

FZID Discussion Papers

CC Economics

Discussion Paper 83-2013

SUBPRIME AND EURO CRISIS: SHOULD WE BLAME THE ECONOMISTS?

Peter Spahn

Discussion Paper 83-2013

Subprime and Euro Crisis: Should We Blame the Economists?

Peter Spahn

Download this Discussion Paper from our homepage:
<https://fzid.uni-hohenheim.de/71978.html>

ISSN 1867-934X (Printausgabe)
ISSN 1868-0720 (Internetausgabe)

Die FZID Discussion Papers dienen der schnellen Verbreitung von Forschungsarbeiten des FZID. Die Beiträge liegen in alleiniger Verantwortung der Autoren und stellen nicht notwendigerweise die Meinung des FZID dar.

FZID Discussion Papers are intended to make results of FZID research available to the public in order to encourage scientific discussion and suggestions for revisions. The authors are solely responsible for the contents which do not necessarily represent the opinion of the FZID.

Subprime and Euro Crisis: Should We Blame the Economists?

Contribution to the 2013 Conference of the Austrian Research Association:
Science – Driver or Result of Global Dynamics?

Peter Spahn, University of Hohenheim

November 2013

Abstract

Economists in the public are accused of propagating highly professional, but unrealistic theories that mislead market agents and policy makers to place too much confidence in rational behaviour and market equilibrium. The paper analyses to what extent the US banking crisis and the euro crisis can be ascribed to fallacious assessments and recommendations on the part of economic theory. In the first case, myopic financial market theory and practice had neglected systemic repercussions of micro bank trading patterns. The euro crisis emerged from the neglect of undergraduate economic wisdom of necessary adjustment mechanisms in a currency union. Economists hopefully misinterpreted current account deficits as a sign of structural change.

Contents

1. Introduction	1
2. Historical and contemporary systemic crises	1
3. Does the Subprime Crisis refute the Efficient Market Hypothesis?	4
4. Financial markets and scientific progress in macro theory	8
5. Have the economists whitewashed the European Monetary Union project?	12
6. Once again: banking and finance without limit	15
7. Summary	16
References	18

JEL Codes: F33, G20, N10, N20

Key words: Efficient Market Hypothesis, rational behaviour, banking crisis, New Keynesian model, intertemporal optimisation, euro crisis

Peter Spahn
University of Hohenheim (520A)
D-70593 Stuttgart
peter.spahn@uni-hohenheim.de

1. Introduction

People rarely speak about economic science when sales and employment are on a steady course, and share prices are on the way up. But as a competitive order necessarily comprises disappointments and economic losses, a perceived economic crisis is almost an everyday impression. This holds true all the more since 2008 when the Lehman default triggered a series of banking and debt crises. It is also a common saying that economics as a science is not very helpful in protecting society against crises or, at least, their consequences for individual life. People deplore that economists are unable to predict share price crashes, bank defaults or a sudden rise of unemployment. In recent years, an even stronger accusation is heard: that economic theory beliefs and recommendations might even have caused the crises, e.g. by tempting market agents to risky behaviour, which in turn provokes a series of suggestions on how to reform the scientific practice of economics.

If we want to do justice to economics we first endeavour to disentangle the current various crisis elements and make a clear distinction between the US banking crisis and the ongoing problems within the eurozone. Also one cannot judge of the guiltiness of economists if the causes of the breakdown of market mechanisms are not elucidated. Therefore, after a look on the Great Depression of the 1930s that also conveyed the message of a failure of economics and even initiated a scientific revolution, we briefly give a short explanation of both the Subprime and the euro crisis in Section 2.

The Lehman default sometimes is presented as a market failure similar to the 2001 stock market crash. Section 3 however argues that the popular debate on market efficiency (amplified by the 2013 Nobel Prize decision) does not capture the troubles in the US banking system. Section 4 confirms that modern macroeconomic theory in fact starts with an "ideal" financial market unsuited to understand recent turmoil; but this had hardly any effect on banking practices. It is shown in Section 5 that besides politicians, also economists are to blame for the eurozone calamities because of their severe misjudgements of economic heterogeneity within Europe. Section 6 finally argues that an unrestricted banking business was a common factor of both the Subprime and the euro crisis.

2. Historical and contemporary systemic crises

American and European crises after 2008 mainly are perceived as debt crises, contrary to the

Great Depression of the 1930s, which is associated with large unemployment and its disastrous political consequences. This different impression however rests on divergent responses to sudden wealth losses in the sphere of financial markets. Crashing share prices in 1929 that had been driven by unsound credit supply entailed a systemic crisis of the banking sector; the latter could not be countered by central banks, given the constraints of the gold standard. Assets and debts evaporated, output and employment losses destabilised markets and societies. Nowadays politicians aim to prevent bankruptcies of banks and governments by applying various rescue programs, but these emergency credits enlarge the already high stock of debts and the distribution of write-down losses remain an open issue.¹

Should we blame economic theory for the emergence of the Great Depression of the 1930s? The gold standard had not been invented by theorists, but developed from the practice of international banking. Moreover, its unwritten set of rules allowed for temporary suspension of bank note convertibility, if the also unwritten condition was met that convertibility would be resumed later at an unchanged nominal parity.² Thus American central bankers would have been able to rescue stumbling commercial banks, but they did not want to dispense with the traditional competitive principle of *Laissez Faire* also in the banking sector. Their British colleagues showed more flexibility when they opted for leaving the gold standard in 1931, but were surprised that a punishment failed to materialise.³

Hesitant behaviour of central banks hardly proves any guiltiness of contemporary economic theory. Bagehot's (1873) recommendation with regard to liquidity policy was common knowledge since decades. The widely debated fallacy of neoclassical macro theory – extending employment promoting effects of nominal wage cuts from microeconomic analysis to the macro view – is another matter. This might have contributed to fallacious decisions in the field of wage and fiscal policy.⁴ With the benefit of hindsight one might appease attacks on traditional economic science by arguing that a distinct and coherent macroeconomic theory, which ought to elucidate the relationships between asset, goods and labour markets, did not yet exist in the early 1930s. The writings of Wicksell who offered important contributions

¹ For a comparison of both these large crises see e.g. Ritschl (2012).

² This "Restoration Rule" contributed to the stabilisation of exchange rate expectations and prevented the emergence of hot money (Bordo/James 2013).

³ A member of the British aristocracy was baffled: "Nobody told us we could do this" (Artis/Lewis 1993: 50; cf. Spahn 2001: 121-5).

⁴ However Brüning's austerity policy also was motivated by foreign policy reasons (Borchardt 1979).

were hardly adopted beyond Sweden. Schumpeter's theory of development rested on a concept of competition and thus was basically built on microeconomic views. It was Keynes who finally delivered a macroeconomic framework for the analysis of demand, production and income. Hence, many doctrines and recommendations were drawn as conclusions by analogy from microeconomic reasoning. Economics as a science thus offered wrong, and not firmly based advice for policymakers. Its guiltiness consisted in its poor state of awareness.

The American banking crisis and the euro crisis broke out in quick succession, and thus often are conceived as *one* complex event: a persistently lingering, and at times active financial market crisis. This view might have its origin in a widely shared mistrust, and partly also in a lack of understanding, of the "inscrutable" behaviour of the banking system. Maybe there is some truth in the hypothesis of a single cause of both crises⁵, but firstly their basic differences should be emphasised:

(1) The world financial crisis ensuing from the downfall of Lehman resulted from an "everyday" case of a real-estate credit supply wave that was only insufficiently collateralised. The systemic aspect of this crisis evolved in an unpredicted, but not unforeseeable, way from the financial innovation of pooling and selling these credit claims as marketable securities, accompanied by the attempt to cover the risks of these assets by purchasing insurance from financial institutions. This new banking strategy of dealing with credit-claim balance sheet items was denoted as the changeover from *originate-and-hold* to *originate-and-distribute*.

However, a systemic disaster would never had occurred if banks, following the principle of spreading the risks of property loans, really had sold these asset-backed securities in small portions to world savers. Each of these agents would have suffered a minor loss of her net wealth (and backed off from buying such assets in the future). Even if goods demand would have been lowered as a reaction to wealth losses, monetary policy could have provided stabilisation. But in fact the bulk of these securities was acquired by highly indebted financial institutions whose weak capital resources were quickly wiped out by falling asset prices. Market uncertainty about the true value of asset-backed securities and the distribution of necessary write-offs in the banks' balance sheets rapidly destroyed the creditworthiness of many financial institutions, cutting them off from the refinancing market. Outsized maturity transformation compelled a fire sale of assets in order to regain liquidity, whereby asset prices further fell. Obtaining insurance from other financial agents of the same market segment of the

⁵ See the final section of the paper.

economy turned out to be an illusion (Brunnermeier 2009; Franke/Krahnen 2009; Hellwig 2009).

(2) The euro crisis finds its roots in granting countries with differing politico-economic capabilities the access to a common financial market. In some of the weaker economies, a strong demand for resources and the abolition of the balance of payment constraint thus led to a non-sustainable boom. There were hopes for a solid catching-up, but consumptive and less efficient uses of borrowed means were dominant. The loss of competitiveness showed in rising current account deficits.

The collapse, triggered but not caused by the fall of Lehman, left "southern" eurozone countries with huge write-off needs in their banks' balance sheets, a rising fiscal burden due to programs supporting macroeconomic activity and the faltering banks, and balance of payment deficits as capital imports dwindled. Whereas the latter (the famous TARGET2 balances) were financed via national money creation, public bonds of some countries after 2010 lost their marketability. As governments no longer were able to rely on the Lender of Last Resort services of national central banks, bond prices only depend on – possibly – shaken private expectations on future governments' solvency. The problem of reinforcing and interrelated indebtedness of governments and banks finally could only be "solved" by resorting to monetary policy announcements and operations that clearly implied a violation of the spirit of the Maastricht Treaty (De Grauwe 2011; Buiter/Rahbari 2012; Whelan 2013).

3. Does the Subprime Crisis refute the Efficient Market Hypothesis?

For many observers, a clear responsibility of economic science for the US financial crisis can easily be proved: the Efficient Market Hypothesis postulates (following gradually different versions) that asset prices show "fundamental" values as they always represent the current state of information; the corresponding Black-Scholes Formula provides a "fair" valuation of options and derivatives. All this builds on the assumption of an optimising behaviour of agents who reach their decisions by using rational expectations. Financial markets thus tend to produce a state of equilibrium that mirrors the constitution of the "real economy". There is no scope for speculative bubbles; therefore financial market agents should be exempt from unnecessary regulations so that perfect markets raise the welfare of nations.

The outbreak of the crisis now appears to prove on the contrary that markets tend to produce chaotic boom-and-bust cycles and that the hope for stable equilibria is ill-founded and

even dangerous. Strict provisions are to be made ruling out that imprudent private market decisions entail large economic and social costs. Maybe the *homo economicus* approach should be reassessed; the integration of adjacent social science views might help to prevent that market agents and politicians are led astray by a straitened vision of formal, too math-oriented economic theory.

The above simplified sketch of diagnosis and therapy most probably captures a widely shared view in the public. What is wrong with it? Sometimes things become more fuzzy if they are contemplated more closely. Firstly, efficient markets and rational expectations do not rule out persistent price movements that resemble a bubble. New *information* might let prices find their new equilibrium positions – but this hypothesis is silent on the question whether new information reaches all agents at the same time. Even if new *data* are available for everyone at once, understanding and interpretation of these data, i.e. the translation into information, necessarily is a time-consuming process in a competitive market system.⁶ An emerging convergence of opinions yields the image of a continuous change of prices that differs from the initially expected random walk pattern. Also some overshooting might occur if apparent learning turns out as a mispricing.

Purists might object that rational expectations mean an immediate understanding of new data. With respect to asset markets this would imply perfect foresight. This in turn contradicts the self-conception of the rational expectations approach; it says that individuals make use of all information sources by taking into account costs and benefits, but does not state that individuals can foresee the future.

A second, and even more important point is that the Efficient Market Hypothesis basically refers to price formation on stock markets, e.g. for shares, but not to the risky business of extending bank loans. The bursting New Economy bubble in 2001 probably represents an appropriate case study for testing the Efficient Market Hypothesis, but this crash did not provoke a systemic crisis whereas the smaller first-round losses of the Subprime Crisis posed a

⁶ "The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form, but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society is thus not merely a problem of how to allocate 'given' resources – if 'given' is taken to mean given to a single mind which deliberately solves the problem set by these 'data'. It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge not given to anyone in its totality" (Hayek 1945: 519-20; cf. Arrow 1978).

dramatic threat for the world banking system.

The Subprime Crisis hints to problems within the structure of the banking industry: business practice, transaction patterns and financial instruments show a severe exposure to systemic risk. Even if the bursting of the real estate bubble was predicted by some observers, the breakdown of the interbank market was not (Kirchgässner 2009). The issue is not whether asset markets are characterised by fundamental or speculative prices – this marks the debate between the two Nobel Prize winners of 2013, Fama and Shiller – but whether financial market contracts involve large counterparty risk that might, via chain reactions, destabilise the macro system. The Efficient Market Hypothesis e.g. is silent on the optimal extent of maturity transformation; moreover, a perfect financial market would not need banks as agents manage to finance all transactions by direct, if necessary contingent, contracts. The existence of banks hints to "frictions", i.e. deviations from perfect markets that might originate in e.g. asymmetric information; bringing in financial intermediaries then is a welfare enhancing step.⁷

The precarious stability of commercial banks is a well known topic since some centuries. The evolutionary search for provisions against bank defaults depends on social and political circumstances. Hence the deregulation euphoria in economic policy since the 1980s that relied on the renewed belief in innovative self-regulating forces of competition also was one of the origins of the financial crisis. A policy of mitigating rules and restrictions for behaviour on goods and labour markets spilled over to the banking sector and paved the way for new business models and financial instruments. This was admitted by policymakers, not least because of a preceding apparent success of economic science (Tichy 2010). The *Great Moderation* since the 1990s denotes a period of – compared to the two decades before – lower volatility of output and employment and lower inflation. This outcome was widely interpreted as flowing from a better understanding of macroeconomic market mechanisms and from a more professional monetary policy. Thus future stability seemed to be granted, and any occurring risk was expected to be manageable.⁸

Given these conditions, reflections towards a risk-taking channel convincingly show that credit supply of financial intermediaries is increasing along with risk-adjusted expected yields (Borio/Lowe 2002; Adrian/Shin 2010). The argument of excessive profit targets and expecta-

⁷ The slow process of acknowledging the key role of banking in macroeconomics is presented by Gertler (1988). Structural changes within the business of bank intermediation is depicted by Adrian/Shin (2010).

⁸ A similar optimism prevailed in the 1960s after the invention of Keynesian demand management.

tions, which then propels "irrational" share price movements, may be relevant for a critical assessment of the Efficient Market Hypothesis, but does not help to understand the Subprime Crisis. Here the key driver was expected profit from financial intermediation. It is true that the new strategy of selling credit claims promised a large advantage with respect to liquidity and capital management, but still financial intermediation is nourished by the interest spread between the acquisition of liquidity and the rate of return of assets held against the non-bank sector. Subprime lending only accelerated after 2004 when the spread narrowed due to the switch to a more restrictive policy stance on part of the Fed and banks tried to defend profits by resorting low-quality lending.⁹

It is evident that systemic risk of financial innovations had been underrated; formally elaborated models of risk analysis did not grasp the structural change that accompanied the changeover to the new bank business. Financial market agents lost track of the value of self-created payment claims. They experienced heavy losses, often implying bankruptcy, thus proving that they were not able to survive in the competitive system. Admittedly it appears as a clever business strategy, that in many cases society took over losses whereas managers got away with bonuses. But this procedure is not suited as an intended general market strategy because the kind and extension of public rescue operations remain imponderable, and effective damage claims cannot be ruled out.

Finally there is the supposed puzzle that the vast number of ABS and CDOs, which contained only a small part of non-performing loans, during the financial crisis were not traded at their fundamental, but at much lower prices. This question again affects the core of the Efficient Market Hypothesis. The answer does not require behavioural research, but only a look at simple economic facts:

A first explanation can be found by taking into account the low transparency of the effective distribution of losses assigned to single tranches of structured securities, and its distribution among financial market firms. "The riskier mortgages in mortgage-backed securities had been intermingled like salmonella-tainted frosting among a very small batch of cakes that have been randomly mixed with all the other cakes in the factory and then shipped to bakeries throughout the country" (Lo 2012: 157). The shock event of falling real estate prices also

⁹ "Whereas one usually thinks of investment excesses as being the result of irrational exuberance, i.e., excessive optimism, one should appreciate that fear can be just as powerful. If the long-term interest rate stands between 4 to 5% and you refinance yourself at rates between 3 or 4% there isn't much of a margin on which to cover your costs and earn a return on equity" (Hellwig 2009: 164).

made market agents promptly become more cautious when assessing the value of securitised credit claims.¹⁰ Banks with strong liquidity acted rationally, protecting their own wealth status, when they denied any further interbank loans to weaker institutes.

A second explanation is related to temporary liquidity shortages that exclude notional buyers and cause price cuts. Therefore market behaviour does not deliver a probative objection against the Efficient Market Hypothesis.¹¹ However, liquidity and default risks surely were somewhat unappreciated in the traditional approach, which analysed partial market relationships and neglected systemic aspects. Efficient markets do not avert default of agents, on the contrary: this threat is a condition for maintaining efficiency. Social follow-up costs nevertheless show that external effects of competitive failures were inadequately privatised; maybe they can never be fully privatised. Hence the Subprime Crisis represents the "Fukushima" of financial market theory.

4. Financial markets and scientific progress in macro theory

Economics today is confronted with the reproach that not much attention was paid to financial markets in macroeconomic theory; the rise of financial risks therefore went unnoticed. However former schools of macroeconomic thought – starting from the *IS-LM* approach, proceeding to monetarism, and extending to New Classical and Real Business Cycle models – treated the banking sector even more shabby than New Keynesian theory that dominates the scene since the 1990s. Here financial markets have a key role to play.

New Keynesian theory postulates the overcoming of the separation of micro and macro theory that emanated from the Keynesian Revolution. Overall economic relations between in-

¹⁰ "In the case of credit derivatives, a small increase in the probability of mortgage default could lead to some investors being induced to check [their basic value]. This in turn will lead others to check and the whole system will switch from an equilibrium where nobody checks the underlying value of assets to one where everyone does so. When this happens, the price of such derivatives drops dramatically, making many market participants vulnerable and others unwilling to lend to them" (Kirman 2010: 524).

¹¹ "The notion that the market values of securities may be significantly below the expected present values of future cash flows from these securities seems incompatible with the theory of asset pricing in informationally efficient markets. However, the contradiction is apparent rather than real. Any notion that asset prices should correspond to expected present values of future cash flows presumes (i) that the parties holding these expectations have sufficient funds to bet on their expectations by taking long positions and (ii) that little attention needs to be paid to risk premia and liquidity premia" (Hellwig 2009: 174).

vestment, consumption, output and employment are to be derived from an intertemporal decision calculus of utility maximising individuals. A somewhat irritating implication is that a distinct macro theory that can deliver different perspectives, compared to an individualistic approach, is rendered superfluous. Keynes's message according to which an understanding of market mechanisms on a national and global level *cannot* be derived from an aggregation of microeconomic results thus is rejected.¹²

The basic principle of New Keynesian theory typically is presented by reference to a "representative agent" who chooses – given his utility function – an optimal path of work, leisure, consumption and investment, whereby shocks emanating from the surrounding economic nature trigger adjustment activities. This is a kind of a Robinson Crusoe economy where micro and macro perspectives are identical by construction.¹³ If households with differing times preferences are introduced they write contracts on perfect financial markets that enable each individual to realise an optimal distribution of consumption over time; given income expectations, shocks and interest rate impulses, households save or dissave, i.e. act as creditors or debtors. Key assumption is that all agents establish optimal plans by taking into account their budget constraint so that, if shocks remain below some threshold, defaults never occur. Thus in principle, promises to service debts are kept.¹⁴ All agents are perfectly creditworthy and do not suffer from liquidity shortages; each individual's permanent income is accepted as collateral as variations of employment proceed along the labour supply function; involuntary unemployment thus is precluded.

¹² For a critical survey on New Keynesian macro theory see Blanchard (2008) and Spahn (2009).

¹³ The analytical justification of introducing a representative agent as a kind of deputy of numerous heterogeneous individuals is much disputed. Early debates in General Equilibrium theory in the 1960s and 1970s came to the conclusion that individual preferences cannot be aggregated without contradiction. But some opinion leaders of the scientific community used their influence in order to suppress these objections. "The historical emergence of the representative agent paradigm is a mystery. [...] The representative agent appeared without methodological discussion. In the words of Deirdre McCloskey: 'It became a rule in the conversation of some economists because Tom [Sargent] and Bob [Lucas] said so' [...]. Today, this convention has become so strong that many young economists wouldn't know of an alternative way to approach macroeconomic issues" (Colander et al. 2009: 7 n.; cf. Kirman 2010).

¹⁴ "D[ynamic] S[tochastic] G[eneral] E[quilibrium] models are impeccably microfounded, but their micro-foundations are hardly compatible with credit cycles and financial dislocations. [...] Financial assets are absent or modelled in a primitive fashion. Their prices assumed to reflect all available information under the strong version of the efficient market hypothesis. There are no coordination failures, as rational and forward looking representative agents behave consistently with the model of the aggregate economy. Since intertemporal budget constraints always hold, there can be no insolvencies" (Spaventa 2009: 3; cf. Goodhart et al. 2013).

Thus it becomes clear that aiming for a consistency of individual optimisation and macroeconomic activity creates an unfounded bias towards equilibrium – possibly a high price paid for scientific progress. Microfoundation of macroeconomics misleads us to believe that economic results on a national or global level should be regarded as the outcome of individual choices, and thus for normative reasons do not need any intervention by economic policy. Incoherence of individual plans, coordination failures, supply or demand side rationing – all this cannot easily be reconciled with the methodological concept of New Keynesian theory. The paradigm of a rational representative agent "made economics blind with respect to the role of interactions and connections between actors" (Colander et al. 2009: 14).

Reading modern research contributions sometimes provokes the suspicion that scientists tend to confuse New Keynesian models with reality. They explore constructed problems of surreal worlds with extreme mathematical and econometrical precision (Caballero 2010; Faust 2012). It is doubtful whether a rather demanding formal education enables young economists to solve practical questions posed within firms and political institutions.¹⁵ For many observers, modern scientific progress is assessed as useless at best, if not as dangerous (Buiter 2009). Thus, again, economics appears to be guilty of recent crises. However, three remarks can be made to modify this judgement.

Firstly, one ought to beware of drawing far-reaching consequences from the simple basic model of New Keynesian macroeconomics. In recent years, many extensions and enhancements were made that also modify the initial assumption of perfect financial markets and thus

¹⁵ "A graduate student in a typical American or European university studying the subject of macroeconomics would be taught that the macroeconomy can be represented by representative consumers and firms who continuously optimize a multi-period plan, and in order to do so, use all available information including the one embedded in the model. These consumers and firms not only perfectly understand the complex intricacies of the workings of the economy, they also know the statistical distributions of all the shocks that can hit the economy. As a result, they can make scientifically founded probabilistic statements about all future shocks. In this world of God-like creatures, there is no uncertainty, there is only risk. Coordination failures do not occur because representative agents internalize all possible externalities. Bankruptcies of firms and consumers are impossible. Bubbles and crashes cannot occur because rational agents using all available information would never allow these to happen. Prolonged unemployment is impossible except when consumers choose to take more leisure. Having mastered the intricacies of Dynamic Stochastic General Equilibrium models [...], our brilliant new PhD graduate would then start a career teaching this model to the next cohort of PhD students. In the process of acquiring supreme skills in solving DSGE models, our PhD graduate would not have learned what an investment multiplier is, nor would he have the slightest idea of what the paradox of thrift is. Instead, he would have learned that by the law of Ricardian equivalence, government budget deficits cannot affect output" (De Grauwe 2010: 157-8).

focus issues of financial intermediation (e.g. Gertler/Kiyotaki 2010). This is not the location to judge of the prospects of these approaches. But it should be kept in mind that most of the mentioned model extensions were suggested *after* the financial crisis. Thus we cannot preclude that an ivory-tower optimism embedded in the simple New Keynesian model might have influenced practical goings-on in the sphere of finance and promoted the belief that systemic disturbances are inconceivable.

In this context, secondly, the links between theory and practice have to be checked more closely. It was already mentioned that education along New Keynesian lines hardly yields large benefits for economic practice. Students and practitioners often reject "too abstract" macro theory; thus it is hardly conceivable that professional young bank managers created new financial instruments with an eye on the equilibrium bias of New Keynesian theory. Rather the focus should be oriented at the business economics branch of financial market theory. Obviously the implications of new strategies and instruments for the financial market as a whole have not been sufficiently scrutinised. Cohorts of best educated young bankers, coming from top US business schools, were unable to see that their "perfect calculated" daily business jeopardised liquidity and solvency of their own financial firms.¹⁶

Thirdly, it is an astonishing fact that practical economic policy in no way seemed to be influenced by New Keynesian beliefs when designing the necessary response to the world wide demand shock that developed after the financial crisis. Many governments showed not to be deterred and employed traditional fiscal deficit spending in large doses. Hence the potentially harmful consequences of scientific progress turned out to be rather limited.

Nevertheless the assessment of the quantitative demand effects of government budget deficits remains a much debated issue since then. They are small in the New Keynesian model because households are assumed to expect compensating tax increases in the future; thus they react by saving more in the present in order to keep their long-term consumption path stable. Along these lines of reasoning it makes no difference whether additional government spending is financed via taxes or new debt ("Ricardian Equivalence").¹⁷ If however – in contradiction to the spirit of the model – the existence of unemployed persons is admitted who cannot

¹⁶ "The individuals or banks making the decisions were not aware that their increasingly interdependent positions were generating a threat to the stability of the whole system" (Kirman 2010: 505).

¹⁷ As an aside: both the imputations that governments aim for long-run zero debt (which follows from standard decision models with an intertemporal budget constraint) and that private agents rate this to be a credible plan, are quite remarkable; they cannot easily be reconciled with empirical evidence.

choose their consumption level at will as they are excluded from the labour and the credit market, these "non Ricardian" households benefit from government deficit spending because a higher level of demand and income ensues. The multiplier effect of deficit spending then is higher (European Central Bank 2010; Müller 2012). In the meanwhile scientific policy advisers continue to submit multiplier estimates from models with implicit full employment to non-informed finance ministers, in order to "support" their decision making on fiscal policy; this is a case for an inquiry on part of an Ethic Commission in economics.

5. Have the economists whitewashed the European Monetary Union project?

The crisis of EMU also appears as a financial crisis although it might just as well be denoted as a public or balance of payment crisis. Before its outbreak, a case of questionable market valuation of assets could be observed. Until 2007, nominal yields of eurozone government bonds converged although this contradicted standard results of fundamental risk analysis. It is argued that the convergence could be explained by the anticipation of the abolition of the no-bail-out rule; but as uncertainty with regard to the extent of rescue operations lingers on up to the present day, this anticipation can hardly be seen as the result of rational expectations. The most convincing argument is derived from ECB refinancing operations where government bonds from all EMU countries were accepted as collateral without any haircut so that arbitrage provided for interest rate assimilation (Buitert/Sibert 2005).

The large and volatile interest rate spreads in later years can easily be explained by the temporary indeterminacy of southern countries' bond values. Lacking an implicit nominal re-funding guarantee of a national central bank, arbitrary assumptions on governmental future financial resources might lead to self-fulfilling, multiple equilibria including the threat of a rapid default. In this regime, expectations of financial market agents might be rational, but not unambiguous: rumours telling that a government might fail to roll-over a tranche of its stock of debt in the future, and that an equivalent budget surplus will not be available, will motivate present creditors to sell their bonds, which in turn lets interest rate burden increase and might lead to insolvency. If on the other hand policymakers convince the public of a solid state of government finance, and if fiscal shocks remain of moderate magnitude, bond prices will stay stable (De Grauwe 2011).

Can we argue that economic theory contributed to the EMU crisis because this instability of the government bond market was not well understood or neglected? It is true that during

the early planning stage of EMU some German economists explicitly *appreciated* that national budget deficits should be financed via capital markets only, and that government should have no longer access to central bank facilities; all this was expected to establish a strong pressure towards fiscal discipline (Sievert 1993). But already in 1989 the Delors Commission had warned that the scope for government finance would fluctuate imponderably in this case; hence the problem of instable, and probably procyclical credit supply on bond markets was well known.¹⁸

A second starting point for claiming a guiltiness of economic science might be the presumption that the single-currency project was recommended by pointing only to the reduction of information and transaction costs, a widely shared argument in the public to the present day. There is an influential school in economics according to which money is a medium of exchange and a medium of account without any "deep" significance; why should trade-intensive economies use different *numéraires*? However inhabitants of the eurozone quickly learnt that a common currency creates very deep relationships, creditor-debtor dependencies in particular. Hence a pure transaction-cost-saving approach would have been inadequate for understanding EMU.

Contrary to this traditional scant regard for money however, economists envisaged – after the establishment of a common currency – substantial welfare gains for all EMU member countries, which were expected to flow from intensified trade and faster development. An intensive scientific debate explored a "new" theory of optimal currency areas that was adapted to EMU conditions. The old theory had recommended to exclude countries that are characterised by large and asymmetric (relative to union average) demand shocks; in this case exchange rate adjustments are necessary for stabilisation. The new approach focuses on the topic of development and aims to justify membership also of emerging countries (like Spain, Portugal and Greece). The common euro capital market was designed to give these countries access to cheap foreign credit that would be used to capital accumulation. The by-product of this policy was strong goods demand in the fast growing economies, but the accompanying large current account deficits does not, as in the old approach, indicate an urgent stabilisation

¹⁸ "Experience suggests that market perceptions do not necessarily provide strong and compelling signals and that access to a large capital market may for some time even facilitate the financing of economic imbalances. Rather than leading to a gradual adaptation of borrowing costs, market views about the creditworthiness of official borrowers tend to change abruptly and result in the closure of access to market financing. The constraints imposed by market forces might either be too slow and weak or too sudden and disruptive" (Delors Committee 1989: 20).

problem but rather the success of the catching-up strategy.¹⁹

The failure of this policy is obvious. Foreign credit mainly was used for increasing consumption and non-performing real estate investment. Wage increases far beyond productivity growth let competitiveness deteriorate, and contagion spilling over from the Lehman Crisis let the bubble burst. A sudden stop of foreign investment (like during the Asian crisis of 1997/98) revealed the weak balance of payment position of some countries. Finally government default could only be prevented by means of bail-out programs and monetary policy interventions that clearly violated the spirit, if not the wording of EMU Treaties.

Why did economists get it so wrong? Competitiveness of European countries (depending on productivity growth, wage formation, and governance quality, i.e. the efficiency and reliability of the political system) shows a slowly diverging pattern since many decades. Southern economies that occupy centre stage of the current euro crisis also needed repeated currency devaluations during the former fixed-exchange-rate era. Yet economists and politicians seemed to believe that all these deeply embedded structural differences between European countries would vanish after creation of EMU. Revealingly German critics of the EMU project mainly focused on the threat of higher *average* inflation due to an alleged lack of "stability culture" within the decision board of the ECB.

Still in the 2000s, when current account deficits of southern EMU countries increased, only few economists spelled out a warning. The majority continued to appreciate the alleged course of catching-up even if they could not help to notice that improvements in productivity growth remained "surprisingly" low. Fagan/Gaspar (2007), the latter director-general for research at the ECB, and later finance minister in Portugal, thus predicted foreign debt rising to 200% in simulation exercises – without annotating any stabilisation or default problems!²⁰

With the benefit of hindsight, this appears as an example of cognitive dissonance. It shows the strong belief and stamp of economists when it comes to interpret economic facts and processes. As in the New Keynesian model, it is the habit of thinking in terms of intertemporal optimisation that bears the risk of misleading (mostly young) professional scientists in their apprehension of social reality. In the case of the EMU project, the intertemporal

¹⁹ Key principles of this concept are to be found in the Delors Report (1989) and in the Report of the European Commission "One Market, One Money" (1990). See also Tavlas (1993) and – still with an optimistic tone – Mongelli (2008).

²⁰ It took several years before a balanced analysis of the prospective development of southern euro-zone countries was published on the part of the ECB (Dieppe et al. 2012). A more detailed treatment of this aspect of the EMU story, with a richer reference to the literature, is given in Spahn (2013).

approach of the balance of payments, based on a one-good, representative-consumer model with dynamic saving and trading decisions (Obstfeld/Rogoff 1996), made economists hope that when a country like Greece gets access to easy credit conditions it surely will aim to invest in a productive capital stock.

6. *Once again: banking and finance without limit*

Admittedly, there is some truth in the view that both the Subprime and the euro crisis developed from a common origin. This is the banking business, which shows an impressive expansion since the end of the Second World War (Jordà et al. 2013). The steady growth of balance sheets, relative to GDP, indicates a deepening of a division of labour between real and financial sectors of the economy (and within the banking sector), but also a decreasing productivity of banking services. One of the long-term driving forces of bank liabilities is a tendency of the household saving rate to exceed the economy's growth rate. Whereas in standard growth accounting the counterpart item of the rise of money wealth is the growing capital stock in the firms sector, in many western societies it is the secular rise of government debt. The parallel increase of private money wealth and public debt contributes to ballooning financial stocks in world markets – and also should private agents admonish to have a net, instead of a gross view on their wealth.

The growth of bank assets depends on the emergence of profitable investment projects, which then are financed by bank credit. Thus the US *and* the Spanish real estate bubbles were a result of banking activities. Eurozone banks acted as a hub for transferring capital within the eurozone (Obstfeld 2013); they accumulated southern countries public bonds because exchange rate risk had disappeared (which in turn however increased government default risk because it precluded *gradual* adjustment processes).

Finally, the scope for the growth of banking was enormously enlarged by the interplay of higher leverage and an elastic liquidity provision on the part of monetary policy. Banks reduced liquid-asset holdings and drew large portions of funding from the financial market because all market members knew that at least some of them, if need be, could use an unrestricted access to central bank refinancing. The modern norm of central bank policy, to supply base money endogenously in response to revealed market needs, and a high-trust regime on the interbank market made for a large, or as some say, excess elasticity of the banking system (Shin 2012). Without any quantitative restrictions felt in reserves, bank portfolio strategies are

tilted towards expansion: investment activities are enlarged as long as the expected yield gap is expected to be positive. Thus waves of financial investments, with ensuing bubbles and crashes, starting from the Japanese real estate in the late 1980s, are easily understood.

The immediate need after a crash, when the interbank market dries up, is to guarantee the liquidity of *all* market agents²¹, but what can be done in the medium and long run? Economists seem to have overlooked the systemic risks of overbanking. What is necessary, on the one hand, is a massive increase of bank capital in order to insulate asset losses from spillovers to the banking sector at large (Admati et al. 2011), and, on the other hand, a reconsideration of the endogenous-money principle in the sphere of base-money supply management. Over centuries, high-powered money was subject to natural or institutional supply constraints. It is true that, in the history of banking, many defaults and bank crises rooted in a lack of liquidity.²² But now we have learnt that the internalisation of unlimited refinancing facilities misleads the banking system to finance one bubble after the other.

7. Summary

Economists can hardly be blamed for economic crises; economic theory in general says that crises are unavoidable, or may even be necessary for long-run growth of welfare. But one has to concede that the latest vintage of macroeconomic theory, the New Keynesian model, shows an equilibrium bias that results from its methodological principle to explain macroeconomic outcomes as realisations of a microeconomic optimal-decision framework. There is some irony in the fact that it is the *progress* of economic thought, which causes this drawback; for some decades economists aimed to overcome the schism between the micro and macro departments.

One might also concede that highbrow macro theory, together with a successful record of stabilisation policy, contributed to an intellectual background that spread optimism and encouraged risk taking. But surely, there was no direct link from New Keynesian theory to the practices of modern banking. Also the ongoing debate on the rationality of asset price movements, and the accompanying claim for a more "psychological" view on financial market

²¹ "The increasing dependence of the banking system on access to funding from financial markets could also mean that central banks are forced to underwrite the entire funding market in times of distress in order to avoid the collapse of the banking system" (Schularick/Taylor 2010: 11).

²² See the initial remarks on the gold standard and the Great Depression.

agents, does not help much to understand bank defaults and the collapsing interbank market after the fall of Lehman. Financial market theory and practice had neglected systemic repercussions of micro bank trading patterns. Myopic bank behaviour shows that agents, if looked upon from a bird's eye, do not always behave rationally; but maintaining the rational expectations assumptions in theoretic modelling might help to improve the education of young professional bankers, in order to avert future disaster.

The euro crisis emerged from the neglect of undergraduate economic wisdom: adjustment mechanisms are needed if heterogeneous economies are linked by trade and capital flows. Professional economists also knew that even flexible wage rates in currency union member countries are a poor substitute for adjustable exchange rates. It provides evidence of modern economists' inclination to think in terms of optimisation procedures that mounting current account deficits in the eurozone were explained, and thus partly justified, by making reference to the approach of the intertemporal balance of payments. Hopes that indebtedness will turn to growth and prosperity have been disappointed so far. However, studying the roots of the EMU project (James 2012) shows that policymakers, more than economists, are to blame for pushing the decision towards the euro.

References

- Admati, A. R. et al. (2011): Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation – Why Bank Equity is *Not* Expensive. *Graduate School of Business Research Papers*, 2063, Stanford University.
- Adrian, T. / Shin, H. S. (2010): Financial Intermediaries and Monetary Economics. In: Friedman, B. M. / Woodford, M., eds.: *Handbook of Monetary Economics*. Vol. 3, Elsevier, Amsterdam et al., 601-650.
- Arrow, K. J. (1978): The Future and Present in Economic Life. *Economic Inquiry*, 16, 157-169.
- Artis, M. J. / Lewis, M. K. (1993): Après Le Déluge – Monetary and Exchange-Rate Policy in Britain and Europe. *Oxford Review of Economic Policy*, 9/3, 36-61.
- Bagehot, W. (1873): *Lombard Street – A Description of the Money Market*. Hyperion, Westport 1979.
- Blanchard, O. J. (2008): The State of Macro. *NBER Working Papers*, 14259, Cambridge.
- Borchardt, K. (1979): Zwangslagen und Handlungsspielräume in der großen Weltwirtschaftskrise der frühen dreißiger Jahre – Zur Revision des überlieferten Geschichtsbildes. In: Borchardt, K., ed.: *Wachstum, Krisen, Handlungsspielräume der Wirtschaftspolitik*. Vahlen, Göttingen 1982, 165-182.
- Bordo, M. D. / James, H. (2013): The European Crisis in the Context of the History of Previous Financial Crises. *NBER Working Papers*, 19112, Cambridge.
- Borio, C. / Lowe, P. (2002): Asset Prices, Financial and Monetary Stability – Exploring the Nexus. *BIS Working Papers*, 114, Basel.
- Brunnermeier, M. K. (2009): Deciphering the Liquidity and Credit Crunch 2007-2008. *Journal of Economic Perspectives*, 23/1, 77-100.
- Buiter, W. H. (2009): The Unfortunate Uselessness of Most 'State of the Art' Academic Monetary Economics. <http://blogs.ft.com/maverecon/2009/03>.
- Buiter, W. H. / Rahbari, E. (2012): The ECB as Lender of Last Resort for Sovereigns in the Euro Area. *CEPR Discussion Papers*, 8974, London.
- Buiter, W. H. / Sibert, A. (2005): How the Eurosystem's Treatment of Collateral in its Open Market Operations Weakens Fiscal Discipline in the Eurozone (and What to Do About It). *CEPR Discussion Papers*, 5387, London.
- Caballero, R. (2010): Macroeconomics after the Crisis – Time to Deal with the Pretense-of-Knowledge Syndrome. *Journal of Economic Perspectives*, 24, 85-102.
- Colander, D. et al. (2009): The Financial Crisis and the Systemic Failure of Academic Economics. *Kiel Working Papers*, 1489.
- Commission of the European Communities (1990): One Market, One Money – An Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union. *European Economy*, 44.
- De Grauwe, P. (2010): The Return of Keynes. *International Finance*, 13, 157-163.
- De Grauwe, P. (2011): A Fragile Eurozone in Search of a Better Governance. *CESifo Working Papers*, 3456, München.
- Delors Committee for the Study of Economic and Monetary Union (1989): *Report on Economic and Monetary Union in the European Community*.
- Dieppe, A. et al. (2012): Competitiveness and External Imbalances Within the Euro Area. *ECB Occasional Papers*, 139, Frankfurt.
- European Central Bank (2010): The Effectiveness of Euro Area Fiscal Policy. *Monthly Report*, July, 67-83.
- Fagan, G. / Gaspar, V. (2007): Adjusting to the Euro. *ECB Working Papers*, 716, Frankfurt.
- Faust, J. (2012): DSGE Models – I Smell a Rat (and It Smells Good). *International Journal of Central Banking*, 8/1, 53-64.
- Franke, G. / Krahen, J. P. (2009): Instabile Finanzmärkte. *Perspektiven der Wirtschaftspolitik*, 10, 335-366.
- Gertler, M. (1988): Financial Structure and Aggregate Economic Activity – An Overview. *Journal of Money, Credit, and Banking*, 20, 559-588.
- Gertler, M. / Kiyotaki, N. (2010): Financial Intermediation and Credit Policy in Business Cycle Ana-

- lysis. In: Friedman, B. M. / Woodford, M., eds.: *Handbook of Monetary Economics*. Vol. 3, Elsevier, Amsterdam et al., 547-599.
- Goodhart, C. et al. (2013): Macro-Modelling, Default and Money. *LSE Financial Markets Group Special Papers*, 224, London.
- Hayek, F. A. von (1945): The Use of Knowledge in Society. *American Economic Review*, 35, 519-30.
- Hellwig, M. F. (2009): Systemic Risk in the Financial Sector – An Analysis of the Subprime-Mortgage Financial Crisis. *De Economist*, 157, 129-207.
- James, H. (2012): *Making the European Monetary Union – The Role of the Committee of Central Bank Governors and the Origins of the European Central Bank*. Harvard University Press, Cambridge / London.
- Jordà, O. et al. (2013): Sovereigns versus Banks – Credit, Crises, and Consequences. *NBER Working Papers*, 19506, Cambridge.
- Kirchgässner, G. (2009): Die Krise der Wirtschaft – Auch eine Krise der Wirtschaftswissenschaften? *Perspektiven der Wirtschaftspolitik*, 10, 436-468.
- Kirman, A. (2010): The Economic Crisis Is a Crisis for Economic Theory. *CESifo Economic Studies*, 56, 498-535.
- Lo, A. W. (2012): Reading About the Financial Crisis – A Twenty-One-Book Review. *Journal of Economic Literature*, 50/1, 151-178.
- Mongelli, F. P. (2008): European Economic and Monetary Integration, and the Optimum Currency Area Theory. European Commission, *Economic Papers*, 302.
- Müller, G. (2012): Fiskalpolitik und Finanzmärkte – Perspektiven für Forschung und Wirtschaftspolitik. *Perspektiven der Wirtschaftspolitik*, 13, 13-35.
- Obstfeld, M. (2013): Finance at Center Stage – Some Lessons of the Euro Crisis. *CEPR Discussion Papers*, 9415, London.
- Obstfeld, M. / Rogoff, K. (1996): The Intertemporal Approach to the Current Account. *NBER Working Papers*, 4893, Cambridge.
- Ritschl, A. (2012): War 2008 das neue 1929? Richtige und falsche Vergleiche zwischen der großen Depression der 1930er Jahre und der großen Rezession von 2008. *Perspektiven der Wirtschaftspolitik*, 13, 36-57.
- Schularick, M. / Taylor, A. M. (2010): Credit Booms Gone Bust – Monetary Policy, Leverage Cycles and Financial Crises, 1870-2008. *NBER Working Papers*, 15512, Cambridge.
- Shin, H. S. (2012): Global Banking Glut and Loan Risk Premium. *IMF Economic Review*, 60/2, 155-192.
- Sievert, O. (1993): Geld, das man nicht selbst herstellen kann – Ein ordnungspolitisches Plädoyer für die Europäische Währungsunion. In: Bofinger, P. et al., eds: *Währungsunion oder Währungschaos? Was kommt nach der D-Mark?* Gabler Verlag, Wiesbaden, 13-24.
- Spahn, P. (2001): *From Gold to Euro – On Monetary Theory and the History of Currency Systems*. Springer Verlag, Berlin / Heidelberg.
- Spahn, P. (2009): The New Keynesian Microfoundation of Macroeconomics. *Jahrbuch für Wirtschaftswissenschaften*, 60, 181-203.
- Spahn, P. (2013): 'One Market, One Money' – Zwei Jahrzehnte später. *List Forum* (forthcoming)
- Spaventa, L. (2009): Economists and Economics – What Does the Crisis Tell Us? Centre for Economic Policy Research, *Policy Insights*, 38, 1-8.
- Tavlas, G. S. (1993): The 'New' Theory of Optimum Currency Areas. *The World Economy*, 33, 663-685.
- Tichy, G. (2010): War die Finanzkrise vorhersehbar? *Perspektiven der Wirtschaftspolitik*, 11, 356-382.
- Whelan, K. (2013): Sovereign Default and the Euro. *Oxford Review of Economic Policy* (forthcoming)

FZID Discussion Papers

Competence Centers:

IK:	Innovation and Knowledge
ICT:	Information Systems and Communication Systems
CRFM:	Corporate Finance and Risk Management
HCM:	Health Care Management
CM:	Communication Management
MM:	Marketing Management
ECO:	Economics

Download FZID Discussion Papers from our homepage: <https://fzid.uni-hohenheim.de/71978.html>

Nr.	Autor	Titel	CC
01-2009	Julian P. Christ	NEW ECONOMIC GEOGRAPHY RELOADED: Localized Knowledge Spillovers and the Geography of Innovation	IK
02-2009	André P. Slowak	MARKET FIELD STRUCTURE & DYNAMICS IN INDUSTRIAL AUTOMATION	IK
03-2009	Pier Paolo Saviotti and Andreas Pyka	GENERALIZED BARRIERS TO ENTRY AND ECONOMIC DEVELOPMENT	IK
04-2009	Uwe Focht, Andreas Richter, and Jörg Schiller	INTERMEDIATION AND MATCHING IN INSURANCE MARKETS	HCM
05-2009	Julian P. Christ and André P. Slowak	WHY BLU-RAY VS. HD-DVD IS NOT VHS VS. BETAMAX: THE CO-EVOLUTION OF STANDARD-SETTING CONSORTIA	IK
06-2009	Gabriel Felbermayr, Mario Larch, and Wolfgang Lechthaler	UNEMPLOYMENT IN AN INTERDEPENDENT WORLD	ECO
07-2009	Steffen Otterbach	MISMATCHES BETWEEN ACTUAL AND PREFERRED WORK TIME: Empirical Evidence of Hours Constraints in 21 Countries	HCM
08-2009	Sven Wydra	PRODUCTION AND EMPLOYMENT IMPACTS OF NEW TECHNOLOGIES – ANALYSIS FOR BIOTECHNOLOGY	IK
09-2009	Ralf Richter and Jochen Streb	CATCHING-UP AND FALLING BEHIND KNOWLEDGE SPILLOVER FROM AMERICAN TO GERMAN MACHINE TOOL MAKERS	IK

Nr.	Autor	Titel	CC
10-2010	Rahel Aichele and Gabriel Felbermayr	KYOTO AND THE CARBON CONTENT OF TRADE	ECO
11-2010	David E. Bloom and Alfonso Sousa-Poza	ECONOMIC CONSEQUENCES OF LOW FERTILITY IN EUROPE	HCM
12-2010	Michael Ahlheim and Oliver Frör	DRINKING AND PROTECTING – A MARKET APPROACH TO THE PRESERVATION OF CORK OAK LANDSCAPES	ECO
13-2010	Michael Ahlheim, Oliver Frör, Antonia Heinke, Nguyen Minh Duc, and Pham Van Dinh	LABOUR AS A UTILITY MEASURE IN CONTINGENT VALUATION STUDIES – HOW GOOD IS IT REALLY?	ECO
14-2010	Julian P. Christ	THE GEOGRAPHY AND CO-LOCATION OF EUROPEAN TECHNOLOGY-SPECIFIC CO-INVENTORSHIP NETWORKS	IK
15-2010	Harald Degner	WINDOWS OF TECHNOLOGICAL OPPORTUNITY DO TECHNOLOGICAL BOOMS INFLUENCE THE RELATIONSHIP BETWEEN FIRM SIZE AND INNOVATIVENESS?	IK
16-2010	Tobias A. Jopp	THE WELFARE STATE EVOLVES: GERMAN KNAPPSCHAFTEN, 1854-1923	HCM
17-2010	Stefan Kirn (Ed.)	PROCESS OF CHANGE IN ORGANISATIONS THROUGH eHEALTH	ICT
18-2010	Jörg Schiller	ÖKONOMISCHE ASPEKTE DER ENTLOHNUNG UND REGULIERUNG UNABHÄNGIGER VERSICHERUNGSVERMITTLER	HCM
19-2010	Frauke Lammers and Jörg Schiller	CONTRACT DESIGN AND INSURANCE FRAUD: AN EXPERIMENTAL INVESTIGATION	HCM
20-2010	Martyna Marczak and Thomas Beissinger	REAL WAGES AND THE BUSINESS CYCLE IN GERMANY	ECO
21-2010	Harald Degner and Jochen Streb	FOREIGN PATENTING IN GERMANY, 1877-1932	IK
22-2010	Heiko Stüber and Thomas Beissinger	DOES DOWNWARD NOMINAL WAGE RIGIDITY DAMPEN WAGE INCREASES?	ECO
23-2010	Mark Spoerer and Jochen Streb	GUNS AND BUTTER – BUT NO MARGARINE: THE IMPACT OF NAZI ECONOMIC POLICIES ON GERMAN FOOD CONSUMPTION, 1933-38	ECO

Nr.	Autor	Titel	CC
24-2011	Dhammika Dharmapala and Nadine Riedel	EARNINGS SHOCKS AND TAX-MOTIVATED INCOME-SHIFTING: EVIDENCE FROM EUROPEAN MULTINATIONALS	ECO
25-2011	Michael Schuele and Stefan Kirn	QUALITATIVES, RÄUMLICHES SCHLIEßEN ZUR KOLLISIONSERKENNUNG UND KOLLISIONSVERMEIDUNG AUTONOMER BDI-AGENTEN	ICT
26-2011	Marcus Müller, Guillaume Stern, Ansgar Jacob and Stefan Kirn	VERHALTENSMODELLE FÜR SOFTWAREAGENTEN IM PUBLIC GOODS GAME	ICT
27-2011	Monnet Benoit Patrick Gbakoua and Alfonso Sousa-Poza	ENGEL CURVES, SPATIAL VARIATION IN PRICES AND DEMAND FOR COMMODITIES IN CÔTE D'IVOIRE	ECO
28-2011	Nadine Riedel and Hannah Schildberg-Hörisch	ASYMMETRIC OBLIGATIONS	ECO
29-2011	Nicole Waidlein	CAUSES OF PERSISTENT PRODUCTIVITY DIFFERENCES IN THE WEST GERMAN STATES IN THE PERIOD FROM 1950 TO 1990	IK
30-2011	Dominik Hartmann and Atilio Arata	MEASURING SOCIAL CAPITAL AND INNOVATION IN POOR AGRICULTURAL COMMUNITIES. THE CASE OF CHÁPARRA - PERU	IK
31-2011	Peter Spahn	DIE WÄHRUNGSKRISEUNION DIE EURO-VERSCHULDUNG DER NATIONALSTAATEN ALS SCHWACHSTELLE DER EWU	ECO
32-2011	Fabian Wahl	DIE ENTWICKLUNG DES LEBENSSTANDARDS IM DRITTEN REICH – EINE GLÜCKSÖKONOMISCHE PERSPEKTIVE	ECO
33-2011	Giorgio Triulzi, Ramon Scholz and Andreas Pyka	R&D AND KNOWLEDGE DYNAMICS IN UNIVERSITY-INDUSTRY RELATIONSHIPS IN BIOTECH AND PHARMACEUTICALS: AN AGENT-BASED MODEL	IK
34-2011	Claus D. Müller-Hengstenberg and Stefan Kirn	ANWENDUNG DES ÖFFENTLICHEN VERGABERECHTS AUF MODERNE IT SOFTWAREENTWICKLUNGSVERFAHREN	ICT
35-2011	Andreas Pyka	AVOIDING EVOLUTIONARY INEFFICIENCIES IN INNOVATION NETWORKS	IK
36-2011	David Bell, Steffen Otterbach and Alfonso Sousa-Poza	WORK HOURS CONSTRAINTS AND HEALTH	HCM
37-2011	Lukas Scheffknecht and Felix Geiger	A BEHAVIORAL MACROECONOMIC MODEL WITH ENDOGENOUS BOOM-BUST CYCLES AND LEVERAGE DYNAMICS	ECO
38-2011	Yin Krogmann and Ulrich Schwalbe	INTER-FIRM R&D NETWORKS IN THE GLOBAL PHARMACEUTICAL BIOTECHNOLOGY INDUSTRY DURING 1985–1998: A CONCEPTUAL AND EMPIRICAL ANALYSIS	IK

Nr.	Autor	Titel	CC
39-2011	Michael Ahlheim, Tobias Börger and Oliver Frör	RESPONDENT INCENTIVES IN CONTINGENT VALUATION: THE ROLE OF RECIPROCITY	ECO
40-2011	Tobias Börger	A DIRECT TEST OF SOCIALLY DESIRABLE RESPONDING IN CONTINGENT VALUATION INTERVIEWS	ECO
41-2011	Ralf Rukwid and Julian P. Christ	QUANTITATIVE CLUSTERIDENTIFIKATION AUF EBENE DER DEUTSCHEN STADT- UND LANDKREISE (1999-2008)	IK

Nr.	Autor	Titel	CC
42-2012	Benjamin Schön and Andreas Pyka	A TAXONOMY OF INNOVATION NETWORKS	IK
43-2012	Dirk Foremny and Nadine Riedel	BUSINESS TAXES AND THE ELECTORAL CYCLE	ECO
44-2012	Gisela Di Meglio, Andreas Pyka and Luis Rubalcaba	VARIETIES OF SERVICE ECONOMIES IN EUROPE	IK
45-2012	Ralf Rukwid and Julian P. Christ	INNOVATIONSPOTENTIALE IN BADEN-WÜRTTEMBERG: PRODUKTIONSCLUSTER IM BEREICH „METALL, ELEKTRO, IKT“ UND REGIONALE VERFÜGBARKEIT AKADEMISCHER FACHKRÄFTE IN DEN MINT-FÄCHERN	IK
46-2012	Julian P. Christ and Ralf Rukwid	INNOVATIONSPOTENTIALE IN BADEN-WÜRTTEMBERG: BRANCHENSPEZIFISCHE FORSCHUNGS- UND ENTWICKLUNGSAKTIVITÄT, REGIONALES PATENTAUFKOMMEN UND BESCHÄFTIGUNGSSTRUKTUR	IK
47-2012	Oliver Sauter	ASSESSING UNCERTAINTY IN EUROPE AND THE US - IS THERE A COMMON FACTOR?	ECO
48-2012	Dominik Hartmann	SEN MEETS SCHUMPETER. INTRODUCING STRUCTURAL AND DYNAMIC ELEMENTS INTO THE HUMAN CAPABILITY APPROACH	IK
49-2012	Harold Paredes- Frigolett and Andreas Pyka	DISTAL EMBEDDING AS A TECHNOLOGY INNOVATION NETWORK FORMATION STRATEGY	IK
50-2012	Martyna Marczak and Víctor Gómez	CYCLICALITY OF REAL WAGES IN THE USA AND GERMANY: NEW INSIGHTS FROM WAVELET ANALYSIS	ECO
51-2012	André P. Slowak	DIE DURCHSETZUNG VON SCHNITTSTELLEN IN DER STANDARDSETZUNG: FALLBEISPIEL LADESYSTEM ELEKTROMOBILITÄT	IK
52-2012	Fabian Wahl	WHY IT MATTERS WHAT PEOPLE THINK - BELIEFS, LEGAL ORIGINS AND THE DEEP ROOTS OF TRUST	ECO
53-2012	Dominik Hartmann und Micha Kaiser	STATISTISCHER ÜBERBLICK DER TÜRKISCHEN MIGRATION IN BADEN-WÜRTTEMBERG UND DEUTSCHLAND	IK
54-2012	Dominik Hartmann, Andreas Pyka, Seda Aydin, Lena Klauß, Fabian Stahl, Ali Santircioglu, Silvia Oberegelsbacher, Sheida Rashidi, Gaye Onan und Suna Erginkoç	IDENTIFIZIERUNG UND ANALYSE DEUTSCH-TÜRKISCHER INNOVATIONSNETZWERKE. ERSTE ERGEBNISSE DES TGIN- PROJEKTES	IK
55-2012	Michael Ahlheim, Tobias Börger and Oliver Frör	THE ECOLOGICAL PRICE OF GETTING RICH IN A GREEN DESERT: A CONTINGENT VALUATION STUDY IN RURAL SOUTHWEST CHINA	ECO

Nr.	Autor	Titel	CC
56-2012	Matthias Strifler Thomas Beissinger	FAIRNESS CONSIDERATIONS IN LABOR UNION WAGE SETTING – A THEORETICAL ANALYSIS	ECO
57-2012	Peter Spahn	INTEGRATION DURCH WÄHRUNGSUNION? DER FALL DER EURO-ZONE	ECO
58-2012	Sibylle H. Lehmann	TAKING FIRMS TO THE STOCK MARKET: IPOS AND THE IMPORTANCE OF LARGE BANKS IN IMPERIAL GERMANY 1896-1913	ECO
59-2012	Sibylle H. Lehmann, Philipp Hauber, Alexander Opitz	POLITICAL RIGHTS, TAXATION, AND FIRM VALUATION – EVIDENCE FROM SAXONY AROUND 1900	ECO
60-2012	Martyna Marczak and Víctor Gómez	SPECTRAN, A SET OF MATLAB PROGRAMS FOR SPECTRAL ANALYSIS	ECO
61-2012	Theresa Lohse and Nadine Riedel	THE IMPACT OF TRANSFER PRICING REGULATIONS ON PROFIT SHIFTING WITHIN EUROPEAN MULTINATIONALS	ECO

Nr.	Autor	Titel	CC
62-2013	Heiko Stüber	REAL WAGE CYCLICALITY OF NEWLY HIRED WORKERS	ECO
63-2013	David E. Bloom and Alfonso Sousa-Poza	AGEING AND PRODUCTIVITY	HCM
64-2013	Martyna Marczak and Víctor Gómez	MONTHLY US BUSINESS CYCLE INDICATORS: A NEW MULTIVARIATE APPROACH BASED ON A BAND-PASS FILTER	ECO
65-2013	Dominik Hartmann and Andreas Pyka	INNOVATION, ECONOMIC DIVERSIFICATION AND HUMAN DEVELOPMENT	IK
66-2013	Christof Ernst, Katharina Richter and Nadine Riedel	CORPORATE TAXATION AND THE QUALITY OF RESEARCH AND DEVELOPMENT	ECO
67-2013	Michael Ahlheim, Oliver Frör, Jiang Tong, Luo Jing and Sonna Pelz	NONUSE VALUES OF CLIMATE POLICY - AN EMPIRICAL STUDY IN XINJIANG AND BEIJING	ECO
68-2013	Michael Ahlheim and Friedrich Schneider	CONSIDERING HOUSEHOLD SIZE IN CONTINGENT VALUATION STUDIES	ECO
69-2013	Fabio Bertoni and Tereza Tykvová	WHICH FORM OF VENTURE CAPITAL IS MOST SUPPORTIVE OF INNOVATION? EVIDENCE FROM EUROPEAN BIOTECHNOLOGY COMPANIES	CFRM
70-2013	Tobias Buchmann and Andreas Pyka	THE EVOLUTION OF INNOVATION NETWORKS: THE CASE OF A GERMAN AUTOMOTIVE NETWORK	IK
71-2013	B. Vermeulen, A. Pyka, J. A. La Poutré, A. G. de Kok	CAPABILITY-BASED GOVERNANCE PATTERNS OVER THE PRODUCT LIFE-CYCLE	IK
72-2013	Beatriz Fabiola López Ulloa, Valerie Møller, Alfonso Sousa-Poza	HOW DOES SUBJECTIVE WELL-BEING EVOLVE WITH AGE? A LITERATURE REVIEW	HCM
73-2013	Wencke Gwozdz, Alfonso Sousa-Poza, Lucia A. Reisch, Wolfgang Ahrens, Stefaan De Henauw, Gabriele Eiben, Juan M. Fernández-Alvira, Charalampos Hadjigeorgiou, Eva Kovács, Fabio Lauria, Toomas Veidebaum, Garrath Williams, Karin Bammann	MATERNAL EMPLOYMENT AND CHILDHOOD OBESITY – A EUROPEAN PERSPECTIVE	HCM
74-2013	Andreas Haas, Annette Hofmann	RISIKEN AUS CLOUD-COMPUTING-SERVICES: FRAGEN DES RISIKOMANAGEMENTS UND ASPEKTE DER VERSICHERBARKEIT	HCM

75-2013	Yin Krogmann, Nadine Riedel and Ulrich Schwalbe	INTER-FIRM R&D NETWORKS IN PHARMACEUTICAL BIOTECHNOLOGY: WHAT DETERMINES FIRM'S CENTRALITY-BASED PARTNERING CAPABILITY?	ECO, IK
76-2013	Peter Spahn	MACROECONOMIC STABILISATION AND BANK LENDING: A SIMPLE WORKHORSE MODEL	ECO
77-2013	Sheida Rashidi, Andreas Pyka	MIGRATION AND INNOVATION – A SURVEY	IK
78-2013	Benjamin Schön, Andreas Pyka	THE SUCCESS FACTORS OF TECHNOLOGY-SOURCING THROUGH MERGERS & ACQUISITIONS – AN INTUITIVE META- ANALYSIS	IK
79-2013	Irene Prostopolow, Andreas Pyka and Barbara Heller-Schuh	TURKISH-GERMAN INNOVATION NETWORKS IN THE EUROPEAN RESEARCH LANDSCAPE	IK
80-2013	Eva Schlenker, Kai D. Schmid	CAPITAL INCOME SHARES AND INCOME INEQUALITY IN THE EUROPEAN UNION	ECO
81-2013	Michael Ahlheim, Tobias Börger and Oliver Frör	THE INFLUENCE OF ETHNICITY AND CULTURE ON THE VALUATION OF ENVIRONMENTAL IMPROVEMENTS – RESULTS FROM A CVM STUDY IN SOUTHWEST CHINA –	ECO
82-2013	Fabian Wahl	DOES MEDIEVAL TRADE STILL MATTER? HISTORICAL TRADE CENTERS, AGGLOMERATION AND CONTEMPORARY ECONOMIC DEVELOPMENT	ECO
83-2013	Peter Spahn	SUBPRIME AND EURO CRISIS: SHOULD WE BLAME THE ECONOMISTS?	ECO