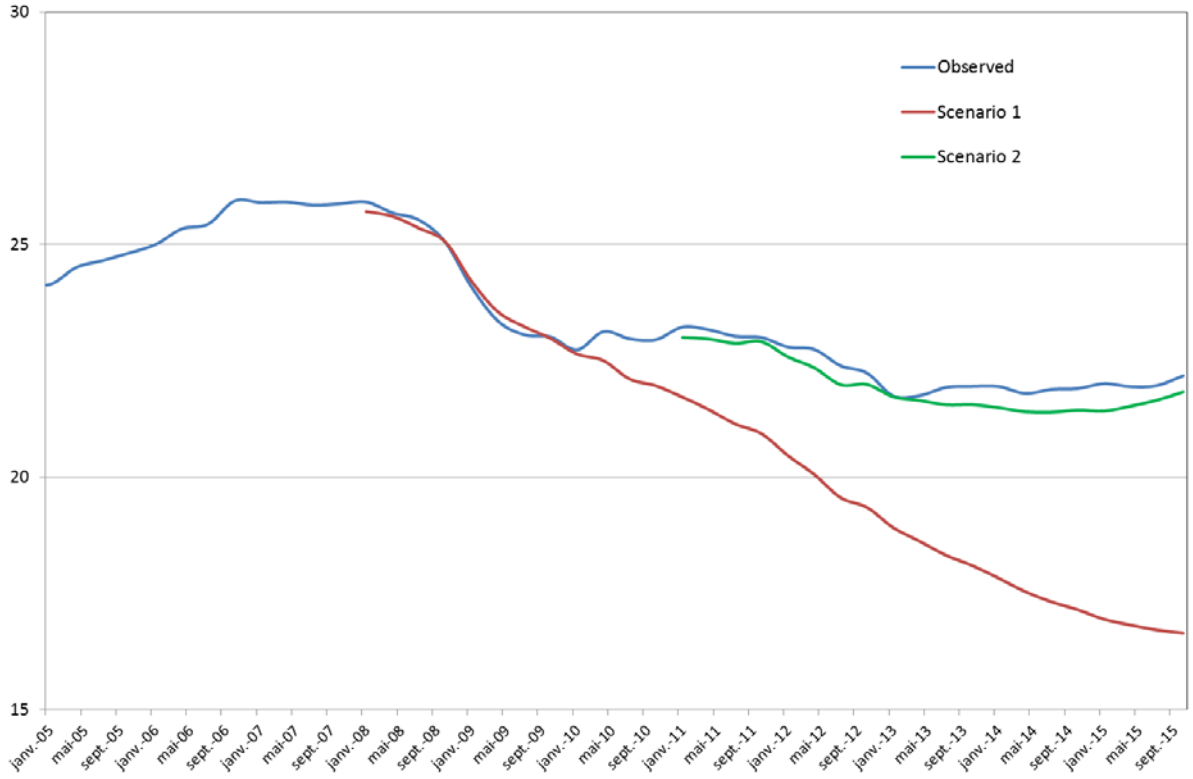
Starting from the equation estimated for the investment rate in the euro area, we can simulate the path of the investment rate which would have prevailed in each scenario and compare it with the actual investment rate. Simulation results are presented in Figure 6.

Simulations suggest that monetary policy has effectively sustained the investment rate. The main support comes from the decrease in the interest rate implemented during the crisis, hence from standard measures of monetary policy. Without them, investment rate would have been significantly lower than its current level (scenario 1), indicating that the crisis would have been much more severe. On average between 2008Q1 and 2015Q4, the investment rate would have been 2.3 points below its actual level. In 2015Q4, it would have been 5.5 point lower than its actual level. The role of other unconventional monetary policy decisions may be gauged through the simulation of scenario 2. It suggests that the investment rate has been supported by non-standard measures but that the effect has been much less significant. In 2015Q4, the investment rate would have been 0.3 point lower than its actual level.

This result is not surprising for at least two reasons. First, the aim of the unconventional measures was not only to support investment. Second, there is a delay between monetary policy impulse and aggregate effect which are estimated around 18 months and 2 years. As non-standard measures have been implemented later, their cumulative effect may not have been reached yet. Besides, it can be considered that the role of unconventional monetary policy is not fully captured in scenario 2. The non-standard measures have also contributed to the very low level of the EONIA so that taking into account the difference between the EONIA and the shadow rate is not a perfectly strict measure of unconventional measures. These measures may notably explain why the EONIA rate has settled around the level of the deposit facility rate since 2009.

Figure 6. Investment rate under alternative scenarios

(percentage changes, %)



***Sources**: Eurostat, authors' simulations.*

Consequently, scenario 1 gives some insights on the role of monetary policy during the crisis. It seems that they have been quite effective in supporting the investment rate since with an interest rate fixed at 4.2% from 2008Q3 onwards investment would have been significantly lower. Yet, it remains difficult to disentangle between the role of standard and non-standard measures. Apparently, the bulk of the monetary policy stimulus would result from the decrease in the interest rate but the precise role of each type of measure is not well represented and identified.

5. DEMAND AS THE MAIN DETERMINANT OF INVESTMENT SINCE THE CRISIS?

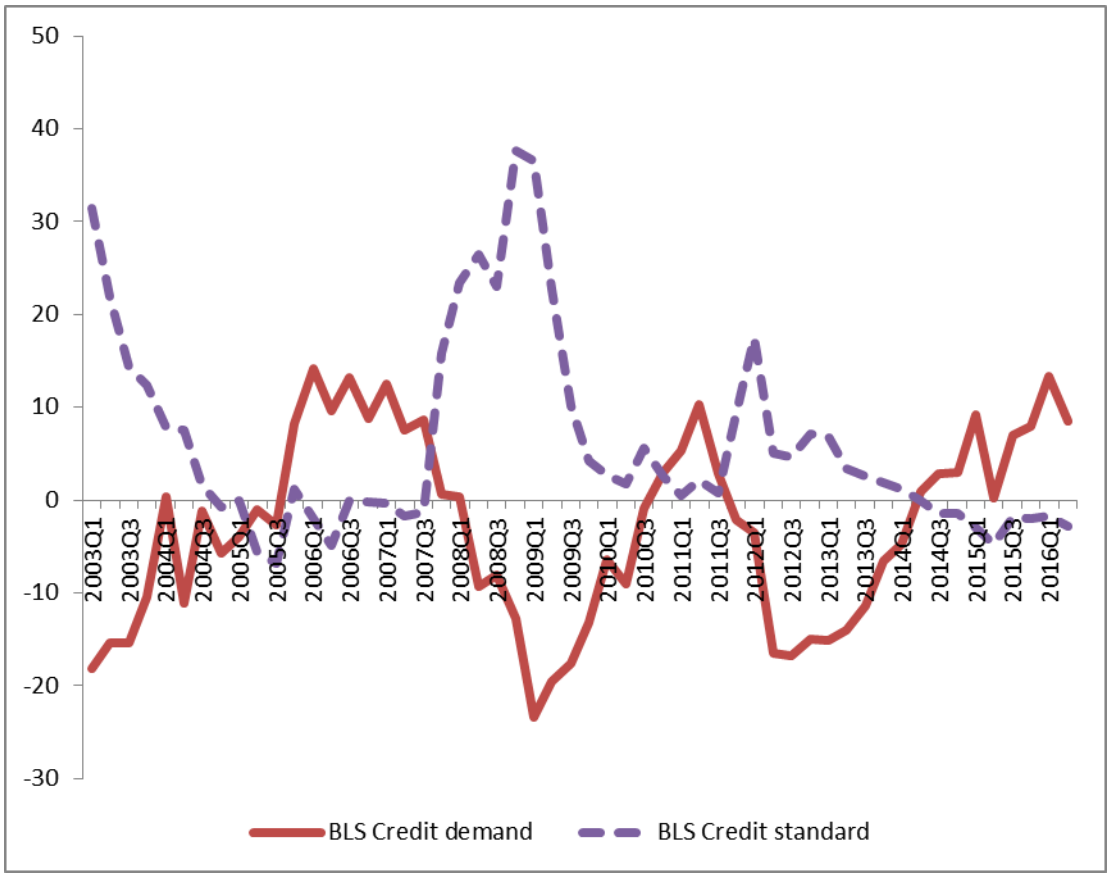
The simulations suggest that monetary policy has been quite effective at supporting investment since 2008. Investment rate would have been lower if the monetary policy stance had not been very expansionary. Though effective, the role of monetary policy may also have been mitigated by other negative shocks. ECB's decisions only impact on some variables in the financial and banking markets but the ECB's has not a perfect control on the global financing conditions of firms. Furthermore, investment is not only influenced by interest rate but also and certainly more importantly by demand factors. Recent evidence also point to the role of uncertainty[5] stressing that higher uncertainty may deter firms from investing. Investment decisions impact the firms' economic and financial health over the long term so that firms are reluctant to invest if uncertainty increases.

Commercial banks played a central role in the financial crisis and largely contributed to the transmission of the financial shock to the real economy. They largely contributed to the credit boom and have been exposed to the subprime crisis. Literature has recently stressed that banks may have a procyclical appetite for risk-taking suggesting that they take on more risks in good times and less in bad times. This risk-taking behaviour may amplify movements in asset prices (Adrian and Shin, 2008). Besides, banks may have to adjust their capital ratio to comply with prudential rules. Consequently, banks would reduce credits in crisis periods. Furthermore, the financial situation of non-financial agents may also deteriorate when a negative shock occurs leading to financial accelerator effects (Bernanke et al., 1999) and credit rationing (Stiglitz and Weiss, 1981).

In that case, firms and households would like to invest but cannot get any financing from the monetary and financial institutions. These effects may be captured with survey data collected by central banks. Indeed, the Bank Lending Surveys (BLS) provided by the ECB show that since the crisis, credit conditions have been tightened. Access to credit depends now more on the level of risk than before the crisis. By extension, new firms, smaller firms and firms with a bad rating are now more penalized. Figure 7 illustrates this tightening in credit supply (labelled "credit standard" in the survey), especially during the subprime crisis in 2008 and 2009 and during the sovereign debt crisis in 2012.

[5] See Bloom (2009).

Figure 7. Demand and supply factors in the credit market in the euro area



Source: ECB (Bank Lending Survey).

Nevertheless, this tightening in credit conditions might not be the only explanation behind the low credit volumes supplied to the private sector. Another explanation is that the financial crisis was a negative demand shock and that firms, especially SMEs, have lowered their credit demand (Kremp and Sevestre, 2013). Moreover, this negative demand shock has been amplified by pro-cyclical fiscal policy. This low credit demand is also illustrated in the previous Figure between 2008 and 2010 and again between 2012 and 2014. Since then, credit demand has improved though it remains volatile.

A simple correlation analysis between the growth rate of the investment rate and the credit conditions suggests that both the supply and demand sides of the credit market matter. The correlation between investment and credit demand is 0.55, while it is -0.58 between investment and credit supply.

6. CONCLUSIONS AND POLICY IMPLICATIONS

The disappointing euro area recovery has cast doubts on the effectiveness of ECB's monetary policy, standard and non-standard. More specifically, the growth of investment by non-financial corporations has been limited in the euro area despite accommodative monetary policies.

Our estimates of the determinants of investment show that both demand and supply factors matter. So although the monetary stance has been extremely accommodative, one reason for the weak rebound of investment may stem from the weak aggregate demand in the euro area that has been reflected in weak investment demand of firms and households and that has ultimately offset the positive effect of ECB policies.

As a matter of fact, our results show that monetary policy has strongly impacted the real economy. If the policy rate had remained at its level of 2008, investment would have been 5.5 points lower than its actual level.

This result has at least three policy implications.

First, although some monetary policy measures were not implemented to directly impact the real economy, it seems reasonable to argue that the ECB has triggered, all else equal, a rebound of investment. It means that the use of a wide array of policy instruments has permitted the ECB to target different objectives: an improvement in borrowing conditions, a sharp decrease in sovereign bond yields and support to consumption and investment. As a side implication, non-standard policies like Quantitative Easing should be analysed and assessed in this context: they may not prove very useful in directly modifying capital formation because they draw, e.g. on the signalling effect (see Sahuc, 2016), whereas standard measures directly modify interest rates to households and non-financial corporations and then impact consumption and investment.

Second, the erratic movements in credit demand require a stimulus on aggregate demand. A closer cooperation between euro area governments and the ECB to support investment, via e.g. an extended public investment programme, would contribute to the sustained rise of credit demand and to the rise of inflation towards its target. It would therefore contribute to higher expected interest rates and would shorten the risk that low interest rates pose on financial markets.

Third, the recent period shows a fragile improvement in credit supply which requires to be strengthened in order for the ECB policy measures to be fully transmitted to households and non-financial corporations. The ball is in the field of banks, or it will be in the field of capital markets and their possible Union.

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APPENDIX

The estimated equation (an error-correction model) for total investment in the euro area is represented by the following equation:

$$\Delta\left(\frac{I_t}{VA_t}\right) = \underbrace{-0.086}_{0.04} + \left(\left(\frac{I_{t-1}}{VA_{t-1}}\right) - \underbrace{0.023}_{0.00}.Marge_{t-1} - \underbrace{0.035}_{0.00}.Shadow_{t-1} - \underbrace{0.151}_{0.00}.BankSpread_{t-1} + \underbrace{2.09}_{0.07}\right)$$
$$- \underbrace{0.214}_{0.14}\Delta I_{t-1} + \underbrace{0.138}_{0.08}\Delta I_{t-2} + \underbrace{1.108}_{0.31}\Delta VA_{t-1} - \underbrace{0.006}_{0.00}\Delta CUR_{t-1}$$
$$+ \underbrace{0.03}_{0.00}.\Delta Shadow_{t-1} + \underbrace{0.006}_{0.00}.\Delta Shadow_{t-2}$$

With I the investment, VA the value-added, Marge the margin rate, Shadow the indicator of monetary policy calculated by Wu and Xia (2016) and that takes into account the unconventional monetary policy measures. The bank spread is the gap between the interest rate on loans for non-financial corporations and the EONIA rate. CUR stands for the rate of capacity utilization. In the long term, an increase in margins has a significant positive impact on the investment rate. The cost of funding (measured by the indicator of monetary policy and the bank spread) affects negatively and significantly the investment rate. The model is estimated by OLS for the euro area. The sample period for estimation is 1999Q1 / 2015Q4. Data are taken from Eurostat, ECB and Datastream.

NOTES

European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Uncertainty abounds: Why accommodative monetary policy has not triggered a rebound of investment in the euro area

Christopher HARTWELL

IN-DEPTH ANALYSIS

Abstract

Investment by non-financial firms has continued to stagnate throughout the euro area despite a sustained and concerted effort by the European Central Bank (ECB) to keep credit flowing to the private sector. This paper argues that continued firm and bank weakness in the Euro-area is a leading factor of these trends in investment. Additionally, the ECB's policy itself is creating deleterious effects, including increasing policy uncertainty. Investment will not resume without a change of structural, rather than just monetary, factors.

CONTENTS

EXECUTIVE SUMMARY

- A rich and varied literature has attempted to understand the determinants of domestic investment, focusing on the reasons why a country or region has attained a certain level of investment. Studies, stretching back decades, have focused on two separate factors as the source of investment decisions, namely firm-specific attributes and the broader macroeconomy.
- Firm-level attributes that can drive investment include the amount of debt a firm has (negatively related), cash flow constraints (also negative), and expectations of future profitability (positively related). Macroeconomic factors found to be crucial for driving investment includes the overall health of an economy (positive), inflation (negative), access to finance in the aggregate (positive) access to international capital (positive), institutions (positive), and policy uncertainty (negative).
- Investment levels in the euro area have continued to stagnate since the global financial crisis, a puzzling outcome when set against the massive monetary and balance sheet stimulus that the European Central Bank has been undertaking.
- The euro area's continued anaemic performance in investment can be attributed to many of the issues already identified in the literature, above and beyond access to finance, to include:
    - Firm weakness
    - Bank weakness and the wariness of the financial sector
    - The costs of the ECB's policies; and
    - Increased policy uncertainty
- In regards to firm weakness, Euro-area firms in particular are suffering from a debt overhang from the mid-1990s, with higher levels of private sector debt in the most crisis-afflicted countries. Firm perceptions of the state of the economy are also bleak.
- Banks are not immune to this firm-specific weakness, saddled with their own non-performing loans and uncertainty about future profitability.
- While the ECB has been pumping liquidity into the system, there are also costs to the policies. The monetary stimulus has weakened the euro and harmed importers, while the focus on monetary levers to the exclusion of structural reforms has called into question the ECB's central role.
- Finally, economic policy uncertainty continues to weigh on firms' decisions. Economic policy uncertainty has been at high levels across the euro area since the global financial crisis, and in Germany and France, the two drivers of the Euro-area, uncertainty remains well above its pre-crisis levels. Even with foreign guidance, worries about the next policy move are holding back investment.
- Given that the issues in the euro area run far deeper than merely access to finance or liquidity, changes are needed in structural policies rather than more monetary interventions.

1. INTRODUCTION

A rich and varied literature has attempted to understand the determinants of domestic investment, focusing on the reasons why a country or region has attained a certain level of investment and what is driving investment behaviour. Studies, stretching back decades, have focused on two separate factors as the source of investment decisions, namely firm-specific attributes and the broader macroeconomy. In regards to firm-specific conditions, papers such as Mairesse *et al.* 1999, Love and Zicchino 2006, and Abel and Eberly 2011 have focused on firm attributes in longer-term planning, finding the role of debt and cash flow as constraints to further investment. These earlier results have been confirmed in a massive recent analysis by Magud and Sosa (2015), which examined a large sample of emerging market economies (including emerging Europe and newly-acceded countries of the EU) and concluded that investment is positively related to expectations about future profitability.[1]

From the macroeconomic side, textbook treatments of investment note that domestic investment is the most volatile component of GDP, relying as it does on interest rates, economic conditions, and perceptions of economic policy in the future. A similarly large literature has related investment decisions to the broader macroeconomy (Serven and Solimano 1992), finding that access to finance in the aggregate, capital flow policies (Hartwell 2014), inflation and growth (Greene and Villanueva 1991), institutions (Lim 2014), and policy uncertainty (Gulen and Ion 2016) all impact domestic investment to various degrees and in different directions. Many of these macroeconomic effects continue to exert an effect in the presence of controls and when paired with firm-specific variables, although research that includes both firm-specific and macroeconomic variables (as in the Magud and Sosa [2015] paper) tends to show that firm-specific variables predominate economically.

This literature has special resonance for understanding the current precarious position of investment in the euro area. Despite a mild recovery from the global financial crisis, investment by non-financial firms has continued to stagnate throughout the EU and the euro area. As Figure 1 shows, from a high of 24.36% in the fourth quarter of 2007, investment ratios have struggled to reach even 22.5%; moreover, the latest data from end-2015 shows investment rates just re-attaining levels last seen in the second quarter of 2012, before the euro area crisis. While investment rates vary across euro area countries - Greece has the lowest (non-seasonally adjusted) rate at 12.34%, followed by Portugal at 17.07% and Italy at 17.89%, with Belgium having the highest rate at 27.79% - there has been little headway made towards reaching the investment levels seen before the crisis.

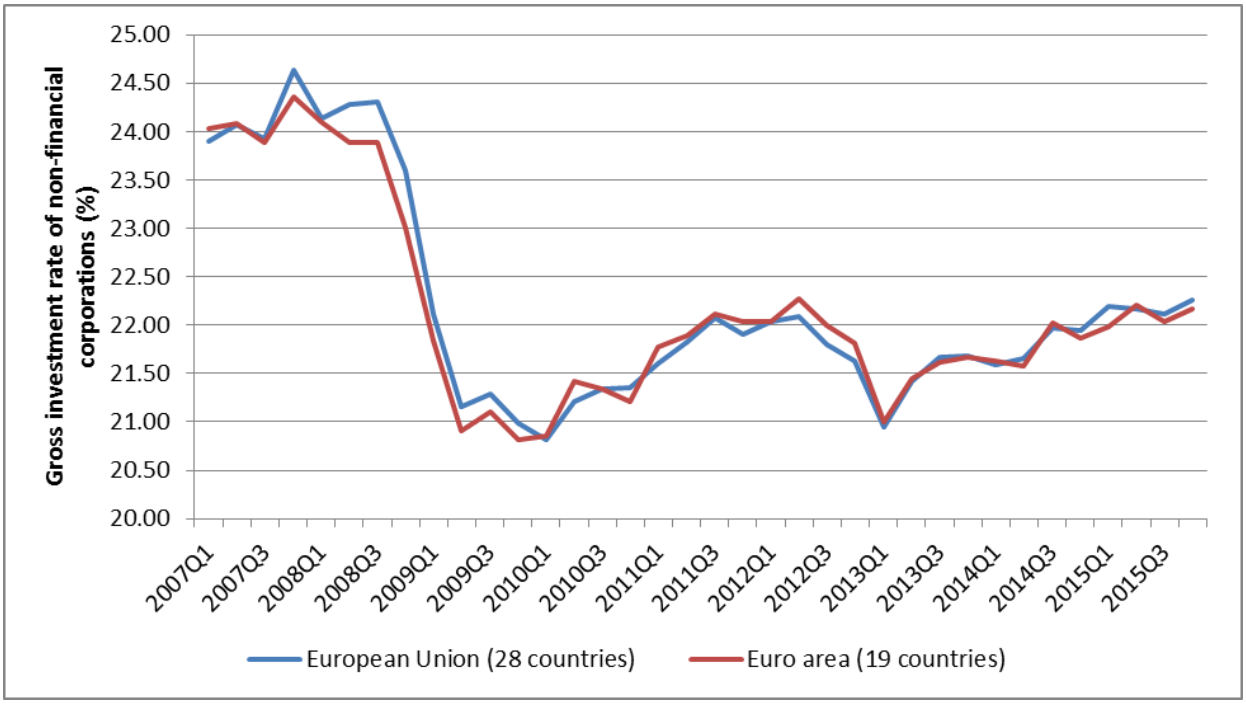
The issues related to the current investment performance of the euro area may run deeper than the stagnation seen over the past six years, as a series of business confidence and investment surveys conducted by the European Commission indicate further difficulties on the horizon. Looking at the monthly Economic Sentiment Indicator (ESI, Figure 2) or the monthly Business Climate Indicator (Figure 3), we can see that perceptions of the overall economic climate in the euro area only turned positive in late-2013, and they remain very close to neutral. That is, while businesses and consumers may believe the worst of the crisis is over, they are not committed to believing that the economy is out of the woods yet. With such a pessimistic outlook regarding the future of the euro area economy, there is little reason to believe that investment, based on a longer-time horizon, would somehow

[1] As part of a project with the International Finance Corporation (IFC), the Center for Social and Economic Research (CASE) in Warsaw has extended this analysis on recent emerging markets data utilizing a similar econometric model that relates firm-level investment to a vector of firm-specific attributes, macroeconomic conditions, and institutional variables. The basic trends regarding debt and expectations were confirmed.

accelerate. Indeed, the overall picture across Europe is of firms with little incentive or ability to invest.

Figure 1: Gross investment rates of non-financial corporations

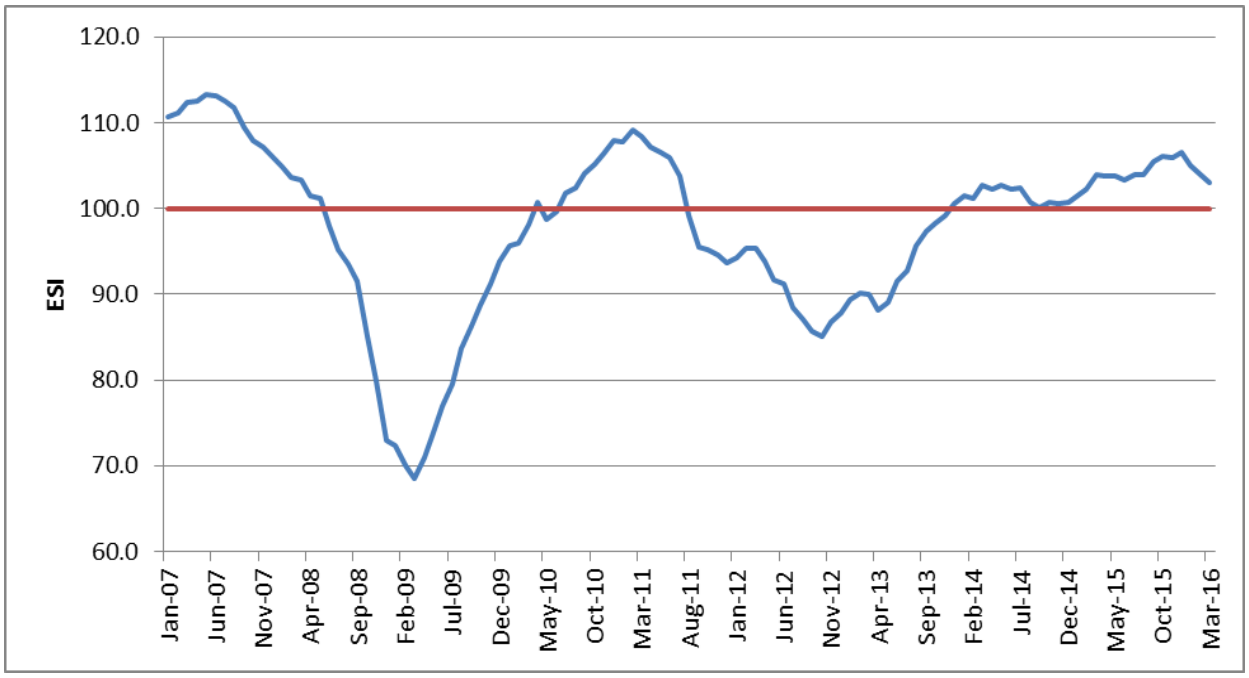
(in percent of GDP, seasonally adjusted)



***Source*:** Eurostat

Figure 2: Economic Sentiment in the Euro area, 2007-2016

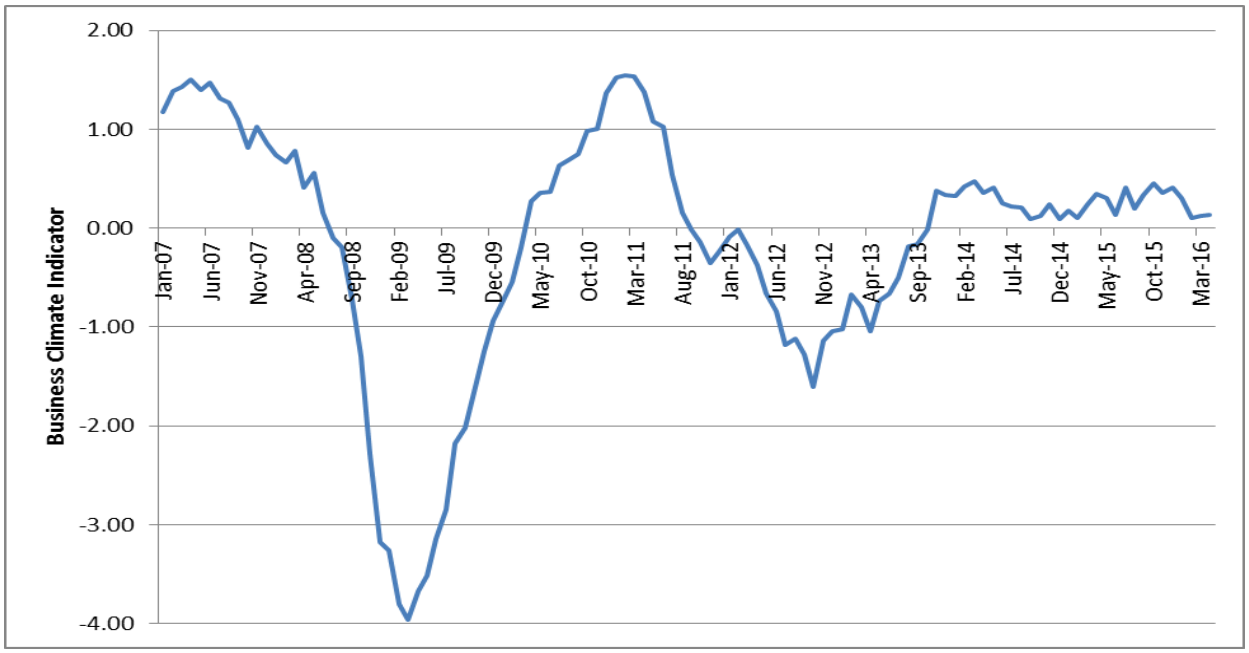
(Economic Sentiment Index, level)



***Source*:** European Commission, DG ECFIN

Figure 3: Business Sentiment in the Euro-area, 2007-2016

(Business Climate Indicator, level)



***Source*:** European Commission, DG ECFIN

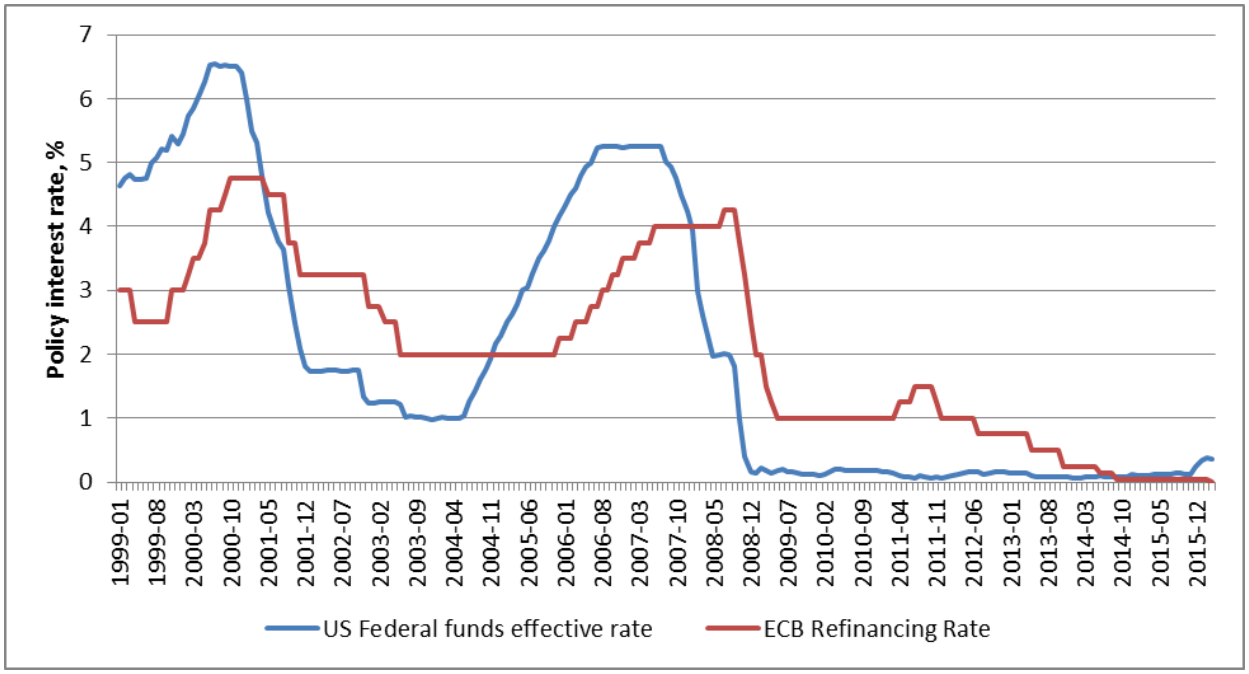
Given that investment is the engine of growth for an economy, this investment performance in the euro area, coupled with tepid sentiment towards the future, does not bode well for improved economic outcomes across Member States. But perhaps the most problematic issue concerning investment trends since the global financial crisis is that such a reality comes amidst a sustained and concerted effort by the European Central Bank (ECB) to keep credit flowing to the private sector. Much like the US Federal Reserve (Figure 4), the ECB has kept interest rates at unprecedented levels since the global financial crisis, supplementing this traditional policy lever with unconventional monetary policy. In particular, a series of unconventional programs, starting with refinancing operations and continuing through the securities market program (SMP), outright monetary transactions (OMT), the asset purchase program (APP), and the institution of forward guidance, have all sought to increase liquidity and ensure that monetary policy is transmitted through normal channels. With the massive monetary stimulus leading to improvements in overall borrowing conditions in the euro area (through lower capital costs), investment across the euro area theoretically should have shown at least some improvement or, at least, more stability. As shown above, this has not actually been the case, meaning that either a) other factors beyond capital cost/finance availability must be at play (i.e. firm-specific factors), or b) the monetary stimulus itself is holding back investment.

The purpose of this brief is thus to examine the reasons behind the persistent weakness of investment in the Euro area, focusing on these firm-level, structural, and policy aspects of the current (and persistent) investment gap. We will hone in on the barriers to investment specific to the Euro-area Member States and specifically, we will examine the lingering policy uncertainty surrounding the euro, as well as the deleterious effects of the ECB's interventions, in preventing a resumption of investment, and thus growth. The main conclusion of this analysis is that the overall macroeconomic conditions for a resumption of investment in the euro area have not yet arrived, and the issues with the euro area run deeper than merely access to finance. Indeed, the ECB's policies have the effect of solving a

problem that is only minor while being a main contributor to the policy uncertainty. This makes it a continuing impediment to future investment.

Figure 4: Central Bank Policy Rates, 1999-2016

(Policy Rate, in percent)



***Source*:** US Federal Reserve, European Central Bank

2. WHAT IS AILING EUROPE?

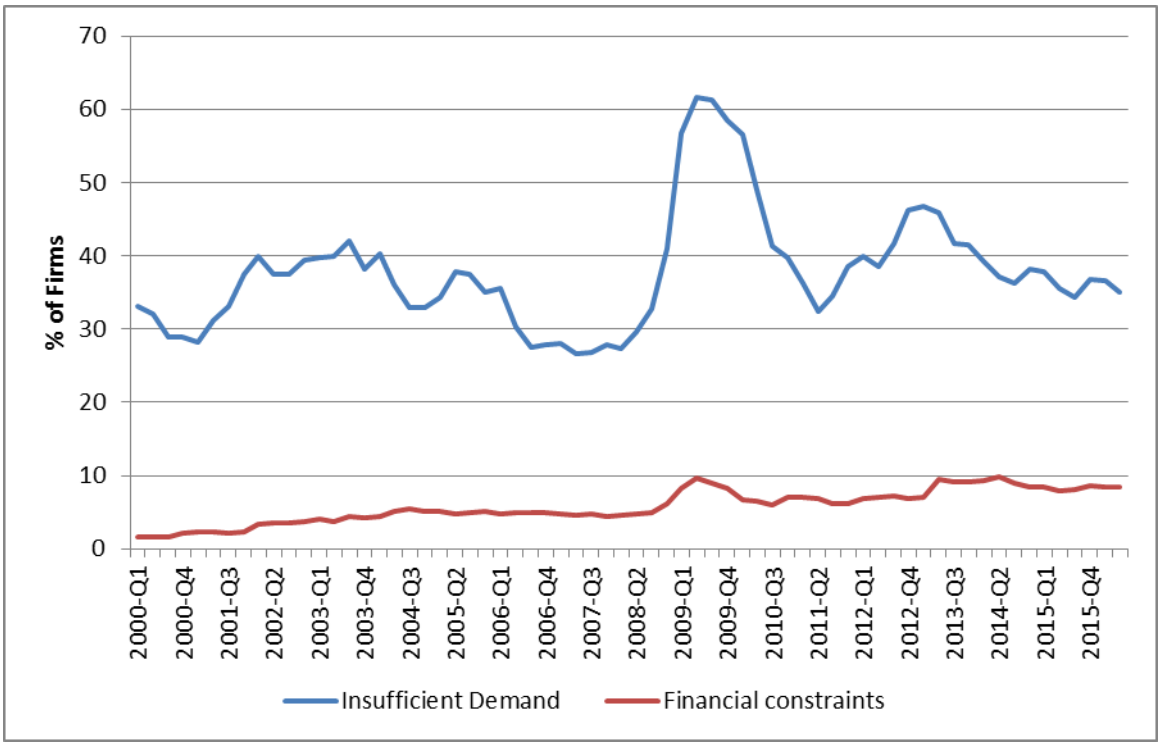
Given the established theoretical and empirical linkages between firms, the macroeconomy, and investment decisions noted above, a closer look at the conditions prevailing in Europe can highlight which channels are more likely to be active. In particular, and related to firm-specific traits, the continued weakness of firms in the euro area and lingering issues in financial intermediation and the weak health of many banks play a major factor in recent investment trends. Coupled with these issues and in a more macroeconomic vein, the costs of the ECB's monetary policies and persistent economic policy uncertainty have also played a role in dampening investment. We will examine each of these factors in turn.

2.1. Reason 1: Firm Weakness

Nine years after the acknowledged start of the global financial crisis, eight years after the collapse of Lehman Brothers, and six years after the start of Greece's fiscal woes, the euro area economy continues to show signs of fragility. The perception amongst European firms is that consumer demand remains soft; although nowhere near where it was during the height of the global financial crisis or in late 2012 during the Greek crisis, the percentage of firms claiming that insufficient demand is the major limiting factor in their production remains in the 35-40% range, well above the number of firms that believe financial constraints are to blame (Figure 5). Similarly, as noted in the introduction in Figures 2 and 3, consumer sentiment remains muted while businesses also have a neutral outlook, trending negative, of the overall economy. Not all of this sentiment is tied in exclusively with the weakness of the euro area economies, as the fear of a slowdown in China and broader global trends are also weighing on businesses, but the outlook for euro area firms remains less-than-stellar. Such a reality means delayed investment and less likelihood to take on new or risky projects, even in a finance-rich environment.

Figure 5: Dominant Factors Limiting Production, 2000-2016

(Percentage of Firms Citing Insufficient Demand or Financial Constraints, non-seasonally adjusted)



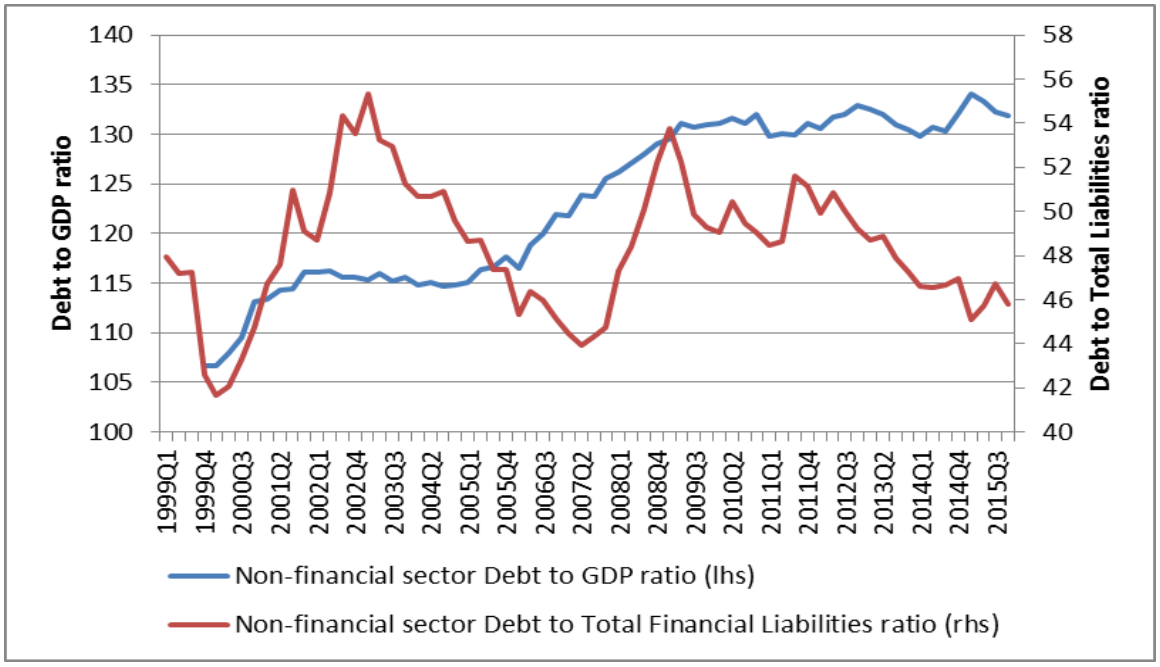
***Source*:** European Commission, DG ECFIN

Coupled with the perception of low demand is the reality that euro area non-financial firms remain saddled with debt acquired during the boom period and which they have been unable to shake in the post-crisis stagnation (Figure 6). While debt as a percentage of all liabilities has been on the wane from its dual crises highs, the percentage of debt to GDP remains well above levels seen even in early 2008. And overall levels of private sector debt as a percentage of GDP (including households) also remain high, with the most crisis-affected countries showing the highest levels: for example, in 2014, Ireland's private sector indebtedness stood at 263% of GDP (higher than any year other than 2011), while Portugal was at 190.2% of GDP and Spain was at 165%. In fact, the euro area average of private sector indebtedness was nearly thirty percentage points higher than the total EU average, 176% versus 148%.[2]

Given the leveraged positions that many firms across the euro area still find themselves in, it is difficult to justify longer-term investments, especially in an environment where demand is weak and growth is tepid. In such a situation, firms are focused on survival rather than the long-term. This can be evidenced by the high number of insolvencies in crisis-afflicted countries, such as the 135 firms that went bankrupt in Ireland in December 2015, a high over the past three years, or the increasing rate of insolvencies year-on-year in Portugal and the still-high rate of bankruptcies in Finland (above where it was in 2007).[3] For firms at the margin, increased debt loads via access to finance are not enough to overcome market conditions.

Figure 6: Private Sector Debt Ratios in the Euro Area, 1999-2015

(Non-financial sector: Debt to GDP and Debt to total financial liabilities)



***Source*:** ECB

2.2. Reason 2: Wary Intermediaries

For firms not on the margin, the expansion of monetary resources and the lowering of capital costs might be a boon to investment if the resources were available directly to firms (so-called "helicopter money"). The methods of monetary policy transmission in the euro

[2] Data from the European Central Bank, averages are author's calculations.

[3] Data from insolvencyjournal.ie for Ireland, Observatorio Racius (www.racius.com) for Portugal, and from Statistics Finland for Finland.

area and elsewhere in the world are slightly more complicated than this, however, and rely on financial intermediaries, and primarily banks, to transmit increased liquidity to companies across Europe. It is here that some bottlenecks and blockages in regards to liquidity transmission occur, mainly due to the fact that banks face their own institutional incentives and constraints.

In the first instance, banks were tremendously affected by the global financial crisis, and the resulting non-performing loans (NPLs) that the crisis created linger for several countries in the euro area: using the latest data from the IMF, non-performing loans average approximately 10% of total gross loans in the euro area, including Greece.[4] As an IMF study notes, the theoretical link between NPLs and new credit is direct, as "banks' reduced lending capacity undermines the growth prospects of viable firms and… disproportionately affect[s] SMEs that are more dependent on bank financing" (Aiyar *et al.* 2015:10). The empirical evidence in the euro area strongly supports this assertion. Although the NPL problem is not evenly distributed across the region, a plethora of studies have found a causal relationship between NPLs and new credit growth (De Bock and Demyanets 2012), and indeed a glance at the ratio of NPLs to credit growth shows this negative correlation in the euro area (Table 1). Barkbu *et al.* (2015) also find an explicit empirical link between these financial constraints in Italy, Portugal, and Spain and credit growth in these countries.

Table 1 – Non-performing Loans and Credit Growth in the euro area

	Non-performing Loans in % of Total Gross Loans (most recent available)	**Credit Growth (year-on-year), December 2015**
Austria	3.39	0.10
Belgium	3.74	8.00
Estonia	0.98	13.20
Finland	1.40	2.10
France	3.98	1.50
Germany	2.34	2.90
Greece	36.65	-5.90
Ireland	14.93	-2.40
Italy	17.97	0.30
Latvia	4.64	-3.70
Malta	9.38	2.30
Netherlands	2.71	4.60
Portugal	11.96	-1.10
Slovakia	4.87	9.60
Slovenia	9.96	-4.70
Spain	6.26	-0.70
Correlation	-0.58	

***Source*:** European Central Bank, Bundesbank, IMF.

[4] This number does not include Cyprus or San Marino, who both have NPLs of nearly 50%. Excluding Greece from the calculation returns an average of 7.3% across the euro area.

Poor past performance has also been joined by hazy future prospects to conspire against a rapid expansion of credit throughout the Euro-area. Indeed, the reluctance of European banks, especially in the south, to lend should be seen as the mirror of investment weakness throughout the euro area: loans are just the investments of financial corporations, and the issues in the macroeconomy noted above and below also impact decision-making by banks. For euro area banks, the ongoing currency risk engendered by the threat of Grexit and the ECB's weakening of the Euro continues to act as a deterrent for long-term lending going forward. Much as a firm would keep cash on hand in order to provide a cushion for future adverse conditions, banks in the south are holding on to increased liquidity for the same reason.

The deleterious effects of current macroeconomic conditions have been compounded by policies towards the banking sector which have not been harmonized with monetary policy in the euro area, much less globally. Pushes to avoid the next financial crisis have led to tightened lending restrictions, higher capital adequacy bounds, and an expansion of regulation regarding bank operations, typified by Basel III and Member States' own central banking directives (the Austrian Central Bank stands out as an example here). In such an atmosphere, banks have a major disincentive to lend, even given massive injections of liquidity. They are especially unlikely to lend to the highest-risk segments of the economy, the SMEs that are actually facing constraints to access.

These bank-specific impediments have translated into slower uptake of investment, not only in Europe but globally. Empirically, Allard and Blavy (2011) and Brutscher (2014) have found that investment tends to recover more quickly from a banking crisis in well-diversified financial sectors (i.e. with a mix of bank and capital market intermediaries) than in countries that have exclusively or predominantly bank-based systems. Thus, the structure of financial intermediation in Europe is also a contributor to slow investment, a factor that cannot be rectified in a short time-span.

2.3. Reason 3: Costs and Benefits to ECB Policies

While the weakness of firms and difficulties in financial intermediaries in the euro area are undoubtedly contributors to low investment, there is another possible factor that has been neglected in the policy debates, and this is the impact of the ECB itself. From a theoretical standpoint, the aforementioned mixture of low interest rates and additional monetary stimulus should have allowed for easier access to finance, lowered borrowing costs, and made previously untenable projects feasible for firms. All of these factors would thus be expected to lead to an increase in investment *ceteris paribus*, only looking at the benefit side of the ledger. But this theoretical link neglects the fact that the policies of easy money, low interest rates, and additional direct intervention have real costs as well as projected benefits. Indeed, the policy of the ECB is creating substantial costs for firms in the euro area, and it appears these costs are acting directly counter to the results the ECB wishes to see.

In the first instance, the policy of weakening the euro via monetary manipulation has necessarily led to higher costs for importers or users of intermediate goods; with no end to the ECB's "easy money plus" policy, there is no incentive for those affected by these higher relative prices to invest for the long-term. While there is some evidence that export gains are outweighing this rise in import costs (Heymann 2015), there also is a danger of exporting firms, especially in Germany, becoming complacent with this "export stimulus package" and failing to innovate. Similarly, the drastic reduction in borrowing costs created by the ECB has also reduced the returns available to companies on investments, meaning that other avenues (such as retaining earnings as cash on hand) may be preferable than investing in expansion. With a weakening euro projected to weaken further (by design)

through monetary stimulus, euros earned due to investments in the future will also be worth less than the euros invested today, creating a need for even larger return to make investment viable.

The persistence of the ECB's policies, and indeed their escalation in recent years, has also created an expectations bubble regarding future policy. As noted in a voluminous literature, monetary policy works at a lag but is most effective in its shaping of expectations (Olivera 1967). While there is evidence that inflationary expectations have not been significantly affected by the ECB's balance sheet policies (Degaetano 2015, Moessner 2015) and that such effects on the price level would be weak even if they were effective (Gambacorta *et al.* 2014), expectations regarding the continuation of such policies have been set. This is incredibly dangerous for the viability of the euro area economies, as research from the Bundesbank shows that balance-sheet innovations have only a small temporary effect that turns negative in the medium-term (Lewis and Roth 2015). Thus, these balance-sheet policies need be time-limited, but their continuation fosters expectations that they will not be.

In this situation, the ECB has painted itself into a corner, as the withdrawal of such policies would represent a negative shock to a market that has grown accustomed to the ECB's largess, but their continuation also will harm the economy. The ECB will also have diminished its own power in the medium-term, as the only way in which monetary policy has continued to operate in a post-crisis euro area is through the expansion of the ECB's functions (Durre *et al.* 2014). While the ECB may have aggregated power to undertake balance-sheet interventions, it finds itself increasingly constrained in tightening up its policies (including reducing the size of its balance sheets) in the foreseeable future if it wishes to still have an impact on the real economy.

Finally, the aggregation of new instruments to the ECB revives the argument over central bank independence (CBI), but with a twist: is CBI taken to mean complete policy and instrument independence, or are there checks on how much power a central bank can have? This is a broader philosophical point, one that requires a much more focused debate than can be entertained here, but it can be narrowly tailored to understand the proper role of a central bank *vis a vis* investment. Is it the proper purview of a central bank to try to stimulate investment, aggregating new instruments for itself? If lack of investment is primarily a structural issue (macroeconomic conditions, firm constraints, business environment concerns), why is a monetary institution trying to rectify it? The shift of economic decision-making regarding investment climate from governmental and fiscal authorities to monetary ones is an issue overlooked in the extant literature, but one that may have profound long-term ramifications for the health of an economy. To this point, most literature and the experience of the Euro-zone suggests that the ECB would be better served by returning to narrowly-tailored price stability goals rather than adding investment as a policy target.

2.4. Reason 4: Uncertainty Abounds

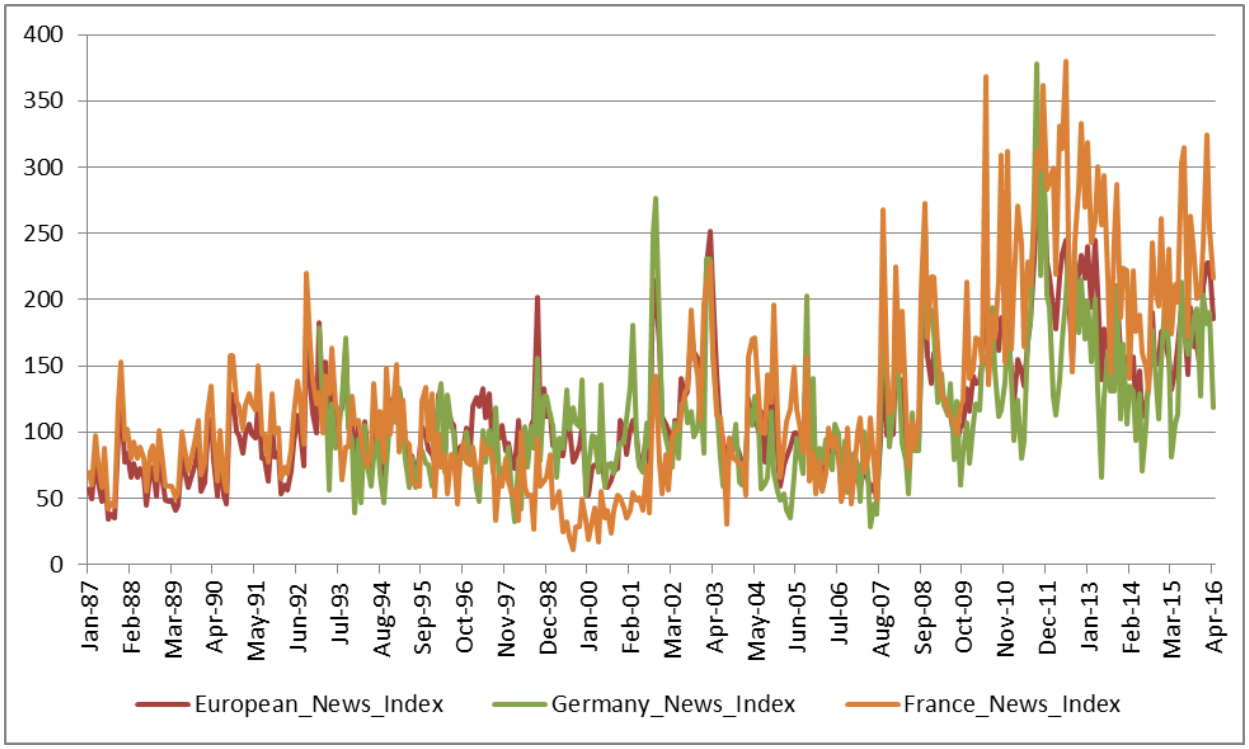
All of these structural issues, including the policies of ECB, have been exacerbated by the uncertainty that has accompanied the euro area's persistent macroeconomic weakness. Over the past nine years, a burgeoning literature on the impact of policy uncertainty has attempted to relate not just policies but their volatility to the real economy, financial markets, and financial decisions. Spearheaded by Baker, Bloom, and Davis (2015), this new strand of research has highlighted how policy gyrations and uncertainty in the markets about the next move that a government may make has a direct impact on economic variables and behaviour. Of particular interest is the work that has been done in relating policy uncertainty to investment, typified by the research of Gulen and Ion (2016):

examining corporate investments in the United States on a quarterly basis from 1987 to 2013, they find evidence of a "persistent, negative relationship between policy uncertainty and investment."

Euro area policies, and especially the institution of forward guidance by the ECB, have attempted to remove some of this policy uncertainty by assuaging the markets about future monetary policy moves. From the point of view of markets and individual firms, forward guidance does play a valuable role in shaping expectations. Unfortunately, as Figure 7 shows, there has been little positive effect of such policies, as economic policy uncertainty (as measured by the Baker, Bloom, and Davis index) has remained high across Europe generally and especially in Germany and France, the two drivers of Euro-area growth. With spikes in uncertainty around economic crises, the news-driven index remains at high levels well after the global financial crisis (and far above levels seen in the 1990s), with France in particular showing persistent volatility. More formal modelling by the IMF (Barkbu *et al.* 2015) has also shown the effect of policy uncertainty on the Euro periphery, with a one standard deviation increase in the uncertainty index in Spain, Italy, Greece, and Ireland reducing the investment to capital ratio by between 0.03 and 0.1. A tentative conclusion that may be drawn from this reality is that forward guidance may be an adequate policy in normal times, or when expectations have already shifted to a more settled/less-interventionist stance, but expectations formed during the crises are proving fairly intractable (the "expectations bubble" noted above).

Figure 7: Economic Policy Uncertainty in Europe, 1987-2016

(Monthly Index, level)



***Source*:** http://www.policyuncertainty.com/europe_monthly.html

Given this policy uncertainty regarding the largest Euro-zone economies and the follow-on effects from the smaller stressed countries, it is little wonder that there is also tremendous uncertainty regarding the ECB's next moves to cope with prevailing economic conditions; in such a situation, even forward guidance cannot provide the certainty to firms that would be necessary for kick-starting longer-term investment. This is especially true given the even

more substantial changes which may afflict the EU overall, such as threat of Brexit. Even additional measures proposed by the ECB this year, such as the purchase of high-grade corporate bonds, have unnerved markets, as they are signals that the economy remains soft.[5] In such an environment, the benefits of ECB intervention on particular firms may be far outweighed by the policy uncertainty engendered. This is especially true given the corporate bond-purchasing program's focus, on blue-chips firms, who generally have been well-financed and in little need of additional liquidity; by not reaching the small- and medium-sized enterprises that are still suffering, additional moves by the ECB are just feeding into policy uncertainty without mitigating the actual constraints to investment.

[5] Moreover, this is not a new phenomenon for the ECB, as Sebestyén and Sicilia (2005) found that *all* ECB announcements tended to increase asset market volatility and depress consumer sentiment. It appears from this evidence that the ECB should talk only when absolutely necessary.

CONCLUSIONS

This brief has examined the present state of investment in the euro area and made recourse to the vast economics literature on the determinants of investment to diagnose what ails European investment. It appears that, in regards to the current and future investment performance in the Euro-area, the continued weakness of firms and their financial intermediaries is playing a major role in stifling investment growth, even in an environment of ample liquidity, much as the extant literature would predict. While these microeconomic factors appear to predominate, there is an added wrinkle at the macroeconomic level, as the policies of the ECB have also created their own costs and promoted further economic policy uncertainty, both of which are negatively affecting firms' perceptions of the future (and their own profitability). This attempted use of additional monetary policies to what is at heart a structural problem is not addressing the actual causes of weakness, and in many ways, the cure promoted by the ECB appears to be worse than the disease. Thus, structural reforms that are pro-growth are a more prudent course to follow, and a course that will actually result in increased investment, rather than continued monetary stimulus, balance-sheet support, and unconventional monetary policy.

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NOTES

European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Business investment after the crisis and the impact of monetary policy

Nils JANNSEN, Martin PLÖDT

IN-DEPTH ANALYSIS

Abstract

Monetary policy can stimulate business investment in various ways, most directly by improving financing conditions. Despite the expansionary policy of the ECB, however, business investment in the euro area has not yet rebounded, following the strong declines it experienced during the Global Financial Crisis and the Sovereign Debt Crisis. We analyze the weakness in business investment in the euro area and the role of monetary policy along three aspects. First, we investigate which factors have been the most important impediments on business investment since the Global Financial Crisis. Second, we assess how business investment has developed compared to the historical experience with other financial crises. Third, we analyze how effective monetary policy is in stimulating business investment today.

CONTENTS

EXECUTIVE SUMMARY

- Monetary policy can stimulate business investment in various ways, most directly by improving financing conditions. Despite the very expansionary policy of the ECB, however, business investment in the euro area has not yet rebounded, following strong declines during the Global Financial Crisis and the Sovereign Debt Crisis.
- Empirical studies suggest that the decline in economic activity has been the most important reason for the weakness in business investment in advanced economies since the Global Financial Crisis. According to these studies, high levels of economic uncertainty and unfavourable financing conditions also dampened business investment, albeit to a smaller extent.
- In the euro area, uncertainty has alleviated recently and financial conditions have improved. Business surveys suggest that, at the aggregate euro area level, financial constraints are not a major concern of firms anymore. Therefore, low economic activity currently also seems to be the most important factor behind weak business investment in the euro area.
- Experience with financial crises around the world suggests that they are usually associated with persistent declines in economic activity as they are accompanied by long-lasting balance-sheet adjustments in the private and/or public sector, reflecting inter alia serious capital stock distortions due to preceding malinvestments. Against this backdrop, economic activity and business investment in the euro area most likely will remain weak relative to the pre-crisis trend.
- The largest difference compared to other advanced economies that were also hit by the Global Financial Crisis is that the euro area was hit by a second financial crisis, the Sovereign Debt Crisis. This triggered a second recession, while business investment in other economies continued to grow, albeit at a relatively weak pace. However, the path of business investment in the euro area has still been fairly in line with historical experience from other financial crises.
- Given that economic policies, including monetary policy, were not systematically wrong during other financial crises, historical evidence suggests that monetary policy can only be of little help to further stimulate business investment in the euro area today. This argument is supported by studies that analyze the effectiveness of monetary policy during and in the aftermath of financial crises: Monetary policy indeed seems to be very effective in stabilizing the economy at the height of a crisis (e.g. by reducing uncertainty and restoring confidence). By contrast, monetary policy in general is less effective in the aftermath of a crisis since adjustment processes in the economy (e.g. deleveraging) harm important transmission channels.
- Altogether, business investment most likely will remain below its pre-crisis trend, which is a normal consequence of financial crises. While monetary policy may have significantly contributed to stabilize business investment at the beginning of the Global Financial Crisis and the Sovereign Debt Crisis in the euro area, at present there seems to be little scope for the ECB to further stimulate investment. Structural policies that improve potential output seem the most promising way to achieve a sustainable acceleration in investment activity.

1. INTRODUCTION[1]

Business investment is a key driver of economic activity as it is pro-cyclical to GDP. At the same time, it is a key determinant of long run growth since it determines the capital stock that is available for future production. Business investment in the euro area strongly declined during the Global Financial Crisis and the Sovereign Debt Crisis and since then has shown little signs of a rebound towards its pre-crisis trend. Remarkably, this holds true against the backdrop of the very expansionary monetary policy stance of the ECB, which has also resorted to a set of unconventional monetary policy measures.

In this Briefing Paper, we analyze why the recovery in business investment in the euro area has remained weak despite the very expansionary stance of the ECB. We start by briefly describing the main theoretical determinants of business investment and discussing the transmission channels through which monetary policy can stimulate business investment (Section 2). Next, we review the literature on the most important factors holding back business investment in the euro area and other advanced economies since the Global Financial Crisis. We provide evidence of how these factors have recently developed in the euro area and discuss which of these factors seem to be particularly important for holding back business investment at the current juncture (Section 3). Given that the Global Financial Crisis and the Sovereign Debt Crisis seem to have played a crucial role for business investment in the past years, we proceed by discussing typical patterns in the aftermath of financial crises and check how recent trends in business investment in the euro area relate to these patterns. We discuss what this means for the prospects of business investment in the euro area and for monetary policy's prospects of further stimulating business investment (Section 4). We then proceed by debating how effective monetary policy generally is in stimulating economic activity during and in the aftermath of financial crises and draw conclusions for the current situation in the euro area (Section 5). Finally, we summarize our results and briefly discuss the outlook for business investment in the euro area (Section 6).

[1] The authors thank Klaus-Jürgen Gern and Stefan Kooths for very useful comments and discussions.

2. DRIVERS OF INVESTMENT AND MONETARY POLICY: THEORETICAL CONSIDERATIONS

Investment dynamics are driven by multiple factors. Early models highlight the effect of output growth on investment (the so-called "accelerator models", see Clark 1917). However, whether or not net investment increases in response to changes in economic activity also depends on several other factors, such as the rate of capacity utilization, expectations of demand, and the level of economic uncertainty. Firms are more likely to invest if capacity utilization is high and they are less likely to invest if there is excess capacity. Since firms consider potential future sales when they make investment decisions, low expectations of demand in upcoming years might be a main cause of an investment slump. Related, high levels of uncertainty with respect to future output or potential policy changes might impede or postpone investment activity, because firms unable to gauge future developments are induced to take a wait-and-see strategy (see, amongst others, Bloom 2009, Julio and Yook 2012, EIB 2013).

The "neoclassical model of investment" – the typical macroeconomic textbook model – highlights the role of the cost of capital, in addition to output growth, for determining the level of investment (Jorgenson 1971). Accordingly, a decrease in the interest rate and, hence, a decline in the cost of capital makes a greater number of potential investments profitable. The well-known Tobin's q measure, which is related to the neoclassical model (Hayashi 1982), stresses the link between investment decisions and stock price movements, which in principle should summarize all relevant information. Following this theory, a firm is encouraged to invest if the market value of its capital is higher than the actual replacement cost of its capital. Though often not considered in standard models, the extent of financing constraints is a further important factor of a firms' investment behaviour. Firms are prevented from making investments when they have insufficient internal funds and are unable to resort to (or have limited access to) external funds (e.g. bank loans).

Monetary policy can directly influence investment by affecting financial conditions. However, it could also influence investment indirectly, e.g., by stimulating economic activity, which in turn stimulates investment via accelerator effects. In this regard, the theoretical literature distinguishes several transmission channels (Mishkin 1996). The different channels interact with each other and their respective timing and relative importance also depend on the specific institutional environment and the structure of an economy. The most direct channel is the interest-rate channel: ceteris paribus, changes in the policy rate might influence interest rates that commercial banks charge to their customers. A decrease in commercial interest rate lowers the cost of borrowing and therefore encourages investments. At the same time, a decrease in interest rates discourages saving and stimulates overall demand for goods and services.

The so-called credit channel of monetary policy transmission can be divided into a bank-lending and a balance-sheet channel. According to the bank-lending channel theory, a monetary stimulus that increases bank reserves and bank deposits leads to an increase in loan supply which will have a positive effect on investment. This might especially hold true for (smaller) firms that are dependent on bank loans, as other sources of external and internal finance are not available (ECB 2005). The balance-sheet channel emphasizes information asymmetries in the credit market. By improving the firms' balance sheet positions, monetary policy might be able to reduce problems

related to adverse selection and moral hazard and ultimately increase lending to finance investments.

Another transmission channel of monetary policy is the effect that interest-rate changes and other policy measures have on the prices of various assets. Following Tobin's q, if the market value of a firm increases as stock prices rise due to an interest rate cut by the central bank, firms might be encouraged to issue new shares and use these funds to start additional investment projects. Changes in asset prices also imply wealth effects: higher stock prices might lead to greater financial wealth and eventually to stronger demand.

Furthermore, monetary policy also works via affecting firms' expectations of future demand developments and financing conditions and thereby affecting current investment decisions. In a similar vein, monetary policy actions can help to reduce the uncertainty about the future path of the economy and thereby stimulate output growth.

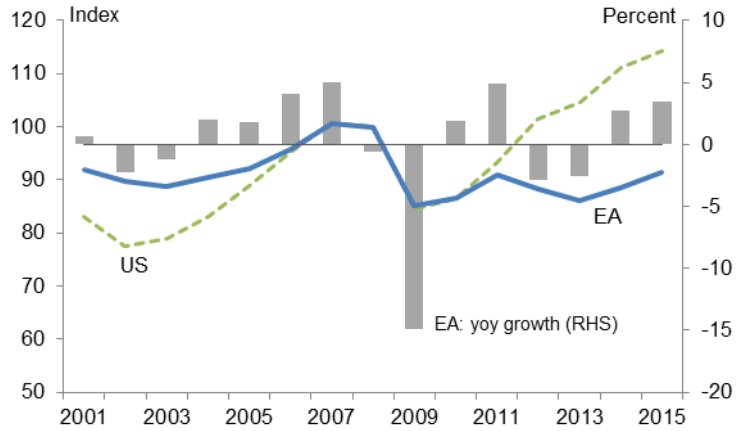
3. MAIN DRIVERS OF BUSINESS INVESTMENT SINCE THE GLOBAL FINANCIAL CRISIS

In the following, we first provide some stylized facts on business investment in the euro area since the Global Financial Crisis. We then review the literature on the key drivers of business investment in advanced economies, with a special focus on the euro area. Finally, we show how these key drivers have recently developed in the euro area.

3.1 Stylized facts on business investment in the euro area

Business investment declined sharply by about 10 percent during the Global Financial Crisis in 2009 (Figure 1).[2] After showing some signs of recovery, the euro area economy was hit by a second financial crisis (the Sovereign Debt Crisis); this triggered another recession, associated with another decline in business investment of more than 5 percent in 2012 and 2013. Since 2014 business investment has been growing again at relatively solid rates. The recovery is, however, widely perceived as being weak. This is due to the strong decline that investment has undergone during the two financial crises. In 2015, business investment was still about 10 percent lower than in 2008. If business investment continues to grow at the current pace over the next years, it will not be able to reach its pre-crisis trend. Thus, the financial crises would have led to a permanent decline in the level of business investment. Compared to other countries that were hit by the Global Financial Crisis, the most outstanding feature of the euro area is that it was hit by a second crisis in 2012. Before that crisis, the recovery in business investment was broadly in line with the recoveries in other economies. In fact, the path of business investment in the euro area between 2008 and 2011 was similar to the path of business investment in the United States. However, business investment in the United States and other advanced economies also remained weak compared to pre-crisis trends.

Figure 1: Business investment in the euro area and the US (2001-2015)



Notes: Annual data. Index: 2008=100. As data for business investment in the euro area is not provided by official sources, we calculate a proxy for real business investment by subtracting investment in dwellings

[2] We focus on business investment due to its outstanding importance for economic activity and because it has contributed most to the decline in Gross Fixed Capital Formation (GFCF) since the Global Financial Crises. Clearly, housing and public investment have also sharply declined. Many of the arguments presented in this Briefing Paper would also apply to housing investment.

and public investment from Gross Fixed Capital Formation. Real public investment in the euro area is computed by deflating the nominal series using the deflator for construction investment.
Source: AMECO; OECD; own calculations.

3.2 Key drivers of business investment since the Global Financial Crisis

Several studies (among them studies from different institutions, such as the European Commission, the IMF, and the BIS) have empirically analyzed the reasons behind the weak performance of investment in Europe and other advanced economies since the Global Financial Crisis. Overall, the weak performance of investment seems largely to be due to accelerator effects, meaning that sluggish economic activity has lowered the need for additional business investment and can explain the lion's share of subdued investment dynamics.

The European Commission (2015) argues that weak economic activity is a main driver of the slump in investment but also points to deleveraging pressures in the private sector. Low economic activity, as the most relevant driver holding back investment, has also been emphasized in analyses of the IMF (IMF 2015, Barkbu et al. 2015). The IMF (2015) states that little of the observed investment dynamics in a sample of advanced economies remains unexplained after the effects of changes in output are taken into consideration. The weakness in economic activity itself, however, might be the result of a multitude of different factors.

Several studies additionally stress the role of high uncertainty for investment decisions. Based on evidence for the G7 economies, the BIS (2015) concludes that economic uncertainty was a significant drag on investment growth. In contrast, a lack of funding does not seem to represent a substantial factor. Generally, financing constraints apparently only have been a serious concern for some firms and some countries (EIB 2013, IMF 2015). The Deutsche Bundesbank (2016) also finds that uncertainty has a notable role in explaining investment activity in large euro area countries in the wake of the Global Financial Crisis and the European Sovereign Debt Crisis, besides real economic shocks. More recently, however, uncertainty seems to play a minor role.

3.3 How key drivers of business investment have developed in the euro area

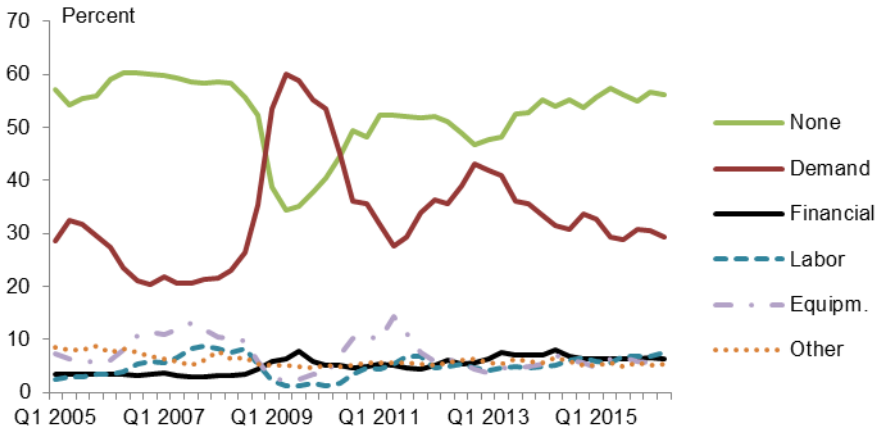
Empirical studies on the main determinants of business investment in advanced economies since the Global Financial Crisis have consistently identified low economic activity as the key driver of weak business investment, with financial constraints and uncertainty also playing some role. However, these studies usually only consider the period up to 2014 or earlier and many of them are based on a panel of advanced economies.

Having a closer look at these drivers in the euro area suggests that financial constraints do not seem to constitute a major impediment for business investment in the euro area. The business survey of the European Commission on "factors limiting production" shows that, even though financial constraints are still higher compared to the period before the Global Financial Crisis, they are not an important impediment at the moment (Figure 2). Financial constraints are broadly as important as a lack of labour supply or equipment. Currently, a lack of demand is still the most important factor, with an increasing share of firms reporting that they do not face any constraints on production at all. This evidence is supported by other evidence from business surveys. For instance, large firms in the euro area have recently reported that financial constraints are the least important constraint (out of 14 possible

constraints) for their investment plans (ECB 2015). The investment survey of the European Commission even indicates that financial factors are favourable at the current juncture (European Commission 2016). These factors, however, not only focus on financing conditions per se but also include expected profits as a determinant of investment plans. If anything, small- and medium-sized enterprises are still suffering from financial constraints in some regions.

According to the "Survey on the Access to Finance of Enterprises in the euro area", however, small- and medium-sized firms in the euro area report that the "availability of external financing" has remarkably improved over the past years (ECB 2016).

Figure 2: Factors limiting production, manufacturing sector (2005-2016)



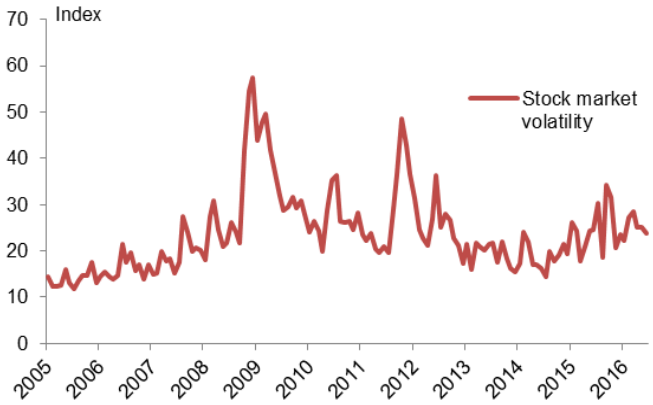
Notes: Quarterly data. Shares of managers reporting individual limiting factors.
Source: European Commission.

Several empirical studies identify uncertainty as an additional important factor holding back business investment in advanced economies since the Global Financial Crisis. A commonly used proxy for uncertainty is stock market volatility. According to this measure, uncertainty in the euro area reached record-high levels during the Global Financial Crisis in 2009 and experienced another spike during the Sovereign Debt Crisis in 2012 (Figure 3). Thereafter, uncertainty alleviated before it has somewhat increased again in the second-half of 2015. However, the most recent increase in uncertainty was probably not due to euro area-specific developments but rather due to factors affecting uncertainty worldwide; these factors include concerns about potential growth in China or about economic turmoil in oil-exporting countries as a result of the slump in oil prices. Given that uncertainty is widely perceived to be a temporary drag on investment (or economic activity) only, followed by a rebound once it has alleviated (Bloom 2009), and given that uncertainty has been at relatively low levels compared to crisis periods, it is unlikely that uncertainty still constitutes an important factor behind the weakness in business investment in the euro area.

Monetary policy may have contributed to reduce financial constraints and uncertainty (and, hence, to stimulate business investment) but the previous findings suggest that monetary policy can do little to further stimulate business investment in this regard. Empirical studies usually do not find an important role for financial conditions on business investment at the aggregate level (see, e.g., BIS 2015). Though financial constraints may significantly harm investment activities, once the financial constraints have vanished, a further improvement of financial conditions, e.g. by a more expansionary monetary policy, is unlikely to additionally stimulate business investment. A similar argument can be made for uncertainty. Uncertainty is usually

perceived to be a constraint on business investment (or economic activity) when it is far above normal levels. However, it is questionable whether a further reduction of uncertainty at its normal level will additionally boost business investment (or economic activity).

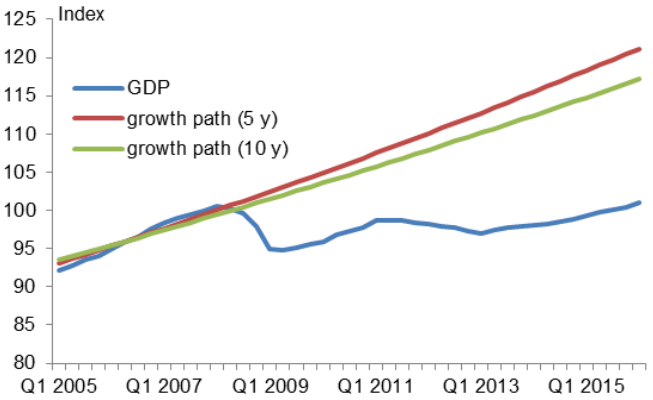
Figure 3: Uncertainty in the euro area (2005-2016)



Notes: Monthly data. Stock market volatility represents the volatility of the Eurostoxx 50 option traded on Eurex.
Source: Stoxx.

According to most empirical studies the crucial factor behind the weakness in business investment in advanced economies since the Global Financial Crisis is the weakness in overall economic activity (or GDP), which dampens business investment via accelerator effects. GDP in the euro area shows a similar pattern as business investment (Figure 4). While GDP has shown some signs of recovery since 2013, it is still far below its pre-crisis trend, as estimated on the basis on a five-year and ten-year period before the Global Financial Crisis, respectively.[3]

Figure 4: GDP and pre-crisis growth paths in the euro area (2005-2016)



Notes: Quarterly data, constant prices, seasonally adjusted; GDP: 2007Q4=100; growth paths: log-linear trend based on five-year or ten-year period before the crisis.
Source: Eurostat; own calculations.

[3] These pre-crisis trends usually do not show the sustainable level of GDP but might be biased upwards to some extent since they are also based on years associated with an unsustainable boom. However, these trends are relevant because they may indicate which path of GDP was expected before the beginning of a crisis. In this regard, they are frequently considered as reference paths to calculate so-called "gaps" and to discuss appropriate policy measures.

All in all, the comparison of different key drivers of business investment suggests that low economic activity constitutes the most important drag on business investment in the euro area at the current juncture. Consequently, if GDP is unlikely to rebound to its pre-crisis trend, there might be less promising prospects that business investment will rebound to its pre-crisis trend in the coming years. To shed further light on these issues, in the next sections we further explore patterns of economic activity and business investment during financial crises as well as the effectiveness of monetary policy.

4. PATTERNS OF ECONOMIC ACTIVITY AND BUSINESS INVESTMENT DURING FINANCIAL CRISES

We look at historical experiences with recessions and financial crises to explore how business investment in the euro area has developed in past years, relative to typical patterns. In doing so, we address the question of whether business investment at the moment is unusually low in the euro area (e.g. whether there is an "investment gap") or not. This is important for economic policy in several dimensions. Firstly, if business investment is unusually low, policy measures that provide temporary stimuli (such as monetary policy) may be appropriate to encourage business investment and overall economic activity. In contrast, if business investment is not unusually low compared to historical experiences or compared to the current level of GDP, such policies may not be successful in causing a sustainable acceleration in business investment. In fact, in this case structural policies that strengthen potential growth might be more appropriate. Secondly, if business investment in the euro area has developed in line with historical experience, and given that monetary or fiscal policy has not been systematically wrong during other financial crises, there is little scope for such policies to further stimulate business investment.

We analyze and compare the historical patterns in three steps: Firstly, we review the literature on the impact of financial crises on GDP and describe what these results may imply for the impact of such crises on business investment. Secondly, given that this literature does not deal with business investment, we estimate the typical impact of financial crises on business investment and compare our results with the path of business investment in the euro area since the Global Financial Crisis. Thirdly, we investigate how the ratio of business investment to GDP typically develops during financial crises and how this ratio has developed in the euro area over the past years; this allows us to assess how business investment has developed given the path of GDP.

4.1 Typical patterns of economic activity during financial crises

There is a large empirical literature on the impact of financial crises on GDP. This literature generally finds that financial crises come along with recessions that are deeper and longer than normal recessions, which are not associated with financial crises (Claessens et al. 2009). Moreover, recoveries following financial crises are usually much weaker and show no signs of a rebound in the level of GDP, while recoveries following normal recessions are much stronger and show signs of a rebound in the level of GDP (Boysen-Hogrefe et al. 2016). Overall, there is a large consensus that financial crises are associated with a significant and permanent decline in the level of GDP compared to the pre-crisis trend (IMF 2009, Reinhart and Rogoff 2009). While these studies do not focus on business investment, some of them also investigate the impact of such crises on GFCF (Claessens et al. 2009, Claessen et al. 2011, Jorda et al. 2013). Results for GFCF are similar to the results for GDP, even though the effects on GFCF are usually more pronounced. This indicates a strong permanent decline in the level of business investment in the aftermath of a financial crisis. Moreover, Furceri and Mourounage (2012), who find (in line with the results described above) that financial crises come along with a permanent decline in potential output, additionally offer a decomposition of this decline into changes in potential employment, the capital stock, and Total Factor Productivity. They show that a financial crisis leads to a permanent decline in the capital stock of about 3 percent on average, while potential employment only declines by about 1 percent and Total

Factor Productivity remains basically unchanged. Their results, thus, suggest that financial crises require long-lasting adjustment processes in the capital stock that may weigh on investment for several years.

Factors behind the persistent decline in GDP following financial crises include the large built-up of private or public debt or boom-and-bust phases in investment (see, e.g., Jorda et al. 2016a and 2016b) that are associated with long-lasting adjustment processes like balance-sheet adjustments of private households, firms, and financial institutions. It is important to note that these factors usually are also associated with an unsustainable boom period featuring high growth rates in GDP and business investment. This suggests that pre-crisis trends do not measure the sustainable level of GDP and that a persistent decline of GDP below these trends is a normal consequence of a financial crisis.

4.2 Patterns of business investment during financial crises

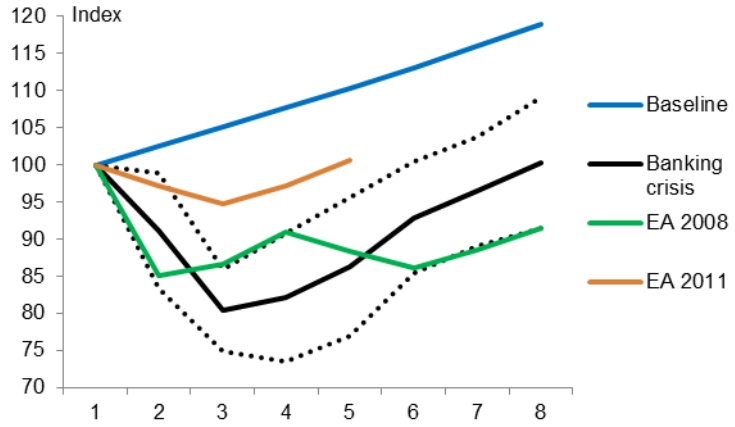
Since there is only very rare direct evidence on the typical pattern of business investment during recessions and financial crises, we investigate this in more detail based on a panel of 22 advanced economies from 1970 to 2015, using an empirical approach that is commonly used in the relevant literature (Jorda et al. 2013). We find that business investment declines sharply for two years after the beginning of a banking crisis[4] (Figure 5); thereafter business investment starts to increase again. However, it does not increase faster compared to the baseline that describes the path of business investment in the absence of a crisis and given an average growth rate. Hence, following a crisis, business investment shows no sign of a rebound in the level compared to the baseline. This result is in line with Jannsen (2015), who finds that recoveries following banking crises are usually weak and that the level of business investment exhibits a permanent decline. Following normal recessions, however, recoveries in business investment are stronger (the deeper the preceding recession, the stronger the subsequent recovery) and the level of business investment more or less rebounds to the baseline level.

When addressing the question of whether the path of business investment in the euro area since 2008 is in line with historical experience it is crucial to define the relevant baseline for the euro area, i.e. to answer the question of how business investment would have evolved in the absence of the Global Financial Crisis and the Sovereign Debt Crisis. Obviously, this question cannot be answered exactly. Based on historical evidence business investment is likely to grow broadly in line with potential output or even slightly faster. Given that potential output in the euro area has grown by about 2 percent on average during the last twenty years, we assume as a baseline that business investment would have grown by 2.5 percent per year.[5] It turns out that business investment in the euro area is somewhat below the typical path of business investment after banking crises. However, taking into account the uncertainty surrounding such estimates, business investment has by and large developed in line with what could have been expected based on historical evidence. Moreover, it is important to take into consideration that the euro area was hit by two financial crises. In fact, the occurrence of the second crisis might largely explain why business investment is somewhat below the typical path. Interestingly, during each of the two financial crises business investment in the euro area has actually performed relatively well compared to historical patterns.

[4] Financial crises include several types of crises, such as banking crises, currency crises, or sovereign debt crises. As it has been frequently done in the literature, we use banking crises as a proxy for financial crises.

[5] Our results remain similar when using slightly higher or lower rates.

Figure 5: Business investment during banking crises and in the euro area



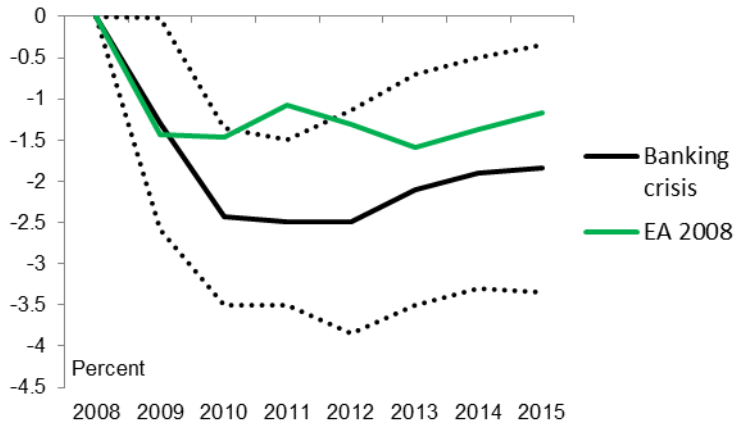
Notes: Annual data. Index=100 in the year before a crisis starts. Baseline: Path of business investment without a crisis, assuming a constant growth rate of business investment of 2.5 percent per year. EA 2008: Path of business investment since 2008 (Global Financial Crisis). EA2011: Path of business investment since 2011 (Sovereign Debt Crisis). Banking crisis: Estimates based on a panel of 22 advanced economies using the Local Projections Method (Jorda et al. 2013); banking crises in the euro area since 2008 are excluded from the estimation. Dotted lines indicate two-standard error bands.
Source: OECD; Laeven and Valencia (2013); own calculations.

4.3 Patterns of the business investment-GDP ratio during financial crises

In a next step, we perform a similar empirical exercise – using the same data set and the same empirical method – but look at how the business investment-GDP ratio typically evolved during banking crises in the past.[6] If this ratio declines, business investment grows slower (or declines faster) than GDP. We find that this ratio declines sharply in the first two years after a banking crisis and moderately recovers thereafter (Figure 6). Comparing this typical path with the actual ratio of business investment to GDP in the euro area since 2008 reveals, firstly, that this ratio declined by far less during the Global Financial Crisis than it did during other banking crises and, secondly, that it moderately recovered in 2014 and 2015. These results suggest that business investment has developed relatively well, compared to overall economic activity. The results therefore strengthen the evidence that it is mainly weak overall economic activity that represents the crucial factor behind the weakness in business investment in the euro area and not the other way around.

[6] We construct this ratio using price adjusted business investment and real GDP.

Figure 6: Business investment relative to GDP during banking crises and in the euro area



Notes: Annual data. EA 2008: Change in business investment relative to GDP since 2008 (Global Financial Crisis). Banking crisis: Estimates based on a panel of 22 advanced economies using the Local Projections Method (Jorda et al. 2013); banking crises in the euro area since 2008 are excluded from the estimation. Dotted lines indicate two-standard error bands.
Source: OECD; Laeven and Valencia (2013); own calculations.

5. HOW EFFECTIVE IS MONETARY POLICY IN THE AFTERMATH OF FINANCIAL CRISES?

One reason why the accommodative monetary policy of the ECB may not have triggered a rebound in business investment could be that monetary policy is generally less effective in stimulating economic activity or business investment during or in the aftermath of financial crises. The question of whether the effectiveness of monetary policy depends on the state of the economy has frequently been investigated in the literature. Studies that compare the effectiveness of monetary policy in expansions and recessions come to mixed results. While earlier studies found that monetary policy is more effective during recessions than during expansions (Weise 1999, Garcia and Schaller 2002, Peersman and Smets 2002, and Lo and Piger 2005), these results have been challenged by more recent studies that found that monetary policy is less effective during recessions (Tenreyro and Thwaites 2015).[7] After the onset of the Global Financial Crisis in 2007, some studies more specifically addressed the question of whether the effectiveness of monetary policy is different during financial crises and in their aftermath.

From a theoretical perspective, the effectiveness of monetary policy in the aftermath of a financial crisis is ambiguous. It could be less effective because financial crises (specifically banking crises) are usually associated with several characteristics that may harm some of the transmission channels through which monetary policy stimulates economic activity and business investment. Banking crises are usually preceded by periods of a large build-up of private debt and associated with boom-and-bust cycles in the housing market followed by significant turmoil in the financial sector. As a consequence, important transmission channels of monetary policy, such as the credit and the interest-rate channel, could be impaired during and in the aftermath of banking crises. Credit demand may react less to changes in monetary policy because private households and firms seek to reduce their high debt levels and because they are less creditworthy due to their high debt levels and the devaluation of collateral that they can offer. Credit supply may react less to changes in monetary policy because financial institutions face high credit default risks, seek to repair their balance sheets, and may face liquidity constraints. Moreover, even in the absence of credit constraints residential investment, which is a particularly interest-rate-sensitive component of GDP, could react less to impulses from monetary policy; this could be due to oversupply of housing that has been created during the preceding boom in the housing market. Finally, monetary policy could be less effective because financial crises are usually associated with periods of very high uncertainty and very low confidence. In such periods uncertainty and confidence may become the dominant determinant of investment decisions, making investment less sensitive to changes in monetary policy.

However, there are also theoretical arguments why monetary policy could be more effective during financial crises than during normal times. While liquidity constraints on financial institutions, low confidence and high uncertainty may weigh on the effectiveness of monetary policy, they also directly have an adverse impact on economic activity. To the extent that monetary policy is able to reduce these liquidity constraints and uncertainty and to lift confidence it could be more effective than in normal times.

[7] Related studies that investigate the effectiveness of fiscal policy tend to find that fiscal policy is more effective during recessions, when the economy is not operating at full capacity (see, for instance, Auerbach and Gorodninchenko 2012).

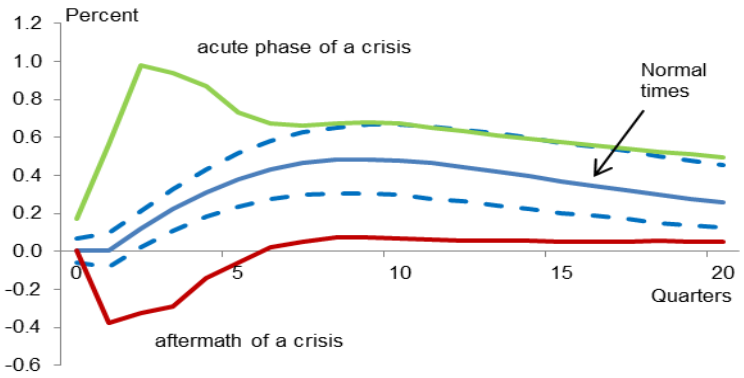
For example, there is evidence that uncertainty only weighs on economic activity in phases when it has reached very high levels (or when it has passed specific thresholds).[8] While a reduction of uncertainty could stimulate economic activity in such phases, it is unlikely that a further reduction of uncertainty has significant effects on economic activity when uncertainty is at normal levels.

Given the mixed theoretical predictions, the question of how effective monetary policy is during as well as in the aftermath of financial crises remains largely an empirical one. While this question has not been finally answered yet, empirical studies so far have suggested that monetary policy is more effective at the beginning (or at the acute phase) of a crisis, in which uncertainty is high, confidence is low and the economy is in deep recession. However, monetary policy seems less effective or even not effective at all, in stimulating economic activity in the aftermath of financial crises. Ciccarelli et al. (2013) analyze the effectiveness of monetary policy in the euro area between 2007 and 2011 and find that monetary policy became more effective in the first years of the Global Financial Crisis. Dahlhaus (2016) provides evidence that, in the United States, monetary policy is more effective in periods of high financial stress. Usually, periods of high financial stress are observed at the beginning of financial crises. However, Bech et al. (2014) show that monetary policy has no significant effect on the strength of the recovery following financial crises; by contrast, it has significant effects on the strength of recoveries following normal recessions (not associated with financial crises). Jannsen et al. (2015) reconcile these results using a panel of 20 advanced economies. They also find that monetary policy is more effective at the beginning of financial crises, while it is not effective in the aftermath of financial crises (Figure 7). During the acute phase of a crisis monetary policy may have strong effects by reducing uncertainty and restoring confidence.

Overall, the empirical evidence suggests that monetary policy significantly contributes to a stabilization of economic activity during the acute phase of a financial crisis but it is by and large ineffective in the aftermath of a financial crisis. Given the strong nexus between economic activity and business investment, these results should also apply to business investment. While this evidence is relevant for all advanced economies, the euro area is a special case because it was also hit by the Sovereign Debt Crisis later on, which was especially severe in some member countries. This led to a double-dip recession and a further decline in business investment. To the extent that the same arguments that seem to apply to banking crises also apply to sovereign debt crises, the empirical evidence suggests that European monetary policy was effective in stabilizing economic activity and business investment in the acute phase of the crisis (e.g. by reducing financial fragmentation or by reducing uncertainty with regard to potential sovereign defaults) but has been much less effective in the aftermath (e.g. because high sovereign debt levels may weigh on the effects of monetary policy on economic activity).

[8] See, e.g., van Roye (2014) who provides evidence for threshold effects of financial stress on economic activity. Financial stress usually exhibits a high positive correlation with uncertainty.

Figure 7: Effects of monetary policy on GDP in different states of the economy



Notes: Response of real GDP to an expansionary monetary policy shock (interest rate decrease of 100 basis points) during normal times, the acute phase of a crisis, and during the aftermath of a crisis. Dotted lines indicate 90 percent confidence intervals.
Source: Jannsen et al. (2015).

6. SUMMARY AND CONCLUSIONS

Business investment in the euro area is currently far below the level it had reached before 2009. While recovering from the Global Financial Crisis, the euro area economy was hit by a second financial crisis, the Sovereign Debt Crisis. Until the beginning of the Sovereign Debt Crisis, the recovery in business investment was in line with typical recovery paths of other advanced economies such as the United States. Besides, during the past two years business investment in the euro area has grown again at solid rates. The overall recovery, however, is widely perceived to be disappointingly weak. This is mainly due to the large losses business investment experienced during both crises, leaving the level of business investment far below trends that were expected before 2008.

Empirical studies suggest that low economic activity is the most important determinant of weak business investment in advanced economies since the Global Financial Crisis. These studies find that high levels of economic uncertainty and unfavourable financing conditions also weigh on business investment, albeit to a smaller extent. Looking at the current situation in the euro area reveals that uncertainty has alleviated and that, according to survey data, financial constraints do not represent an obstacle to business investment at the aggregate level. Monetary policy has contributed to reduce uncertainty and financial constraints. However, given that uncertainty and financial constraints are no important impediments of business investment anymore, any further reduction of uncertainty or further improvements of financial conditions will hardly provide significant additional stimuli to investment.

Though economic activity in the euro area has slightly recovered, it is far below trends estimated before the Global Financial Crisis, suggesting that low economic activity is the most important drag on business investment at the moment. Historical experience shows that a persistent decline below pre-crisis trends is a typical consequence of financial crises. If economic policies, such as monetary policy, were not systematically wrong during crises in the past, this result suggests that currently monetary policy can do little to further stimulate economic activity and investment.

Business investment in the euro area has developed broadly in line with historical patterns. In conjunction with the evidence mentioned before, this indicates that currently business investment is rather at normal levels and there is no significant “investment gap”, which can be closed by economic policy measures that only bring about temporary stimulus. A comparison of the path of economic activity and business investment after the Global Financial Crisis even suggests that business investment has been relatively robust compared to other financial crises, given the low level of economic activity.

Evidence on the effectiveness of monetary policy during and in the aftermath of financial crises also suggests that monetary policy can do little to further stimulate economic activity and business investment. Even though monetary policy is typically very effective at the beginning of financial crises by reducing uncertainty and financial constraints, it is likely to be ineffective in the aftermath of crises since these are usually associated with specific characteristics that hamper important transmission channels, such as private indebtedness, long-lasting balance-sheet adjustment processes, and boom-and-bust cycles in investment.

Altogether, business investment will likely remain weak for some time to come and stay below its pre-crisis trend. This seems to be a normal consequence of a financial crisis. Monetary policy may have significantly contributed to stabilize business investment at the beginning of the Global Financial Crisis and the Sovereign Debt Crisis in the euro area; at present, however, there seems to be little scope for the ECB

to further stimulate investment. Consequently, structural policies aiming at improving potential output seem the most promising way in order to achieve a sustainable acceleration in investment activity in the future.

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NOTES

European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Why the ECB's Very Accommodative Monetary Policy Has Not Yet Triggered a Rebound in Investment

Jacob Funk KIRKEGAARD

IN-DEPTH ANALYSIS

Abstract

The ECB's very accommodating monetary policy stance has to date failed to spur a sustained recovery in euro area private investment levels. This briefing paper argues that this is due to the fact that ECB monetary policy directly affects only a minor component of the multifaceted causes of current low euro area private investments, namely temporarily elevated bank borrowing costs in crisis countries. Meanwhile, the ECB does not have the tools to materially affect the more important explanations for low investments. These include lower post-crisis potential growth rates in the euro area and elsewhere causing businesses to need less productive capacity in the future; an inadequate euro area fiscal policy response from 2011-14 that saw general government investment levels collapse; and persistently weak corporate profit growth limiting euro area businesses' ability to self-finance new investments.

CONTENTS

EXECUTIVE SUMMARY

Despite unprecedented monetary policy stimulus from the ECB, euro area private investment levels remain subdued at far below pre-crisis levels. This briefing paper argues that the main reason for this outcome is that the ECB (and central banks in general) simply do not have the policy powers to directly affect most of the important underlying reasons for recent years' low investment levels in the euro area (and elsewhere).

The ECB has acted forcefully to restore uniform and historically low bank borrowing costs across the euro area. Meanwhile the deep rooted, complicated and mutually reinforcing economic problems outside the ECB's reach still restraining the euro area's investment recovery can sensibly be split into two main components.

The first part concerns the observed widespread decline in potential growth rates, affecting not only the euro area, but also many other advanced economies, especially the United States and emerging markets since the 2008-09 crisis. Private firms faced with lower long-term future growth rates will often rationally conclude that they will need less productive capacity to satisfy future market demand, and pare back current investments accordingly.

The second part concerns a number of euro area specific issues that negatively affected euro area private investment levels during and after the second economic contraction in the euro area after 2011.

The first euro area specific issue is the inadequate fiscal policy response witnessed in the euro area during the second economic contraction from 2011-13, as euro area general government final consumption and especially fixed investment levels were merely flat and severely contracting respectively. Without governments unwilling to counter a downturn and invest more, private businesses will also be less likely to invest.

The second euro area specific issue is how the deep institutional deficiencies of euro area banking supervision only belatedly being addressed by the introduction of Banking Union, allowed persistent national banking sector weaknesses to fester in the years after 2008-09. This resulted in lasting higher bank borrowing costs in the euro-area crisis countries with direct negative effects for the ability of bank-dependent borrowers there to finance new investments. Only the concerted efforts of both the monetary policy and banking supervisory arms of the ECB has since late 2015 managed to close this gap in funding costs.

And lastly, the relatively low levels of corporate profit growth in the euro area in recent years which make it less likely that the regions' corporations are able to self-finance new investments.

1. INTRODUCTION

The period since the Global Financial Crisis started in 2008 has been characterized by a marked and persistent slowdown the level of private investment in the euro area. Net private fixed capital investment, e.g. accounting also for the ongoing consumption of fixed capital[1], in the euro area continues today to be less than 40 percent of the peak pre-crisis level of 2007 (Figure 1).

Figure 1 Euro Area 19 Net Fixed Capital Formation 2002-2015, 4 Quarter Rolling Averages, 2007 = 100 (Current Prices)

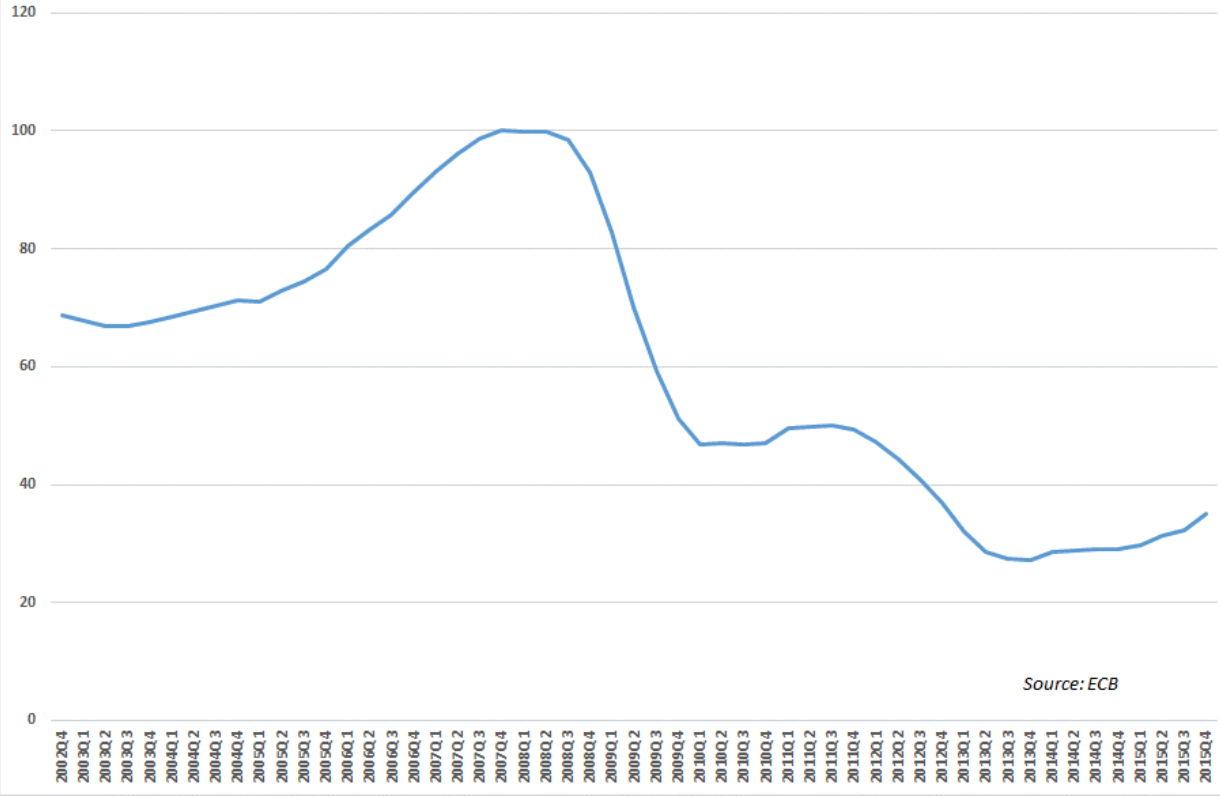


Figure 1 illustrates how euro area net fixed capital formation suffered a double-dip decline, initially dropping sharply during 2008-09 and then again in 2012-13, with only a very modest recovery from very low levels visible since early 2014.

This paper will argue that this staggering investment decline is rooted in both global and euro area specific causes, as well as deficiencies on both the credit supply and business demand side of the investment decision facing euro area firms. ECB monetary policy can only directly affect credit supply, while aiming for a modest supportive indirect effect in other areas. The inability of ECB monetary policy to quickly engineer a turnaround in euro area investment levels is consequently not surprising, but caused by the multifaceted nature of the problem facing the euro area.

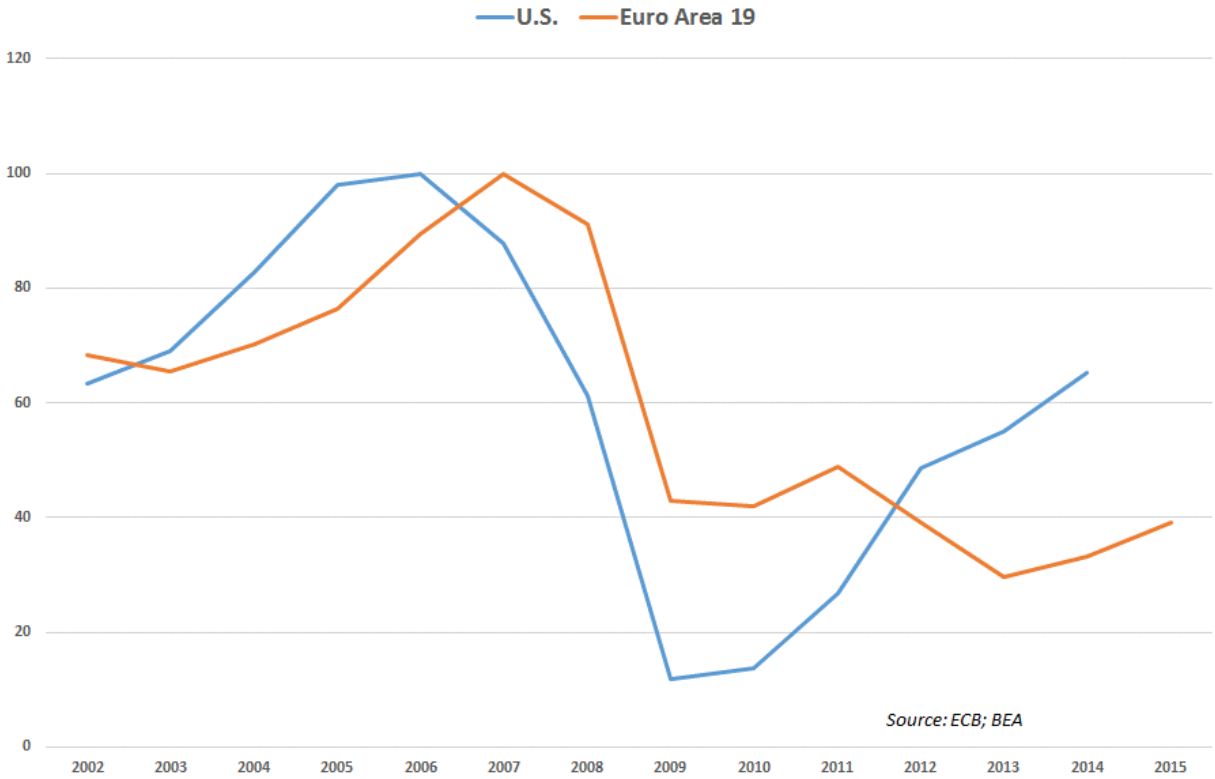
The paper is organized in three sections. Section 2 addresses the broader international economic trends in potential growth rates and investment levels that have affected not only the euro area after 2008. Section 3 analyses the euro area specific elements of the continued investment slowdown after 2011. Section 4 concludes.

[1] Net private fixed capital formation is calculated by subtracting the consumption of fixed capital in the period from the gross private fixed capital formation data.

2. GLOBAL CAUSES FOR THE SLOWDOWN IN INVESTMENTS

The sustained decline in euro area fixed investment since 2008 is unprecedented in modern European economic history, but far from unique internationally, as fixed investment levels have plummeted across many OECD countries, and noticeably the United States, since the crisis began. Figure 2 compares net fixed investment assets in the United States and euro area since 2002.

Figure 2 U.S. and Euro Area Private Net Fixed Capital Formation 2002-2015, Cyclical Peak = 100 (Current Prices)



It is visible how net fixed investment levels in both economies rose at a comparable rapid pace in the years before the crisis began, and how U.S. investment levels peaked a year earlier than the euro area in 2006 reflecting the earlier beginning of the U.S. recession in late 2007[2]. U.S. net fixed investment levels, however, dropped faster and significantly deeper in the ensuing crisis years than witnessed in the euro area, bottoming out almost 90 percent down in 2009. Only by 2012 had U.S. net fixed investment levels recovered to the roughly 40 percent of the previous peak level at which euro area languished from 2009-2012.

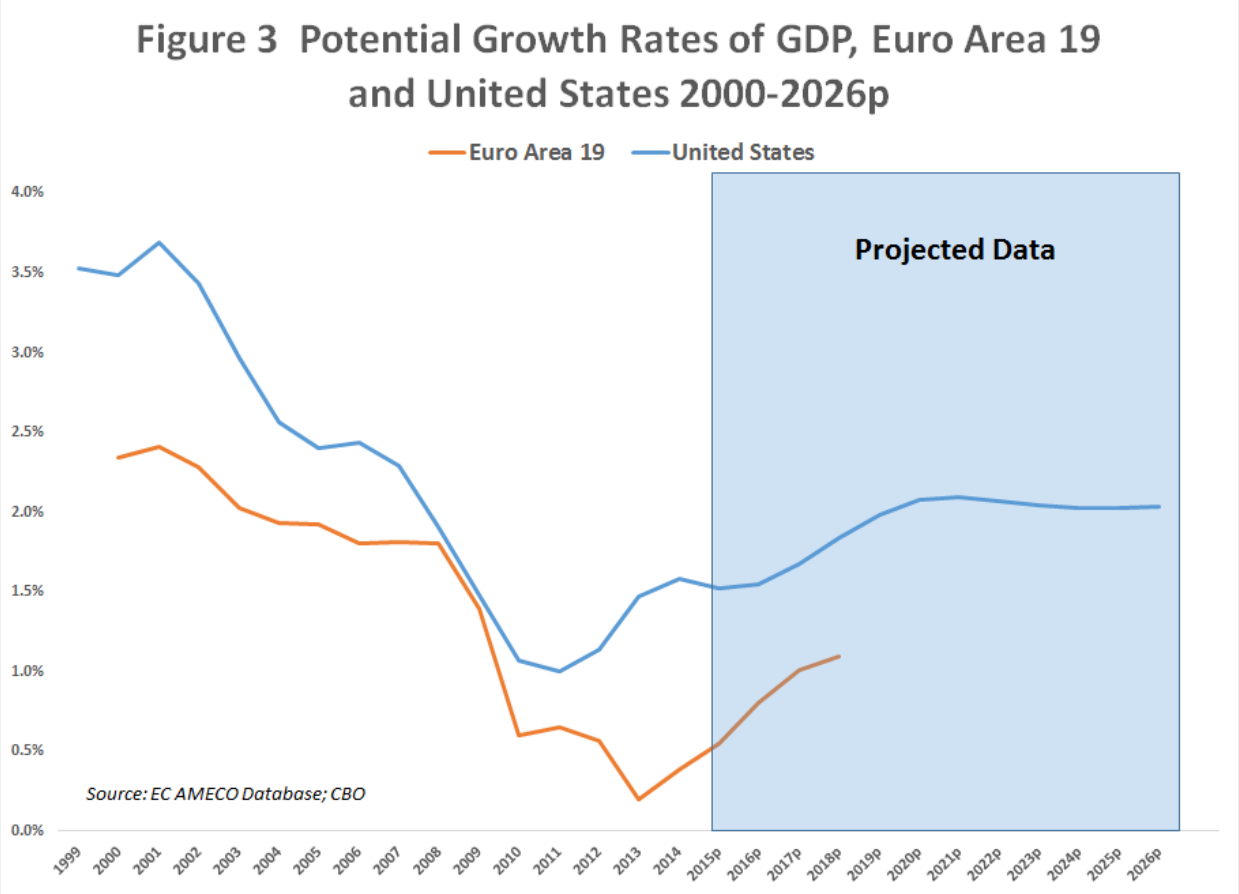
Figure 2 makes clear how the dramatic initial shock to net fixed asset investment levels from the global financial crisis was a phenomenon shared with North Atlantic experience, rather than euro area specific. Secondly, the relatively slow U.S. recovery of investment from very low levels after 2009 – even with the support of very aggressive Federal Reserve monetary policy easing after September 2008 and the commencement of Quantitative Easing (QE) in December 2008 – highlights how even a historically unprecedented monetary policy easing

[2] The NBER dates the beginning of the U.S. recession in Q42007 (http://www.nber.org/cycles/cyclesmain.html), whereas euro area GDP began to contract only in Q32008.

was not independently sufficient stimulus for fixed investment levels to quickly recover to even close to pre-crisis levels after the 2008-09 downturn.

The depth of the 2008-2009 crisis – in both the euro area and the United States the most severe economic contraction since the 1930s – and the fact that in both economies it led to immediate concerns about the solvency of large parts of the financial system explains the dramatic initial decline in fixed asset investments. Few businesses would want to take the risk of additional capital expenditure outlays during such a period of acute economic uncertainty.

The failure of fixed investment levels to recover more rapidly, even once forceful public policy interventions in the United States by mid-2009 and the euro area by 2012-2013 had managed to restore trust in the fundamental solvency of financial systems (and hence governments themselves), is rooted to a large degree in the dramatic decline in U.S. and euro area potential economic growth rates accompanied by the crisis. This is illustrated in figure 3.



Potential GDP growth rates represents an estimate of the potential long-term rate of future economic expansion, absent business cycles and economic shocks. Conceptually it represents the sum of the contributions to projected future growth rates from hours worked (e.g. labour input), capital deepening (e.g. investments) and the residual total factor productivity (TFP). Figure 3 shows how euro area potential GDP growth rates declined dramatically from pre-crisis levels of about 2 percent to less than 0.5 percent in 2013, before recovering slightly in 2014 (a gradual recovery expected by the European Commission to continue in 2015-17). Meanwhile, U.S. potential growth rates fell similarly from around 2.5 percent in 2008 to roughly 1 percent by 2010, hereby continuing a slide from earlier historical U.S. potential growth rate levels of around 3.5 percent annually last witnessed in the 1990s.

Like in the euro area, U.S potential growth rates are expected to continue to recover back towards an annual 2 percent, boosted predominantly by expectations of TFP levels recovering from very low current levels. Such expectations, however, are inherently uncertain as the economics profession know relatively little about the precise drivers of economy-wide TFP growth, the unexplained residual from economic models. It is consequently far from certain that U.S. or euro area businesses share the relative optimism about long-term future growth rate projections exhibited in figure 3. This matters greatly in business decisions about the scope of their required levels of investments to supply expected future economic demand. Having experienced significantly declining growth rates in recent years and facing uncertainty about the future (for sure lower) level of economic growth, many businesses will be tempted to scale back their investments in the future simply based on the expectation of less productive capacity needs in the future.

There is relatively little monetary policy can do to raise countries' potential growth rates, as the latter are predominantly driven by the demographic developments in the labour force and (uncertain) long-term productivity trends. Only companies' cost of capital for investments can be directly affected by monetary policy, thus providing via increased investments some support of the capital deepening contribution to potential growth rates.

The significant decline from pre-crisis levels in potential growth rates in both the U.S. and the euro area since 2008 and shown in figure 3 are likely to lead to lower levels of post-crisis investment growth, despite the very aggressive monetary policy actions by the Federal Reserve and ECB. To the degree that businesses' decisions to invest are driven by considerations about future growth and demand, this is an economic issue where central bankers in both the United States and euro area have few effective policy tools at their disposal.

Only elected governments have the powers to shift all the components of potential growth upwards. Labour input can be affected by immigration policy reforms and domestic labour market regulations, and structural economic reforms properly incentivizing all economic actors towards efficiency improvements and support for R&D boosting productivity levels. Both policy areas are critically important complements to an effective monetary policy to raise private investment levels.

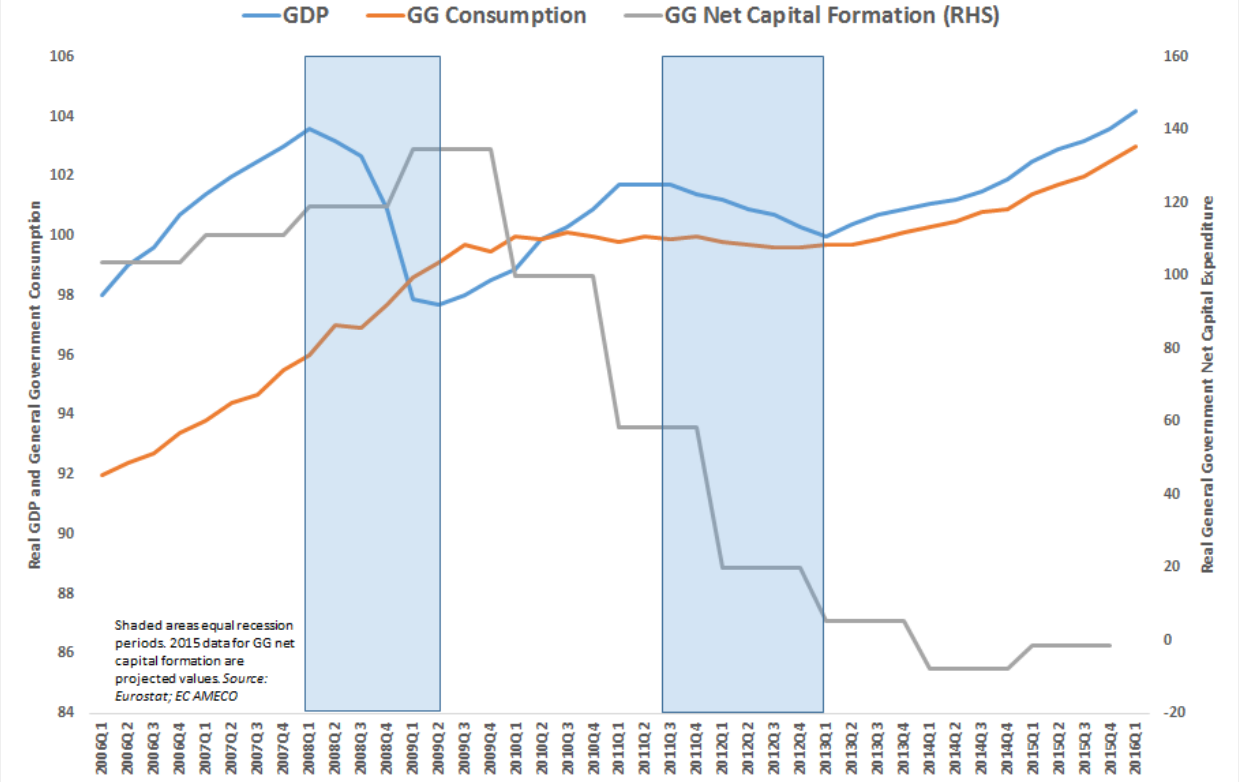
3. EURO AREA SPECIFIC CAUSES FOR THE INVESTMENT SLOWDOWN

3.1. Inadequate Fiscal Policy Response in 2011-14

Unlike other advanced economies like the United States, the euro area has since 2008 suffered a double-dip recession with GDP declining (steeply) first from Q2 2008 to Q2 2009 and then again (less steeply) from Q4 2011 to Q1 2013. The latter part of the double-dip decline in euro area investment levels shown in Figure 1 can be largely attributed to domestic euro area issues, rather than the broader international developments dictating the initial decline in 2008-09. Unlike the initial economic contraction, which was clearly related to the onslaught of the global financial crisis in 2008, the second GDP dip was rooted in idiosyncratic euro area concerns over - among other things - the stability of the regional financial system, the ultimate survival of the common currency itself and a restrained fiscal policy response after 2010.

Figure 4 illustrates developments in euro area GDP, general government final consumption expenditure and net fixed investment levels.

Figure 4 Euro Area Quarterly Real GDP and Real General Government Final Consumption and Net Capital Formation, 2006-present, 2010 = 100



It can be seen how the policy response by the euro area general government sector during the two periods of recession were starkly different. Real general government consumption and net capital formation expenditure rose significantly through the first economic contraction until 2010. General government final consumption, however, was flat during the second contraction period, failing to provide counter-cyclical demand stimulus to the economy, and net capital formation continued a precipitous decline to turn outright negative in 2014 and 2015. Negative net fixed capital formation levels refer to the situation where the consumption of fixed capital (e.g. in financial terms amortization, but in essence the wear

and tear of the existing capital stock) exceeds new gross fixed capital formation. Negative net capital formation levels are highly unusual in advanced economies (outside periods of war), and invariably result in negative contributions from capital deepening to productivity levels and hence to future potential growth rates.

While the detailed origins of the second dip in euro area GDP in 2011-13 is outside the scope of this paper, it seems clear that the lack of counter-cyclical fiscal policy played a role in lowering new investment outlays among euro area businesses conscious about the risks of lower future demand. And certainly, the dramatic witnessed decline in net general government investment levels from 2010-2014 will have had some spill-over effects onto also private investment decisions. There is often a relation between the decision of private actors to invest and the availability of basic physical and human capital infrastructure in a region or local area. Dramatic declines as witnessed in the euro area after 2010 raises serious doubt about the availability of such publicly provided infrastructure in parts of the euro area for the private sector to dare take advantage of in recent years. After all, if governments themselves are unwilling to commit resources to investing in the future of their countries, it is less likely that self-interested private businesses will be convinced to do so.

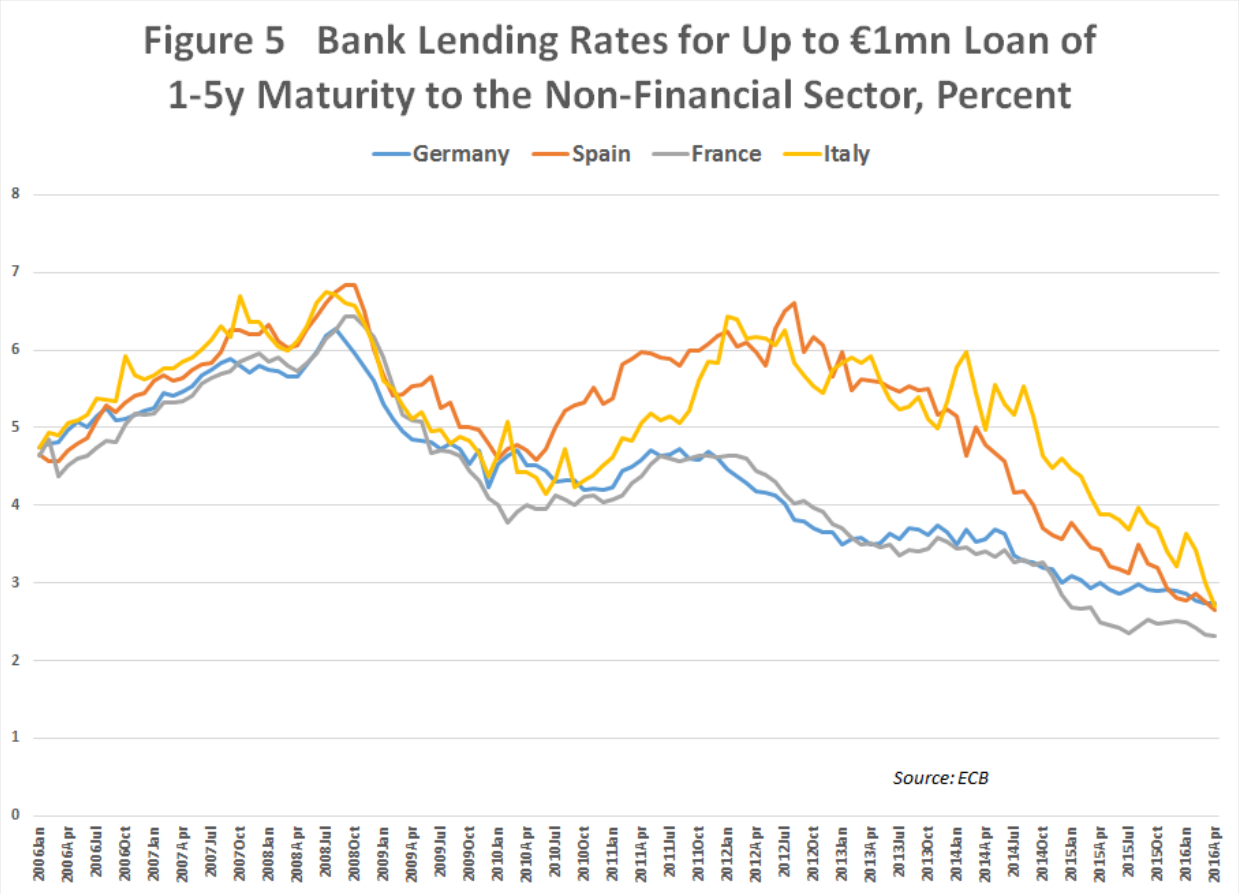
3.2. High Cost of Capital Facing (Some) Private Euro Area Investors

The euro area-specific part of the crisis from roughly 2011-2014 placed very severe stresses on the banking systems in most member states, and noticeably in crisis countries under Troika programs, as well as (still today) Italy. High levels of financial losses in numerous national euro area banking systems, and the absence of euro area-wide bank rescue/resolution institutions led to very large differences in the broad financial health, risk capital and market confidence levels among individual national euro area banking systems.

This was aggravated by the – until the launching of the Banking Union – requirement that repeated EU-wide bank stress tests from 2009 to the first comprehensive assessment in October 2014 be "Goldilocks calibrated". So as not to undermine the complete confidence in the euro area banking system and require capital increases beyond what financial markets and respective national governments could cover. The need was to de facto engineer a gradual stretched out over several years continuing incremental rebuilding of euro area banking sector capital levels from predominantly banks' own retained earnings and other private sector equity injections, while only to a limited degree a need to rely on already often stretched national government fiscal resources. In other words, the institutional deficiencies governing the euro area banking sector at the beginning of the crisis, which Banking Union is only gradually correcting, combined with the weak fiscal capacities of many crisis countries made it impossible for the euro area to implement the kind of early and aggressive banking sector stress test and recapitalization process witnessed in the United States in early 2009. Large divergences in the euro area's national banking sectors' vigour instead had to be allowed to linger for a number of years.

One of the most detrimental outcomes of this only incremental recapitalization drive for many euro area banks was that large differences in banks' average lending rates to the domestic non-financial sectors often persisted over many years after 2010.

Would-be investors and other borrowers in the periphery faced consistently and substantially higher bank borrowing costs than their peers in core euro area countries like France and Germany. In a very bank-dominated financial system like in the euro area, where the vast majority of credit is channelled through the banking system and especially for SMEs direct access to capital markets is unavailable, such conditions risk generating an outright credit squeeze, where good new investment projects aren't financed and otherwise credit-worthy borrowers cannot access cash. This is shown in figured 5, which plots bank borrowing costs in France, Germany, Italy and Spain for a 1-5y bank loan of up to €1mn from 2006 to the present.



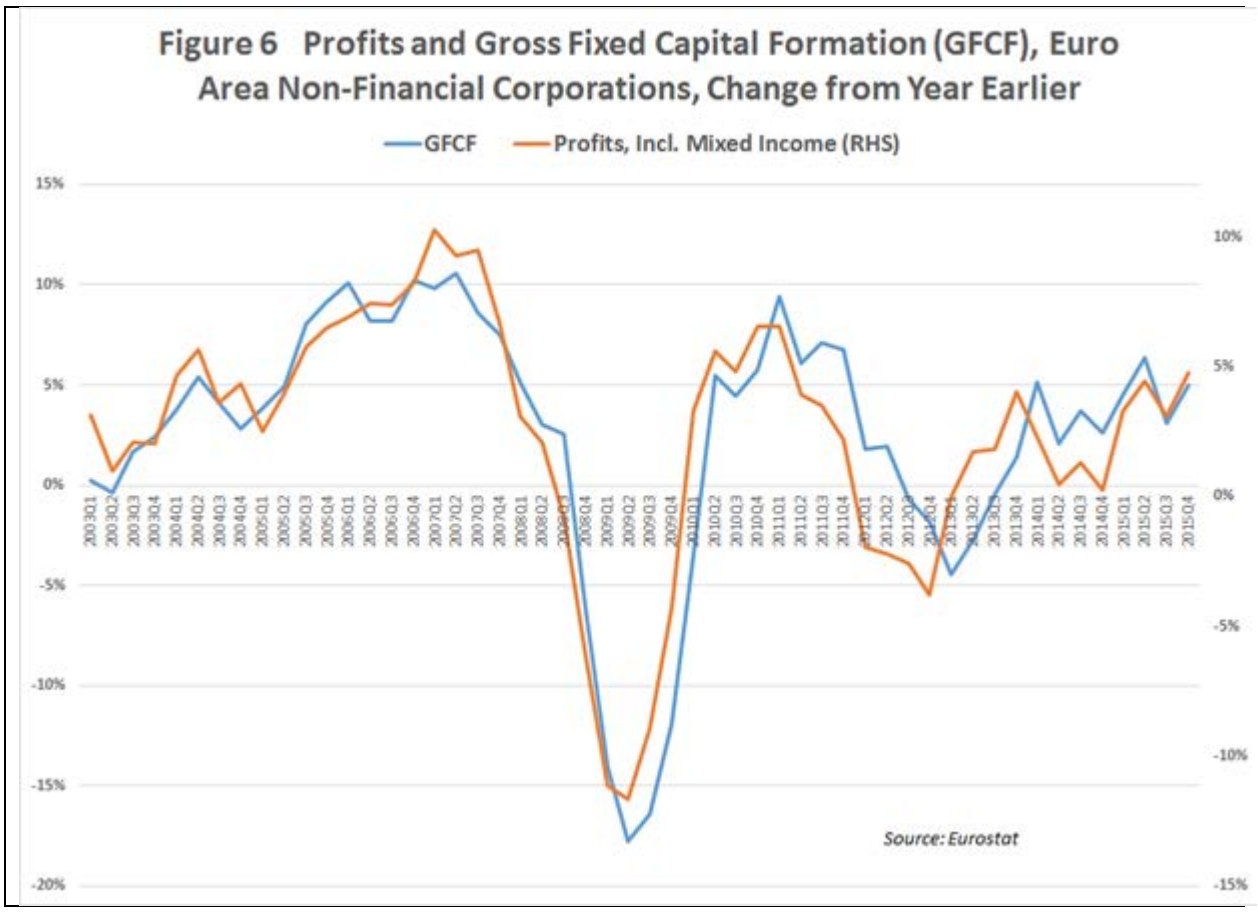
It can clearly be seen how non-financial sector bank borrowers in Spain and Italy beginning in 2010, but accelerating after 2012, faced capital costs often 200+basis points above levels in France and Germany. It is self-evident that such an additional capital cost for Italian and Spanish – and other peripheral – investors dependent on bank credit had a dampening effect of new private capital formation here from roughly 2010 to 2015. This issue will have contributed to the slow pick up of overall euro area private investments after 2010. Only in recent quarters have the ECB's actions succeeded in delivering the uniform and historically low bank funding costs across the entire euro area that the current macro-economic situation warrants.

At the same time, figure 5 shows how Italian and Spanish (and other peripheral country investors not shown) borrowing costs began converging in late 2014 and now in mid-2016 have fully converged to core euro area levels. The ECB, including not least the Single Supervisory Mechanism (SSM), should get full credit for delivering this outcome. The SSM's forceful and credible comprehensive assessment helped remove market perceptions of counter-party risk from many peripheral banks, and these have again been able to access much cheaper wholesale credit markets. The ECB's regular monetary policy easing, including repeated offer of very cheap long-term liquidity, rate cuts and asset purchase programs will also have played a positive role in reducing euro area borrowing cost spreads. Figure 5 is hence testament to both the ECB's powerful influence on borrowing costs in particularly the euro area periphery, and its successful intervention to try to boost credit conditions for private investors. Regretfully for the euro area this clear ECB policy success has so far, due to other factors outside the ECB's control, proven inadequate to restore a sufficient level of private investments in the euro area.

3.3 Subdued Euro Area Corporate Profit Rates Kept Down Investments

An important further consideration in euro area private firms' investment decisions is that in many cases they may not need to rely on external financing sources, as they will often be able to fund new investments from the cash flow generated internally in the company. Such investors are indifferent to the type of changes in bank lending rates discussed in the previous section.

Corporate profits are generally highly pro-cyclical in nature, as fixed costs make average costs naturally decline with higher activity levels. At the same time, high corporate profit rates reflect a high earned return on the existing capital stock, suggesting it would be profitable to further add to it. A rise (decline) in corporate profits can thus spur a self-reinforcing rise (decline) in investment spending, as higher (lower) aggregate investments leads to higher (lower) overall growth and higher (lower) profits from increased (decreased) capacity utilization rates and declining (increasing) average fixed costs.



This also makes corporate profit rates a contemporaneous or lagging indicator to GDP growth, making it straightforward that during a prolonged period of negative or low growth, as experienced in the euro area since 2008, profits will also be very slow to recover and the ability of firms to self-finance investments subdued. The close correlation between non-financial sector profits and gross fixed capital formation is illustrated in Figure 6.

Non-financial sector profits and gross fixed capital formation in the euro area rose rapidly before the crisis, slumped in late 2008 early 2009, then rebounded in 2010 and early 2011, before declining again later in 2011 and remaining at relatively low growth rates until into 2015. In short, Figure 6 suggests that unless euro area corporate profits improve, private fixed capital investment will struggle to rise above recent years' low levels.

Unfortunately for the ECB, monetary policymakers have only a relatively limited and indirect effect on regional overall non-financial sector[3] corporate profit rates, as these depend on much more than the access to and cost of corporate credit. Member states' political stability, broad structural reform agendas, wage developments, exchange rate developments for some exporting firms, and overall risks to confidence in the economy are important other determinants of corporate profitability largely outside the remit of central banks.

[3] The ECB, particularly during periods of extraordinary monetary stimulus and negative deposit rates clearly have a more direct impact on the profitability of the euro area financial sector.

CONCLUSIONS

Euro area private investments have since 2008, like the overall euro area economy, suffered a double-dip decline and only very gradually begun to recover since early 2014. This is in the face of unprecedented monetary policy stimulus from the ECB, including relatively recent unprecedented steps like negative deposit rates and large asset purchases. This paper argues that the main reason for why the very accommodating ECB policy stance has to date failed to spur a more dramatic recovery in euro area private investment levels stems from the fact that the ECB does not have policy tools able to affect the underlying drivers of investments.

The first part of the explanation for low private investment levels in the euro area is the significant recorded decline in euro area potential growth rates since 2008, a feature shared with many other economies in the world, including noticeably the United States. Private firms faced with lower long-term future growth rates will often rationally conclude that they will need less productive capacity to satisfy future market demand, and postpone investments accordingly. As changes to potential growth rates, however, are driven mostly by long-term demographic and productivity developments, the ECB (and other central banks) do not have effective tools to address this issue. Only elected euro area governments do through reform programs boosting labour supply and innovation.

The second part of the explanation for particularly the prolonged nature of the investment slowdown in the euro area and the double-dip in 2011-13 is more specific to the euro area. It pertains first to the inadequate fiscal policy response witnessed in the euro area during the second economic contraction from 2011-13, as euro area general government final consumption and especially fixed investment levels were merely flat and severely contracting respectively. Without governments being willing to counter a downturn and invest more, private businesses will also be less likely to invest. Again, this is a policy issue outside the remit of the ECB, although it should be noted that the recent large-scale purchases of euro area sovereign bonds by the central bank have generated substantial interest savings for governments, hereby creating additional fiscal space which could be used to increase public investments.

Secondly, due to the deep institutional deficiencies of euro area banking supervision only belatedly being addressed by the introduction of Banking Union, persistent national banking sector weaknesses were allowed to fester in the years after 2008-09. This resulted in persistently higher bank borrowing costs in the euro area crisis countries with direct negative effects for the ability of bank-dependent borrowers here to finance new investments. Only the concerted efforts of both the monetary policy and banking supervisory arms of the ECB has since late 2015 managed to close this gap in funding costs and reduce borrowing costs in the entire euro area to record lows. This successful policy response from the ECB will be increasingly beneficial to investment levels in the euro area periphery, but may not be enough to offset other negative effects and materially increase aggregate private investment in the euro area. Where its actions have a direct effect, the ECB has, however, acted forcefully since 2014.

And lastly, the relatively low levels of corporate profit growth in the euro area in recent years makes it less likely that the regions' corporations are able to self-finance new investments. Only continuing profit growth, again often much more dependent on broader government policies than central bank actions, can credibly hope to help push of self-financed private investments in the euro area.

Summing up, paraphrasing the old saying, monetary policy may take euro area private investors to the water, but it cannot make them drink. Only their governments can.

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European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Monetary Policy and Business Investment in the Euro Area

Karl WHELAN

IN-DEPTH ANALYSIS

Abstract

Business investment has been weak in the euro area for a number of years and the share of GDP allocated to this type of investment is now at a historically low level. This has undoubtedly been a disappointment for the ECB who would have hoped cutting interest rates to zero would have produced a more positive investment response. However, business investment decisions depend on more than just interest rates. Depreciation and other factors influence the potential cost of capital investment and there are important factors restraining investment in the euro area such as poor demographics, weak productivity growth and high levels of private sector debt in some member states. The banking sector has acted as a constraint on investment in recent years but now appears set to support positive investment growth. The ECB has done much to boost investment but there is still room for a large and co-ordinated public investment strategy to give the euro area economy a much-needed boost.

CONTENTS

EXECUTIVE SUMMARY

- Business investment has been very weak in the euro area for a number of years.
- While investment by businesses is now growing, it is still doing so at a weaker pace than during previous expansions and the share of GDP allocated to this type of investment is now at a historically low level.
- Weak business investment has contributed to slow economic growth via the usual aggregate demand channel but it is also contributing by slowing the supply-side growth potential of the euro area economy.
- McQuinn and Whelan (2015) calculate estimates of the growth rate of the euro area capital stock and estimate that slower capital stock growth due to weak investment has been subtracting about 0.7 percentage point per year from the supply side growth potential of the euro area economy.
- The weakness of business investment has undoubtedly been a disappointment for the ECB who would have hoped cutting interest rates to zero would have produced a more positive investment response. However, business investment decisions depend on more than just interest rates.
- Depreciation and other factors influence the potential cost of capital investment and there are important factors restraining investment in the euro area such as poor demographics and weak productivity growth.
- The banking sector has acted as a constraint on investment in recent years. Large European banks have cut their risk-weighted assets by 20 percent by cutting the size of their balance sheets and moving away from assets considered risky, which includes loans to business.
- This deleveraging process is largely over and the banking sector which now appears set to support positive investment growth.
- Evidence from the ECB's Bank Lending Survey and its Survey on the Access to Finance of Enterprises shows that firms are getting lower interest rates on loans from banks, that businesses are optimistic that the availability of bank loans is going to improve and that the fraction of firms being turned down for bank loans is declining.
- High levels of business debt in a number of member states have also been restraining the ability of firms to borrow for investment purposes. Debt-to-profit levels for businesses have either levelled off or are declining in most of these countries but this factor is likely to continue restraining investment for a number of years.
- The ECB has done much to boost private investment but public investment is running about one percent of GDP lower than during the pre-crisis period. There is little sign that the Juncker plan, which involves small amounts of public money and relies on co-financing investment projects, is going to have much impact.
- This is a strong argument for a large, co-ordinated increase in public infrastructural spending.

1. INTRODUCTION

Capital investment by firms is a key driver of the business cycle, growing during booms and contracting during recessions much more than other components of GDP such as household or government spending. Significant contractions in capital investment played an important role in both of the "double-dip" recessions the euro area went through in the past decade and one of the disappointing aspects of the recovery in the euro area economy that has been in place since early 2013 has been the relative weakness of investment. As a share of euro area GDP, private capital investment remains well below pre-crisis levels.

The weakness of business investment in recent years must be particularly frustrating for the Governing Council of the European Central Bank, which has cut interest rates to historically low level and must have hoped that this policy would produce a substantial expansion in investment. Instead, investment growth is weak and inflation is consistently undershoot the ECB's target.

Weak business investment has contributed to slow economic growth via the usual aggregate demand channel but it is also contributing by slowing the supply-side growth potential of the euro area economy. McQuinn and Whelan (2015) calculate estimates of the growth rate of the euro area capital stock and estimate that slower capital stock growth due to weak investment has been subtracting about 0.7 percentage point per year from the supply side growth potential of the euro area economy. This effect is most likely larger in size than the impact of any of the most common so-called structural reforms that are endlessly promoted in Brussels and Frankfurt.

In this paper, I discuss the recent behaviour of business investment in the euro area, the link between investment and monetary policy and the prospects for investment in the coming years. The paper is structured as follows. Section 2 presents the evidence on business investment in the euro area, highlighting the crucial role of the decline in investment in countries with high debt that have been affected by the euro crisis. Section 3 discusses the theory and evidence for the link between monetary policy rates and business investment, concluding that this link is weaker than many believe. Section 4 discusses the role of credit, focusing on how banking sector developments have increased the supply of credit as well as how "debt overhang" has influenced business demand for credit. Section 5 concludes that there are a number of positive developments in train that should see investment growth continue to pick up but there is still room for this to be complemented by a significant increase in public sector investment.

2. RECENT TRENDS IN INVESTMENT IN THE EURO AREA

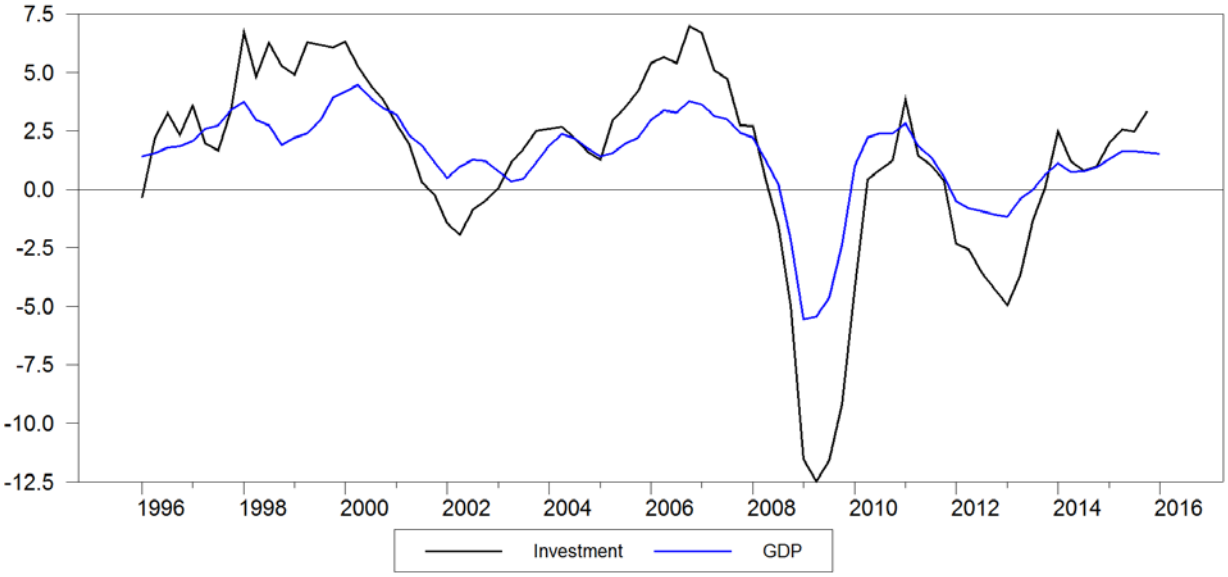
Figure 1 on the next page illustrates the growth rates of business investment and GDP (in real terms) in the euro area since the mid-1990s. During the 1990s and the mid-2000s, when the economy was expanding at a good pace, investment growth strongly outstripped GDP but when the economy was in doing less well, such as in the early 2000s and particularly during the recession of 2008/09, investment contracted. The double-dip recession of 2012/13 saw investment decline again before a modest recovery over the past few years. Still, the current growth rates of real investment are below those seen in previous expansions.

Figure 2 describes the weakness of business investment in recent year by plotting the share of nominal GDP allocated to this category of expenditure. It shows that the investment share of GDP moved up and down in a predictable fashion prior to the onset of the euro crisis, rising to high levels during expansions and falling to lower levels during contractions. However, during the euro crisis period of 2011/12, the investment share slumped to historically low levels and has barely recovered despite an expansion being in place since early 2013.

The central role of the euro crisis in this investment slump can be seen by separately calculating the investment share of GDP for five countries deeply affected by the crisis (Greece, Ireland, Italy, Portugal, Spain) from the rest of the euro area. Figure 3 shows that the fall in investment as a share of GDP is solely due to these five countries (labelled GIIPS here). The investment share for the remaining countries has been remarkably stable, not rising so high during the expansion of the 2000s and not falling so much in the period since.

Figure 4 illustrates how real investment in Greece, Italy, Portugal and Spain is still well below its historical peaks and showing little sign of recovery.

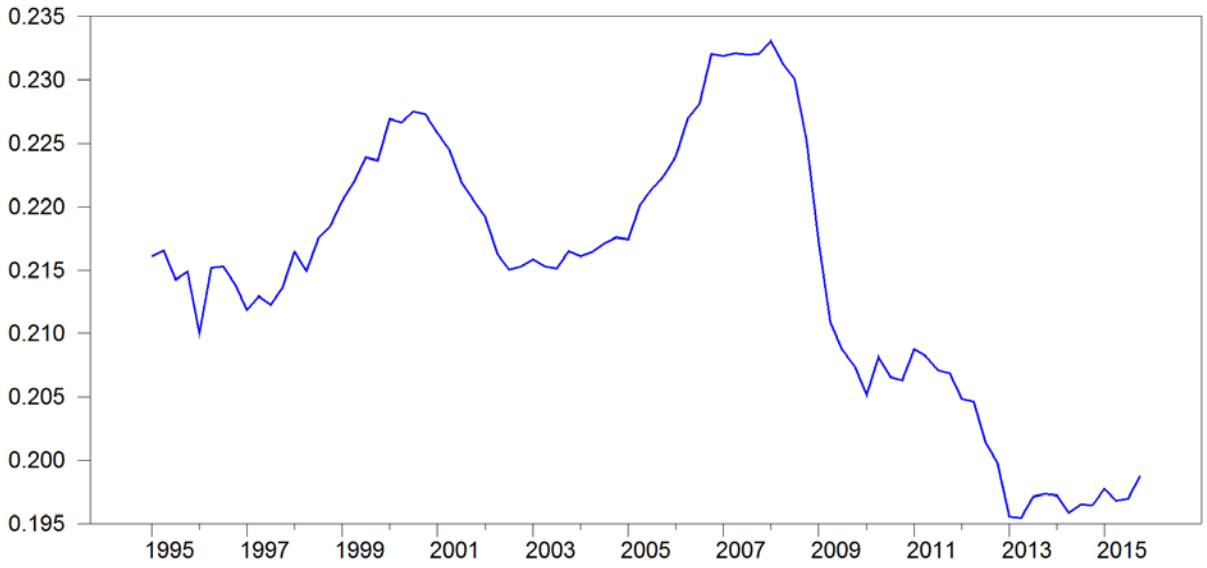
Figure 1: Year-over-Year Percentage Change in GDP and Private Investment



***Source*:** Eurostat

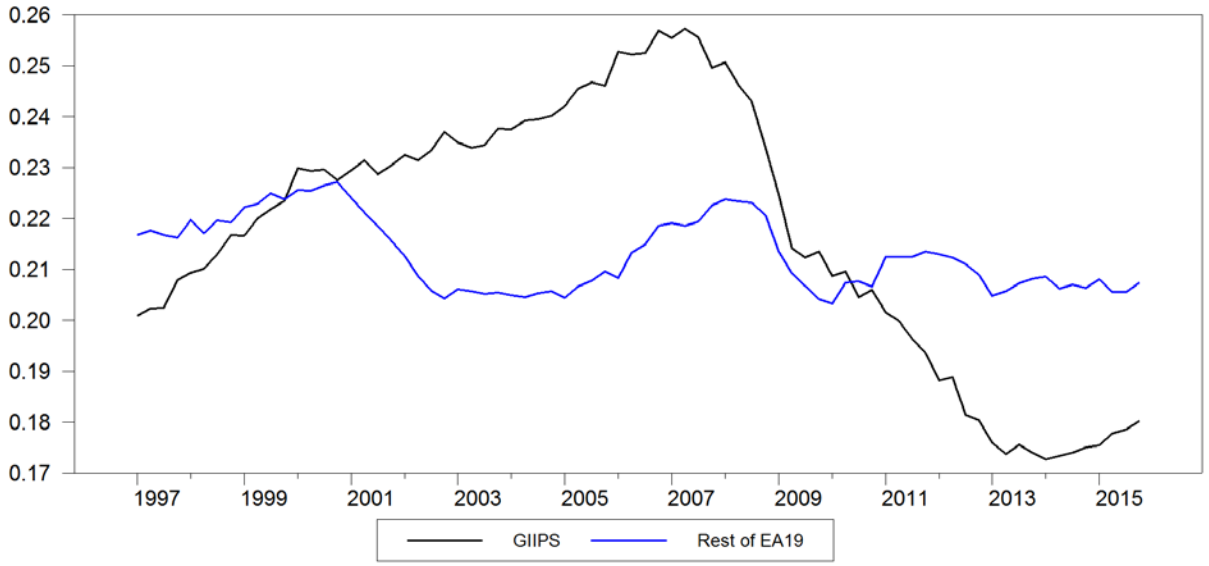
Figure 2: Business Investment as a Share of Euro Area GDP

(Calculated as Nominal Investment / Nominal GDP)



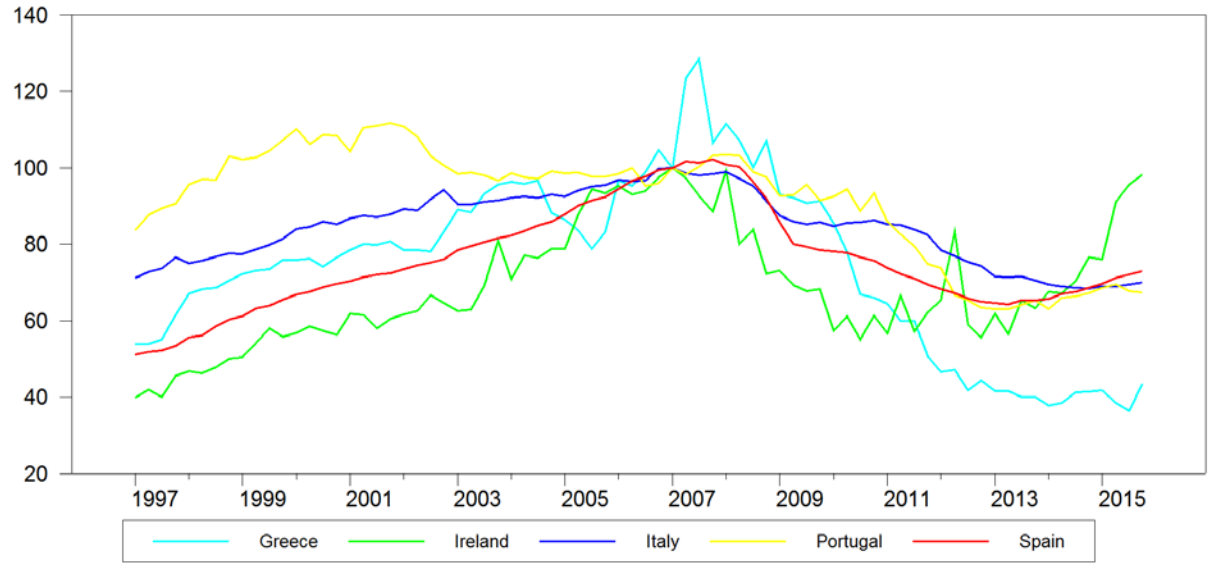
***Source*:** Eurostat

Figure 3: Investment Shares of GDP



***Source*:** Eurostat

Figure 4: Real Investment in Various Countries (1997:Q1= 100)



***Source*:** Eurostat

3. MONETARY POLICY AND BUSINESS INVESTMENT

Investment spending by businesses is generally considered to be particularly sensitive to interest rates. If firms are borrowing the money to invest, an increase in interest rates on loans makes it less likely that any given investment project will be profitable and thus less investment will be undertaken. Even if firms are not borrowing the money, an increase in monetary policy interest rates that pass through to other financial instruments raises the attractiveness of allocating a firm's available funds to investment in savings accounts, bonds or stocks rather than towards capital investment.

Despite these obvious points, the academic literature on business investment has generally pointed to a relatively weak link between investment and monetary policy interest rates. Here, I discuss four aspects of this weak relationship: Risk premia for private borrowing, the need to cover depreciation, changes in the rate of return on capital and the weak empirical relationship between investment and the cost of capital.

3.1. Risk Premia for Private Borrowing

The ECB has cut its headline policy rate (the rate applied to its main refinancing operations) from 4.25 percent in October 2008 to zero in recent months. However, as anyone who has approached a bank for a loan will know, businesses and households are not able to borrow at zero rates and the transmission of monetary policy interest rates to private sector borrowing rates is not always so simple.

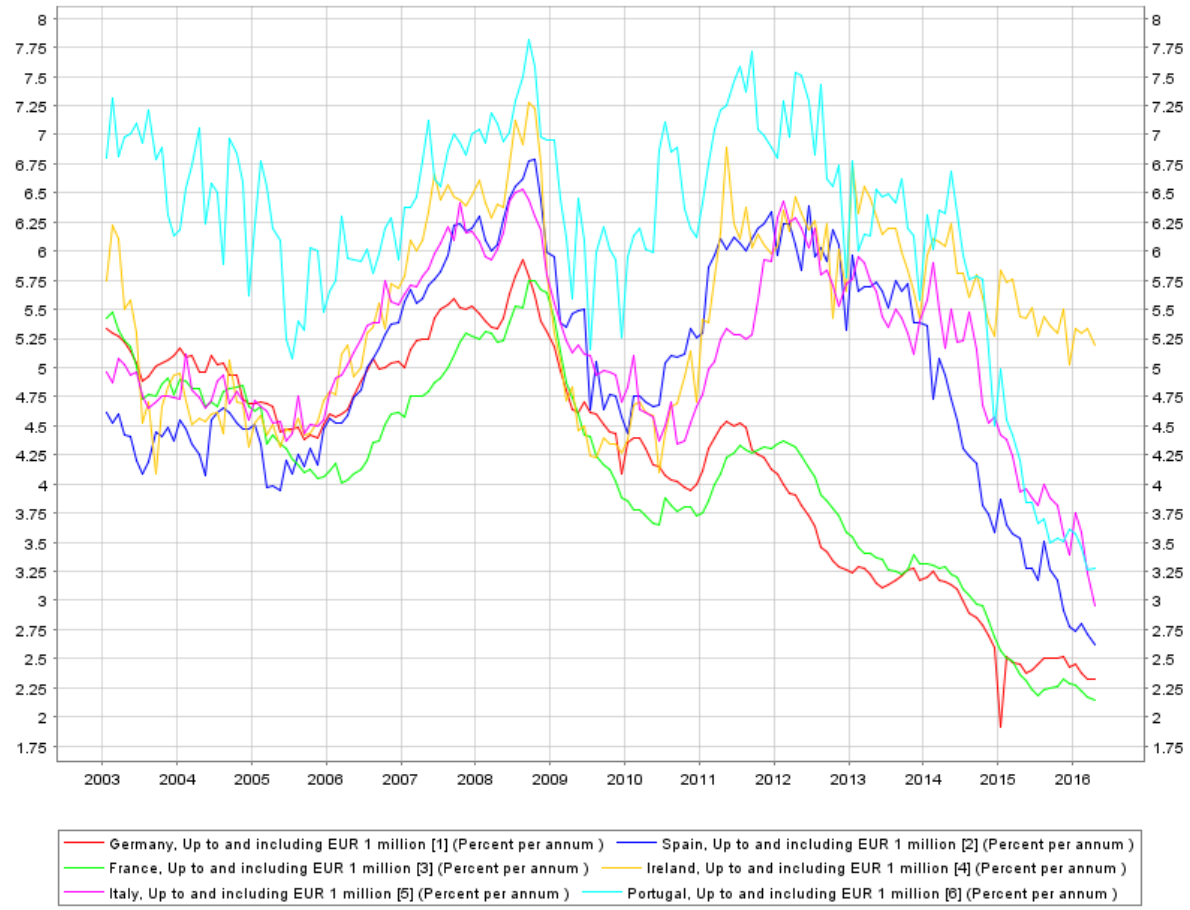
One reason changes in monetary policy rates don't translate fully to private sector rates is that the ECB rate applies to short-term loans the Eurosystem makes to banks while most private sector borrowing is over longer periods.[1] More importantly, the ECB prices its loans on the basis of there being no risk: There is always a small chance that a bank may not pay ECB back if it goes into liquidation but the ECB's collateral framework means the chance of losses for the Eurosystem are very low. In contrast, when banks make loans to businesses, they need to consider the potential that borrowers will not repay: The serious problems with non-performing loans at many European banks show that default risk is particularly important when the economy is performing poorly. For this reason, banks need to add a "risk premium" to the interest rates they charge to businesses.

Figure 5 shows, for selected countries, average interest rates on business loans of under €1 million and with a maturity of over one year. One pattern evident in the chart is that, unlike sovereign bond rates, business loan rates still showed a reasonable amount of variation across countries during the pre-crisis period. For instance, business loan rates in Portugal were always higher than in Spain, Italy or the other countries shown in the graph. This variation in business loan rates became greater during the most intense phase of the euro crisis. By 2012, increasing risk spreads meant that interest rates for business were about as high in Italy, Spain, Portugal and Ireland as they had been prior to the global recession, meaning the substantial easing in monetary policy had done nothing to reduce the cost of credit in these countries.

The period since early 2014 has seen more positive developments. There has been a significant reduction in business interest rates in these countries, with ECB policies playing an important role. The ECB's commitment to its OMT policy has played an important role in reducing the perceived chances of these countries exiting the year. This has reduced the perceived default risk for businesses as well as the cost of non-ECB funding for banks, with financial markets less concerned about "redenomination risk" than during 2011/12.

[1] Of course, most of the ECB's lending is now in the form of long-term refinancing operations but in this case the "long-term" is shorter than the term of most private borrowing.

Figure 5: Interest Rates on Loans to Businesses of Under €1 million and Over One Year, Selected Countries



***Source*:** ECB Statistical Data Warehouse

Another factor that has contributed to lower interest rates for business is that euro area banks have generally stopped reducing the size of their balances sheets. (This is discussed in greater detail below). Since most bank loans can't generally be "called in", banks that are seeking to reduce the size of their balance sheet often decide to offer very few new loans. In this environment, there is very little competition between banks for new business and this allows interest rate margins on new loans to be higher. The latest ECB Bank Lending Survey (BLS) suggests that this has been an important factor in the recent reductions in interest rate margins. Table 1 on the next page reproduces a table from the latest BLS, showing a significant percentage of banks in Italy and Spain citing increased competition as a factor in reducing margins.

A final factor has been the ECB's comprehensive assessment, which has helped to clarify how well capitalised European banks are and shed additional light on the extent of the problems with non-performing loans at large euro area banks. This has contributed to a reduced cost of external funding which has helped to reduce interest rates for businesses.

Table 1: Response to the ECB Bank Lending Survey

Factors contributing to the net tightening of terms and conditions for loans or credit lines to enterprises

(net percentages of banks reporting tightening terms and conditions)

	Cost of funds and balance sheet constraints		Pressure from competition		Perception of risk		Banks' risk tolerance	
Country	2015Q4	2016Q1	2015Q4	2016Q1	2015Q4	2016Q1	2015Q4	2016Q1
Euro area	-5	1	-22	-28	-5	-1	3	2
DE	-6	0	-21	-12	-9	0	3	-3
ES	0	-20	-20	-40	0	-10	0	10
FR	4	2	-13	-34	0	3	4	0
IT	-25	0	-25	-50	0	-13	0	0
NL	2	28	-25	-24	-25	0	0	0

Still, despite these positive developments, it remains the case that business loan rates have generally not fallen as much as the 425 basis point fall in the ECB's policy rate and interest rate margins, though declining, remain relatively high in many countries, most notably Ireland.

3.2. Depreciation

It is easy to imagine that interest rates are the crucial component driving business investment. For example, one might imagine that if the interest rate on business loans is 3 percent, then borrowing €100,000 to purchase a piece of equipment only needs to boost profits by at least €3,000 for the investment to be worth it. However, this is not the calculation that businesses need to make when undertaking capital investment projects. The capital that businesses invest in, whether it be equipment, software or buildings, depreciates over time and often has a finite lifetime within which it can be used. So, for example, if a €100,000 piece of equipment declines in value by €10,000 each year, then taking out a ten-year loan with an interest rate of 3% to buy the equipment will only be profitable if the investment increases profits by €13,000.

The calculation being describe here is essentially a simplified version of the so-called *user cost of capital*, as developed by Jorgenson (1963) and Hall and Jorgenson (1967). The user cost of capital factors in all the elements required for a business investment to be profitable, including the cost of finance, depreciation and the tax treatment of profits and depreciation.

Depreciation plays a key role in determining the level of business investment. While investment in buildings and structures tends to depreciate more slowly than investment in equipment, the need to replace faster-depreciating equipment generally means there is more investment in equipment than structures. Indeed, figures from the European Commission AMECO database show that between 1995 and 2007, net private capital formation in the euro area averaged about 30 percent of gross private capital formation. In other words, about 70 percent of investment is simply covering depreciation. With the slump in investment in recent years, this ratio plummeted to 12 percent in 2015. In other words, current rates of business investment in the euro area are barely replacing the depreciation of the existing capital stock.

These considerations explain why declines in business loan rates of the size that we have seen may not spark that much new investment because they represent a relatively small proportional decline in the overall user cost of capital for businesses. For example, a reduction in business loan rates from 6% to 3% may seem like a dramatic decline that will allow lots of previously unprofitable projects to be undertaken but if you factored in a 10% depreciation rate, so that the "user cost" only falls from 16% to 13%, you can see why the effect on investment may be less dramatic.

3.3. The Rate of Return on Capital

Another factor the influences business investment is the rate of return on capital investment that firms expected to obtain. In fast growing economies, there are lots of profitable investment opportunities and a relatively high interest rate may still be consistent with lots of investment projects being undertaken. However, in slow growing economies, profitable investment opportunities may be more limited and a low interest rate may not stimulate much investment.

Unfortunately, the euro area looks far more like the second (more negative) case. McQuinn and Whelan (2015) discuss prospects for long-term growth in the euro area and document a number of negative patterns. An important one relates to demographics: The working-age population of the euro area has peaked and Eurostat projections anticipate that the decline in this age group will accelerate in the coming decades. This will drag down the growth rate of GDP, so that firms considering long-term investments will, in many cases, have to anticipate a decline number of potential customers.

Another negative pattern is the weakness in recent years in what economists term "total factor productivity" (TFP) which is growth in GDP that cannot be directly attributed to increases in hours worked or by additional capital inputs. Growth in TFP has been a crucial part of the increase in living standards over time but the euro area's recent experience has been of minimal growth in this component.

The most common response to these negative supply-side patterns, one that is aired continually by Mario Draghi and other European leaders, is that "structural reforms" can produce a new period of faster growth and this will open up lots of profitable investment opportunities. In theory, this may be true. However, when you examine the most likely potential reforms, it seems unlikely that they will have a transformative effect on growth in the euro area. McQuinn and Whelan (2015) examine the potential impact of successful labour market and pension reforms, two of the more widely discussed areas, and find they would add 0.5 percent per year to GDP growth in the euro area in the first decade. This impact would be welcome but is unlikely to lead to a significant change in the climate for capital investment.

3.4. Empirical Evidence

A final reason why interest rate cuts may not stimulate investment as much the ECB might hope is that the empirical evidence for a link between investment and the user cost of capital. The user cost plays a key role in most theoretical models of business capital formation and many of these models predict that a one percent decline in the user cost of capital will, over time, be matched by a one percent increase in the capital stock. If this were true, then investment would be highly responsive to changes in the cost of capital.

In practice, many econometric examinations fail to find a strong role for the cost of capital. Leading macroeconomist, Olivier Blanchard (1986) once noted "*it is well known that to get the user cost to appear at all in the investment equation, one has to display more than the usual amount of econometric ingenuity*." Among the many studies in this area, a typical finding is the conclusion of Chirinko, Fazzari and Meyer (1999) that a one percent decline in

the user cost will leave to a quarter percent increase in the capital stock, a sensitivity one-quarter the size predicted in standard theoretical models.

These results may seem surprising because there is plenty of evidence that monetary policy can stimulate the economy and investment is a particularly cyclical part of the economy. It is possible that this pattern occurs because reductions in interest rates play a big role in boosting investment, which in turns boosts GDP. However, figuring out causality in macroeconomics is hard and it is not clear that the direct channel from interest rates to investment is really quite so strong.

4. SUPPLY OF CREDIT AND DEBT OVERHANG

Much of the debate about weak investment in the euro area has focused on the role of the banking sector. Here, I first discuss factors influencing the supply of credit to businesses and then focus on how the overhang of debt associated with the financial crisis has affected the demand for credit.

4.1. Supply of Bank Loans

It is likely that developments in the euro area banking sector has played a role in the weakness of business investment in recent years. The deep recession of 2008/09 was followed by a prolonged slump and together these have had a highly negative effect on asset quality at many European banks. In addition, the change in attitudes to risk that resulted from the global financial crisis has seen many banks lose access to external funding that was previously relied on to finance expansion of balance sheets. These problems, which have placed intense pressure on banks to reduce the size of the balance sheets, have been most intense in the "peripheral" countries where investment has been particularly weak.

The adjustment to higher regulatory capital standards has also played a role in the limiting bank financing to businesses. In particular, the adjustment towards meeting Basel 3 standards has required banks to gradually raise their capital ratios. These ratios can be increased by raising capital but they can also be increased by reducing the denominator in the capital ratio, i.e. risk-weighted assets.

Figure 6, from the latest European Banking Authority Basel 3 monitoring exercise (EBA, 2016) shows how the largest banks in the EU (those labelled "Group 1" banks by the EBA) have increased their core equity capital ratios.[2] While European banks have raised a large amount of equity capital, they have also cut risk-weighted assets by almost 20%. Reallocating away from loans to businesses towards items like government bonds is one of the strategies that banks can use to reduce risk-weighted assets because the risk weight on business loans tends to be high while the risk weight for European sovereign debt is zero.

Figure 7 shows that the outcome of these developments has been that since 2009, loans to nonfinancial corporations in the euro area have been declining more often than they have been expanding. In theory, of course, firms could diversify away from banks to seek other types of finance. It is well known, however, that European businesses are more reliant on banks for funding than firms in the United States and this is likely to remain the case despite the Capital Markets Union initiatives. Thus, it is very likely that the banking sector's problems have played a significant role in depressing investment, most particularly in "peripheral" countries with high debt problems.

Thankfully, after a long period of bad news, there are some important positive signs for the European banking sector. The EBA's latest report suggests that large European banks are no longer cutting their risk-weighted assets and loans to nonfinancial business are finally growing again.

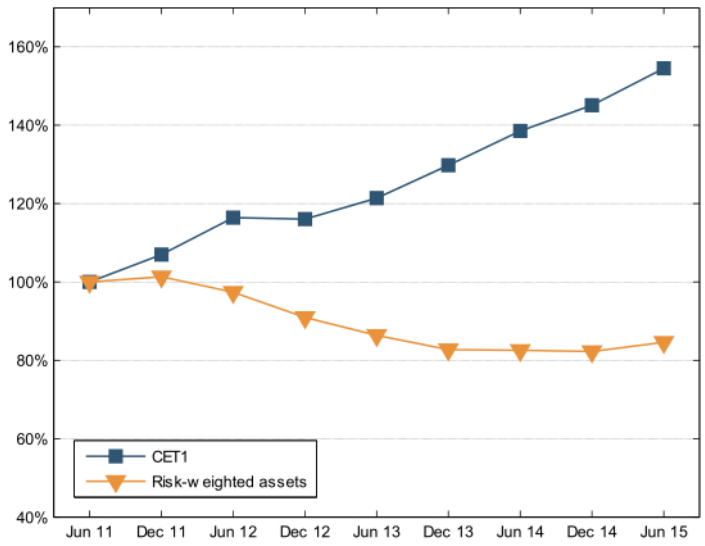
The ECB's Survey on the Access to Finance of Enterprises also provides relatively good news. The latest survey (ECB, 2016), covering the period October 2015 to March 2016, shows that firms are getting lower interest rates on loans from banks and there is an easing in non-interest costs (see Figure 8 for a chart from the survey report).

[2] The EBA defines Group 1 banks as those that have Tier 1 capital in excess of €3 billion and are internationally active.

Businesses are also generally optimistic that the availability of bank loans is going to improve (see Figure 9) and the fraction of firms being turned down for bank loans (or too discouraged to apply for one) is declining.

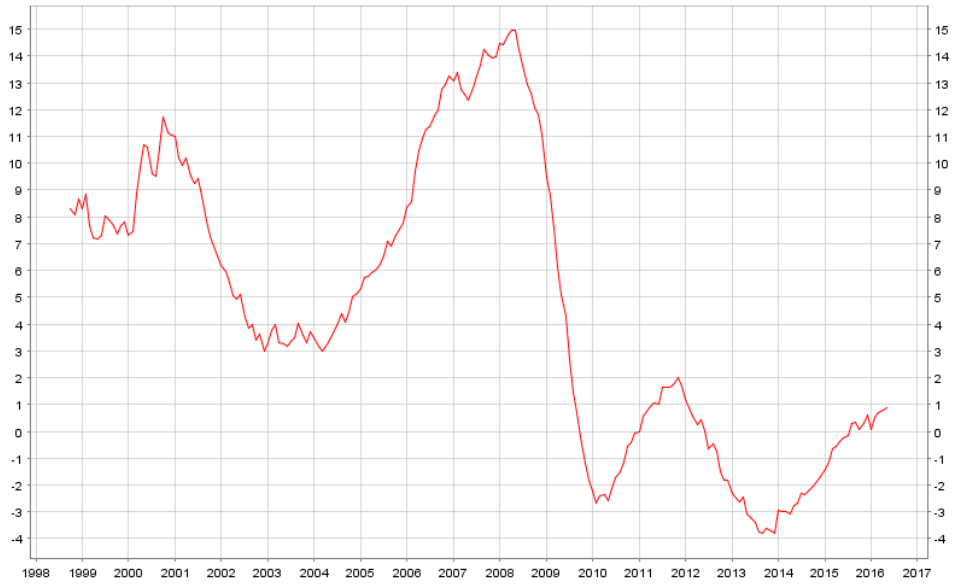
With the euro area economy continue to expand and improved financial incentives to provide loans to businesses via the ECB's expanded Targeted Long-Term Refinancing Operation (i.e. TLTRO2) there are some grounds for optimism that the banking sector will no longer act as a restraint on business investment in the euro area.

Figure 6: Core Equity Capital and Risk-Weighted Assets at the Largest EU Banks



***Source*:** European Banking Authority

Figure 7: Euro Area Growth Rate of Loans to Nonfinancial Corporations

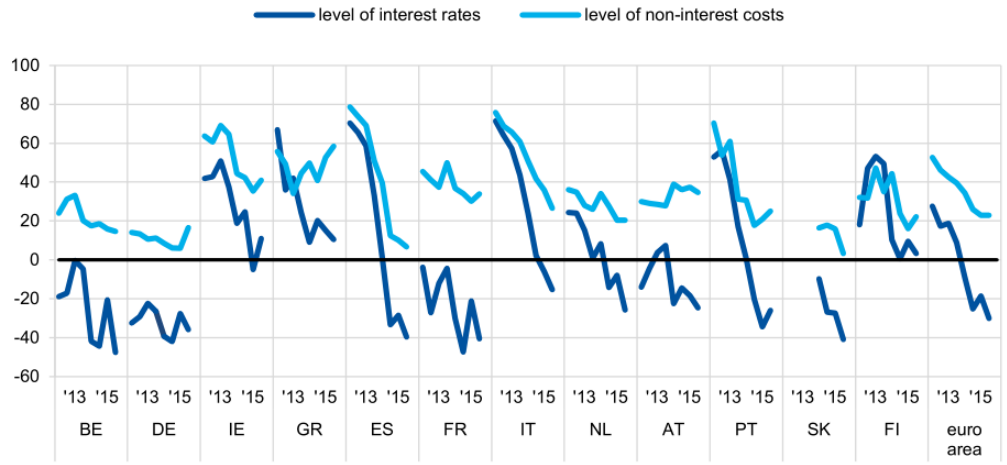


***Source*:** ECB Statistical Data Warehouse

Figure 8: Business Responses on Cost of Bank Loans

Change in the cost of bank loans granted to SMEs across euro area countries

(over the preceding six months; net percentages of enterprises that had applied for bank loans)



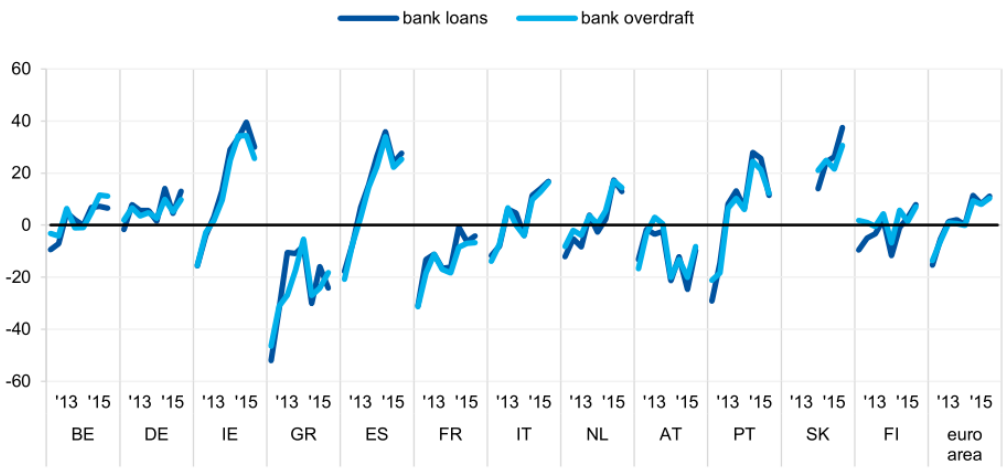
Q10. Please indicate whether the following items increased, remained unchanged or decreased in the past six months.

***Source*:** ECB SAFE Survey

Figure 9: Business Expectations on Availability of Bank Loans

SMEs' expectations regarding the availability of bank loans and overdrafts across euro area countries

(over the preceding six months; net percentages of respondents)



***Source*:** ECB SAFE Survey

4.2. Debt Overhang and the Demand for Credit

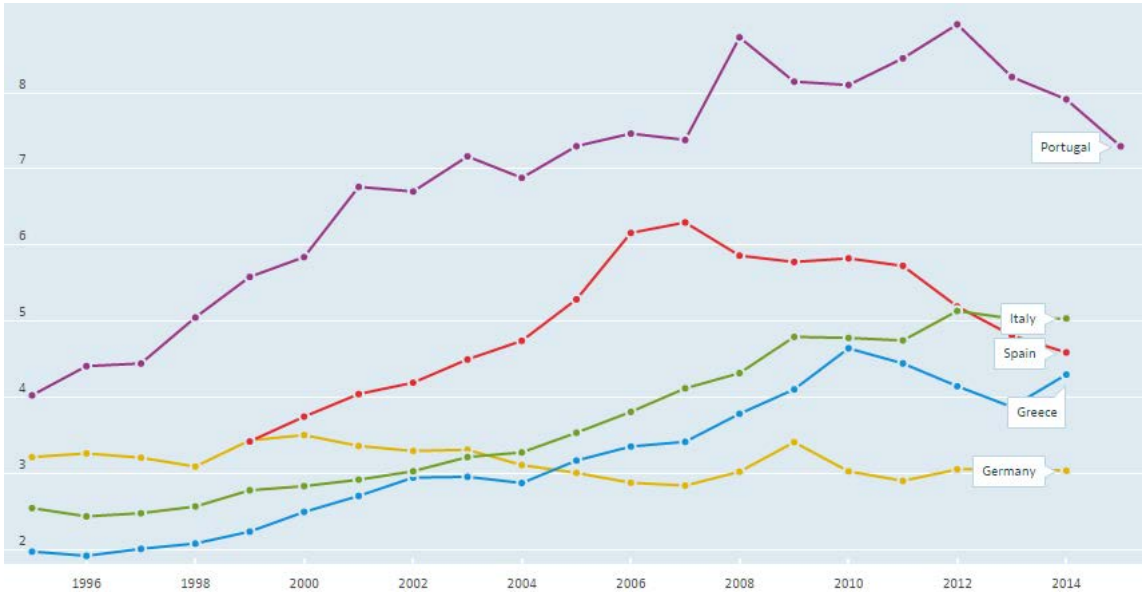
The conditions in the euro area banking sector has undoubtedly had an impact on the supply of funds for business investment. However, it is likely that the decline in loans to non-financial corporations also reflects a lack of demand for credit for investment purposes from firms.

The global financial crisis brought to an end a period of low risk spreads and increasing financial integration in the euro area. This period has left the private sector carrying high levels of debt in the countries highlighted earlier as having particular weak business investment. In these countries, the business sector has had to focus in recent years on getting its debt levels down, thus discouraging capital investment.

Figure 10 shows the level of debt for non-financial corporations for selected countries as a ratio of their total operating surplus (profits).[3] It is notable that this ratio has barely changed in Germany over the past 20 years. This is likely because the transition to low interest rates associated with EMU did not constitute a change for German businesses. However, as discussed at length in Whelan (2013), the decline in interest rates due to EMU was a major shock to countries such as Ireland, Portugal, Spain and Greece where interest rates for business loans had always been much higher than in Germany. As the chart shows, the result was a significant build up in the amount of debt taken on by businesses in these countries. The chart shows that businesses in these countries are currently at different stages of dealing with this high debt burden. Debt ratios have levelled off in Greece and Italy while they are now declining in Spain and Portugal.

This pattern of business sector deleveraging is likely to take a long time to work itself out but there are positive signs that it is gradually acting as less of a restraint on investment. For example, a weak demand for credit was often cited by banks participating in the ECB's Bank Lending Survey as an important reason why the supply of bank loans was so weak in recent year. This survey is now reporting a stronger demand for credit, particularly for fixed investment purposes.

Figure 10: Nonfinancial Corporations Debt to Operating Surplus Ratios



***Source*:** OECD

[3] These data were taken from an OECD website: https://data.oecd.org/corporate/non-financial-corporations-debt-to-surplus-ratio.htm

5. CONCLUSIONS

The weakness of investment in the euro area has undoubtedly been a disappointment for the ECB. While ECB officials may believe they have provided substantial stimulus for private investment, it does not take 20/20 hindsight to argue that the ECB was too slow to cut interest rates to zero – the consistent under-shooting of inflation relative to target provides the best answer to the question of whether policy was too tight or too loose.

However, beyond its main job of setting its policy interest rates, the ECB is to be credited with taking other actions that have boosted financing conditions and are likely contributing to the strengthening of business investment over the past years. These actions include

(i) The introduction of the OMT policy, which has reduced fears of a break-up of the euro and contributed to lower costs of funding for banks and lower interest rates for businesses.

(ii) The comprehensive assessment of the euro area's banks which has boosted transparency and increased confidence in the capital levels of these banks.

(iii) The TLTRO policy which incentivises banks to maintain or expand their balance sheet.

(iv) The move towards purchasing corporate bonds, which will reduce the cost of investment for large corporations.

That said, for the reasons I argue in this paper, monetary policy actions can only do so much to boost business investment, particularly in the kind of environment many European businesses are operating in, with weak demographics, poor productivity growth and an overhang of debt from the pre-crisis era.

This still leaves plenty of room for fiscal policy and, in particular, public sector investment to play a role in boosting the euro area economy and reducing the unemployment rate, which, while falling, remains unacceptably high. Public investment is running about one percent of GDP lower than during the pre-crisis period. There is little sign that the Juncker plan, which involves small amounts of public money and relies on co-financing investment projects, is going to have much impact.

Instead of relying on this half-hearted approach, there is a strong argument that with interest rates on government debt so low and infrastructural deficits evident in many countries, there has never been a better time for a large, co-ordinated increase in public infrastructural spending. The European Commission could assist with a programme of this type being executed by reforming the Union's fiscal rules to acknowledge the beneficial role played by public capital investment.

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