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Blockchain and Smart Contracts: A Look at the Future of Transfer Pricing Control (Forthcoming: Intertax, vol. 49, 2021, issue 4)

Claudio Cipollini (Amsterdam Centre for Tax Law (ACTL) of the University of Amsterdam (UvA) / RCLex) · Wednesday, February 24th, 2021

Claudio Cipollini (Heidelberg University, Germany) / **February 24, 2021**

The identification of new instruments to improve the efficiency of transfer pricing (TP) control is a priority on the international tax law agenda. The search for effective methods of control and feasible solutions for minimizing the associated costs assume a fundamental relevance for the sustainability of arm's length policies.

Based on these premises, there is a need to explore the new opportunities of blockchain technology and smart contracts in the area of TP as well as their potential impact on international and European policy debates.

In general terms, a smart contract is a concept that is used to identify a digital agreement (a) written in computer code, (b) deployed on the blockchain or similar distributed ledger technologies, and (c) automatically executed without any need for human intervention.

As the first step, this study identifies a standardized methodology for coding advance pricing agreements (APAs) into smart contracts. The unifying model of smart contracts of Ladleif and Weske is potentially able to reflect the essential structure of an APA. In this context, conventional elements can properly match with the computer language components of a smart contract, providing an easy-to-use and comprehensive solution for TP control.

Then, as for the aspects of an APA that should be reflected into smart contract modelling languages, the analysis evidences that the non-operational components of the agreement – the so-called legal prose – should be omitted from the agreement as much as possible. Consequently, the writing process should focus more on quantitative terms and precise concepts than on the use of qualitative terms and overly vague ideas. As an alternative, legal prose could be managed within smart contracts by using additional tools addressed at the interpretation process such as meta-rules or artificial intelligence. Furthermore, software developers should address the issue of the immutability of the blockchain, designing a technical solution for suspending the automatic execution of the code any time the parties later change their mind.

As for the execution of smart contracts, the results provide evidence of the need to establish a

blockchain network when sufficient comparative data is available for a TP analysis. For this scope, MNEs should digitalize their TP data from the supply chain and store that data in real-time on the blockchain. In such a new technical environment, artificial intelligence and data analytics are the necessary tools to read, analyse, and process data from the blockchain.

Proceeding to the dynamics of the proposed smart system for TP control, the correct transfer price calculation is the first stage to be considered. The mechanism involves a situation in which there is a 'green light' for validating the transaction any time the transfer price of an intra-group transaction is within the range of prices calculated by the smart contract under the terms of the APA. The second stage is focused on transaction validation and determines the corresponding actions from MNEs and tax administrations that operate as nodes of the network. Once there is a green light for an intra-group transaction, MNEs and tax administrations, being parties of the APA, have the right to validate that transaction allowing the adding of a new block to the blockchain. Therefore, as transfer price calculation and transaction validation become a fully automated process, there is no longer a need for dedicated monitoring activities from the tax authorities nor reporting activities from MNEs.

Finally, the results of this study cover the analysis of the potential impact of the new technology on the international and European policy debate in the area of TP.

Concerning the BEPS 1.0 Project, a new smart system for TP control could become a fundamental instrument within the scope of Actions 8-10 to ensure that the outcomes of the TP analysis are in accordance with value creation. Furthermore, the technical solutions developed in this study would involve a revolution within the same idea of TP documentation with overcoming the scope of Action 13 as long as reporting and monitoring are both integrated into an automated process.

Moreover, a smart system for TP control can offer a concrete solution to simplify the implementation of the OECD proposal under Pillar One especially in the case of the qualitative activities test. In this sense, blockchain and smart contracts facilitate the processing of data and ensure the proper reconciliation of Amount A with the existing taxing rights.

In the EU context, the technical solutions elaborated under this study also afford the possibility to prevent state aid disputes on APAs, enabling all of the actors involved to implement the functional analysis in a more objective manner.

However, some actions are required at the international level to support the implementation of an automated system of TP control based on the use of smart contracts. First, the OECD should intervene in providing technical standards for coding APAs into smart contracts by adding one more annex to the existing TP Guidelines with new rules focused on the technical and legal aspects of the coding process. Second, it is necessary to define a set of rules at the international level to establish a consortium blockchain network for TP control when qualified MNEs and tax administrations operate as validating nodes.

The final considerations point out that the future establishment of a new smart system for TP control is strictly dependant on the behaviours and attitudes of all of the parties involved. In the case of the coding process, the conversion of an APA into a smart contract requires extensive efforts, especially taking into consideration the non-operational parts of the agreement that are difficult to translate into computer language. Furthermore, as the objective is the implementation of a smart system for TP control, there is also the need to collect relevant supply chain information

from a sufficient number of MNE groups. This objective can only be achieved if MNEs are willing to adopt cooperative behaviour by joining the international blockchain consortium and begin storing their supply chain data on the distributed ledger.

You can read the full version of this article in Intertax, vol. 49, 2021, issue 4.

Dr Claudio Cipollini is a postdoctoral research fellow at the Institute for Public Finance and Tax Law of Heidelberg University, Germany. He is also adjunct professor of tax law at the University of Florence, Italy, and attorney at law admitted to practice before the Italian Supreme Court. He can be contacted at claudio.cipollini@rclex.it.

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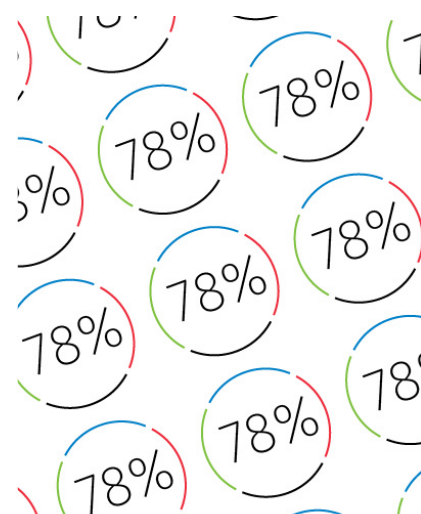
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This entry was posted on Wednesday, February 24th, 2021 at 12:54 pm and is filed under blockchain, Digital economy, Smart contracts, Transfer Pricing

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