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RESEARCH AT THE BANK OF ITALY
DIRECTORATE GENERAL FOR ECONOMICS, STATISTICS AND RESEARCH
NEWSLETTER

Contents

Highlights

Our involvement in the Covid-19 crisis

Since the first outbreak of Covid-19 at the end of last year, the Bank of Italy has been following the evolution of the virus crisis with great attention. The involvement of the DG for Economics, Statistics and Research has progressively increased, especially in the wake of the emergency in Italy and Europe. A dedicated monitoring group has been created within the DG, with the aim of collecting and processing all relevant information and producing research and scenarios useful for policy action. The COVID-19 crisis is currently absorbing most of our resources and efforts.

We are analysing epidemiological developments, in close contact with experts of public and private medical research centres, and producing estimates of the short-term impact of the virus on the Italian and international economies. We study, discuss and contribute to monetary policy discussions, prudential assessments and other policy initiatives, through intensified interactions with authorities and international organizations, appraising possible scenarios.

Our focus is on the impact of this unprecedented crisis on economic activity and on individual and social wellbeing.

The results of our research efforts inform decision-making by the Bank of Italy's Board and participation of the Governor to the ECB Governing Council and are disseminated through several channels and outlets including, among others, national authorities, the G7 and the G20 Finance Tracks, international central banking fora, journals, magazines, policy portals and the domestic and international press.

For more details see the dedicated section on the Bank of Italy's web page

We encourage exchanges of views and findings with other economists from academia and institutions. For further information, please contact covid-gruppoanalisi@bancaditalia.it.

Forthcoming events

3rd Bank of Italy-CEPR Labour workshop

(Rome, 10-11 September 2020)

The workshop aims at providing leading and emerging researchers in the field of labour economics an opportunity to present their research, relevant for the understanding of labour market dynamics and of their interaction with institutions. Three keynote lectures will be given by David Dorn (University of Zurich and CEPR), Lisa Kahn (University of Rochester and NBER) and Camille Landais (London School of Economics and CEPR). The scientific committee is composed by Francesco D'Amuri (Bank of Italy), Marta De Philippis (Bank of Italy), Thomas Le Barbanchon (Bocconi University and CEPR), Marco Manacorda (Queen Mary University of London and CEPR) and Claudio Michelacci (EIEF and CEPR).

While the call for papers is now closed, we are inviting new submissions for an additional session on the labour market effects of the Covid-19 crisis.

Closing the Gaps: The Future of Stabilisation Policies in a Low Interest Rate Environment

(Rome, 1-2 October 2020)

The Banca d'Italia and the CEPR are pleased to announce a call for papers on "Closing the gaps: the future of stabilization policies in a low interest rate environment". The conference will be held on October 1-2, 2020 at the Headquarters of the Banca d'Italia in Rome, Italy. The aim of the conference is to foster the debate on the causes of the prolonged period of low inflation and low interest rates in the main advanced countries, and on the implications for monetary policy and the other stabilization policies.

Proposals should be submitted by April 30, 2020, according to the Call for papers.

8th Bank of Canada, Banca d'Italia Public Investors Conference

(Ottawa, Canada, 30 November-1 December 2020)

The Eighth Public Investors Conference on Portfolio and Risk Management for central banks, sovereign wealth funds and public pension plans will focus on: new methodologies for capital market assumptions (expected risks, return and correlations) for relevant asset classes; robust asset allocation models for public investors; advances in funding and liability modelling; integration of environmental, social and governance (ESG) factors into the investment process; emerging technologies, including risk factors, and their application to portfolio construction as well as investment and risk management.

The programme is available here.

5th CEPR Annual Meeting of the International Macroeconomics and Finance Programme (IMF)

(Rome, 10-11 December 2020)

The workshop aims at bringing together leading researchers contributing to the field of international macroeconomics and finance. A keynote lecture will be given by Pierre-Olivier Gourinchas (UC Berkeley, CEPR, and NBER). The scientific committee is composed by: Philippe Bacchetta (HEC - Université de Lausanne and CEPR), and Fadi Hassan (Bank of Italy). The submission deadline is on 3 August 2020.

The call for papers is available here.

Latest Working Papers

No. 1276: **Spend today or spend tomorrow? The role of inflation expectations in consumer behaviour** (April 2020)

Concetta Rondinelli and Roberta Zizza

We analyse the relationship between inflation expectations and household expenditure in a high-inflation environment (early 1990s) and in a low-inflation one (2016-19), in which we focus on consumers' willingness to buy durables (cars). The use of data from the Survey of Household Income and Wealth conducted by Banca d'Italia allows us to consider the composition of household balance sheets as well.
In a context of high inflation and wages closely indexed to price changes, higher inflation expectations led to a lower real interest rate and a widespread increase in current expenditure to the detriment of future expenditure, especially for younger and indebted households. In more recent years, characterized by low interest rates and price dynamics, the loss of purchasing power associated with higher inflation expectations prevailed over other channels, reducing the propensity to buy durable goods.
Full text (pdf)

No. 1275: **Monetary policy gradualism and the nonlinear effects of monetary shocks** (April 2020)

Luca Metelli, Filippo Natoli and Luca Rossi

Monetary policy in the US has often followed a gradual approach, with the Federal Reserve changing the policy rate through a series of small adjustments rather than one-off larger hikes or cuts. This work conducts an empirical study of the macroeconomic and financial effects of such strategy.
A gradual approach to the conduct of monetary policy leads to stronger responses in variables such as long-term interest rates and inflation to unexpected changes in the policy rate. One possible explanation for this is that the gradual approach might be perceived by investors as a further signal about the future evolution of monetary policy.
Full text (pdf)

No. 1274: **Bridge Proxy-SVAR: estimating the macroeconomic effects of shocks identified at high-frequency** (April 2020)

Andrea Gazzani and Alejandro Vicondoa

The paper proposes a novel methodology that, by exploiting information available at a higher frequency (e.g. financial variables) allows us to estimate a causal link with the variables sampled at lower frequencies (e.g. GDP, inflation and so on). The results obtained by daily identification (and by computing their monthly or quarterly average) are compared with those obtainable from the common identification based on data at a monthly frequency.
An empirical application of the methodology on the macroeconomic effects of uncertainty in the United States shows that the results change significantly with the frequency at which the identification stage is performed. Unexpected fluctuations in uncertainty shocks in the equity market do not have macroeconomic effects if the analysis is carried out monthly. By contrast, when the same identification strategy is applied to daily data, uncertainty generates a recessionary effect on macroeconomic variables that is more in line with economic theory.
Full text (pdf)

No. 1273: **Immigration and the fear of unemployment: evidence from individual perceptions in Italy** (April 2020)

Eleonora Porreca and Alfonso Rosolia

The belief that a higher share of immigrants in the labour market worsens one's own occupational opportunities may discourage workers, entailing less on-the-job or job-search effort. As a consequence, realized employment outcomes would turn out to be worse even if the individual beliefs were wrong. The paper assesses whether these beliefs are grounded in fact, exploiting data from the 2016 Survey of Household Income and Wealth.
On average, Italian citizens appear to be excessively pessimistic about the effects of immigration on their own employment opportunities. The strong negative correlation between the employment outcomes expected in the 12 months following their interview for the

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2016 Survey of Household Income and Wealth and the share of immigrants in the local labour market is almost entirely explained by biased beliefs about the consequences of immigration, whose observable effects are quite limited.
Full text (pdf)

No. 1272: **Mutual funds' performance: the role of distribution networks and bank-affiliation** (April 2020)

Giorgio Albareto, Andrea Cardillo, Andrea Hamaui and Giuseppe Marinelli

This paper studies the return differential between mutual funds issued by bank-affiliated asset management companies (AMCs) and those issued by independent AMCs in the period from 2006-17. We analyze the effects of the distribution network characteristics and of the affiliation to a banking group on the return differential between the two types of mutual funds.
The underperformance of funds issued by bank-affiliated AMCs is mostly explained by the bank-centric structure of the distribution network and, to a lesser extent, by investment strategies that are biased towards securities issued by lending clients of the AMC banking group and by institutions affiliated to the same group.
Full text (pdf)

No. 1271: **An analysis of sovereign credit risk premia in the euro area: are they explained by local or global factors** (March 2020)

Sara Cecchetti

The dynamics of sovereign CDSs in some euro-area countries are studied, breaking them down into objective probability of default and risk premium; in addition, the relationship of these two components with some macroeconomic and financial factors is analysed. Finally, the difference between the values of CDSs stipulated under different contractual conditions (the ISDA basis) is used to determine the risk that the government bond may be redenominated in a different currency.
Sovereign CDS prices show a high contribution of the risk premium and depend mainly on financial variables (in particular, the stock prices of credit companies). Between May and November 2018, the redenomination risk premium of Italian government bonds was approximately double the corresponding objective probability; in times of tension, the contribution of redenomination risk to the default risk is greater compared with other countries in the euro area.
Full text (pdf)

No. 1270: **Asymmetry in the conditional distribution of euro-area inflation** (March 2019)

Alex Tagliabracci

Inflation forecasts and their associated uncertainty play a crucial role in monetary policy decisions. This paper uses a quantile-regression approach to study the impact of business cycle developments on the entire distribution of euro-area inflation forecasts. This methodology allows us to capture possible non-linearities between output and prices.
Economic developments have a stronger impact on the left-hand side of the distribution of short-term inflation forecasts (low levels of inflation) rather than on the right-hand tail. The deterioration of business cycle conditions generate downside risks for inflation forecasts, while upside risks remain muted during phases of economic expansion. This finding remains robust to several business cycle indicators.
Full text (pdf)

No. 1269: **Expansionary yet different: credit supply and real effects of negative interest rate policy** (March 2019)

Margherita Bottero, Camelia Minoiu, José-Luis Peydró, Andrea Polo, Andrea F. Presbitero and Enrico Sette

The paper empirically studies the effect of the ECB's introduction of negative monetary policy rates on the behaviour of Italian banks and firms. In particular, the paper quantifies the consequences for the credit supply of reducing the rate on the deposit facility to -0.1 per cent and, more broadly, on the real economy, stressing the role of bank liquidity on which negative rates had the most direct impact. Negative monetary policy rates compressed the yields on more liquid financial assets, inducing banks to rebalance their portfolios towards loans to firms. The expansion in credit supply occurred through both lower interest rates on loans and larger loans being

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granted, benefiting in particular riskier and smaller firms. Easier access to credit had a positive impact on investment and wages.
Full text (pdf)

No. 1268: **Public debt expansions and the dynamics of the household borrowing constraint** (March 2019)

António Antunes and Valerio Ercolani

We study the effect of expansionary fiscal policies (transfers to households or purchases of goods and services from the private sector) on the household borrowing constraint, and how the shift in such a constraint influences reactions to the policies. We use a macroeconomic model with flexible prices, calibrated for the United States, within which households, that differ by wealth and productivity, are constrained by the maximum quantity they can borrow.
Expansionary fiscal policies tighten the borrowing limit because of a higher interest rate due to the issuance of public debt. The constrained households must deleverage while the richer ones, though farther from the constraint, increase their level of precautionary saving. This depresses both credit and consumption but stimulates labor supply, which in turn amplifies the output multiplier.
Full text (pdf)

No. 1267: **Housing supply elasticity and growth: evidence from Italian cities** (March 2020)

Antonio Accetturo, Andrea Lamorgese, Sauro Mocetti and Dario Pellegrino

The paper estimates the elasticity of the housing supply (the percentage change in the housing supply in response to the percentage change of house prices) for Italian cities and examines the consequences for employment and house price growth in response to a demand shock. The analysis is based on census data on the housing stock and employment and survey data on house prices for the provincial capitals over the last 40 years.
We find that an exogenous increase in labour demand determines a rise in employment and house prices. However, in cities with a more rigid housing supply, for example because of physical constraints to residential development and/or inefficiencies of the public administrations when dealing with construction permits, the impact on economic growth is significantly lessened, while the effects on house prices are greater.
Full text (pdf)

No. 1266: **Determinants of the credit cycle: a flow analysis of the extensive margin** (March 2020)

Vincenzo Cuciniello and Nicola di Iasio

A methodology has been developed to decompose fluctuations in bank credit into the contribution of new debtors and that of existing debtors. The change in the number of debtors is also decomposed into inflows and outflows across three statuses in the reference month: debtors; loan applicants; neither debtors nor applicants. For this analysis, the loan level data of households and businesses from 1997 to 2019 were used.
The expansive phases of credit are mainly linked to the increase in the number of new households and businesses that obtain a loan. The inflow of new debtors is highly procyclical, anticipates the business cycle and accounts for more than two thirds of the change in the number of debtors. The volatility of new borrowers is due to the change in the probability of obtaining a loan, rather than to the change in the total number of applicants.
Full text (pdf)

Other recent Working Papers

December 2019 — February 2020

No. 1265: Public credit guarantees and financial additionalities across SME risk classes
Emanuele Ciani, Marco Gallo and Zeno Rotondi

No. 1264: The impact of TLTRO2 on the Italian credit market: some econometric evidence
Lucia Esposito and Davide Fantino

No. 1263: Rising protectionism and global value chains: quantifying the general equilibrium effects
Rita Cappariello, Sebastián Franco-Bedoya and Gianmarco Ottaviano

No. 1262: Capital inflows to emerging countries and their sensitivity to the global financial cycle
Ines Buono, Flavia Corneli and Enrica Di Stefano

No. 1261: The real effects of land use regulation: quasi-experimental evidence from a discontinuous policy variation
Marco Fregoni, Marco Leonardi and Sauro Mocetti

No. 1260: Demand for safety, risky loans: A model of securitization
Anatoli Segura and Alfonso Villacorta

No. 1259: Energy costs and competitiveness in Europe
Ivan Faiella and Alessandro Mistretta

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Simone Auer, Marco Bernardini and Martina Cecioni

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Antonio M. Conti, Elisa Guglielminetti and Marianna Riggi

No. 1256: Corporate default forecasting with machine learning
Mirko Moscatelli, Simone Narizzano, Fabio Parlapiano and Gianluca Viggiano

No. 1255: The loan cost advantage of public firms and financial market conditions: evidence from the European syndicated loan market
Raffaele Gallo

No. 1254: The effects of bank branch closures on credit relationships
Iconio Garrì

No. 1253: Place-based Policy and Local TFP
Giuseppe Albanese, Guido de Blasio and Andrea Locatelli

No. 1252: The cost of steering in financial markets: evidence from the mortgage market
Leonardo Gambacorta, Luigi Guiso, Paolo Emilio Mistrulli, Andrea Pozzi and Anton Tsoy

Latest Occasional Papers

No. 559: **An introduction to Italian balance sheets: methodology and stylized facts** (April 2020)

Luigi Infante and Francesco Vercelli

Balance sheet statistics are included in the national accounts system and provide a complete framework for analysing the wealth of a nation and its evolution over time. The paper presents Italian balance sheets, compiled using data on financial accounts produced by the Bank of Italy and non-financial asset data calculated by Istat, the Italian National Institute of Statistics.
In Italy, the ratio of non-financial assets to gross wealth increased from 43 to 47 per cent between 2005 and 2008 because of the dynamics of housing prices. It then gradually decreased from 2012 and reached 41 per cent at the end of 2017. The ratio of net wealth to income in Italy is high by international standards, although the gap has narrowed over the last decade.
Full text (pdf) in Italian only

No. 558: **SMEs' direct and indirect access to public guarantees: an evaluation of regional regulations** (April 2020)

Luciano Lavecchia, Luigi Leva and David Loschiavo

Over the last two decades, some Italian regions have limited the operations of the Italian Public guarantee scheme (*Fondo di Garanzia*) for SMEs to loans guaranteed by mutual guarantee institutions. In this work, we compare the effects of the regulatory changes on those firms operating in the regions that have either abolished or introduced such a restriction, with respect to the control firms operating in neighbouring regions where the regulations have remained unchanged. The cases in which the restriction of the *Fondo's* operations to loans guaranteed by mutual guarantee institutions was removed are associated with higher growth in the number of firms having access to such loans and in the total loans granted with respect to firms located elsewhere. Conversely, the introduction of such a restriction led to a lower growth. Without any constraints, the cost of credit also improved .
Full text (pdf) in Italian only

No. 557: **The carbon footprint of Italian loans** (April 2020)

Ivan Faiella and Luciano Lavecchia

Energy and climate policies supporting the transition to a carbon-free economy may influence the value of business assets (so-called transitions risks). This paper presents a first insight on the carbon content of business loans in Italy, using three different methods to identify the sectors most exposed to transition risks.
We estimate that the carbon footprint of Italian bank loans is small compared to other European peers: the outstanding loans exposed to transition risk can be estimated (2018 data) in a range between 37 and 53 per cent of total loans according to the methodology used. This information can be used as a starting point to evaluate, within a climate-scenario framework, how different climate policies influence the stability of the banking sector.
Full text (pdf)

No. 556: **An update of the Bank of Italy methodology underlying the estimation of price-competitiveness misalignments** (April 2020)

Claire Giordano

Price competitiveness misalignments in a country relative to "equilibrium" levels consistent with its macroeconomic fundamentals signal the presence of external imbalances. The study documents the recent revisions of the methodology used in the Bank of Italy to estimate these deviations. Then, it reports the estimates obtained for the four major euro-area economies and for the euro area as a whole.
The methodological revisions undertaken do not change the qualitative interpretation of price competitiveness imbalances observed since 1999. For the first half of 2019 (latest period available) the model does not signal significant misalignments in Italy and in the euro area as a whole, a result which suggests an absence of external imbalances, whereas for France, Germany and Spain there is evidence of a moderate price competitiveness indicator undervaluation relative to the level consistent with their economic fundamentals.
Full text (pdf)

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No. 555: **Firms' listings: what is new? Italy versus the main European stock exchanges** (April 2020)

Paolo Finaldi Russo, Fabio Parlapiano, Daniele Pianeselli and Ilaria Supino

The increase in the number of Italian companies listed on the stock exchange in the past 15 years has been considerable; however, the gap in terms of market capitalization-to-GDP ratio between Italy and the main European countries is still wide. Our work studies the dynamics of firms' listings across European countries and investigates whether the lower development of the Italian market is due to the size of listed companies or to their relative number.

Between 2005 and 2018, the number of listed NFCs increased in Italy and Spain, while it declined in Germany, France and the United Kingdom. The lower share of listed NFCs in Italy mainly accounts for the gap in market capitalization with France and the UK, while the smaller size of Italian public firms has a crucial bearing on the differences with Germany and Spain.

Full text (pdf)

No. 554: **Credit risk statistical information of the Bank of Italy and the new AnaCredit data collection** (April 2020)

Maria di Noia and Davide Moretti

This paper provides an overview of statistical information on credit risk managed by the Bank of Italy, recently added with the new AnaCredit framework. It can be considered the main driver behind the spread of a 'new paradigm' of increasingly granular and harmonized data collection among the euro-area countries. It may also provide a strong incentive for the stakeholders to integrate the collection of data on credit risk and to rationalize the reporting burden for intermediaries.

How national systems for collecting data on credit risk evolve is closely linked to future developments at European level. In this context, an adequate regulatory framework must be defined, consistent with the new integrated reporting scenario and with a sound governance system. The adoption of a common dictionary of definitions and concepts, the trend observed in euro-area countries, to integrate the national Central Credit Registers with AnaCredit and make more harmonized feedback loops available to intermediaries, could pave the way for the creation of a European Credit Register.

Full text (pdf) in Italian only

No. 553: **Goods exports and soft export indicators: is a disconnect under way?** (March 2020)

Claire Giordano

This study analyses the correlation between manufacturing firms' managers' opinions on foreign orders (a subcomponent of the PMI index sourced from Markit) and the performance of actual goods export in the four main euro-area countries. For Italy, further soft export indicators are appraised, namely those obtained from both Istat and Bank of Italy surveys.

We find evidence of a gradual reduction in the correlation between export orders measured through the PMI and actual export dynamics in the four countries since 2012. In Italy this disconnect has been particularly pronounced in the latest quarters and has also been evident for other soft indicators. This divergence could be due to recent factors common to the four countries, such as the marked increase in economic uncertainty and the growing role of intra-group transactions within multinational enterprises.

Full text (pdf)

No. 552: **Diversity and inclusion in Italian banks: an empirical analysis of measures to support gender diversity on the board of directors** (March 2020)

Diana Capone

Under the Italian banking framework, in support of gender diversity, non-prescriptive measures set by supervisory rules and by the Bank of Italy, coexist with the binding measures set by the law ('TUF'). The work analyses the shift in the numbers of women on the boards of listed and unlisted banks in 2014-2018. For listed companies, we consider whether the increase in number corresponds to a broader inclusion of women in corporate strategic management and an improvement in the effectiveness of the boards in question.

The number of women on banks' boards has

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increased, especially in listed banks. Female directors are more involved in the work of the boards and show greater independence and competence, which make them potentially more incisive in decision-making mechanisms. These aspects (greater numbers, more inclusion) positively affect those aspects that are decisive for the effectiveness of the boards. The results of the analysis support the strengthening of measures in favour of gender diversity.
Full text (pdf) in Italian only

No. 551: **Repo market and leverage ratio in the euro area** (March 2020)

Luca Baldo, Filippo Pasqualone and Antonio Scalia

The repo market is a fundamental channel for the transmission of monetary policy in the euro area. Quarter-end spikes in repo rates and in the trading volume, which have been observed in recent years, may hamper the pass-through efficiency of monetary policy. These spikes have often been linked to the Basel 3 leverage ratio (LR) disclosure requirement, which is reported at quarter-end. This paper investigates the effect of the LR on repo market activity in the euro area.
The drop in the repo trading volume and rates at quarter-end has lessened in recent years. Other measures that compensate the balance sheet cost induced by the LR do not increase at quarter-end and do not seem to depend on the LR level. This evidence lessens the concern that the additional LR reporting and disclosure requirements laid down for large banks, which are based on daily averages over the reporting period starting in June 2021, might hinder repo market activity.
Full text (pdf)

No. 550: **Don't look back in anger: The use of derivatives in public debt management in Italy** (March 2020)

Mauro Bucci, Ilaria De Angelis and Emilio Vadalà

The paper provides a comprehensive and up-to-date overview of the use of derivative financial instruments for the management of Italian public debt, analysing the strategies pursued by the government and their impact on public finances, also in comparison with other European countries.
The objectives pursued through the use of derivatives by the Italian government have changed over time. The information available about the strategies, size and features of the derivatives portfolio has markedly increased over the last few years achieving a higher level of transparency than in most other EU countries. The impact of derivatives on Italy's public finances, though significant by international standards, has been relatively small.
Full text (pdf) in Italian only

No. 549: **FinTech credit: a critical review of empirical literature** (March 2020)

Nicola Branzoli and Ilaria Supino

This paper reviews the main empirical studies concerning the use of new digital technologies in the credit market. The review is organized around three main topics: i) the factors supporting the development of innovative business models for credit intermediation; ii) the benefits of new data sources (such as websites and social networks) and techniques based on artificial intelligence for credit risk assessment; iii) the effects of digitization on access to finance.
Three main messages emerge from the literature. First, the growth of lenders with innovative business models mainly depends upon the degree of local economic development and of competition in the banking sector. Second, new data and methods improve traditional credit risk models because they are particularly helpful in screening opaque borrowers. Third, FinTech borrowers are on average riskier than traditional bank borrowers.
Full text (pdf)

No. 548: **Institutional sector classifier, a machine learning approach** (March 2020)

Oliver Giudice, Paolo Massaro and Ilaria Vannini

The paper explores the possibility of implementing machine learning (ML) techniques to obtain an automatic classification by institutional sector of the Italian companies recorded in the Bank of Italy's 'Entities Register'. The classifier yields accurate predictions of the

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sector of economic activity code for more than 99% of the corporations analysed, even taking into account the unbalanced nature of the population of interest, which mainly comprises non-financial corporations. The selected algorithm will make the entire classification process significantly more efficient by reducing the area of manual intervention.

Full text (pdf)

No. 547: **Quality checks on granular banking data: an experimental approach based on machine learning?** (March 2020)

Fabio Zambuto, Maria Rosaria Buzzi, Giuseppe Costanzo, Marco Di Lucido, Barbara La Ganga, Pasquale Maddaloni, Fabio Papale and Emiliano Svezia

he study proposes a new methodology, based on the supervised learning algorithm known as Quantile Regression Forests, for the automatic detection of potential outliers in data reported to the Bank of Italy by banking and financial intermediaries. The empirical analysis focuses on granular data on debit cards that are gathered within the statistical data collection on payment services; for such information, the data quality management process is challenging and its maintenance particularly burdensome.

The approach makes it possible to automatically select acceptance regions for the data reported by the intermediaries by estimating specific thresholds that are suited to the characteristics of the reporting agents; such thresholds are updated as new data are collected. The empirical analysis shows that the proposed procedure is able to detect additional anomalies compared with the current system of quality checks; a cross-check of anomalies with reporting agents indicates that the share of actual outliers corresponding to true reporting errors as a percentage of the total is high, and this confirms the reliability of the algorithm.

Full text (pdf)

No. 546: **Irpef: (Un)Fairness and (in) efficiency. A structural analysis based on the BIMic microsimulation model** (March 2020)

Nicola Curci, Pietro Rizza, Marzia Romanelli and Marco Savegnago

This paper discusses the structural features of Irpef (the personal income tax in Italy), analysing its effects on income redistribution and labour supply incentives. Moreover, by way of an example, the paper evaluates two counterfactual hypotheses that modify the 'Irpef bonus' with respect to the 2019 legislation. The analysis is carried out using Banca d'Italia's static microsimulation model BIMic.

Italy's personal income tax (Irpef) plays a decisive role in making the Italian tax system progressive; almost all of the redistribution that comes from Irpef is due in equal measure to the structure of the income brackets and to deductions. We find that effective marginal tax rates can be very high, also at relatively low levels of income, and display a large variability within the same income class. The traditional trade-off between equity and efficiency is confirmed in the two hypotheses of an 'Irpef bonus' reform.

Full text (pdf) in Italian only

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Ivan Faiella and Danila Malvolti

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Francesco Decarolis and Cristina Giorgiantonio

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Amanda Carmignani, Marco Manile, Andrea Orame and Marcello Pagnini

No. 542: An assessment of recent trend in market-based expected inflation in the euro area
Marcello Pericoli

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Paolo Emilio Mistrulli, Luca Antelmo, Maddalena Galardo, Iconio Garrì, Dario Pellegrino, Davide Revelli and Vito Savino

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Matteo Bugamelli, Andrea Linarello and Roberta Serafini

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No. 534: A two-tier system for remunerating banks' excess liquidity in the euro area:aims and possible side effects
Alessandro Secchi

Notes on Financial Stability and Supervision

No. 20: The asset diversification and market value of banks (February 2020)

Federica Ciocchetta

The *price-to-book ratio (PTB)* - defined as the ratio of the market value of a listed company's shares over its book value - is a measure of the expected value that a company can create given the composition of its assets and liabilities (franchising value). Differences between the market value and the book value, i.e. when the PTB is other than 1, stem from investors' risk assessments and profit expectations that differ from those reflected in the financial statements. In Europe, a large number of banks have a PTB below 1, though the ratio varies greatly among intermediaries within the same country.

One of the factors that may explain the difference in bank PTB values is how banks diversify their assets between loans and other components. A high degree of diversification may have both positive and negative effects. This depends on whether the benefits associated with operational synergies and more efficient risk management outweigh the risks that stem from greater organizational complexity and from investments in riskier assets than traditional activities.

An empirical study on a sample of 92 listed European banks during the 2011-17 period demonstrates that the disadvantages of diversification outweigh the benefits. The study found the existence of a negative relationship between asset diversification - alternatively measured by an asset diversity index or by a concentration index - and the market value of European banks, controlling for other factors deemed significant in the literature, such as profitability, operational efficiency, credit quality, asset opaqueness and size. The relationship is particularly negative for larger, more complex intermediaries, among which global systemically important banks (G-SIBs). A reduction in asset diversification of one standard deviation in the diversity index would result in an increase of 0.06 in the PTB, equal to 7 per cent of the sample's average value. Results of a similar magnitude are obtained using the concentration index. The negative relationship between the PTB and the diversity index is also confirmed when the scope of the analysis is limited to Italian intermediaries.

Full text (pdf)

No. 19: Modelling the dynamics of nonperforming loans in Italy (February 2020)

Emilia Bonaccorsi di Patti and Giuseppe Cascarino

Forecasting how credit quality evolves in response to macroeconomic conditions is of utmost importance to assess the resilience of the banking system, particularly in countries such as Italy where traditional credit provision is by far the most significant activity performed by banks. Furthermore, stress tests, a useful tool in assessing the stability of financial intermediaries, often require conditional forecasts for credit quality measures under one or more predetermined scenarios for a set of macroeconomic variables.

This note describes an empirical model that links a measure of credit quality, the new nonperforming loans rate (NNPL rate), to macroeconomic and financial variables, and shows the results for Italy. A Bayesian approach is adopted to select econometric specifications and obtain Bayesian averages of models. Our main results show that the evolution of the NNPL rate over the past several years is tracked by two equations that include a small set of predictors, and that model uncertainty is limited. The selected models and the Bayesian averages of models can be used for short-term forecasts, scenario analysis and stress testing.

The variables that are significant in predicting the NNPL rate of nonfinancial firms are: the interest rate on loans, the growth rates of credit and GDP, firms' financial leverage, and the change in unemployment. The rise in the NNPL rate of Italian firms between 2008 and 2009 is consistent with the severe recession, the credit crunch, and the high level of leverage of Italian firms at the onset of the downturn. The further increase in the NNPL rate after 2011 is consistent with the observed increase in the cost of credit and the contraction in credit. The evolution of the NNPL rate of households is predicted quite accurately by the dynamics of GDP and credit for most of the examined period; after 2013, low interest rates and renegotiations of mortgage contracts helped to keep the NNPL rate of households below what would have been expected given the prevailing macroeconomic conditions.

Full text (pdf)

Selection of Journal articles and books

Authors' names in boldface: Bank of Italy

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