



UNIVERSITEIT VAN AMSTERDAM

ETH zürich

BLES 3 — Business Law & Economics Symposium
Blockchain & Society Policy Research Lab at IViR

Center for Law & Economics

Blockchain, Law & Policy

University of Amsterdam, Faculty of Law

February 12th, 2018 (8:30-17:15)

IViR Documentation Room

Faculty of Law, University of Amsterdam

Roeterseilandcampus - building A, Nieuwe Achtergracht 166, Amsterdam¹

Blockchain architectures, distributed ledger systems and smart contracts are *en vogue* these days. However, their long-term effects on the legal and financial system and on economic activity in general are still unclear. This workshop aims at looking beyond the buzz. An interdisciplinary group of researchers from law, economics, finance, computer science and logic will engage in an in-depth discussion of ongoing research – from early stage to stable working papers – that focuses on the promises, challenges and implications of distributed ledger systems and smart contracts.

Program

8:30-9:00 BREAKFAST

9:00-9:15 Opening statement by Stefan Bechtold & Giuseppe Dari-Mattiacci

Session 1

9:15-10:15 Luis Garicano (LSE)

The Governance of Blockchain: Hard Forks, Cryptocurrency and Norms

Commentators: Spyridon Terovitis (UvA) & Erasmus Elsner (ETH Zurich)

10:15-10:45 COFFEE BREAK

Session 2

10:45-11:45 Davide Grossi (Groningen)

A Social Choice-Theoretic Analysis of the Stellar Consensus Protocol

Commentators: Roland de Haan (UvA) & Fernando Velázquez Quesada (UvA)

11:45-12:45 Stefan Bechtold (ETH Zurich) & Giuseppe Dari-Mattiacci (UvA)

Property Without Law: Personalized Property Rights Through New Contracting Technologies

Commentators: Lewis Kornhauser (NYU) & Gideon Parchomovsky (Penn)

12:45-13:45 LUNCH (served in the conference room)

¹ Note that the law school has recently moved to a new building.

Industry developments

13:45-14:30 Joris Cramwinckel (Ortec Finance, Rotterdam)
Blockchain Technology and Smart Contracts: Potential and Limits, with an Application to Pensions

14:30-14:45 COFFEE BREAK

Session 3

14:45-15:45 Hermann Elendner (HU Berlin)
Liquidity and Resiliency of Crypto-currency Markets
Commentators: Christoph van der Elst (Tilburg) & Dion Bongaerts (Rotterdam)

15:45-16:45 Balazs Bodo, Daniel Gervais and Joao Quintais (Amsterdam)
Who Needs Copyright When We Have Blockchain and Smart Contracts?
Commentators: Miriam Marcowitz-Bitton (Bar-Ilan) & Ben Depoorter (UC Hastings)

14:45-17:15 COFFEE BREAK

Project slam session

17:15-17:35 Lital Helman (Ono Academic College)
Blockchain: the Future of Intellectual Property Registries

17:35-17:55 Erasmus Elsner (ETH Zurich)
Cryptocribs

18:30 DINNER (only for speakers, commentators and registered participants)
Café-Restaurant De Plantage
Plantage Kerklaan 36
1018 CZ Amsterdam

Academic papers

The Governance of Blockchain: Hard Forks, Cryptocurrency and Norms

Luis Garicano (LSE) and Benito Arrunada (Pompeu Fabra)

Blockchain governance must solve two problems: facilitating investment by members, by protecting them from expropriation (hold-up) and coordinating adaptation to new needs. We first study how traditional centralized platforms solve these problems. Then we show on what dimensions blockchain improves and worsens those conflicts. By allowing elements of the network to split, blockchain improves the protection of its nodes from hold up. It also creates coordination difficulties. "Premining" cryptocurrencies facilitates incentive alignment. Coordination devices (such as voting) facilitate coordination, but at the potential cost of worsening hold up of minorities. Other traditional coordination devices that are generally used in society, such as norms and values, have a potential to facilitate coordination as well, but are less likely to work in a situation as the network size increases and anonymous exchange becomes more prevalent. We conclude that existing governance solutions of incentive problems in blockchain are far short of what is needed to solve the incentive conflicts we identify.

A Social Choice-Theoretic Analysis of the Stellar Consensus Protocol

Davide Grossi (Groningen) and Andrea Bracciali (Stirling)

The Stellar consensus protocol (CSP) [Mazieres, 2015] aims at supporting distributed ledgers applications which are not limited by the high latency and low throughput issues of established blockchain technology based on so-called proof-of-work (Bitcoin works with a latency of about one hour to confirm a transaction, and processes up to seven transactions per second at peak performance). CSP consists of an attempt to achieve such aim by proposing a novel solution to a long-standing problem from the field of distributed computing known as Byzantine fault-tolerant consensus. At a high level, CSP works through a voting protocol which is run on a network of trustees that is constructed locally in a distributed fashion. We propose an analysis of the protocol leveraging ideas from social choice theory (specifically binary aggregation).

Property Without Law: Personalized Property Rights Through New Contracting Technologies

Stefan Bechtold (ETH Zurich) and Giuseppe Dari-Mattiacci (UvA)

We explore the impact of emerging blockchain technology on the ability for private contracting parties to create personalized de facto property rights. The possibility to trade fully digital(ized) assets through self-enforcing contracts allows parties to write clauses into the contract that will be automatically conveyed to subsequent contracts with third parties. Breach is made impossible by the very nature of the automatic enforcement system and notice is assured by distributed and readily accessible ledgers. What would typically be mere contractual rights take the force of de facto property rights. We document this phenomenon, investigate its prevalence and examine the role of property law in a world where property rights are no longer subject to the traditional limitations of the numerus clausus doctrine and contracts are no longer bound by privity.

Liquidity and Resiliency of Crypto-currency Markets

Hermann Elendner (HU Berlin)

Crypto-currencies (CCs) are traded in fragmented markets without market makers, exhibiting high volatilities and little relation to known risk factors. Seemingly unaffected by these challenges and repeated spectacular losses, many have attracted exponential growth in trading volumes. This paper is the first to study the resiliency of CC markets by focusing on liquidity and how it reacts to returns. First, I find the main CCs to be surprisingly liquid despite the high fragmentation of trading, implying that trading venues are highly integrated. Second, I show that similarly to stock markets, liquidity drops subsequent to price shocks; however, it is frequently replenished remarkably fast, especially for more mature CCs. These results suggest liquidity measures as more appropriate indicators of CC maturity; price discovery and information transmission to work effectively across numerous trading platforms; and cast doubt on the common interpretation of spillover effects in liquidity being driven by funding constraints of market makers, as the same effect obtains in CC markets where there are none.

Who Needs Copyright When We Have Blockchain and Smart Contracts?

Balazs Bodo, Daniel Gervais and Joao Quintais (Amsterdam)

Who needs copyright when we have blockchain and smart contracts? Finally, blockchain technologies seem to have reliably re-introduced scarcity to the digital world. Based on that technology based digital scarcity, multiple startups are now promising to revolutionize the digital distribution of creative works and the remuneration of their creators. Authors can publish their works on blockchain creating an immutable record of initial ownership, and they can create smart contracts to automate the control of who has access under what conditions. Remuneration may happen on the same technological platform as the distribution of works happen, and where the smart contracts reside. In theory such a setup allows for the complete private ordering of the

domain currently under copyright law: with sufficiently detailed smart contracts a substantial share of possible commercial exploitation in terms of volume and value can be covered and automated. More than a decade ago, in the Digital Rights Management (DRM) discussion, technology was framed (wrongly) as an efficient enforcement tool. This time new technology is sold as an opportunity to reduce market friction, increase the efficiency of transactions, and increase the autonomy of creators. The framing, and the incentives to adopt might be different, but some of the old problems remain: what will it take for the brave, new, smart-contract-based private ordering regime to incorporate the communally relevant aspects of copyright law (such as the limitations, and exceptions to the exclusive rights, the exhaustion of rights, the public domain, limitations on copyrightability, etc.), and acknowledge the essentially public good nature of knowledge and information? Are we facing new challenges or do we just have a new, fancy name for DRM? This paper revisits an old debate from a new perspective.

Industry developments

Blockchain Technology and Smart Contracts: Potential and Limits, with an Application to Pensions

Joris Cramwinckel (Ortec Finance, Rotterdam)

Joris Cramwinckel is a Technologist at Ortec Finance Tech Labs and PhD candidate at the University of Amsterdam researching blockchain applications in finance, and pensions in particular. His presentation will focus on second generation blockchain protocols and its application to pensions. This second generation of blockchain (referred to as blockchain 2.0) provides a platform for smart contracts which embed software code in a blockchain's record that contains defined rules and can execute code based on those rules. Together with APG and PGGM, Ortec Finance prototyped a blockchain 2.0 based autonomous pension plan called TonChain. Joris will walk you through its design on the Ethereum blockchain and by example this session will cover smart contracts and its limits, successes to emulate and failures to avoid building decentralized applications. Attendees will leave the session with a deeper understanding of smart contracts, a polished view of the disruptive power of blockchain 2.0 for applications in finance and several new ideas for future research.

Practical information

Registration

Participation is free, but a seat will be guaranteed only to those who register by February 5th at gdarimat@uva.nl. We can host only about 30 people and will give priority to early registrations. Please also indicate whether you would like to take part in the dinner, we have very limited availability. Dinner is at own costs for participants who are not scheduled to speak on this program.

Presentations

Each paper is allocated 60 minutes. Please aim at a 30-minute presentation (at most!) to allow enough time for questions and discussion. Each commentator is allocated 5 minutes. There should be at least 20 minutes left for general discussion. The usual audiovisual will be available: bring with you your own laptop or a USB stick.

Organizers

Giuseppe Dari-Mattiaci, Balazs Bodo (both University of Amsterdam) and Stefan Bechtold (ETH Zurich)

On the Amsterdam side, this workshop is supported by BLES—Business Law and Economics Symposium, consisting of an Association of Business Law and Economics Professors from the University of Amsterdam, Erasmus University Rotterdam and Tilburg University; this is the third BLES meeting—and the Blockchain & Society Policy Research Lab at IViR. This specific event is jointly co-organized and co-funded with the Center for Law & Economics at ETH Zurich.