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The Research Center SAFE – “Sustainable Architecture for Finance in Europe” – is a cooperation of the Center for Financial Studies and Goethe University Frankfurt. It is funded by the LOEWE initiative of the State of Hessen (Landes-Offensive zur Entwicklung wissenschaftlich-ökonomischer Exzellenz). SAFE brings together more than 40 professors and just as many junior researchers who are all dedicated to conducting research in support of a sustainable financial architecture. The Center has two main pillars: excellent research on all important topics related to finance; and policy advice, including the dissemination of relevant research findings to European decision makers from the realms of politics, regulation and administration.

In order to promote a fruitful exchange with interested parties from politics, academia, business and the media, SAFE issues a newsletter on a quarterly basis. This aims to provide an overview of the Center’s ongoing research and policy activities. The SAFE Newsletter succeeds the House of Finance Newsletter, which was published between 2009 and 2012.

SAFE is based at Goethe University’s House of Finance, however extends beyond by drawing on scholars from other parts of Goethe University as well as from fellow research institutions. The Center builds on the reputation of the House of Finance institutions, serving as an interdisciplinary think tank on the issue of finance.
Since the British people voted for Brexit, some weeks have passed and the first turbulence has calmed down. But what remains, now that the dust has settled? While the UK is seeking the most favorable path out of the EU, the latter started to question its existing institutional set-up. There can be no doubt that the EU is forced to redefine itself, to reposition itself and to find a new “bearing point”. New models of a functional federal EU design should be encouraged in order to produce a solid basis for public debate. It is unacceptable to just carry on as before.

The call for a more “flexible” Europe has come up in the last weeks, succeeding the concept of a “two-speed” Europe that has been talked about for decades. The division of the EU into a euro area and a rest can be taken as an example for a two-speed Europe along functional lines and provides us with valuable lessons. One of them is that all advances beyond the EU-28-framework will face huge difficulties in terms of democratic legitimacy. And this is precisely what people are – and rightly so – annoyed with: an opaque, ever more complex bureaucratic apparatus which cannot be voted out of office.

What needs to be done at a minimum, is to redefine two basic principles: firstly, the degree of federalism: Which policy areas really need to be dealt with on the supranational level because they reach beyond national borders and powers? This will most probably continue to be economic and financial market policy, but maybe also environmental protection, asylum policy and defense. Other competencies are perhaps better placed on a lower federal level: Do we really need EU commissioners dealing with education and social security, let alone gender equality, culture or sports? A second principle to be rethought is democratic legitimacy: How can we set up a proper European government, voted for by all Europeans, endowed with its own budget and taxing authority but restricted to its functional mandate? An inflated European Commission, representing even the smallest member state, cannot be the last word and will always induce an unwanted accumulation of competencies. A key idea must be to legitimize Europe and, at the same time, strengthen national sovereignty in matters that do not require a high degree of centralization.

Based on a new definition of these two principles, all institutional processes need to be put to the test, streamlined and newly legitimized. The answer to the Brexit decision can only be a credible attempt to transform the EU into an institution that people can trust and identify with.

Yours sincerely,
Jan Pieter Krahnen
A Central EU Tax is not Superior to the Current System of National Contributions

The discussion about how to finance the budget of the European Union has a long history. The current system of national contributions, which are largely based on the member states’ gross national incomes, is criticized as being full of exceptions, overly complex and outdated. The discontent has led to the implementation of a High Level Group on Own Resources that has the mission to find more transparent, simple, fair and democratically accountable ways to fund the EU. Meanwhile, there are continuing and persistent pressures towards the implementation of a genuine EU tax as a (partial) substitute to national contributions. This paper discusses the conditions under which such a transition would make sense economically, taking into account elementary principles of fiscal federalism.

The allocation of taxation rights is an ongoing issue in fiscal federalism theory. A long-standing argument put forward in the literature is to assign sales taxes and taxes on immobile tax bases to lower-level governments and to reserve the more mobile tax bases to the central level. This way, fiscal externalities that may occur if lower-tier governments are using mobile tax bases could be avoided. However, the usual fiscal federalism framework differs from the present European discussion in one major aspect: While a large literature in fiscal federalism is concerned about how to finance the sub-central provision of public goods, the present discussion is about financing the central budget by either a centralized tax or regional contributions levied by regional taxes.

**A decentralization theorem of taxation**

A classical contribution to fiscal federalism theory was made by Oates (1972) who proposed that, in absence of spillover effects or economies of scale in the provision of a publicly provided good,
the lowest-tier government should be in charge of providing the good in order to take into account possible taste heterogeneity among regions. Oates’ decentralization theorem provides an important benchmark for the allocation of responsibilities for the provision of public services when several levels of governments exist. Our paper stresses an analogy: We argue that taxes that do not cause spillover effects between regions of a federation or economies of scale should be levied on a decentralized level to allow optimal consideration of regions’ heterogeneity.

One assumption that is central to Oates’ theorem is that a government which decides on a specific service level cannot differentiate the service level within its jurisdiction. This assumption has been criticized as empirically wrong (Lockwood, 2006, p. 34). However, when it comes to taxation, there are usually strong constitutional restrictions that disallow regional differentiation. For example, when Germany introduced a surcharge to finance the accession of East Germany in the 1990s, the tax had to be introduced both in the West and in the East. So, the perspective taken in this paper is that concerns regarding this assumption can be disregarded when it comes to taxation.

The advantages of decentralized taxation
As a first result, our analysis shows that decentralized taxation is superior to uniform central taxation for financing a central budget if spillover effects are absent and the size of the central budget is given. The reason is that decentralized taxation can better cater to differences in behavioral reactions to taxes, differences in regional redistributive preferences and different attitudes towards administrative issues. In this decentralized solution the central government decides on the sum of contributions whereas the member states decide on the tax instruments to be used for raising the contributions. This mechanism actually resembles the current setting in the EU where the member states set their taxes independently but are obliged to transfer a certain contribution to the European budget (see Figure 1).

In a second step, we introduce spillover effects of regional taxes to the analysis and discuss the amount of tax coordination this requires. We find that a system with coordination on the tax instruments used at the decentralized levels plus centrally set regional contributions is preferable to a centralized tax as long as spillover effects between regions do not depend on the intra-regional distribution of the tax burden. Only if this restriction does not hold, a centralized tax may be superior and better internalize spillover effects than coordination.

Tax coordination instead of uniform taxation
Our results have interesting implications for the current discussion about a European tax to finance the EU budget. They suggest that any plan to introduce an EU-wide tax faces a clear trade-off between the gains of harmonizing the tax base and the losses stemming from the impossibility to levy taxes that fit local preferences best. Thus, the current system in the EU risks adverse effects when member states decide to levy taxes that are optimal from a local perspective but suboptimal from a union-wide welfare function. In this case, the optimal response may be to restrict the regional choice of tax instruments rather than to centralize taxation altogether: Limiting the choice of the member states to the set of tax bases that have least interstate spillovers would minimize the negative effects of decentralization.

Taken to the extreme, the EU might want to prescribe which exact tax base each member state should use and only leave the distribution of the contributions within this tax base at the disposal of the national government. Such a measure would still allow sufficient leeway to cater to regional preferences. There are, for example, various possibilities to raise the same revenue from the same set of incomes or to set a VAT, with different goods and services exempted and others taxed at reduced rates. Unlike an EU tax, restrictive conditions regarding the tax base could still exploit the efficiency of a decentralized solution while curbing interstate externalities.

References


Throughout the financial crisis of 2008/09, structured financial products, securitization techniques and the resulting private money creation led to the collapse of the global financial system. This experience has shown that financial markets are legally constructed and do not exist independently of law, such as contracts and the private and public rules governing them. This article discusses fundamental questions arising from the close interplay between contractual freedom and market stability.

Private creation of money through structured finance products

Structured financial products, such as asset-backed securities, had increasingly been gaining in importance up until the financial crisis of 2008/09. While they were first looked at as an exogenous determinant aiming at the reduction of transaction costs, the law in its formative role for the structuring of asset-backed securities came into focus throughout the crisis (Pistor, 2013). The success of a securitization transaction is based on the legal separation of the special purpose vehicle (SPV) from the originator (see Figure 1). This construction ensures bankruptcy remoteness of the SPV, so that the originator can be certain to have his illiquid debt removed from his balance sheet in return for an increase of liquid funds. Hand in hand with this bankruptcy remoteness necessarily comes the role of an SPV to provide “money market funding for capital market lending” (Mehrling et al., 2013, p. 2).

This opens up a wider perspective on shadow banking, not only as a circumvention strategy of banks with respect to their regulatory burdens but also as something close to a “parallel system of private money creation” (Ricks, 2011, p. 744). It sheds light on the maturity transformation of shadow banks outside the regulated depository sector, so that broader monetary implications are not unlikely. In contrast to regular banks, shadow banks outside the regulated depository sector, including, among others, SPVs, are not subject to the requirements that are key to the banking safety net, such as capital requirements and strict portfolio limitations. This lack of financial regulation and supervision led to financial instability, which in turn made government bail-out measures necessary – at the expense of taxpayers. Apparently, the application of quite a few bail-out measures requires the suspension of legal commitments captured by the elasticity of law. The latter makes legal rigidity dependent on the hierarchical status of the addressee of the norm within the system. Whereas market participants at the apex of the system benefited from the elasticity of law throughout the crisis, those at the periphery had to face illiquidity, default and exit.

Sovereign debt restructuring on the basis of pari passu

How the clash of the needs for financial stability and political power may be reflected by the elasticity of law becomes particularly clear in the field of sovereign debt restructuring and its underlying contracts. In fact, one way to convince potential creditors of sovereign debt of the unlikelihood of the threat of a later cessation of payments following a restructuring was considered to be the inclusion of a pari passu clause in the underlying contract guaranteeing an equal treatment of all creditors. Such a clause would
stand in the way of selective payment of restructuring participants and lead to a coincidence of the bondholders’ interests, thus encouraging them to agree to a restructuring proposal.

However, this intention seems to have played out the other way around when Argentine sovereign debt should have been restructured in 2001 and Argentina passed the so-called “Lock Law” in order to avoid any resumption of negotiations with holdouts who did not agree to a debt restructuring. Instead of adhering to a narrow interpretation of the pari passu clause to the effect that it would only prohibit formal subordination, the U.S. Second Circuit Court of Appeals went so far as to rely on a broader interpretation of the clause by not allowing Argentina to pay other bondholders without paying the holdouts. Such a broad, “elastic” interpretation thus results in differential payments to creditors and ultimately undercuts promising and fruitful restructuring practices. On a larger scale, this may pose a risk to financial stability as a public good and work against states and debtors on the periphery as opposed to the holdout creditors located at the apex. Again, elasticity of the law turns out to be a function of the addressee’s closeness to the apex.

**Collective action clauses as safety valves**

At the same time, the court tried to meet these possible objections regarding a potential increase of holdout litigation resulting from its decision by referring to collective action clauses as a way to "...effectively eliminate the possibility of holdout litigation..." (NML Capital, Ltd. v. Republic of Argentina, 699 F.3d 246, 264 (2d Cir. 2012)). A collective action clause can pave the way for a super-majority of bondholders to approve a restructuring proposal, binding the dissenters, thus changing the repayment terms of the bond and making it applicable to all bondholders. It can therefore fulfil the function of a safety valve. Such safety valves are especially called for in cases of a significant change of circumstances with respect to the distribution of risk that cannot be reasonably expected to be accepted by one of the parties.

In order to be able to achieve their aspired goals of furthering an effective restructuring process, safety valves have to be carefully designed. Therefore, the balance between the individual veto right of a single bondholder and the effective restructuring as a public good has to be struck with a sense of proportion. Otherwise, a holder of a relatively small outstanding amount of bonds would be able to relatively easily block the necessary majority vote and thus undermine any restructuring and renegotiation. Again, it turns out that contract design and law are the institutions that lie at the heart of financial stability.

**References**


Helmut Gründl holds the Chair of Insurance and Regulation at Goethe University Frankfurt and serves as Managing Director of the International Center for Insurance Regulation. Previous stations include Humboldt University Berlin and the University of Passau. His main research interests are insurance and risk management, policyholders’ behavior as well as financial planning decisions, taking into account biometric risks, e.g. long-term care risk. Helmut Gründl is a member of the SAFE Policy Center’s core team of researchers.

Which research questions are you currently focusing on?
At my chair, we focus on insurance and insurance regulation topics, currently especially with respect to life insurance. One ongoing project is on an insurance annuity product named tontine, which dates back to the Middle Ages. The idea behind is that a group of people pays into a pool and, thereafter, gets annuities which increase when group members die. We analyze whether a modernized form can be a valuable supplement for old age provision in an aging society. In another project we develop a systemic risk measure that takes into account the contagion period between a triggering event and a subsequent systemic event in order to determine factors that drive possible systemic risk in the insurance industry.

Together with SAFE researchers Martin Götz and Irina Gemmo, you are also working on a paper that deals with the topic of insurance surrender, i.e. the premature termination of life insurance policies. What is your objective?
In a first step, we aim to identify individual and household characteristics that influence liquidity demand in certain life phases because the termination of life insurance policies is usually associated with an urgent need for liquidity. We base our analysis on data of the Socio-Economic Panel which consists of long-term survey data from 11,000 German households. In contrast to other studies, which usually work with aggregated figures, we look at the individual household, which enables us to take the age of policy holders at the time of surrender into account (see Figure 1). For example, we find that the probability of a divorce to be a driver for a surrender decision increases with the age of the couple, which can be explained by the fact that the costs of divorces rise with age. With respect to the birth of a child, the surrender probability is especially high with young couples and those that have recently had their first child. Of course, we also control for other parameters such as unemployment, income and the acquisition of real estate that are well known to influence surrender decisions. By assigning certain surrender triggers to age groups, we are also able to derive more general predictions about how demographic change will affect life insurance surrender rates.

These results will certainly be of interest for insurance companies.
Absolutely. Therefore, in a second step, we will insert these findings into a multi-period shareholder value model of a life insurance company with different investment choices. We aim to find out which impact surrender decisions have on the company’s investment behavior. A large surrender rate might, for example, keep the insurer away from investing in long-term assets that would be important to secure considerable returns, especially in times of low interest rates.

Can large surrender rates affect the stability of an insurance company? One could imagine that the companies set their prices according to this risk.
On the profit-loss side there is indeed no real stability risk, given the observable surrender discounts. However, problems can arise on the liquidity side. In theory, what we know as “bank run” is also possible in the insurance sector. In particular against the background of the low and negative interest rate environment, it is not inconceivable that some life insurers get...
into financial distress and, thus, customers lose trust in a single company or even in the industry as a whole. Another scenario would be rising interest rates after a period of very low rates. This might induce a large number of customers who hold policies with very low guaranteed investment returns to surrender because they would get better conditions elsewhere. As a mass behavior this could evoke a liquidity problem for life insurers – and not only for them. If insurers had to sell assets in a “fire sale” situation, this could cause a downward spiral for asset prices and thus affect financial markets as a whole and even the economy beyond.

Can insurance companies design their contracts in a way that would help to lower surrender rates?
A general idea to overcome the problems that arise with either very low or rising interest rates would be to generally decrease the guaranteed return rates. This may sound paradoxical but it would make all parties better off. The insurers could easily fulfill their commitments so that solvency risk would go down; the insurers would need less equity capital to back the guarantees. Thus, equity capital is set free to back riskier and, in the long run, more profitable investments. As a consequence, policyholders would benefit from higher surplus participation. The drawback however is that you cannot swap existing contracts. The change can only come into effect with new contracts. This implies that, for a very long time, companies have to continue to suffer from the sins of the past … which are especially painful given the current situation of negative interest rates.

True. All insurers are currently searching for yield which they mainly try to find in long-term assets, for instance infrastructure investments. This brings us back to the question of an optimal investment strategy for insurers: how many long-term – but illiquid – assets can they hold to get the desired returns while, at the same time, disposing of sufficient liquidity to satisfy policy surrenders? With our project we aim to address this problem by giving more concrete information with respect to the long-term development of surrender-rates and the ensuing costs and benefits for the parties involved.

What is the regulator’s approach to this problem?
Insurance regulation faces a tradeoff. In terms of consumer protection, we observe the tendency to allow customers to surrender their policies whenever they like and grant them considerable surrender values. While this is certainly important when you think of these unforeseeable situations in life when cash is urgently needed, people often neglect that, by protecting customers who surrender, you harm those who stick to their contracts for old age provision. They forgo the illiquidity premiums that could be collected if insurers were able to follow a long-term investment strategy.

Is a life insurance policy still an investment vehicle that people should consider?
For sure. There is no other possibility to hedge longevity risk – the risk of out-living your money – as well as mortality risk when you think of term life insurances. I suppose that, in the long run, life insurers will concentrate on these two core parts of their business.

References
In the European Union, the real return in financial markets – the difference between the interest rate based on EONIA (Euro Overnight Index Average) and the inflation rate – has been in negative territory since the outbreak of the crisis. Experts warn that we will be facing a "secular stagnation" over the next decades (Summers, 2014; Teulings and Baldwin, 2014) which means that growth rates will remain low and low interest rates will become the new normal. This paper discusses to what extent the demographic change could contribute to such a stagnation by analyzing the long-term developments in growth, asset returns, wages and inequality between and within generations.

The reasons for the current development are partly known: Low interest rates are a result of the expansive monetary policy, together with high uncertainty in the markets and hardly any attractive investment opportunities. This situation raises a couple of questions: How will the long term development look once the effects of the crisis diminish? Is there a long term trend? Is this trend already reflected in today's low returns?

The key factors that determine the demographic development are: life expectancy, birth rates and net migration. In Germany, the average life expectancy today is 81 years and will be 86 years on average in 2050 – growing more than one year per decade. The total fertility rate in Germany has been on a low level (around 1.4) since 1980. The long-run average net migration to Germany is around 200,000 people per year. In 2014, around 500,000 people moved to Germany, and in 2015, 1.1 million refugees came to this country (however, there is high uncertainty about this number due to possible double registration of people).

Refugee scenario versus baseline scenario
In order to estimate the effects of net migration, two different scenarios are simulated. In the counterfactual scenario, it is assumed that net migration has been on a long-term average of 200,000 people per year from 2013 onwards ("baseline scenario"). The second scenario factors in the actual migration flows to Germany in 2013 and 2014. Furthermore, it is assumed that 1.1 million refugees and 200,000 migrants came to Germany in 2015, and that net migration will be gradually decreasing to 200,000 people per year until 2020 ("refugee scenario"). Overall, in the refugee scenario 4.15 million more migrants will be coming to Germany than in the baseline scenario.

As a result, the population size will decrease less until 2060 in the refugee scenario compared to the baseline scenario (see Figure 1.1). On the other hand, the ratio between the 20 to 64 year olds and the total population (working age population ratio) will equally decline in both scenarios until 2040. After 2040, it will slightly increase in the refugee scenario because of the young age structure of the migrants while it will stay on a low level in the baseline scenario (see Figure 1.2). The ratio between the retired population and the working age population (old age dependency ratio) will also be slightly lower in the refugee scenario than in the baseline scenario until 2060 (see Figure 1.3). Hence,
a higher migration rate could help to alleviate the problems caused by the demographic change if the migrants can be successfully integrated into the labor market.

**Macroeconomic effects**

The demographic change entails two macroeconomic effects. Firstly, the demand for investments will be decreasing because an economy with a larger proportion of old people has a smaller labor force and produces fewer goods. This will reduce the growth rate. According to forecasts, the trend growth rate of per capita income will drop from currently 1.5 percent per year to 0.7 percent until 2030 (e.g. Börsch-Supan, Härtl, Ludwig, 2014). Secondly, there will be an oversupply of savings due to the increasing life expectancy and the decline in pension income relative to wage income in many industrialized countries. Accordingly, the high capital supply and the relatively low demand for capital will lead to decreasing returns on investment. Furthermore, the demand for safe assets will increase in an aging economy because older people have a higher preference for investments in safe assets such as German government bonds. This will result in even lower returns on these assets.

At the same time, the shrinking labor force will lead to higher gross wages. This will also increase net wages if the rise is not absorbed by a simultaneous dramatic increase in social insurance contributions or taxes. The combination of low returns on investments and higher real wages has a redistributive effect and could reduce income inequality. Therefore, higher wages and low interest rates could lead to net welfare gains for future generations.

Overall, the macroeconomic effects of higher migration to Germany, as assumed in the refugee scenario, are relatively small when compared to possible effects of various labor market and pension reforms which, for example, induce a later retirement or a higher employment rate of women (Börsch-Supan, Härtl, Ludwig, 2014).

**References**


The full paper is available as SAFE Policy White Paper No. 38 at: http://safe-frankfurt.de/demographic_change
Comparative Financial Systems – Historical Perspectives

While institutional and regulatory conditions change over time, human behavior does not. Therefore, studying historical events and long-run financial trends provides highly informative and instructive insights also with respect to current developments. Based on this conviction, Goethe University hosted a conference on "Comparative Financial Systems – Historical Perspectives" on 17 June 2016. The conference was jointly organized by the House of Finance, the Research Center SAFE and the Institute for Banking and Financial History in the context of the Visiting Professorship of Financial History, endowed by Metzler Bank and Edmond de Rothschild Group.

This year’s Visiting Professor, Caroline Fohlin (Emory University), stressed that people tend to think in dichotomies when comparing financial systems: bank-dominated versus market-dominated systems, or systems where universal banks prevail versus those dominated by specialized banks. History shows however that most economies were and are characterized by mixed forms. The main predictor of a country’s modern banking structure is the respective structure at the start of the 20th century, Fohlin explained. For example, moderately wealthy countries in 1900 as well as countries with historically centralized governments tend to have universal banks and to be less market oriented today.

Hermann Remsperger awarded Order of Merit

Hermann Remsperger, for many years Chairman of the Council of the Stiftung Geld und Währung, Chairman of the Board of Trustees of the Institute for Monetary and Financial Stability and a Member of the House of Finance Board of Trustees, has been awarded the Order of Merit of the Federal Republic of Germany, first class (Bundesverdienstkreuz erster Klasse). The order was awarded by the Federal President Joachim Gauck and presented by Jens Weidmann, President of Deutsche Bundesbank, on 15 June.

Conference on Regulating Financial Markets

Financial market regulation is a recurring issue in contemporary policy discussions and debates. To discuss the latest findings and challenges on this topic, the Conference on Regulating Financial Markets, organized by the Research Center SAFE, Deutsche Bundesbank, the Centre for European Economic Research and the Centre for Economic Policy Research, brought together prominent researchers and policy-makers on May 30 and 31. Key themes of the conference were liquidity, monetary policy, banking and structured products. On the first day, Douglas Diamond (Chicago Booth School of Business) provided in his keynote address novel insights for the design of liquidity regulation by presenting a framework on liquidity requirements, liquidity choice and financial stability. The keynote address on the second day was given by Patrick Bolton (Columbia Business School), who provided interesting insights for efficient resolution of global banks by national regulators.

SAFE Policy Center Events

On 14 June, Michael R. Wickens, Professor of Economics at the University of York, gave a SAFE Policy Lecture on the Five Presidents’ Report on the completion of the European Economic and Monetary Union. According to Wickens, one should rather trust financial markets and empower them to price risks appropriately to avoid future crises instead of following far-reaching proposals for more centralization.

On 16 June, SAFE hosted a panel discussion that took stock of the Single Supervisory Mechanism (SSM) one and a half years after its installment. Dirk Schoenmaker (Erasmus University), Sascha Steffen (University of Mannheim), Nicolas Véron (Bruegel) and Mark Wahrenburg (Goethe University) agreed that the SSM has taken huge steps to improve banking supervision in Europe although the overall regulatory setting could still need some improvement. While the SSM was said to be tougher than the national supervisory systems, the ECB/SSM Supervisory Board was still seen as dominated by national interests.

On 28 June, Thomas Gehrig, Professor of Finance at the University of Vienna gave a lecture on the European landscape of stock exchanges. He said that fragmentation today is no longer a geographical issue but a matter of systems: Electronic exchanges have gained extraordinary market shares during the last decade. Gehrig named a number of factors that drive concentration or fragmentation of markets, with regulation being the most important, in one direction or the other.
Selected Publications


Bayer, E., Tuli, K., Skiera, B. (2016)

Benos, E., Sagade, S. (2016)

Faia, E. (2016)
"A Note on Credit Risk Transfers and the Macroeconomy”, forthcoming in Macroeconomic Dynamics.

Haar, B. (2016)

Hebous, S., Weichenrieder, A. (2016)

Kraft, H., Munk, C., Seifried, F., Wagner, S. (2016)
"Consumption Habits and Humps”, forthcoming in Economic Theory.

Thiemann, M., Lepoutre, J. (2016)

Tröger, T. (2016)
Blockchain and Fintechs as Possible Game Changers for Payments

Carl-Ludwig Thiele
Member of the Executive Board, Deutsche Bundesbank

Blockchain and fintechs have propelled transaction banking into the focus of public attention. Certainly, the term disruptive technology – meaning blockchain or distributed ledger technology – describes the idea that a technology may be abruptly substituted by another one.

For most of the players in this field, the interest no longer lies in realising the vision of an independent virtual currency which could render banks and even central banks obsolete. Efforts are currently centred on evolving the blockchain into a basic technology capable of facilitating allocation processes across companies. Blockchain technology promises cost savings, de-risking potential and efficiency gains through shared databases (rendering reconciliation processes superfluous), the automation of work-sharing processes (making interfaces functionally integrated) and smart contract solutions.

The blockchain, then, is a decentralised database which automatically verifies conditional and unconditional transactions in scarce, digital goods. By coupling blockchain transactions with predefined processes it is possible to achieve an automated process management of complex transactions between mutually independent institutions without resorting to a central reconciliation process.

But not every promise made is a promise kept. Not every innovation proves a success. With regard specifically to Bitcoin, the basic idea behind the blockchain has drawbacks that will need to be remedied before it is fit for use in financial transactions:

- The technology has to be scalable to ensure it is quick and efficient enough.
- To date, the technology does not offer absolute finality because there is always the theoretical danger of a reversal. But in the financial markets legal certainty (ideally, immediate) is a necessity. It must be for sure whether or not a transaction has been carried out.
- To date, blockchain technology as a data transfer tool is too costly as storage requirements and energy consumption are too high.

Many developers around the globe are tackling these problems – at central banks, too. Endeavours to cooperate on an industry-wide level are clear to see; we cannot expect major advantages to materialise until the allocation processes of mutually independent entities are harmonised. Otherwise, the blockchain would ultimately become just one more tool for enterprises to optimise their own in-house process management.

Implementation problems for application-oriented interfaces between blockchain technology and business systems themselves are increasingly garnering interest. On the one hand, a number of developers seem to have underestimated the complexity of real transactions and of replicating them using the blockchain. On the other hand, it would be over-simplistic to compare the functionality of the first blockchain pilot projects with that of real systems that have matured over the years. This is particularly the case if we consider the blockchain as not just another technology to replicate the same business processes, but as a technology that will facilitate a whole new world business of processes in the medium term.

The prime concern for central banks is initially to grasp the functionality. When and only when we know that use of this new technology is at least as secure, efficient and cost-effective in financial transactions as conventional technology, further questions can be asked, for instance regarding the issuance of central bank money using blockchain technology.
Events

July

Sunday, 17th
5.30 pm
CFS Lecture joint with Schmalenbach-gesellschaft
Digitale Transformation
Speaker: Reinhold Achatz, ThyssenKrupp

Thursday, 28th
12.00 – 1.00 pm
Money and Macro Brown Bag Seminar
Child poverty in Japan using Japanese longitudinal data
Speaker: Wataru Kureishi, National Institute of Population and Social Security, Japan

August

Thursday, 18th
12.00 – 1.00 pm
Money and Macro Brown Bag Seminar
Refugee Inflows and the Macroeconomy
Speaker: Robert C. M. Beyer, Goethe University Frankfurt

September

Thursday, 1st
2.00 – 7.45 pm
EFL Fall Conference 2016
Blockchain: Technology, Legal and Regulation, and Application in the Finance Realm
Organized jointly by EFL and DZ Bank

Monday, 5th –
Friday, 9th
SAFE Workshop
P2P Financial Systems 2016
Organized jointly by Bank of England, Bank of Canada, Deutsche Bundesbank, Federal Reserve Bank of St. Louis, University College London & SAFE

October

Monday, 10th
5.00 pm
EFL Jour Fixe
Adherence to household’s financial planning – Do financial planning tools help those who need it the most?
Speaker: Gregor Becker, E-Finance Lab

Tuesday, 11th
4.15 – 5.30 pm
Finance Seminar – joint with SAFE
Speaker: Daniel Paravisini, London School of Economics

Wednesday, 12th
5.30 pm
CFS Colloquium
Speaker: Claudia Buch, Deutsche Bundesbank

Friday, 14th
Conference
7th Bundesbank-CFS-ECB Workshop on Macro and Finance
Organized jointly by CFS, Deutsche Bundesbank and European Central Bank

Tuesday, 18th
2.15 – 3.45 pm
Frankfurt Macro Seminar – joint with SAFE
Speaker: Florin Bilbii, Paris School of Economics

Tuesday, 18th
4.15 – 5.30 pm
Finance Seminar – joint with SAFE
Speaker: Joachim Inkmann, University of Melbourne

Thursday, 20th
12.00 pm
ICIR Talk on Insurance and Regulation
InsurTech – The Case of Community Life
Speaker: Claudia Lang, Community Life

Thursday, 20th
12.00 pm
Money and Macro Brown Bag Seminar
Experienced Inequality and Preferences for Redistribution
Speaker: Johannes Wohlfart, Goethe University Frankfurt

Friday, 23rd
SAFE Conference
4th Frankfurt Conference on Financial Market Policy

Please note that for some events registration is compulsory.