

High-frequency trading and regulatory policies. A tale of market stability vs. market resilience

by Sandrine Jacob Leal and [Mauro Napoletano](#)

Over the past decades, high-frequency trading (HFT) has sharply increased in [US](#) and [European](#) markets. HFT represents a major challenge for regulatory authorities, partly because it encompasses a wide array of trading strategies ([AFM \(2010\)](#); [SEC, 2010](#)), and partly because of the big uncertainty yet surrounding the net benefits it has for financial markets (Lattemann *and al.* (2012); [ESMA \(2014\)](#); [Aguilar, 2015](#)). Furthermore, although HFT has been indicated as [one potential cause of extreme events like flash crashes](#), no consensus has yet emerged about the [fundamental causes of these extreme events](#). Some countries' [regulations have already accounted for HFT, \[1\]](#) but, so far, this has led to divergent approaches across markets and regions.

Overall, the above-mentioned open issues call for a [careful design of regulatory policies](#) that could be effective in mitigating the negative effects of HFT and in hindering flash crashes and/or dampening their impact on markets. On these grounds, in a [new research paper](#) published in the *Journal of Economic Behavior and Organization* we contribute to the debate about the regulatory responses to flash crashes and to the potential negative externalities of HFT by studying the impact of a set of policy measures in an agent-based model (ABM) where flash crashes emerge endogenously. To this end, we extend the ABM developed in [Jacob Leal et al. \(2016\)](#) to allow for endogenous orders' cancellation by high-frequency (HF) traders, and we then use the model as a test-bed for a number

of policy interventions directed towards HFT. This model is particularly well-suited and relevant in this case because, differently from existing works (e.g., Brewer et al, 2013), it is able to endogenously generate flash crashes as the result of the interactions between low- and high-frequency traders. Moreover, compared to the existing literature, we consider a broader set of policies, also of various natures. The list includes market design policies (circuit breakers) as well as command-and-control (minimum-resting times) and market-based (cancellation fees, financial transaction tax) measures.

After checking the ability of the model to reproduce the main stylized facts of financial markets, we run extensive Monte-Carlo experiments to test the effectiveness of the above set of policies which have been proposed and implemented both in Europe and in the US to curb HFT and to prevent flash crashes.

Computer simulations show that slowing down high-frequency traders, by preventing them from frequently and rapidly cancelling their orders, with the introduction of either minimum resting times or cancellation fees, has beneficial effects on market volatility and on the occurrence of flash crashes. Also discouraging HFT via the introduction of a financial transaction tax produces similar outcomes (although the magnitude of the effects is smaller). All these policies impose a speed limit on trading and are valid tools to cope with volatility and the occurrence of flash crashes. This finding confirms the conjectures in [Haldane \(2011\)](#) about the need of tackling the “race to zero” of HF traders in order to improve financial stability. At the same time, we find that all these policies imply a longer duration of flash crashes, and thus a slower price recovery to normal levels. Furthermore, the results regarding the implementation of circuit breakers are mixed. On the one hand, the introduction of an ex-ante circuit breaker markedly reduces price volatility and completely removes flash crashes. This is merely explained by the fact that this type of regulatory

design precludes the huge price drop, source of the flash crash. On the other hand, ex-post circuit breakers do not have any particular effect on market volatility, nor on the number of flash crashes. Moreover, they increase the duration of flash crashes.

To sum up, our results indicate the presence of a fundamental trade-off characterizing HFT-targeted policies, namely one between market stability and market resilience. Policies that improve market stability – in terms of lower volatility and incidence of flash crashes – also imply a deterioration of market resilience – in terms of lower ability of the market price to quickly recover after a crash. This trade-off is explained by the dual role that HFT plays in the flash crash dynamics of our model. On the one hand, HFT is the source of flash crashes by occasionally creating large bid-ask spreads and concentrating orders on the sell side of the book. On the other hand, HFT plays a positive role in the recovery from the crash by contributing to quickly restore liquidity.

[\[1\]](#) Some unprecedented actions and investigations by local regulators were widely reported in the press ([Le Figaro, 2011](#); [Les Echos, 2011](#); [2014](#); [Le Monde, 2013](#); [Le Point, 2015](#)).

Is it possible to experiment with a universal income?

By Guillaume Allègre, [@g_allegre](#)

In a blog entitled “[Revenu universel, l'impossible expérimentation](#)” [Universal income, the impossible experiment], I underlined the limits of current and future experiments with a universal income[\[1\]](#): samples that are too small and unrepresentative; the limits intrinsic to a lottery (absence of balancing effects on the labor market; an absence of “peer effects”[\[2\]](#)). Clément Cayol responded to my piece on the website of the Mouvement Français pour un Revenu de Base [French Movement for a Basic Income] (“[M Allègre : les expérimentations de revenu de base sont un chemin possible vers l'instauration](#)” [Mr Allègre: Experiments with a basic income are one possible path towards establishing it]). Cayol proposes experimenting with a universal income on “saturation sites” (for example, an employment catchment area). The idea would be to select certain employment catchment areas as a treatment group (e.g. Toulouse and Montbéliard) and to use areas with similar characteristics as control groups (Bordeaux and Besançon?). By comparing differences in behaviour between the two groups (in terms of employment, part-time work, wages, etc.), we could identify the impact of a universal income. An experiment like this has taken place in a [Kenyan village](#).

The idea of experimenting on a saturation site may seem attractive and does meet some of my criticisms (we can measure balancing effects on the labor market and peer effects). But it does not respond to others: an experiment like this is by its very nature temporary (and people will not react in the same way to a temporary incentive as to a permanent incentive); the financing side of a universal income cannot be tested (and a universal income is expensive: it will have to be financed by, for instance, income tax, which will have an

impact on financial incentives to return to work).

Experimenting on a saturation site has its own limits: it is necessary to find a control group with characteristics similar to those of the treatment group; migration has to be controlled (could I benefit from the universal income by moving from Montbéliard to Besançon?). And above all it poses legal and ethical issues [3]: can we give 500 euros per month to all the inhabitants of Toulouse and Montbéliard and have the French taxpayer finance this experiment[4]? The law allows local authorities to experiment, but only for the purpose of extending the scale of a trial, yet extending a universal income to the entire French territory is not on the cards.

[1] Also see Guillaume Allègre, 2010: « L'expérimentation du revenu de solidarité active entre objectifs scientifiques et politiques », [Experimenting with France's RSA in-work income benefit between scientific and policy objectives], *Revue de l'OFCE*, no.113.

[2] Here the peer effect refers to the fact that an individual will stop working more easily if their friends also stop working: my leisure time is complementary to that of my friends.

[3] See: <https://www.senat.fr/rap/l02-408/l02-40810.html>

[4] It is not easy to believe that experimentation creates losers among the treatment group, so funding is necessarily national.

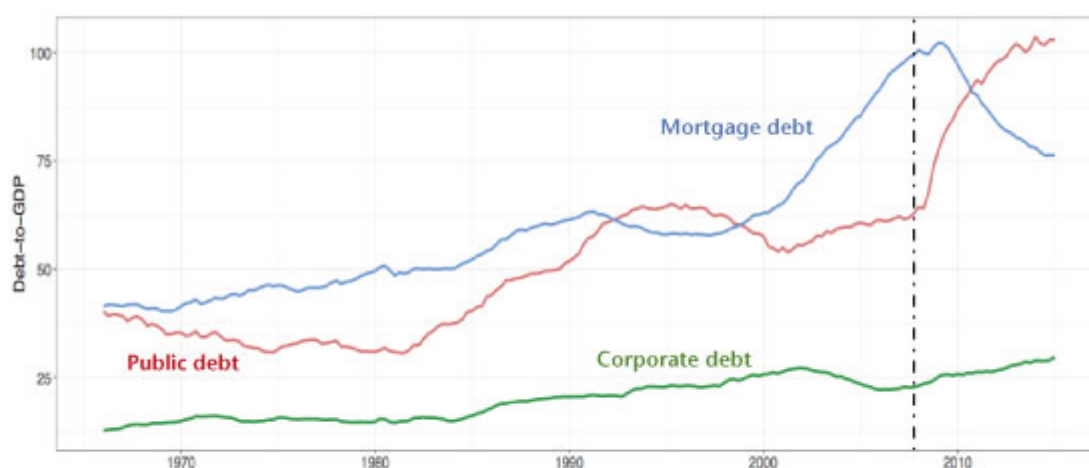
The Janus-Faced Nature of Debt

by Mattia Guerini, Alessio Moneta, [Mauro Napoletano](#), Andrea Roventini

The financial and economic crises of 2008 have been intimately intertwined with the dynamics of debt. As a matter of fact, a research by [Ng and Wright \(2013\)](#) reports that in the last thirty years all the U.S. recessions had financial origins.

[Figure 1](#) shows that both U.S. corporate (green line) and mortgage (blue line) debts have been growing steadily from the sixties to the end of the century. In the 2000s, however, mortgage debt increased from around 60% to 100% of GDP in less than a decade. The situation became unsustainable in 2008 with the outburst of the subprime real asset bubble. The trend in debt changed since then. Mortgage debt declined substantially, while the U.S. public debt-to-GDP ratio (red line) skyrocketed from 60% to a level slightly above than 100% in less than 5 years, as a consequence of the Great Recession.

Figure 1. Private and public debt-to-GDP series



The vertical dashed line represents 2007 (Q4).

Source: authors.

This surge in public debt has been raising concerns about the

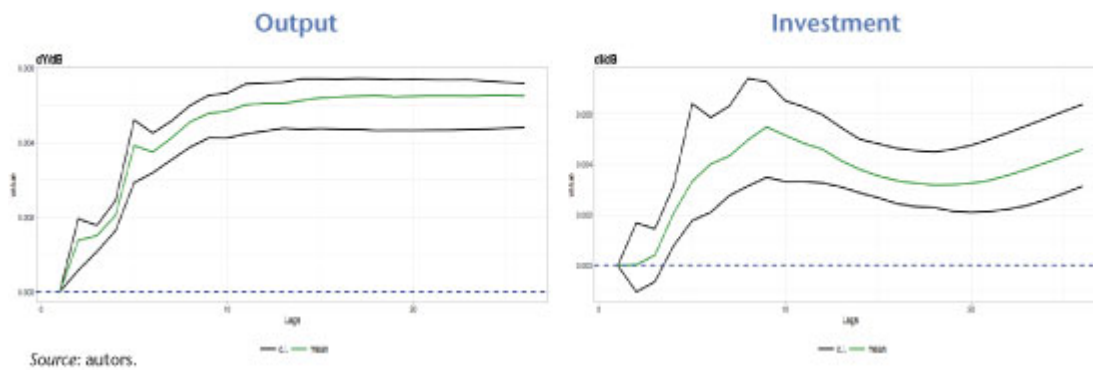
sustainability of public finances, and more generally, about the possible detrimental effects of public debt on economic growth. Some economists argued indeed that there exist a 90% threshold after which public debt harms GDP growth (see [Reinhart and Rogoff, 2010](#)). Notwithstanding a large number of empirical studies contradicting this hypothesis (see [Herdon et al., 2013](#) and [Égert, 2015](#) as recent prominent examples), the debate is still open (see [Ash et al., 2017](#) and [Chudik et al., 2017](#)).

We have contributed to this debate with a new empirical analysis that jointly investigates the impact of public and private debt on U.S. GDP dynamics and that will appear on “*Macroeconomic Dynamics*” (see [Guerini et al., 2017](#)). Our analysis keeps the *a priori* theoretical assumptions as minimal as possible by exploiting new statistical techniques that identify causal structures from the data under quite general conditions. In particular, we employ a causal search algorithm based on the Independent Component Analysis (ICA) to identify the structural form of the cointegrated VAR and to solve the double causality issue.^[1] This has allowed us to keep an “agnostic” perspective in the econometric analysis, avoiding restrictions on the model, thus “letting the data speak”.

The results obtained suggest that public debt shocks *positively* and *persistently* affect output (see [Figure 2](#), left panel).^[2] In particular, our results provide evidence against the hypothesis that upsurges in public debt hamper GDP growth in the U.S. In fact, increases in public debt—possibly channeled through an increase in public spending in investments—crowd-in private investments, (see [Figure 2](#), right panel) confirming some results already brought to the fore by [Stiglitz \(2012\)](#). This implies that government spending and, more generally, expansionary fiscal policy spur output both in the short- and in the medium-run. In that, austerity policies do not seem to be the appropriate policy answer to overcome a

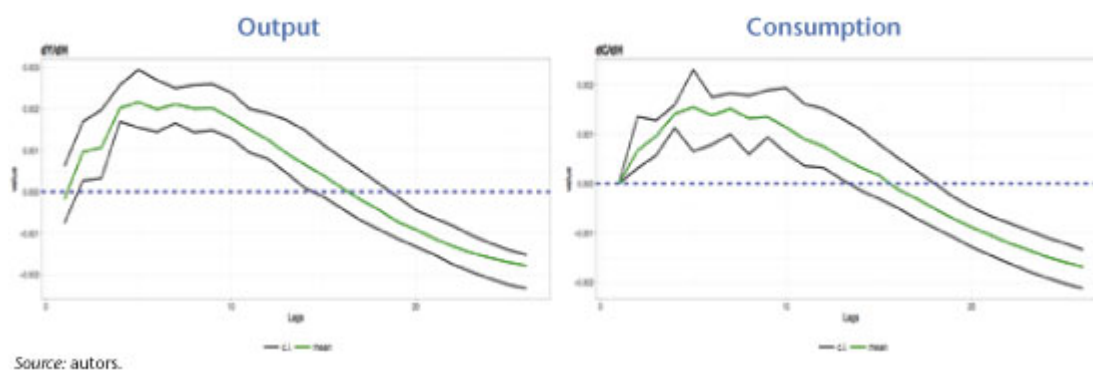
crisis.

Figure 2. Effects of public debt on output and investment



On the contrary, these positive effects are not fully observed when we look at the effects of private debt and in particular when we focus on mortgage debt. More specifically, we find that the positive effects of private debt shocks are milder than public debt's ones, and they fade out over time. Furthermore, increasing the levels of mortgage debt have a negative impact on output and consumption dynamics in the medium-run (see [Figure 3](#)), while their positive effects are only temporary and relatively mild. Such a result appears to be fully consistent with the results of [Mian and Sufi \(2009\)](#) and [Jordà et al. \(2014\)](#): mortgage debt fuels real asset bubbles, but when these bubbles burst, they trigger a financial crises that visibly transmit their negative effects to the real economic system for longer periods of time.

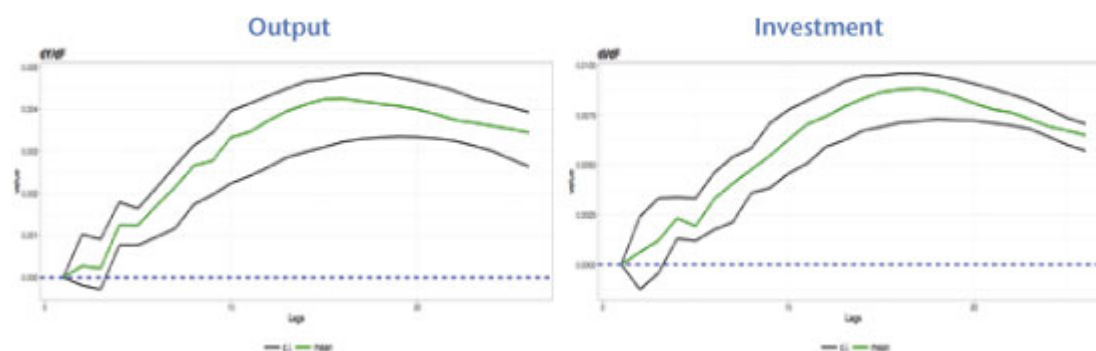
Figure 3. Effects of mortgage debt on output and consumption



Another interesting fact that emerges from our research, is that the other most important form of private debt—i.e. non-

financial corporations (NFCs) debt—does not generate negative medium-run impacts. As a matter of fact (as it is possible to see in [Figure 4](#)) surges in the level of NFCs debt seems to have a positive effect both on GDP and on gross fixed capital formation, hence directly increasing the level of investments.

Figure 4. Effects of corporate debt on output and investment



Source: authors.

To conclude, our results suggest that debt has a *Janus-faced* nature: different types of debts impact differently on aggregate macroeconomic dynamics. In particular, possible threats to medium- and long-run output growth do not come from government debt (which might well be a consequence of a crisis), but rather from increasing too much the level of private one. More specifically, surges in the level of mortgage debt appear to be much more dangerous than the building up of corporate debt.

^[1] For details about the ICA algorithm see [Moneta et al. \(2013\)](#); for details about its statistical properties see [Gourieroux et al. \(2017\)](#).

^[2] When computing the Impulse Response Functions, we apply a 1 standard deviation (SD) shock to the relevant debt variable. Hence, for example, on the y-axis of Figure 2, left panel, we can read that a 1 SD shock to public debt has a 0.5% positive effect on GDP in the medium run.

France's RSA income support: 35% lack of take-up?

By [Guillaume Allègre](#), [@g_allegre](#)

The lack of take-up of France's RSA income supplement benefit is often invoked as an argument for reforming the system for assisting people on low incomes (such as a Universal Income or establishment of a single social benefit that would merge the RSA, the in-work *Prime d'activité* benefit and Housing benefit). According to the CNAF, the lack of take-up of the base RSA benefit (*RSA-socle*) is 36% ([CNAF, 2012](#)). To arrive at this estimate, the CNAF relies on a quantitative survey conducted over the phone with 15,000 households selected from their tax returns. The RSA quantitative survey was specifically designed to replicate an eligibility test for the benefit. However, some households who are ineligible for the RSA claim they are benefitting from it. This category represented 524 households in the survey, i.e. 11% of the beneficiaries. This could result from a reporting error at the time of the survey, or from an approximation of the survey's eligibility test. In any case, the existence of this category shows that it is difficult to estimate the lack of take-up of a benefit using a survey, even a specific one. In addition, the Secours catholique association estimates the lack of take-up of the base RSA at 40% (out of all the households they encountered in 2016) [\[1\]](#).

There is another way to estimate the lack of take-up of the RSA. Recently, the INSEE and DREES have opened up access to the [INES](#) micro-simulation software. The INES can be used to simulate the socio-fiscal legislation by using the ERFS (Survey of Tax and Social Income). The ERFS is based on tax

declarations; the survey – based on administrative data – is therefore very exhaustive (households are required to report their income every year). The ERFs, however, has limitations: it concerns only so-called ordinary households. It excludes people who do not have a residence (the homeless) and people who live in institutions (army, retirement homes, etc. [\[2\]](#)). The survey field is metropolitan France. The tax returns are annual, but the resource base of the RSA are quarterly revenues, which implies, to simulate the RSA, rendering income “quarterly” on the basis of ad hoc assumptions.

According to the simulation done on the INES (2015 legislation), the number eligible for the base RSA in the fourth quarter of 2015 should be around 2,000,000 households, while according to the CNAF the actual number of beneficiaries of the base RSA (RSA-socle) in December 2015 was 1,720,000 [\[3\]](#). According to the ERFs survey (and microsimulations), the lack of take-up of the base RSA would be 14% [\[4\]](#).

So is the lack of take-up of the base RSA 14% or 36%? The truth undoubtedly lies in between, but at what level? The lack of take-up of housing benefits is estimated at 5% ([Simon, 2000](#)). But the two benefits (RSA, housing benefits) have similar target groups. The lack of take-up of the RSA is certainly higher than that for housing benefits (the target population is poorer, the administrative procedures are more extensive for the RSA). On the other hand, the difference between 5% (estimated lack of take-up for housing benefits) and 36% (lack of take-up estimated by CNAF for the RSA) is difficult to explain.

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[\[1\]](#) Source: 2017 report by Secours catholique :

https://www.secours-catholique.org/sites/scinternet/files/publications/rs17_0.pdf

[2] But this is not important for the RSA as people over age 65 are eligible for another means-tested benefit, the ASPA.

[3] Base RSA + Base RSA and RSA activité in-work benefit, metropolitan France. CAF+MSA Sources : <http://data.caf.fr/dataset/foyers-allocataires-percevant-le-revenu-de-solidarite-active-rsa-par-caf>

<http://statistiques.msa.fr/wp-content/uploads/2017/01/Situation-du-RSA-au-regime-agricole-a-fin-2015.pdf>

[4] This result varies by a few percentages depending on the year, which shows that the model is – like any model – imprecise. The INES team (INSEE-DREES) considers that the model cannot be used to measure the lack of take-up, in particular because the ERFS does not capture very low incomes well (the estimated lack of take-up using the INES would thus underestimate real non-take-up). Historically, the ERFS is not considered very good for estimating the eligibility for the base RSA. It is true that as RSA beneficiaries are by construction not taxable, they do not risk a penalty in case of misrepresentation. This problem has been solved (partially) by using pre-filled declarations.

Italy: The horizon seems to be clearing

By [Céline Antonin](#)

With growth in Italy of 0.4% in the third quarter of 2017 (see **table** below), the country's economy seems to have recovered and is benefiting from the more general recovery in the euro zone as a whole. The improvement in growth is linked to several factors: first, the continued closing of the output gap, which had worsened sharply after a double recession (2008-2009 and 2012-2013). In addition, the expansionary fiscal policy in 2017 (+0.3 fiscal impulse), mainly targeted at businesses, and thriving consumption driven by expanding employment and rising wages explain this good performance. The increase in employment is the result of the reduction in social contributions that began in 2015 as well as the pick-up in growth in 2016 and 2017.

Despite all this, Italy remains the “sick man” of the euro zone: GDP in volume is still more than 6% below its pre-crisis level, and the recovery is less solid than for its euro zone partners. Furthermore, the public debt, now over 130%, has not yet begun to fall, potential growth remains sluggish (0.4% in 2017), and the banking sector is still fragile, as is evidenced by recent bank recapitalizations, in particular the rescue of the Monte dei Paschi di Siena bank (see below).

In 2018-2019, Italy's growth, while remaining above potential, should slow down. Indeed, fiscal policy will be neutral and growth will be driven mainly by domestic demand. Unemployment will fall only slowly, as the employment support measures implemented in 2017 wind down and productivity returns to its trend level [\[1\]](#) over the forecasting horizon (see [OFCE, La nouvelle grande modération \[in French\], p. 71](#)). Furthermore, the banking sector will continue its long and difficult restructuring, which will hold back the granting of bank loans.

In the third quarter of 2017, the contribution of domestic demand to growth (consumption and investment) reached 0.8 point, but massive destocking attenuated the impact on growth (-0.6 point). Gross Fixed Capital Formation (GFCF) leapt 3% in

the third quarter of 2017, returning to its 2012 level, thanks to a strong increase in the productive sector (machinery, equipment and transport). Private consumption, the other pillar of domestic demand, grew on average by 0.4% per quarter between the first quarter of 2015 and the third quarter of 2017, thanks to falling unemployment and a reduction in precautionary savings. Credit conditions have improved slightly due to the quantitative easing policy pursued by the ECB, even though the channel for the transmission of monetary policy is suffering from the difficulties currently hitting the banking sector.

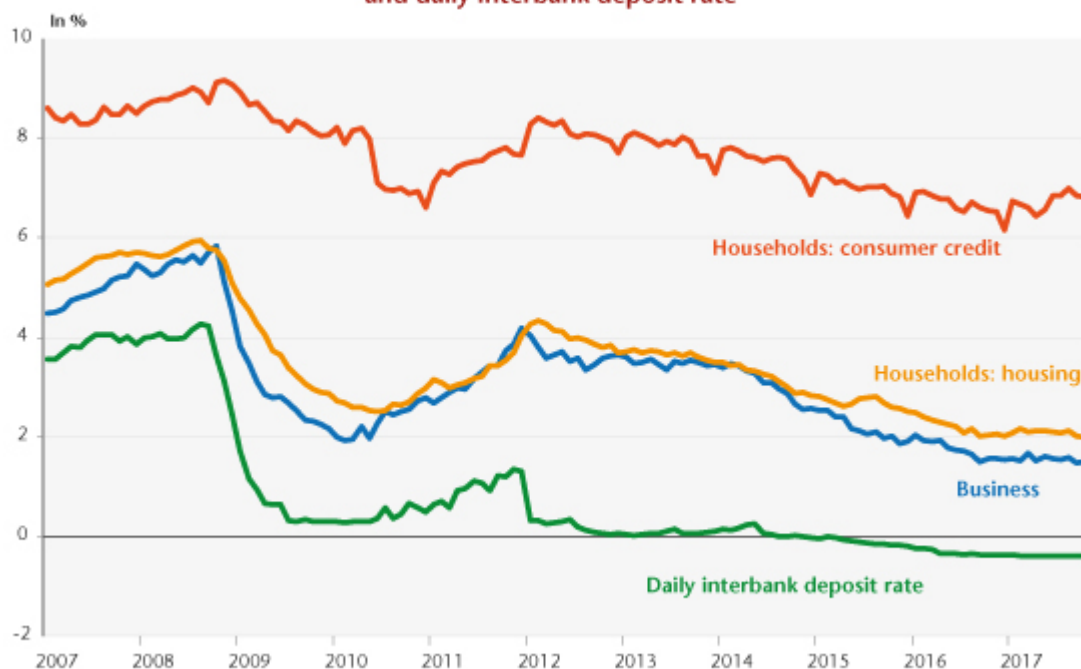
The number of people in employment rose to 23 million in the second quarter of 2017, back to its pre-crisis level, while the unemployment rate is declining only slowly due to the steady increase in the labour force [\[2\]](#). Job creation did indeed take place between 2014 and 2017 (around 700,000 jobs created, 450,000 of them permanent), mainly due to the lowering of charges on new hires in 2015 and 2016 and the resumption of growth. Moreover, according to INPS figures, the number of new hires on permanent contracts decreased (between January-September 2016 and January-September 2017) by -3.1%, as did conversions from temporary contracts to fixed-term contracts (-10.2%), while the numbers of new hires on temporary contracts exploded (+ 27.3%): in other words, it is mainly precarious contracts that are currently contributing to job growth. From 2018, the pace of job creation is expected to decline due to the winding down of the measures cutting employer social contributions (which represented a total of 3 billion euros) and the slowdown in economic growth. This underpins a forecast of a very slow decline in unemployment: employment is expected to rise more slowly in 2018 and 2019, but the labour force is also growing more slowly, due to a bending effect, a distortion linked to the slowdown in job creations and the retirement of the baby boom generation.

The productivity cycle in Italy is still in poor shape,

despite the downward revision of the productivity trend (-1.0% for the period 2015-2019). The measures taken to cut social security contributions over the 2015-2016 period will have enriched employment growth by 27,000 jobs per quarter (extrapolating the estimates by [Sestito and Viviano, Bank of Italy](#)). Our hypothesis was for a closure of the productivity cycle over the forecast horizon, with productivity picking up pace in 2018 and 2019 [\[3\]](#).

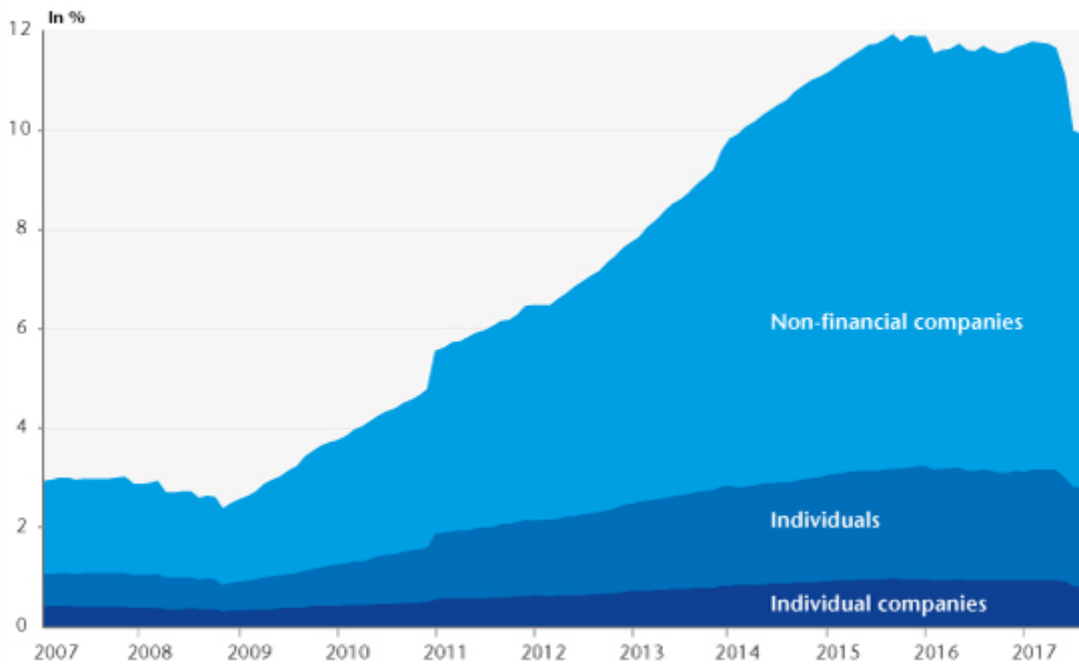
Moreover, the productive investment rate recovered strongly in the third quarter of 2017: it should continue to rise in 2018 and 2019, thanks in particular to a higher pace of extra-depreciation, to the ECB's quantitative easing programme and to clearing up the situation of the banks, which should allow a better transmission of monetary policy (**Figure 1**). In addition, the amount of bad debt (*sofferenze*) began to fall sharply (down 30 billion euros between January and October, 2 GDP points – **Figure 2**). This is linked to the gradual restructuring of bank balance sheets and the economic recovery in certain sectors, particularly construction, which accounts for 43% of business bad debt.

Figure 1. Interest rates on new loans to households and business and daily interbank deposit rate



Source: Bank of Italy.

Figure 2. Bad debt (*sofferenze*) as a share of GDP



Sources: Istat, Bank of Italy.

In 2017, it was domestic demand that was driving growth; the contribution of foreign trade was zero because of the dynamism of imports and the absence of any improvement in price competitiveness. We anticipate that the contribution of foreign trade will be null in 2018 and slightly positive in 2019 thanks to an improvement in competitiveness (Table).

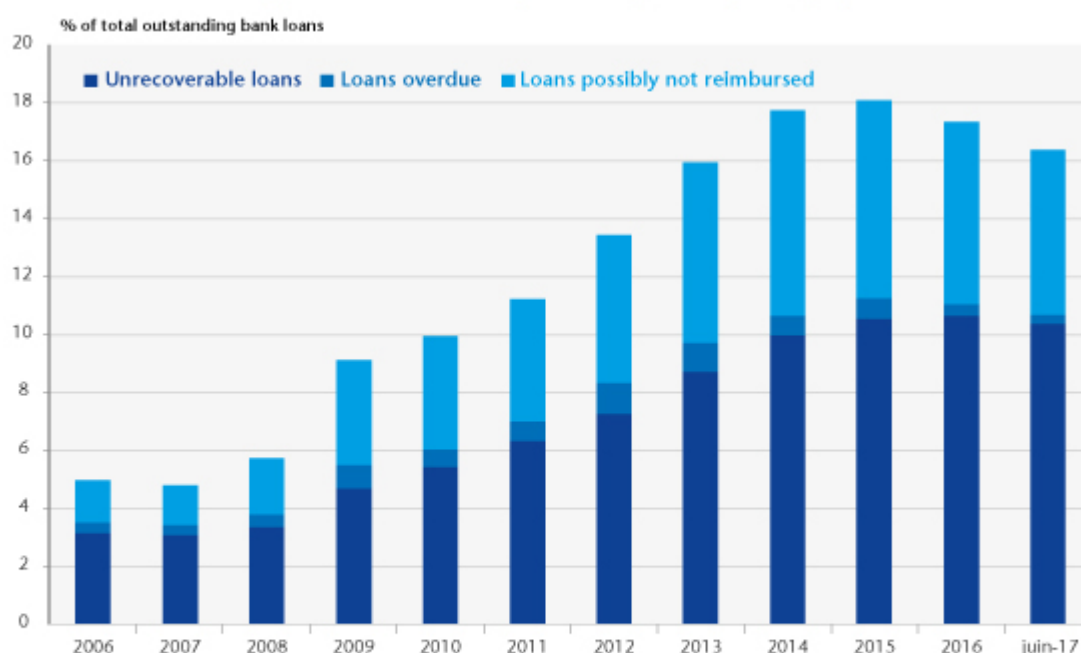
Fiscal policy was expansionary in 2017 (+0.3 point impulse) and supported growth. This has mainly benefited business: support for the world of agriculture, extra-depreciation, the reduction of the corporate tax rate (IRES) from 27.5% to 24% in 2017, a boost in the research tax credit, etc. 2018 should not see a noticeable increase in taxation, and spending is expected to increase slightly (0.3%). The additional public expenditure should reach 3.8 billion euros, for: youth bonuses (youth employment measures), prolongation of extra-depreciation in industry, the renewal of civil service contracts and the fight against poverty. As for public revenue, the government has ruled out a VAT hike that would have brought in 15.7 billion euros; the adjustment will therefore come from a smaller reduction in the deficit and an increase in revenue (5 billion euros forecast). To boost

revenue, the government is counting on the fight against tax evasion (repatriation, recovery of VAT with electronic invoicing), and the establishment of a web tax on large companies on the Net.

A banking sector in full convalescence

The deterioration in the situation of Italy's businesses, in particular small and medium-sized enterprises, has led since 2009 to a sharp increase in non-performing loans. Since 2016, the situation of the Italian banking sector has improved somewhat, with a return on equity of 9.3% in June 2017 against 1.5% in September 2016. The ROE is higher than the European average (7% in June 2017) and puts the country ahead of Germany (3.0%) and France (7.2%). In addition, at the end of June 2017, the ratio of bad debt to total loans came to 16.4% (8.4% net of provisions), of which 10.4% was for unrecoverable loans (**Figure 3**). Banks are shedding these loans at an increasing pace with various partners (Anglo-American hedge funds, doBank, Atlante and Atlante 2 funds, etc.). Hence, between 2013 and 2016, the share of bad loans that were repaid in the year rose from 6 to 9%. Overall, the amount of bad loans was cut by 25 billion euros between 2016 and June 2017, down to 324 billion euros, of which 9 billion euros came from the liquidation of the Venetian banks (Banca Popolare di Vicenza and Veneto banca). This improvement reflects the fact that the banks are increasingly adopting active management policies for bad debts. In addition, the 2015 Asset Seizure Reform reduced the length of property seizure proceedings.

Figure 3. Share of non-performing debt by category



Note: Non-performing loans can be broken down into three mutually exclusive categories:

- Unrecoverable loans, which designates exposure to a debtor who's insolvent;
- Loans possibly not reimbursed, which designates exposure to a debtor who has little chance of reimbursing in full without some action such as the invoking of guarantees;
- Loans with overdue repayments, which designates any exposure where the delay in reimbursement exceeds 90 days.

Sources: Bank of Italy, Financial stability reports.

The Italian government has implemented various reforms to cope with the difficulties facing the country's banking sector. First, it has been working to accelerate the clearance of bad debts and to reform the law on bankruptcy. Legislative Decree 119/2016 introduced the "martial pact" (*patto marciano*), which makes it possible to transfer real estate used as collateral to creditors (other than the debtor's principal residence); the real estate can then be sold by the creditor if the default lasts more than 6 months. Other rules aim at speeding up procedures: the use of digital technologies for hearings of the parties, the establishment of a digital register of ongoing bankruptcy proceedings, the reduction of opposition periods during procedures, an obligation for judges to order provisional payments for amounts not in dispute, the simplification of the transfer of ownership, etc.

In April 2016, the government introduced a public guarantee system (*Garanzia Cartolarizzazione Sofferenze, GCS*) covering bad debts, for a period of 18 months (extendable for another 18 months). To benefit from this guarantee, the bad debt must

be securitized and repurchased by a securitization vehicle; the latter then issues an asset-backed security, the senior tranche of which is guaranteed by the Italian Treasury.

The Atlante investment fund was also set up in April 2016, based on public and private capital, in order to recapitalize troubled Italian banks and redeem bad debt.

There are many lessons to be drawn from the case of the Monte dei Paschi di Siena bank (MPS, the country's fifth-largest bank), which has been a cause of major concern. The Italian State, working in coordination with the European Commission and the ECB, had to intervene as a matter of urgency, following the failure of the private recapitalization plan at the end of 2016. A system of public financial support for banks in difficulty was introduced after a government proposal – *"Salva Risparmio"* [\[4\]](#) of 23 December 2016 – was enacted on 16 February 2017. The precautionary recapitalization of MPS was approved by the Commission on 4 July 2017 [\[5\]](#), in the amount of 8.1 billion euros. The Italian State increased its stake in the bank's capital by 3.9 billion euros on the one hand, and on the other 4.5 billion euros of the bank's subordinated bonds were converted into shares. The State is also to buy 1.5 billion euros of shares resulting from the forced conversion of bonds held by individuals (i.e. a total of 5.4 billion euros injected by the State, giving it a 70% holding in the capital of MPS). MPS will also sell 26.1 billion euros of bad debt to a special securitization vehicle, and the bank will be restructured.

Two other banks, the Venetian banks Banca Popolare di Vicenza and Veneto banca (the 15th and 16th largest banks in the country in terms of capital), were put into liquidation on 25 June 2017, in accordance with a "national" insolvency procedure, which lies outside the framework set by the European BRRD Directive [\[6\]](#). The Intesa Sanpaolo bank was selected to take over, for one symbolic euro, the assets and liabilities of the two banks, with the exception of their bad

debts and their subordinated liabilities. The Italian State will invest 4.8 billion euros in the capital of Intesa Sanpaolo in order to keep its prudential ratios unchanged, and it can grant up to 12 billion euros of public guarantees.

The Italian banking sector is thus in the midst of restructuring, and the process of clearing up bad debt is underway. However, this process will take time; the ECB nevertheless seems to want to tighten the rules. In early October 2017, the ECB unveiled proposals demanding that the banks fully cover the unsecured portion of their bad debt within two years at the latest, with the secured portion of the debt to be covered within at most seven years. These proposals will apply only to new bad debt. The Italian parliament and the Italian government reacted to these announcements by warning of the risk of a credit crisis. Even though these are only proposals, for now, this indicates that it is a priority to clear Italy's bad debt rapidly, and that the government must stay the course.

Table. Italy: Summary of forecasts

Change from the preceding period (%)

| | 2017 | | | | 2018 | | | | 2016 | 2017 | 2018 | 2019 |
|-------------------------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | | | | |
| GDP | 0.5 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 1.1 | 1.5 | 1.2 | 0.9 |
| GDP per capita | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 1.0 | 1.2 | 0.9 | 0.7 |
| Household consumption | 0.7 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 1.5 | 1.5 | 1.2 | 1.0 |
| Public consumption | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.8 | 0.1 | -0.2 |
| Total GFCF, of which: | -2.2 | 1.1 | 3.0 | 0.5 | 0.4 | 0.3 | 0.3 | 0.4 | 3.0 | 3.2 | 3.0 | 1.3 |
| Productive | -7.2 | 3.6 | 8.2 | 0.6 | 0.5 | 0.4 | 0.4 | 0.3 | 7.1 | 6.6 | 6.4 | 1.3 |
| Housing | 0.7 | -0.3 | 0.4 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 2.8 | 1.8 | 0.7 | 0.6 |
| Exports of goods and services | 1.8 | 0.1 | 1.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 2.6 | 5.1 | 2.9 | 2.3 |
| Imports of goods and services | 0.7 | 1.6 | 1.2 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 3.3 | 5.4 | 2.8 | 2.0 |
| <i>Contributions:</i> | | | | | | | | | | | | |
| Domestic demand excl. stock | 0.1 | 0.4 | 0.7 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 1.5 | 1.6 | 1.3 | 0.8 |
| Change in stock | 0.1 | 0.4 | -0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.3 | -0.1 | -0.2 | 0.0 |
| Foreign trade | 0.3 | -0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | 0.0 | 0.1 | 0.1 |
| Consumer prices (HICP) ¹ | 1.4 | 1.6 | 1.2 | 1.2 | 0.8 | 0.8 | 0.8 | 0.9 | -0.1 | 1.0 | 0.5 | 1.0 |
| Unemployment rate | 11.6 | 11.2 | 11.2 | 11.1 | 11.0 | 10.9 | 10.9 | 10.8 | 11.7 | 11.3 | 10.9 | 10.8 |
| Current balance as % of GDP | | | | | | | | | 2.7 | 2.6 | 2.6 | 2.5 |
| Current deficit as % of GDP | | | | | | | | | -2.5 | -2.0 | -1.5 | -1.2 |
| Public debt as % of GDP | | | | | | | | | 132.8 | 132.3 | 131.1 | 129.9 |
| Fiscal impulse in GDP points | | | | | | | | | 0.3 | 0.3 | 0.1 | 0.1 |
| GDP – euro zone | 0.6 | 0.7 | 0.6 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1.8 | 2.4 | 1.9 | 1.6 |

1. For the quarters, year-on-year. For the years, annual average.

Sources: ISTAT, Author's calculations, OFCE October 2017 forecast.

[1] Estimated according to a model using trend breaks, we estimate the productivity trend at -1.0% for the period 2015-2019, due to growth that is more job-rich.

[2] This increase in the labour force is due to a higher participation rate among older workers (aged 55-64), which is linked to the lowering of the minimum retirement age. It is also due to women's increased participation in the labour market, as a result of the Jobs Act (extension of maternity leave, telecommuting, financial measures to reconcile work and family life, a budget of 100 million euros for the creation of childcare services, etc.).

[3] The increase in productivity per capita in market waged employment rose from -0.7 % in 2017 to 0.3 % in 2018 and 0.6 % in 2019.

[4] The Salva Risparmio Decree Law provides for the creation of a fund with 20 billion euros to support the banking sector. This allows the State to carry out precautionary recapitalizations of banks; it provides guarantees on new issues of bank debt; and it provides liquidity from the central bank under Emergency Liquidity Assistance (ELA). It also protects savers by providing the possibility of the State buying back subordinated bonds converted into shares prior to the public intervention.

[5] European Parliament, [The precautionary precaution of Monte dei Paschi di Siena](#)

[6] For greater detail, see the note [in French] by Thomas Humblot, [Italie : liquidation de Veneto Banca et de Banca Popolare di Vicenza](#), July 2017.

The euro zone: A general recovery

By [Christophe Blot](#)

This text is based on the 2017-2019 outlook for the global economy and the euro zone, a full version of which is available [here](#).

The euro zone has returned to growth since mid-2013, after having experienced two crises (the financial crisis and the sovereign debt crisis) that led to two recessions: in 2008-2009 and 2011-2013. According to [Eurostat](#), growth accelerated during the third quarter of 2017 and reached 2.6% year-on-year (0.6% quarter-on-quarter), its highest level since the first quarter of 2011 (2.9%). Beyond the performance

of the euro zone as a whole, the current situation is marked by the generalization of the recovery to all the euro zone countries, which was not the case in the previous phase of recovery in 2010-2011. Fears about the sustainability of the debt of the so-called peripheral countries were already being reflected in a sharp fall in GDP in Greece and the gradual slide into recession of Portugal, Spain and a little later Italy.

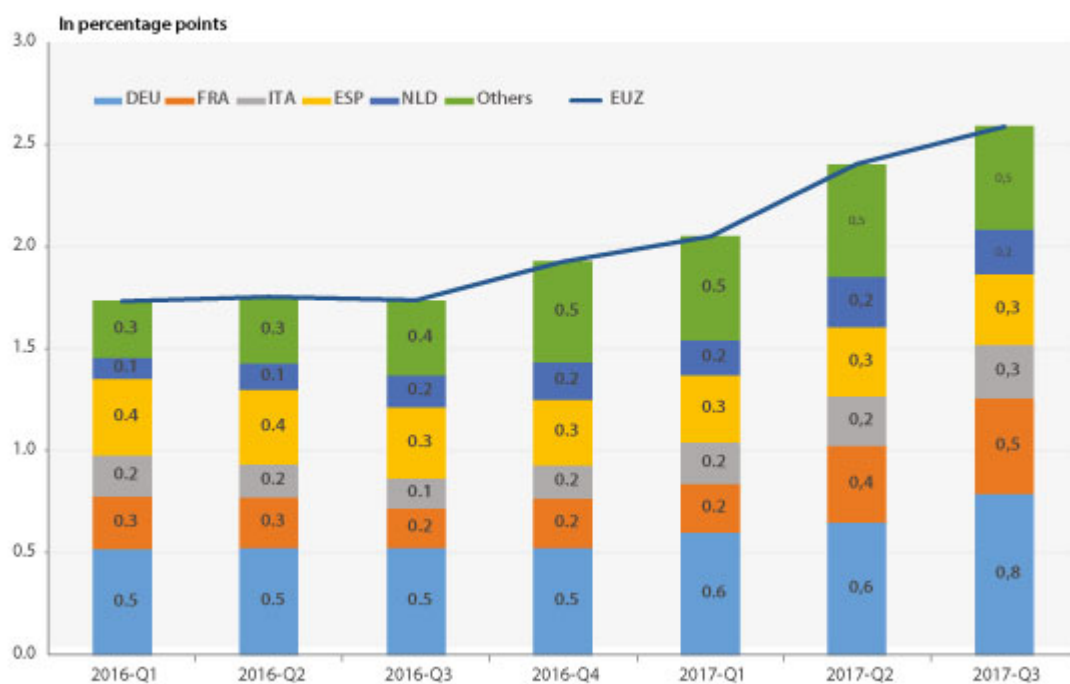
Today, while Germany remains the main engine of European growth, all of the countries are contributing to the accelerating recovery. In the third quarter of 2017, Germany's contribution to euro zone growth was 0.8 point, a faster pace than in the previous two quarters, reflecting the vitality of the German economy (see the Figure). However, this contribution was even greater in the first quarter of 2011 (1.5 points for growth of 2.9% year-on-year). This catching-up trend is continuing in Spain, which in the third quarter of 2017 had quarterly growth of 3.1% year-on-year (0.8% quarter-on-quarter), making a 0.3 point contribution to the euro zone's overall growth. Above all, activity is accelerating in the countries that up to now had been left a little bit out of the recovery, particularly in France and Italy, which contributed respectively 0.5 and 0.3 points to the growth of the zone over the third quarter[\[1\]](#). Finally, the recovery is taking root in Portugal and Greece.

This renewed dynamism of the European economy is due to several factors. Monetary policy is still very expansionary, and the securities purchases being carried out by the Eurosystem help to keep interest rates low. Credit conditions are favourable for investment, and the access to credit for SMEs is being loosened up, especially in the countries that were hit hardest by the crisis. Finally, fiscal policy is generally neutral or even slightly expansionary.

The current optimism must not nevertheless hide the scars left by the crisis. The euro zone unemployment rate is still higher

than its pre-crisis level: 9% against 7.3% at the end of 2007. The level still exceeds 10% of the active population in Italy, 15% in Spain and 20% in Greece. The social consequences of the crisis are therefore still very visible. These conditions justify the need to continue to support growth, particularly in these countries.

Figure. The contributions to growth in the euro zone



Source: Eurostat.