



## Call for doctoral studentship application in finance and digital assets

The University of Orleans is launching a call for PhD scholarships in Finance and digital assets. Applicants must hold, or complete during the current academic year a Master's degree (M2) in economics, finance, or equivalent. Good skills in microeconomics, behavioral economics, econometrics and financial economics are required. Candidates should demonstrate a strong interest in financial markets and cryptoeconomics. Proficiency in English and French is necessary. Presentation of the research results at scientific conferences and participation in the publication of results in leading journals are expected.

The PhD student will be supervised by Alexis Direr<sup>1</sup> (University of Orléans). She/he will be affiliated and hosted by the Laboratoire d'Economie d'Orléans which has an excellent national and international PhD student placement history.

The selected candidate will be recruited for a period of 3 years. The fellowship amounts to 1,400 euros per month, after tax and social contribution (without taking into account optional course load).

Applications will be reviewed as they come in, but at the latest by June 1, 2021. Applicants will be notified by the end of June. The doctoral contract starts October 1st, 2021.

To apply, send your CV and a covering letter explaining your interest in the position to [alexis.direr@univ-orleans.fr](mailto:alexis.direr@univ-orleans.fr). Ask directly to the supervisor if you have any question regarding the position.

### PhD project: Decentralized finance

Decentralized finance refers to the shift from traditional, centralized financial systems to peer-to-peer finance enabled by decentralized technologies built on the Ethereum blockchain (Schär, 2021). Although recent, the ecosystem is already rich with hundreds of applications ranging from trading platforms (Uniswap, Curve, ...), lending and borrowing (Compound, Aave, ...), options (Synthetix, Hegic, ...), stablecoins (Maker, USDC, ...) or asset management (Yearn, Index Cop, ...). The total assets under management (value deposited in smart contracts) has grown in less than two years from 500 million dollars to over 110 billion.

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<sup>1</sup> Personal website : <https://gdre.leo-univ-orleans.fr/direr/index.html>



The purpose of the doctoral thesis will be both theoretical and empirical. On the theoretical side, new financial protocols have emerged, based on innovative mechanisms adapted to smart contracts. The emblematic example is the development of automated market makers (AMM). These exchange protocols allow investors to place their orders directly with smart contracts that store the liquidity provided by other investors in exchange for a small fee. Users benefit from abundant liquidity, low transaction costs and immediate settlement, without the need of a trusted third party. Since the launch of the first AMM two years ago, the whole sector has developed into a several billion industry and attracted interest from the academic community (e.g. Aoyagi J., 2020, or Angeris, Evans and T. Chitra, 2020). One of the main goals of the thesis will be to investigate the functioning and design of major protocols which constitute the building blocks of decentralized finance.

On the empirical side, the Ethereum blockchain records all transactions placed in decentralized finance protocols. These transactions, which have not been exploited for academic research purposes yet, are easily searchable and downloadable via blockchain explorers like Etherscan.io. Exploiting these data will allow to study the buying and selling behaviors of traders and test the presence of behavioral biases such as the disposition effect (Shefrin H. and M. Statman, 1985) or the excessive trading bias (Barber and Odean, 2001). The thorough analysis of trades and the tracking of investors' portfolios will also allow a better understanding of price dynamics.

## References

Aoyagi J. (2020) "Lazy liquidity in automated market making", SSRN 3674178.

Angeris G., Evans A. and T. Chitra (2020) "When does the tail wag the dog? Curvature et market making", arXiv:2012.08040.

Barber B. M. and T. Odean (2001) "Boys will be Boys: Gender, Overconfidence, and Common Stock Investment", *Quarterly Journal of Economics*, 116 (1), 261-292.

Schär F.(2021) "Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets" *Federal Reserve Bank of St. Louis Review*, pp. 153-74.

Shefrin H. and M. Statman (1985) "The disposition to sell winners too early and ride losers too long: Theory and evidence", *Journal of Finance*, 40 (3), 777-790.