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# Essays on Anti-Money Laundering

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## **Abstract**

This dissertation presents three essays on Anti-Money Laundering (AML). These use different conceptual and theoretical approaches to shed light on the state of the AML system in Germany and the EU. The first essay analyses whether the 5<sup>th</sup> AML Directive is adequate in the light of Blockchain technology. By drawing on the audit expectation-performance gap, the second essay examines if Money Laundering Reporting Officers and directors work together effectively. The third essay analyses whether Money Laundering Reporting Officers are subject to a better-than-average effect when assessing AML risks.

## **Kurzfassung (German Abstract)**

Diese Dissertation besteht aus drei Aufsätzen zur Geldwäscheprävention. Die Aufsätze verwenden unterschiedliche konzeptionelle Ansätze, um den Zustand der Geldwäscheprävention in Deutschland und der EU zu beleuchten. Der erste Aufsatz analysiert, ob die 5. EU-Geldwäscherichtlinie im Hinblick auf die Blockchain-Technologie angemessen ist. Der zweite Aufsatz untersucht, ob Geldwäschebeauftragte und Geschäftsführer effektiv zusammenarbeiten, indem er das Modell der Erwartungslücke verwendet. Der dritte Aufsatz betrachtet, ob Geldwäschebeauftragte einer Verzerrung bei der Einschätzung von Geldwäscherisiken unterliegen.

# Table of Contents

<b>Abstract .....</b>	<b>III</b>
<b>Kurzfassung (German Abstract) .....</b>	<b>III</b>
<b>Table of Contents.....</b>	<b>IV</b>
<b>Table of Figures .....</b>	<b>VI</b>
<b>List of Abbreviations.....</b>	<b>VII</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 Motivation .....	1
1.2 Money Laundering and the EU Anti-Money Laundering Framework.....	2
1.3 Development of Research Questions .....	4
1.3.1 EU AML Law and Blockchain Technology.....	5
1.3.1.1 Blockchain and its Intermediaries .....	5
1.3.1.2 Suitability of Crypto Assets for Money Laundering .....	7
1.3.1.3 EU AML Law and Blockchain.....	8
1.3.2 AML Expectation-Performance Gap.....	10
1.3.3 Risk Assessments and the Better-Than-Average Effect.....	14
1.4 Research Design and Methodology.....	17
1.4.1 AML Law and Blockchain .....	17
1.4.2 AML Expectation-Performance Gap and Risk Assessments .....	18
1.5 Structure of the Thesis.....	20

<b>2</b>	<b>Publications .....</b>	<b>21</b>
2.1	Essay No. 1: Cryptocurrencies and Anti-Money Laundering: The Shortcomings of the Fifth AML Directive (EU) and How to Address Them .....	21
2.2	Essay No. 2: An Expectation-Performance Gap between Money Laundering Reporting Officers and Their Directors – Evidence from Germany .....	23
2.3	Essay No. 3: Biases in Risk Assessments Under EU Anti-Money Laundering Law – Evidence of the Better-Than-Average Effect from Germany .....	24
<b>3</b>	<b>Conclusion.....</b>	<b>25</b>
3.1	Results and Implications .....	25
3.1.1	EU AML Law and Blockchain Technology.....	25
3.1.2	AML Expectation-Performance Gap.....	26
3.1.3	Risk Assessments and the Better-Than-Average Effect.....	28
3.1.4	Summary .....	29
3.2	Limitations.....	29
3.3	Future Research .....	30
	<b>Bibliography.....</b>	<b>32</b>
	References – Dissertation (Chapters 1 and 3) .....	32
	References – Essay No. 1 (Chapter 2.1).....	44
	References – Essay No. 2 (Chapter 2.2).....	49
	References – Essay No. 3 (Chapter 2.3).....	54
	<b>Appendix .....</b>	<b>58</b>
	Appendix 1 – Declaration of Authorship – Fromberger .....	58
	Appendix 2 – Declaration of Authorship – Zimmermann .....	59

## **Table of Figures**

Figure 1 – Audit expectation-performance gap (Porter, 1993) .....	11
Figure 2 – Structure of the thesis.....	20

## List of Abbreviations

AML	anti-money laundering
AMLD	Anti-Money Laundering Directive
AMLD1	first Anti-Money Laundering Directive (Council Directive 91/308/EEC)
AMLD2	second Anti-Money Laundering Directive (Directive 2001/97/EC)
AMLD4	fourth Anti-Money Laundering Directive (Directive (EU) 2015/849)
AMLD5	fifth Anti-Money Laundering Directive (Directive (EU) 2018/843)
AMLR1-Draft	draft for the first Anti-Money Laundering Regulation (COM(2021) 420 final)
Art. / Arts.	Article / Articles
ATM	automated teller machine
BaFin	Bundesanstalt für Finanzdienstleistungen (German Federal Supervisory Authority)
BT-Drs.	Bundestagsdrucksache (German Bundestag printed paper)
BTA	better-than-average
CDD	customer due diligence
CFT / CTF	counter the financing of terrorism / counter terrorist financing / combatting terrorist financing
CUP	Cambridge University Press
DFBs	designated financial businesses
DLT	distributed ledger technology
DNFBPs	designated non-financial businesses and professions
EBA	European Banking Authority
ECB	European Central Bank
ECJ	European Court of Justice
ed. / eds.	editor / editors

edn.	edition
e.g.	for example ( <i>Latin: exempli gratia</i> )
ESMA	European Securities and Markets Authority
et al.	and others ( <i>Latin: et alia</i> )
et seq.	and the following item ( <i>Latin: et sequens</i> )
et seqq.	and the following items ( <i>Latin: et sequentes</i> )
EU	European Union
Europol	European Union Agency for Law Enforcement Cooperation
FATF	Financial Action Task Force
FCA	Financial Conduct Authority
FinCen	Financial Crimes Enforcement Network
FinMa	Eidgenössische Finanzmarktaufsicht (Swiss Financial Market Supervisory Authority)
GDP	gross domestic product
HM	Her Majesty's
ICO	Initial Coin Offering
i.e.	that is ( <i>Latin: id est</i> )
IIA	Institute of Internal Auditors
IPO	Initial Public Offering
KWG	Kreditwesengesetz (German Banking Act)
KYC	Know-your-customer
MiCA-Draft	drafted Regulation on Markets in Crypto-assets (COM(2020) 593 final)
MLRO	Money Laundering Reporting Officer
NACE	statistical classification of economic activities in the European Community
no. / nos.	number / numbers
NRA	national risk assessment



OECD	Organisation for Economic Co-operation and Development
OUP	Oxford University Press
p. / pp.	page / pages
para.	paragraph
PIN	personal identification number
Rec./rec.	Recital
RQ	research question
RTDF	Revue Trimestrielle de Droit Financier
SRNA	supranational risk assessment
UK	United Kingdom
UNODC	United Nations Office on Drugs and Crime
US / U.S.	United States
USB	universal serial bus
USD	United States Dollar
vs.	versus

# 1 Introduction

## 1.1 Motivation

Combating money laundering is becoming increasingly important in the 21<sup>st</sup> century. The United Nations Office on Drugs and Crime (UNODC, 2011) estimates that 2,7% of worldwide GDP – that is 2.3 trillion USD (World Bank, 2021) – are laundered each year. To tackle the problem, regulations for private companies on anti-money laundering (AML) and combatting terrorist financing (CFT) have been put in place across countries.<sup>1</sup> Multiple intergovernmental organisations have been set up to standardise rules, with the Financial Action Task Force (FATF) arguably being the most important.

Legal compliance is nothing new for private undertakings. However, with recent scandals like the Danske Bank (Bruun & Hjejle, 2018; Yeoh, 2020) or new technologies like Blockchain (De Filippi & Wright, 2018; Maume *et al.*, 2022; Rosenberger, 2018), AML policies are gaining public attention. The largest ever collapse of a German company, Wirecard, put even more focus on AML and its enforcement. Still, scholars have not paid adequate attention to the topic.<sup>2</sup> While legal literature on AML has been building up in recent years, very little research on it has been conducted from a managerial perspective or concerning new technologies.

On a day-to-day basis, a so-called Money Laundering Reporting Officer (MLRO)<sup>3</sup> is responsible for their company's AML compliance. MLROs carry out AML duties in the name of the company and ensure that their company's processes run adequately. Very little is known about their work, how well they carry out tasks or how they interact with the company's board (Krambia-Kapardis *et al.*, 2019). As AML breaches can lead to heavy fines, reputational damage and possibly even criminal sanctions against responsible personnel, the topic is highly important for managers and researchers alike. This thesis aims to start filling this research gap. The overarching question is whether AML laws and their implementation are effective. Effectiveness is key for a law to reach its intended goal. In this light, this thesis discusses three

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<sup>1</sup> To enhance legibility, the terms 'AML' or 'money laundering' shall be understood as to include CFT measures / terrorism financing, unless stated otherwise.

<sup>2</sup> Especially when comparing the amount of research papers on different areas of compliance, AML is highly under researched. For example, a search for 'data protection' lists more than two million search results on Google Scholar while 'anti-money laundering' only generates 35.800 entries (as of 5 February 2022).

<sup>3</sup> No universally agreed term exists for this role. Such roles are called 'nominated officers' in the UK or 'Bank Secrecy Act Officers' in the US (after the name of respective AML law). The FATF (2022a) uses the term 'compliance officer' which may include other compliance related topics like data protection. The term money laundering reporting officer (MLRO) is more generic and used in the literature (e.g., Financial Conduct Authority, 2020; Webb, 2004). It is used throughout this thesis.

current issues in AML, using both legal and economic methodology. Models from economic disciplines other than compliance are employed.

This introduction will first provide an overview over the AML framework, introducing relevant actors and legal requirements – with a focus on EU regulation and international standards. When analysing recent (legal) developments, three problems are raised for which research questions are developed. The methodology applied to answer these research questions is explained in detail. Summary of and reference to three essays of the author is provided thereafter. The thesis concludes with a summary of key findings and areas for future research – while also considering recent legislative developments which have taken place after writing said essays.

## **1.2 Money Laundering and the EU Anti-Money Laundering Framework**

Without prejudice to differences of legal definitions within jurisdictions, money laundering is best described as disguising the illegal origin of criminal proceeds from a predicate offense (Levi, 2014; see also Regulation (EU) 2018/1673 and the Vienna Convention). This predicate offence makes money laundering itself harmful (Ferwerda, 2009; FATF, 2022a).

Money laundering takes place in three phases (Stessens, 2009): First, dirty money or other funds from predicate offences are placed into the legitimate economy (*placement*), for example into a bank or company (Cox, 2014). Second, by carrying out a series of transactions, the money's origin is tried to be concealed on paper (*layering*), for example via bank transfers, business transactions, or the purchase of luxury goods (e.g., cars, planes, houses) (Sullivan, 2015). Third, these funds are integrated into the launderer's funds that now appear legitimate (*integration*), for example via loans or over-invoicing of goods sold to foreign companies (Turner, 2011). While money laundering schemes can be complex and phases may overlap, this theoretical model is commonly agreed on (Stessens, 2009).

Countries and their governmental agencies want to be aware of suspicious transactions and money launderers. As part of governmental efforts to tackle the problem, AML obligations are put on certain types of private companies. These companies are supposed to mitigate the risk that certain parts of the private sector are used for illegal activities, thereby safeguarding the financial and economic system (FATF, 2022a). There is no internationally binding law or treaty on these AML measures. Rather, intergovernmental standard-setting bodies like the FATF exist. Their recommendations are followed by almost all countries around the world to some extent, sometimes implemented through FATF-like organisations (FATF, 2022b). Germany

and the EU itself are members of the FATF. Notwithstanding minor differences between national laws of Member States, the general structure of AML law shall be explained on the example of EU law as the papers' focus is on this jurisdiction.

The regulatory framework in the EU is set by the fourth and fifth EU AML Directives (Directives (EU) 2015/849 ('AMLD4') and 2018/843 ('AMLD5')).<sup>4</sup> AML obligations need to be performed by so-called obliged entities. Originally, these covered financial entities such as banks and other financial institutions (see Arts. 1 and 3 Council Directive 91/308/EEC ('AMLD1') and Art. (2)(1) AMLD4<sup>5</sup>). These entities act as gatekeepers of financial systems and between different forms of funds. They are vulnerable to be used for money laundering, especially during the placement phase where information to law enforcement about suspicions is most helpful (Sullivan, 2015). Financial entities are referred to as 'designated financial businesses' (DFBs) (FATF, 2022a).

Over the past decades, obliged entities have been expanded to cover 'designated non-financial businesses and professions' (DNFBPs). These encompass independent professions like tax advisors, auditors, or certain legal professions, as well as gambling service providers or other persons trading in goods (e.g., machinery companies, jewellery, or car dealers). The group is highly heterogenous. It is important to note that DNFBPs do not cover all other companies. Certain types of companies do not have to adhere to AML law (e.g., service companies) (Krais, 2021).

Obliged entities need to perform AML obligations. These are threefold. First, obliged entities must conduct a documented risk assessment on a regular basis, meaning to identify and assess risks of their business being used for money laundering (Art. 8(1)-(2) AMLD4). Adequate policies, controls, and procedures to mitigate such risks are to be implemented (Art. 8(3) AMLD4). Second, obliged entities must conduct customer due diligence (CDD) measures (Art. 10 et seqq. AMLD4). This includes the identification of customers and, if applicable, ultimate beneficial owners of a transaction and the verification of their identities (Know-Your-Customer (KYC) principle; Art. 13(1)(a)-(b) AMLD4; Arner *et al.*, 2019). Third, obliged entities must report suspicious transactions to the relevant national authorities by filing

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<sup>4</sup> The European Commission has proposed a draft for a first, directly applicable EU Regulation on AML (COM(2021) 420 final), together with proposals for a sixth AML Directive (COM(2021) 423 final), a revised Regulation on Transfers of Funds (COM(2021) 422 final) and an EU AML supervisory authority (COM(2021) 421 final). The proposals are not yet adopted on an EU level and will only come into force at the earliest in 2024. The legal framework applicable at the time of writing the essays shall be explained here. Consequences of the reform shall be addressed in chapter 3.

<sup>5</sup> References to Articles of AMLD4 in this dissertation are meant to refer to the consolidated version including changes made by AMLD5 and further legislation as of 31 July 2021, unless explicitly stated otherwise.

suspicious transaction reports (Art. 33 AMLD4). Suspicious transactions are then generally not to be carried out (Art. 35(1) AMLD4). As mentioned, MLROs are tasked with ensuring AML compliance of a company. While the role can lie with executives in smaller companies, it is usually distinct (Art. 8(4)(a) AMLD4).<sup>6</sup>

EU AML law is (currently) not directly applicable but needs to be transposed into national law. On a national level, supervisory authorities are responsible for ensuring compliance with AML law (referred to as ‘competent authorities’, Art. 48(1) AMLD4). It is up to the Member States on how to organise their AML supervision. There may be different supervisory authorities for industries of obliged entities. The task can even be delegated to professional bodies (e.g., the chamber of tax consultants). As a result, more than 100 different national supervisory authorities may exist in a single country (e.g., Germany; Bausch & Voller, 2020; Maume *et al.*, 2019).

### 1.3 Development of Research Questions

To safeguard the financial system, AML regulation needs to be ‘effective’ (Mousmouti, 2015). Regulation concerns not only the legislative act but includes soft law and professional promulgations (De Benedetto, 2018). The question on how to evaluate regulation is one of the most difficult and highly debated. It is not the aim of this thesis to determine whether AML regulation as a whole is effective. Rather, certain aspects of it shall be evaluated.

Effectiveness of rules requires, first, that they are ‘fit for purpose’ (European Commission, 2012; OECD, 2014). Rules which seek to address certain areas of regulation must *actually* and adequately address these areas. Otherwise they require alteration, taking their intended purpose into account. Regulations that are fit for purpose need to deal with risk and uncertainty for those regulated as unnecessarily high levels should be avoided (De Benedetto, 2018). Second, rules must be complied with (Hawkins, 1983). Compliance with rules should be mandated and ideally achieved. However, some degree of incompliance cannot be avoided for any law. Therefore, third, effective AML regulation needs to be enforced (De Benedetto, 2018) to a degree ‘that society believes it can afford’ (Stigler, 1974, p. 56).

In addition to a normative or quantitative analysis of compliance with laws, the ‘human factor’ must not be neglected (Lind & Arndt, 2016). It is argued here that it is equally important to study the acting parties as it is to study the legal text itself. De Benedetto (2018, p. 401)

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<sup>6</sup> Whether a separate role of MLRO is required is determined by national law or by the respective supervisory authority. A separate MLRO is the norm for companies of a certain size and complexity of the organisation.

suggests enriching analyses on the effectiveness of laws with concepts of other disciplines, for example with ‘behavioural and cognitive insights’. In other words: Effectiveness of laws is not a matter to be studied exclusively by traditional legal methods. Rather, it requires an interdisciplinary approach. By turning to three issues on the effectiveness and adequacy of AML law, this thesis will combine both legal and econometric methods.

### **1.3.1 EU AML Law and Blockchain Technology**

Money launderers want to remain undetected. The fewer of their steps are traceable, the better their chances. Anonymous transactions reduce their risk of being caught. Business models that build on such transactions thus have a higher risk to be used for money laundering (Annex III(2)(b) to AMLD4). Generally, transactions in cash can be made anonymously. For bank transfers, clear names must be used (see Art. 4 Regulation (EU) 2015/847 (Transfer of Funds Regulation)). However, while cash needs to cross national borders physically, bank transfers can be done without physical border checks in a matter of minutes. One of the most difficult challenges for AML is posed by a (relatively) new technology that combines the ease of use offered by bank transfers and the anonymity of cash – the Blockchain.

#### **1.3.1.1 Blockchain and its Intermediaries**

A Blockchain is a digital register, comparable to a database, based on Distributed Ledger Technology (DLT) (Fromberger, 2022). Its main feature is that users (nodes) keep the register decentralised in a peer-to-peer network, stored with every node (De Filippi & Wright, 2018, Rosenberger, 2018). There is no single central party that controls the flow of information that is stored in the Blockchain. Rather, changes require the consensus of a majority of nodes, which makes the Blockchain (almost) forgery-proof (Fromberger, 2022; Kaulartz, 2016).

Blockchains can be designed for numerous applications (Casino *et al.*, 2019). One possible information stored in a Blockchain is the allocation of digital units of value that give their owner certain rights or record ownership to assets, so-called ‘tokens’ (Maume & Fromberger, 2019; Dimitropoulos, 2020). Such Blockchain mainly consists of a transaction history of tokens. A transaction on the Blockchain (on-chain transaction) is stored with other transactions in a block (Kaulartz, 2016).<sup>7</sup> Multiple blocks form a Blockchain. A block references its preceding block by a cryptographic hash (De Filippi & Wright, 2018). Whether a block is stored into the Blockchain is, in the case of a proof-of-work concept, determined by a legitimacy test, e.g., the

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<sup>7</sup> This also solves the double-spending problem: Every transaction can only be included in one block and cannot be spent or transferred twice (e.g., Kaulartz, 2016).

solving of a mathematical test by certain users (miners) (Maume & Fromberger, 2019; Werbach & Cornell, 2017).<sup>8</sup> Exact characteristics of a Blockchain are flexible and determined individually by its inventors in the code. For example, some Blockchains are accessible to everyone (permissionless Blockchains), while others are limited to a group of users (permissioned Blockchain) (Casino *et al.*, 2019; Wüst & Gervais, 2018).<sup>9</sup>

Transactions on Blockchains are generally pseudonymous.<sup>10</sup> Nodes have one or multiple public keys, visible to all other nodes (comparable to a bank account number) (Dimitropoulos, 2020). Transactions are made from one public key to another. Transaction history and public keys are as such visible on the Blockchain to all nodes, while ownership of public keys is not. A public key is paired with a private key (comparable to a PIN) used to authenticate transactions (Small, 2015). Ideally, a private key is only known to the legitimate ‘user’ of its public key.

The place to store a private key is called ‘wallet’ (Moran, 2018). A wallet can take various forms, such as a paper-based wallet (e.g., a piece of paper), a hardware wallet (e.g., a USB flash drive), a software wallet (e.g., a local app), or an online wallet (e.g., a server) (Rosenberger, 2018). Wallet service providers store the user’s private key for them. Two types can be distinguished. Custodian wallet providers store the private key themselves (e.g., in online or software wallets), enabling faster transactions (Fromberger, 2022). Non-custodian wallet providers only offer means for the user to store the private key himself, e.g., by providing a special USB flash drive. Interface providers on the other hand only provide an interface to interact with the Blockchain, without storing the private key (e.g., MyEtherWallet) (Fromberger, 2022).

Tokens can be equipped with different functionalities by their creator (issuer of tokens). They can also be referred to as crypto assets (Maume *et al.*, 2022). Depending on their objective function (Fromberger, 2022), three main types of tokens can be distinguished (Klöhn *et al.*, 2018; Maume & Fromberger, 2019; Swiss Financial Market Supervisory Authority (FinMa), 2018). Currency tokens (or payment tokens) are used as a means of payment for goods or services, e.g., the Bitcoin (Ferreira & Sandner, 2021; Fromberger, 2022; Nakamoto, 2008). Sometimes, they are referred to as cryptocurrencies.<sup>11</sup> In contrast, investment and utility tokens

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<sup>8</sup> On how exactly a new block is written into a Blockchain, the proof-of-work and the proof-of-stake concept, and their differences, see e.g., Antonopoulos (2015), Auer (2019), and George (2021).

<sup>9</sup> There is also the distinction between public and private blockchains (Wüst & Gervais, 2018; Dimitropoulos, 2020). Likewise, hybrid forms exist in which outsiders may access the information on the Blockchain but cannot participate (full) nodes.

<sup>10</sup> Some Blockchains, like the Monero Blockchain, also offer anonymous transactions.

<sup>11</sup> Cryptocurrencies should not be used interchangeably with tokens or crypto assets. Cryptocurrencies do not include investment or utility tokens.

embody an ongoing relationship between an issuer and a holder of the tokens. Investment tokens (also known as security tokens) allow to participate in prospective returns of the issuer, e.g., via dividends or fixed payments (Mendelson, 2019). They might also grant voting rights. Utility tokens are similar to vouchers: Holders can claim a certain performance or utility, e.g., storage space or product samples (FinMa, 2018; Howell *et al.*, 2020). Hybrid tokens combine elements of different tokens (Fromberger & Zimmermann, 2020; Maume & Fromberger, 2019).

Tokens can be acquired in different ways. Their first sale or issuance by a company is called Initial Coin Offering (ICO) (inspired by the term Initial Public Offering (IPO) for securities) (de Andres *et al.*, 2022; Howell *et al.*, 2020). This allows to raise capital with minimal costs, while avoiding intermediaries like banks (Fisch, 2019). Newly created tokens can also be given to nodes as a reward for mining when the Blockchain's code includes such rewards (De Filippi & Wright, 2018). In contrast to initial issuances, tokens can be bought and sold between nodes on secondary markets, unless the token has a technical lock-up that prevents its trade (Fromberger, 2022). More importantly, tokens can but do not have to be listed on a crypto exchange. Here, they can be traded for a transaction fee of the exchange provider. Unlike an IPO, issuers do not solely determine whether a token is listed on a crypto exchange. A listing can take place at the exchange's own choice, but regularly happens after requests or marketing of issuers (Giudici & Ferrarini, 2022).

Crypto exchanges can allow the exchange of tokens into other types of tokens (crypto-to-crypto exchange) or (also) into fiat money and vice versa (fiat-to-crypto exchange) (De Filippi & Wright, 2018; Fromberger, 2022). They can either operate as a trusted intermediary through which the funds are transferred from one party to another (centralised exchange). Alternatively, they only connect users that trade directly between their wallets, without any third intermediary party holding the funds (decentralised exchange) (Macchiavello & Sciarrone Alibrandi, 2022).

### **1.3.1.2 Suitability of Crypto Assets for Money Laundering**

Tokens are highly suitable for money laundering. There are three main reasons for this (Grzywotz, 2019). First, transactions are pseudonymous, making them hardly connectable to clear names.<sup>12</sup> Second, as Blockchains are generally decentralised, there is no central gatekeeping party that screens or authorises transactions (Atik & Gerro, 2018). Third, a transfer of tokens is done in a very short period of time without any persons or assets having to cross

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<sup>12</sup> The newly proposed revised regulation on transfers of funds (COM(2021) 422 final) would require crypto assets service providers (e.g., wallet providers, exchanges) established in the EU to record clear names when transferring tokens. This proposal follows recommendations of the FATF (2021). For the proposed changes, see chapter 3.



borders physically. Crypto tokens thus combine the risks of cash and book money: They are transferred pseudonymously *and* are highly fit for circulation (Maume & Haffke, 2022).

It is no surprise that crypto assets are actually used in money laundering operations (Hillman, 2020). Europol estimated in 2018 that about 3-4% of all laundered funds are laundered via crypto assets (Silva, 2018). Three years later, Europol (2021, p. 12) concluded that ‘virtually all kinds of criminal profits are laundered using cryptocurrencies.’ In a different study, it is estimated that more than 33 billion USD have been laundered via tokens between 2017 and 2021 (Chainalysis, 2022). While some public keys contain almost only tokens from illicit addresses, the majority only contains a small fraction of illicit tokens (Chainalysis, 2021).

On the one hand, tokens can be used to launder proceeds from other crimes, especially in the placement or layering phases. Crypto-ATMs, for example, can be used by drug or human trafficking organisations to exchange cash into some form of currency token that is then transferred multiple times (Teichmann & Falker, 2021a). On the other hand, tokens can be part of the predicate offence themselves. For example, criminals obtain large amounts of tokens through ransomware attacks, hacking or fraud (see Chainalysis, 2022; Connolly & Wall, 2019; Turner *et al.* 2020).

Money laundering is further facilitated by mixing services, so-called ‘tumblers’ (Europol, 2021). Tumbler service providers hold several different public keys (Fromberger, 2022). Users pay tokens into the service. Tumblers then simulate economic cycles: They conduct multiple transactions with tokens of other users between the public keys held by the service, exchanging tokens on and/or between Blockchains with different amounts (Wronka, 2022). The ‘laundered’ tokens paid back<sup>13</sup> to a different public key of the user are almost impossible to connect with the original tokens and the public key from which they were sent (von Wegberg *et al.*, 2018; Dupuis & Gleason, 2021). Their ease of use makes tumblers particularly suitable for disguising money laundering.

### **1.3.1.3 EU AML Law and Blockchain**

The European Commission (2018) is aware of the danger posed by crypto assets to AML efforts. Until 2018, no specific rules on crypto assets were included in EU AML law (Vandezande, 2018). AMLD4 did not mandate Member States to make crypto intermediaries

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<sup>13</sup> A small fee is deducted by the service provider when the tokens are paid back.

subject to their national AML regimes.<sup>14</sup> Therefore, in 2016, the Commission put forward a proposal for AMLD5. A revised version was enacted in 2018, with Member States having until January 2020 to transpose it into national law (Art. 4(1) AMLD5). Two major changes regarding Blockchain technology and its intermediaries were made. First, AMLD5 added a definition of ‘virtual currencies’ (Art. 1(2)(d) AMLD5) as:

*‘a digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency and does not possess a legal status of currency or money, but is accepted by natural or legal persons as a means of exchange and which can be transferred, stored and traded electronically.’*

Further, Art. (1)(1)(c) and Art. 1(2)(d) AMLD5 introduced two further obliged entities:

- *‘Providers engaged in exchange services between virtual currencies and fiat currencies’; and*
- *‘Custodian wallet providers’ as ‘an entity that provides services to safeguard private cryptographic keys on behalf of its customers, to hold, store and transfer virtual currencies.’*

The first essay analyses whether EU AML law is fit for purpose in terms of crypto assets and Blockchain technology, especially in the light of the general technological advancements and the risks posed by it. Therefore, research question no. 1 (RQ1) can be phrased as follows:

***RQ1:*** *Is the scope of EU AML law with regards to crypto assets and Blockchain intermediaries adequate to counteract the risks of money laundering? If not, which alterations should be made to the legal instruments?*

It must be noted that at the time of drafting and publishing essay no. 1 (early 2019), literature on the interpretation of these provisions of AMLD5 was not available. Types of tokens covered and the scope of the newly introduced obliged entities were at best unclear. National implementations had not been drafted. Moreover, no final guidance (from the FATF) was available on what types of crypto tokens and crypto intermediaries ought to be covered by an effective AML law.<sup>15</sup>

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<sup>14</sup> If crypto intermediaries were part of a group of obliged entities or themselves classified as a different obliged entity due to their business model (e.g., credit institution or financial institution), they were already covered by EU AML law. However, this only applied in very rare cases.

<sup>15</sup> Both the US FinCen’s (2019) guidance on ‘Certain Business Models Involving Convertible Virtual Currencies’ as well as the FATF’s (2019) ‘Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers’, last updated in 2021 (FATF, 2021), were not published in their final version at the time of writing or acceptance of the paper. Only a draft of the FATF’s (2018) guidance was made available in late 2018.

### 1.3.2 AML Expectation-Performance Gap

As argued above, effective laws not only need to be fit for purpose but must be followed and complied with. It is these aspects that essays nos. 2 and 3 turn to.

Day-to-day AML compliance is to be ensured by a company's MLRO (and their team).<sup>16</sup> However, directors and senior management (deputies, members of the board<sup>17</sup>, or equivalent) remain responsible for AML compliance: They are the addressees of sanctions under AML law (FATF, 2022a; Meissner, 2018). Irrespective of their actual position, these persons shall be referred to as directors.

If directors oversee compliance risks and MLROs are responsible for day-to-day compliance tasks, the interaction of both parties is highly relevant. Directors hold certain expectations in the work of their MLROs in terms of tasks to be performed. In their decisions, directors rely on their MLROs, for example through information produced and assessments made by them. If directors' expectations in their MLROs were too high but were met, this would be (cost-)inefficient. If they were too low and not exceeded, the company would be non-compliant and at risk of facing large fines.

Different problems arise if directors' expectations in their MLROs were too high and if these expectations were not met. When making decisions, directors consider the levels of assurance provided for by their MLROs. This might for example be the case when making business deals or taking on new customers. If the level of assurance assumed by directors is too high, this could lead to decisions that might possibly be detrimental to the company. Thus, ideally, directors' expectations of what their MLROs do should be identical to the tasks they perform. Similarly, their expectations of what MLROs *are required to do* should also match what they are actually *required* to do.

Relationships in which one party (the director) holds expectations in an expert (the MLRO) can be analysed by an expectation gap (Deegan & Rankin, 1999; Hooghiemstra & van Manen, 2004), measuring differences in expected performance. Most often, this concept is applied in the audit profession. Originally, it describes different levels of expected performance 'as envisioned by the independent accountant and by the user of financial statements' (Liggio, 1974, p. 23). Most known is Porter's (1993) application of the 'audit expectation-performance

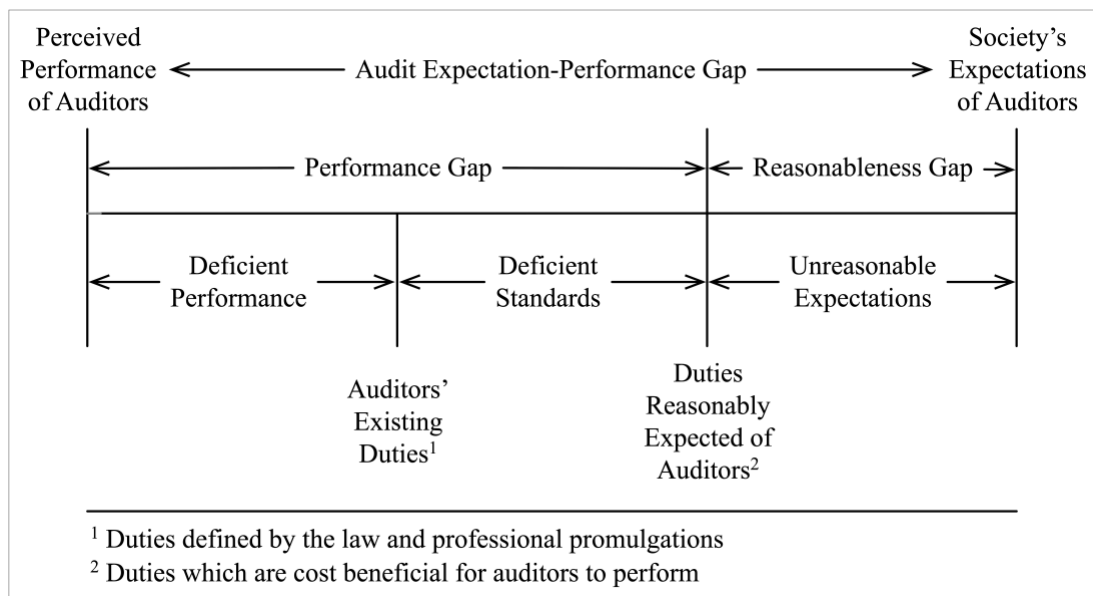
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<sup>16</sup> It is determined by national law or via a risk-based approach by the national competent supervisory authority whether companies need to designate a MLRO. For companies of larger size or those with a more complex business model, a MLRO that is distinct from the board is the norm.

<sup>17</sup> In one-tier board systems (e.g., Germany), supervisory board and management board are distinct. The term director shall only refer to the managing body of the organisation.

gap'. She analysed causes for the perceived level of poor performance of auditors from the perspective of different user groups of financial statements ('society').

As depicted in Figure 1, Porter (1993) acknowledges three different causes. First, expectations of auditors as held by users of financial statements might be unreasonable (reasonableness gap). Second, if expectations are reasonable but performance is poor, performance might have been sub-standard (deficient performance gap). Or third, auditors might fulfil their legal duties – which are below what could reasonably be expected of them (deficient standards gap). The latter two are referred to as the performance gap.



**Figure 1** – Audit expectation-performance gap (Porter, 1993)

The model has been studied numerous times in relation to auditors, reporting gaps to exist across countries and jurisdictions to different extents (see Quick, 2020). Studies are mostly conducted as surveys of auditors and users of financial statements. A list of tasks is presented to respondents. It includes both tasks that are legally required to be carried out by auditors and tasks that are not. For each task, a set of questions<sup>18</sup> allows to determine whether respondents show said gaps on a group level.

The model has been applied to other contexts in which different expectations on performance exists, e.g., environmental reporting (Deegan & Rankin, 1999). With regards to

<sup>18</sup> For each such task, three questions are asked (the wording of which differs between studies; see Quick (2020)). As an example, Fisher & Naylor (2016, p. 203) phrased their questions as follows, following Porter (1993), Porter & Gowthorpe (2004), and Porter *et al.* (2012a, 2012b): '(1) To what extent do you agree that it [note by the author: the presented responsibility] is an *existing* responsibility of the auditor? (2) If it is believed to be an existing responsibility, how well is it performed by the auditor? (3) To what extent do you agree that it should be a responsibility of the auditor?'

AML, Molla Imeny *et al.* (2021) have studied expectation-performance gaps between the judiciary and auditors in Iran. Gaps between MLROs and directors concerning expectations in the duties and performance of MLROs have only been studied once by Krambia-Kapardis *et al.* (2019). Adapted to this context, the deficient performance gap refers to sub-standard performance of MLROs (as perceived by their directors). The deficient standard gap compromises tasks which AML law does not require from MLROs, but which could reasonably be expected of them. The reasonableness gap covers expectations of directors beyond this threshold. Krambia-Kapardis *et al.* (2019) found a reasonableness gap between MLROs and directors in Cyprus, but no deficient standards or performance gap. Additionally, they researched individual ‘knowledge gaps’ for both MLROs and directors. This gap was constructed as the level of knowledge regarding current responsibilities of MLROs. They found that both MLROs and directors were not fully aware of the legal duties of MLROs.

Essay no. 2 analyses the MLRO-director relationship in Germany via the expectation-performance gap. It seeks to contribute to the literature in two ways. First, theoretical flaws of Porter’s model are countered. In her view, duties can be reasonably expected of auditors if they are cost-beneficial to perform (Porter, 1993). This cut-off point between reasonableness and performance gap is not readily measurable (Ruhnke & Schmidt, 2014). In the absence of a formal cost-benefit analysis, Porter proposed taking two opposing views with regards to costs and benefits of auditors’ duties (e.g., auditees seeking to limit their duties vs. the financial community seeking to expand them). If both views are aligned on whether a duty shall be a legal responsibility of auditors, it is to be deemed cost beneficial (Fisher & Naylor, 2016).

As used by Krambia-Kapardis *et al.* (2019) in the AML context, MLROs’ duties are reasonably expected of them if both MLROs and directors are of the view that they should be. This view is at best doubtful. Directors might seek to limit tasks of MLROs as well as expanding them to increase assurance provided. Likewise, MLROs might seek to expand their tasks or defer them to other departments, depending on the company environment. Clearly opposing views on costs and benefits between the two groups do not exist. A formal cost-benefit analysis of MLRO’s duties is not possible, making it hard to implement the distinction between deficient standards and reasonableness gap in the AML context.

Secondly, the MLRO-director relationship cannot solely be analysed on a group level. Krambia-Kapardis *et al.* (2019) surveyed MLROs and directors as groups and identified gaps on these levels. However, the MLRO-director relationship has an important individual component. One MLRO is generally responsible for one company, with one board of directors

holding expectations in them.<sup>19</sup> An auditor, on the other hand, audits multiple entities – and financial stakeholders hold expectations in several different auditors. The AML system depends on *pairs* of MLROs and directors working together effectively. This individual dimension offers unique insights into the functioning of the AML system.

For example, if directors were to assume that tasks are carried out by their individual MLRO when they are not (erroneous belief of performance), managerial decisions most likely do not adequately consider compliance risks. This might cause harm to the company. It is, therefore, essential for directors and MLROs to communicate about tasks as well as expectations on an individual level. If expectations were not congruent, MLROs are likely to be dissatisfied (Turnley & Feldman, 2000). Essay no. 2 challenges Porter's model in the AML context as used by Krambia-Kapardis *et al.* (2019) and advances it by adding so-called communication gaps. These cover whether pairs of MLROs and directors communicate effectively about knowledge and performance of MLROs' tasks, as well as about expectations held in them by their directors.<sup>20</sup>

Based on the advanced model of the expectation-performance gap in the AML context, RQ2 is as follows:

**RQ2:** *Do expectation-performance, knowledge, and communication gaps exist between MLROs and directors of German companies, and if so, what extent do they have?*

As mentioned, obliged entities are heterogeneous. DFBs and DNFBPs differ greatly, for example in terms of clients or money laundering risks they face. DNFBPs are relatively new to the AML system (Newbury, 2017). AML laws for non-financial businesses are often not compliant with FATF requirements across the majority of FATF member states (FATF, 2022c). Further, the AML supervisory regime of non-financial businesses is not as well developed (Choo, 2014). In particular, German supervisory authorities of DNFBPs have been referred to as 'ineffective' by other governmental agencies (Strozyk & Strunz, 2020). In Germany, AML supervision of DNFBPs is, as mentioned, decentralised and left to more than one hundred different (municipal) authorities (Friedrich & Quick, 2019). Within these authorities, tasks are even deferred to non-specialist departments (Maume *et al.*, 2019). The question is therefore whether gaps between MLROs and directors of DNFBPs are different:

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<sup>19</sup> Of course, a MLRO can also be responsible for a group or, in case of outsourcing, for multiple companies or groups of companies.

<sup>20</sup> The developed model used is not explained here in full; readers are referred to essay no. 2.

**RQ3:** *Do nature and extent of expectation-performance, knowledge, and communication gaps differ between DFBs and DNFBPs?*

Overall, essay no. 2 addresses the issue of whether MLROs and directors, as groups and in pairs, work together efficiently and effectively.

### **1.3.3 Risk Assessments and the Better-Than-Average Effect**

One important task in AML law is assessing money laundering risk (AML risk).<sup>21</sup> The term ‘risk’ alone is used 280 times by the FATF (2022) in their recommendations. A risk-focussed AML approach has not always been the case in the EU. The first and second AMLD (Directive 2001/97/EC (AMLD2)), for example, followed the so-called ‘*rule-based approach*’. Specific actions were made compulsory for a defined list of situations (Dalla Pellegrina & Masciandaro, 2009; Ross & Hannan, 2007), such as customer identification measures in the situations prescribed in Art. 3 AMLD1 (e.g., ‘...when opening an account’). Actions were not dependent on the level of risk of a transaction (Ai *et al.*, 2010). For example, they were the same for particularly low- or high-risk customers or transactions. This approach is, by design, static and rigid. It means following specific rules even if they are not adequate in a situation.

A major change to AML law has been made by the so-called *risk-based approach*, initiated in the late 2000’s (FATF, 2007). Since then, the approach has been incorporated into the majority of AML laws worldwide (Xue & Zhang, 2016). The approach no longer prescribes a specific list of measures to be taken by the obliged entity irrespective of the situation. Rather, measures taken by companies must be adequate to the AML risk, taking into account the particular circumstances of customer and transaction (FATF, 2022, Recommendation 1). Measures and their extent can or must be adjusted based on the specific situation (Simonova, 2011).

Today, the risk-based approach is reflected in almost all obligations under AML law. One of its core aspects are risk assessments. These are done on three levels. First, the European Commission publishes a report every two years<sup>22</sup> as a supranational risk assessment (SNRA), analysing the AML risks of the EU’s internal market and cross-border activities (Art. 6(1) AMLD4). Second, Art. 7 AMLD4 obliges Member States to inform companies of industries’ AML risks through national risk assessments (NRA). These contain risk classifications of

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<sup>21</sup> It should be noted that what is assessed are risks for being used for money laundering. These risks shall be called AML risks but can technically also be referred to as money laundering risks.

<sup>22</sup> Based on Art. 6(1) AMLD4, after 2017 and 2019, a 3<sup>rd</sup> SRNA of the European Commission was due in 2021. It has not been published yet (as of 10 March 2022).

industries. In Germany, they are derived by a group of experts from obliged entities, supervisors, lawmakers, and intelligence services (German Federal Ministry of Finance, 2019). While NRAs are not fully immune to errors, they can be regarded as a form of ‘national standard’ of risk assessments. Both the latest German NRA and EU’s SRNA were published in 2019 (German Federal Ministry of Finance, 2019; European Commission, 2019).

Third, obliged entities need to conduct risk assessments themselves. Art. 8(1) AMLD4 requires them to take ‘appropriate steps’ in identifying and assessing AML risks of their business. In doing so, they shall consider risks related to customers, geographic areas, as well as products and services offered. NRAs shall be taken into account by obliged entities when conducting their own risk assessments. The latter must be documented and kept up to date (Art. 8(2) AMLD4). Based on the overall level of risk identified, ‘proportionate’ measures (policies, procedures, controls) shall be taken to mitigate these risks (Art. 8(3) AMLD4).

AML risk must also further be analysed in other tasks of MLROs. In particular, the extent of CDD measures depends on the level of risk of the respective business relationship (i.e., the customer) or the transaction in question (van den Broek, 2011). For customers or transactions with a ‘lower’ AML risk, simplified measures can be taken (Art. 15 et seqq. AMLD4). Enhanced measures are required in cases of ‘higher’ risks (Art. 18 et seqq. AMLD4). By law, at least three risk levels are defined. Additionally, supervisory authorities are required to allocate resources based on risks identified (Art. 48(6) AMLD4).

The risk-based approach brings along various advantages. It offers flexibility for obliged entities as well as supervisory authorities (Unger & Van Waarden, 2009; van den Broek, 2011). The idea is that companies have more expertise than lawmakers in where to allocate resources in specific circumstances and should thus be able to do so. This reduces regulatory costs (Jun & Ai, 2009; Pieth, 2007). The approach can further be observed in other regulatory areas, such as banking or securities law (see e.g., Basel III or Regulation (EU) 2017/1129 (EU Prospectus Regulation); Katz, 2007). However, the approach has been subject to criticism over the past years. If AML law is breached, obliged entities are subject to fines. Thus, basing AML law on appropriate risk assessments of obliged entities and their MLROs creates legal uncertainty. While assessments reduce AML risk, regulatory risk and costs for businesses increase (Ai *et al.*, 2010; Demetis & Angell, 2007).

Further, the human factor in risk assessments cannot be neglected. As AML law is based on adequate risk assessments, it requires well-trained people making them (Naheem, 2018). Therefore, MLROs should be ‘capable of making sound judgements’ (Ai *et al.*, 2010, p. 399)



and be able to assess AML risks accurately. However, when working with risks and uncertainty, humans show various psychological biases (Kahneman *et al.*, 1982). In a system which relies heavily on risk assessments made by MLROs,<sup>23</sup> major biases must then be avoided.

One such bias is the better-than-average (BTA) effect (also known as illusory superiority). Usually, the following example illustrates the effect: If people are asked to compare their driving skills to that of the average driver, a large majority rates their skills to be above average (Horswill *et al.*, 2004; Roy & Liersch, 2013). Similar studies have been conducted for different traits and abilities, for example morality (Tappin & McKay, 2017), altruism (Xiao *et al.*, 2021), or grammar skills (Kruger & Dunning, 1999). If a majority of people perceives themselves to be above average on an ability or attribute, this is referred to as the BTA effect (Zell *et al.*, 2020). While it has been well researched for different psychological traits, the effect has also been found for security risk assessments (Rhee *et al.*, 2005). In contexts of risk assessments, being *above* average means perceiving the risk to be *lower*. This must not be confused with the worse-than-average effect, meaning the tendency to underestimate one's abilities (Kruger, 1999).

In the context of AML, a BTA effect would be of particular importance if found for MLROs when conducting risk assessments. If the ability to perceive risks is biased, this would have significant implications for AML law. Its existence as such is important: Raising awareness for a bias amongst a group can be substantial in reducing it for them (Pope *et al.*, 2018).

The BTA effect can be analysed via different approaches. There are two main methods.<sup>24</sup> In the direct method, respondents are asked to compare their ability/risk to the average peer on a single scale, with 'average' as the midpoint (Alicke & Govorun, 2005). Via the indirect method, self- and peer ratings are assessed on separate scales, with mean differences determining the BTA effect (Zell *et al.*, 2020). Essay no. 3 analyses whether a BTA effect exists among MLROs when assessing their company's risk, using both methods:

***RQ4: Is there a BTA effect amongst MLROs (in Germany companies) when assessing their company's AML risk compared to the average direct competitor?***

Furthermore, MLROs should not only have a profound understanding of their own industry's AML risk. Every company trades and does business with companies from other industries. Therefore, MLROs should be able to correctly assess AML risks of industries as

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<sup>23</sup> Of course, automated software is used to support MLROs, especially in larger firms. Nevertheless, the overall risk assessment of a company is based on human judgement.

<sup>24</sup> There are further methods, which are used less regularly. The reader is referred to essay no. 3.

such. To judge this ability, a ‘correct’ risk assessment is needed as a standard to compare MLROs’ risk assessment against. As explained above, the most-commonly agreed risk assessment available in a specific (EU) country is the NRA. The risk assessments contained therein allow to analyse the general quality of MLROs’ risk assessment capabilities:

***RQ5: Are MLROs (of Germany companies) able to correctly assess industries’ AML risks compared to the NRA?***

Taken together, essay no. 3 addresses the issue of whether MLROs’ risk assessment capabilities are sufficient for an AML law that is based on a risk-based approach. As argued in chapter 1.3.2, particular attention is paid to differences between DFBs and DNFPBs.

## **1.4 Research Design and Methodology**

The essays require different research designs and methodologies. They are explained separately below.

### **1.4.1 AML Law and Blockchain**

The first essay analyses the scope of AMLD5. It employs a normative approach. Currently, EU AML law is enacted in form of directives. Although they do not directly apply (Craig & de Búrca, 2020), terms without explicit reference to laws of the Member States need to be given an ‘independent and uniform interpretation’ throughout the EU.<sup>25</sup> National transpositions of directives need to comply with this interpretation. If not, EU law must prevail (principle of supremacy / primacy) (Avbelj, 2011; Lindeboom, 2018), either by adopting an interpretation of the respective national law that is in conformity with EU law or by alteration of national law.

Therefore, not only national provisions of AML law do require interpretation, but equally so the provisions of AMLD5. In the absence of literature on AMLD5, the first essay starts by ascertaining the literal meaning of the respective terms (Flanagan, 2010; Reich, 2005). It then determines the current scope of AMLD5 in relation to Blockchain intermediaries. Reference is made to the correct meaning of the economic terminology used in the provisions. Based on the

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<sup>25</sup> Terms of a provision of EU law (including those contained in directives) which make no explicit reference to the law of the Member States for the purpose of determining its meaning and scope must, according to settled case law of the European Court of Justice (ECJ), be given an independent and uniform interpretation throughout the EU, having regard to the context of the provision and the objective pursued by the legislation in question, see for example ECJ, Judgement of 3 September 2014, *Deckmyn and Vrijheidsfonds*, C-201-13, EU:C:2014:2132, para. 14; ECJ, Judgement of 21 October 2010, *Padawan SL v Sociedad general de Autores y Editores de Espana (SGAE)*, C-467-08, EU:C:2010:620, para. 32; ECJ, Judgement of 2 April 2009, *Proceedings brought by A*, C-523-07, EU:C:2009:225, para. 34; ECJ, Judgement of 19 September 2000, *Grand Duchy of Luxemburg v Berthe Linster, Aloyse Linster and Yvonne Linster*, C-287-98, EU:C:2000:468, para. 43; ECJ, Judgement of 18 January 1984, *Ekro BV Vee-en Vleeshandel v Produktschap voor Vee en Vlees*, C-327-82, EU:C:1984:11, para. 11.

aims of AML law, specific recommendations are made *de lege ferenda* on how AMLD5 ought to be altered.

#### 1.4.2 AML Expectation-Performance Gap and Risk Assessments

Essays nos. 2 and 3 adopt a quantitative research design. Quantitative data allows to measure effects between variables and to compare their magnitude between groups (Sallis *et al.*, 2021). In the present context, extents of effect between MLROs and directors or DFBs and DNFBPs can be statistically analysed. The appropriate research design depends on the research question and the level of maturity of the theory used. While AML research is at a very nascent stage, expectation-performance gap and better-than-average effect are well established theoretical models. For such mature theoretical constructs, quantitative measures are most appropriate (Edmondson & McManus, 2007). This dissertation employs a web-based survey to generate quantitative data. Surveys are well established in management research, especially to study psychological phenomena (Krosnick, 1999). As expectation-performance gap (Fisher & Naylor, 2016; Porter, 1993) and better-than-average effect (Zell *et al.*, 2020) have been studied multiple times using survey data, this method is suitable.

A web-based survey was conducted in Germany in autumn 2020 for essays nos. 2 and 3. In drafting the questionnaire, attention was paid to unambiguous questions. Where used, 5-point Likert-scales (Döring & Bortz, 2016) were fully labelled (Schaeffer & Presser, 2003). Questions and constructs were taken from or drafted with reference to prior literature.<sup>26</sup> Prior to the survey, the questionnaire was discussed with four experts. Their feedback was used to revise the questionnaire with regards to clarity, ordering, wording, timing and layout of questions and instructions. The revised questionnaire was sent to a randomly chosen group of respondents to pre-test technical functioning. It was subsequently used to conduct the study. As RQ2 and RQ3 require paired survey results of MLROs and directors, distinct questionnaires were developed for both groups with identical questions wherever possible.

As AML is a sensitive topic, surveys on it are rare. AML data is generally not publicly available. This is highlighted by the fact that there is no central database for obliged entities under German AML law. Even the German government does not know the exact number of obliged entities (German Bundestag, 2020). MLROs cannot be contacted directly for a survey:

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<sup>26</sup> Questions used are not shown in this dissertation but are available in essays nos. 2 and 3.

Their contact details are only known to supervisory authorities. Thus, directors had to be contacted first.

They were sampled and contacted as follows. One of the largest databases for company data, the Orbis database, was consulted. Using the NACE classification codes (European Commission, 2008), all companies from industries that completely or predominantly contain AML obliged entities were extracted. They were then grouped to obliged entities according to German AML law. Relative to the approximated size of obliged entities in Germany (German Bundestag, 2020), partially adjusted by the risk according to the German NRA, a randomised sample was taken of each group. Data contained names and positions of directors and other senior employees. For each sampled entity, a maximum of three individuals were randomly chosen to increase response rate. Where available, directors were prioritised.<sup>27</sup> Respondents were sent a personalised invitation to the web-based survey via email. To increase response rate and counteract a possible nonresponse bias (Brick, 2018; Van Mol, 2017), participants were sent up to two reminders in intervals of on average three weeks. All respondents could opt to receive an anonymised report of study results to reduce self-reporting bias.

To generate paired survey data for RQ2 and RQ3, directors were contacted first. During their participation, they were asked to provide contact details of their MLRO. MLROs were sent an invitation to the second part of the survey. Directors were partially assumed to forward their initial survey invitation to their MLRO or compliance department by mistake due to the topic. If the first respondent identified himself as MLRO, the questionnaire redirected the participant to the survey for MLROs (as the first respondent) with a corresponding referral mechanism for directors (as the second respondent).<sup>28</sup> For participants in the second part, reminders were sent in the mentioned intervals. Confidentiality and anonymity were highlighted in the invitation email as well as on the landing page of each respondent.

In total, 26.000 companies were invited to the survey. A complete response was received from 262 directors and 123 MLROs as first respondents (response rate = 1,5 %). In 110 cases (93 directors, 17 MLROs), the respondent indicated that the second party did not want to take part in the study or that there they were fulfilling both functions. Of all invitations to second part of the survey (106 directors and 169 MLROs), a response rate of 63,6% was achieved. 61

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<sup>27</sup> Individuals were grouped to the following three hierarchical categories: members of the executive board or board of directors (a) were separated from senior managers (b). All others were put in category (c). A maximum of three individuals were chosen, randomly sampling from the highest non-empty category.

<sup>28</sup> The questionnaire for a group of respondents (MLROs, directors) was identical irrespective of whether they answered as the first or second respondent of a pair. The referral mechanism was only included for those who took part first.

directors and 39 MLROs were left unpaired. Of 175 paired answers of MLRO and director, 39 were dropped due to insufficient data quality. A total of 136 paired answers were then analysed with regards to the AML expectation-performance gap (essay no. 2). For the third essay, overall MLROs’ responses from the first and second part of the survey were reduced by three incomplete responses. 228 complete responses of MLROs were tested for a better-than-average effect and general risk assessment capabilities.

**1.5 Structure of the Thesis**

As illustrated in Figure 2, this dissertation is divided into three chapters. Following this introduction, chapter 2 presents the three essays’ abstracts and publication details.

The first essay analyses whether EU AML law contains adequate definitions of obliged entities with regards to Blockchain intermediaries. It assesses whether AML law is ‘fit for purpose’ when it comes to Blockchain technology. Where necessary, it makes proposals for changes in AMLD5. Essay no. 2 addresses the issue of whether MLROs and directors work together effectively in preventing money laundering. By proposing and applying a model for an AML expectation-performance gap between pairs of MLROs and directors, insights into the state of private AML efforts are provided. The third essay focusses on one specific task of MLROs. As AML measures are risk-based, assessing risks is a core task in AML. Testing for a better-than-average effect in risk assessments of MLROs, this essay analyses whether risk assessment capabilities of MLROs are biased. Taken together, all three papers provide valuable insights into the state of EU and German AML law.

Chapter 3 provides a short summary of the results. It highlights their relevance for theory and practice, discusses their limitations, and provides areas for future research.

1. Introduction	2. Publications	3. Conclusion
<ul style="list-style-type: none"> <li>• Motivation</li> <li>• Money laundering and the EU AML framework</li> <li>• Development of research questions</li> <li>• Research design and methodology</li> <li>• Structure of the thesis</li> </ul>	<p>2.1 Essay no. 1: Cryptocurrencies and Anti-Money Laundering: The Shortcomings of the Fifth AML Directive (EU) and How to Address Them</p> <hr/> <p>2.2 Essay no. 2: An Expectation-Performance Gap between Money Laundering Reporting Officers and Their Directors – Evidence from Germany</p> <hr/> <p>2.3 Essay no. 3: Biases in Risk Assessments Under EU Anti-Money Laundering Law – Evidence of the Better-Than-Average Effect from Germany</p>	<ul style="list-style-type: none"> <li>• Summary of results</li> <li>• Implications for theory and practice</li> <li>• Limitations</li> <li>• Ideas for future research</li> </ul>

*Figure 2 – Structure of the thesis*

## 2 Publications

### 2.1 Essay No. 1: Cryptocurrencies and Anti-Money Laundering: The Shortcomings of the Fifth AML Directive (EU) and How to Address Them

by Lars Haffke, Mathias Fromberger and Patrick Zimmermann

#### Abstract<sup>29</sup>

Virtual currencies pose a serious threat to be used for money laundering, weakening the European Union's financial system. Directive (EU) 2018/843 (the fifth anti-money laundering Directive) intends to mitigate these risks by introducing a definition of virtual currencies within Union law. Some service providers connected to virtual currencies are made subject to anti-money laundering law. Member States are required to transpose this Directive into national law by January 2020. Consultations on national level are currently ongoing. This article analyses how the Directive applies to current forms of cryptocurrencies, their adjacent services, and intermediaries. It highlights the Directive's imprecise wording as well as its limited scope. If Member States transpose it verbatim, they will create legal uncertainty and loopholes for relevant entities. Therefore, this article seeks to contribute to the national consultations of Member States by providing concrete legislative recommendations on how to fix the Directive's shortcomings.

**Keywords:** money laundering; anti-money laundering (AML); virtual currencies; cryptocurrency; token; Blockchain

#### Authors' contributions

Lars Haffke developed the research question, led the literature review, and developed the structure of the paper. All authors then contributed jointly to discussing the content of each section, with Lars Haffke writing the first draft of the paper. All authors jointly reviewed the draft multiple times. All co-authors have confirmed that Lars Haffke is the lead and first author of this paper, see Appendices 1 and 2.

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<sup>29</sup> Please note that the essay was accepted in April 2019 and the abstract should be understood accordingly.

### **Current Status – Published**

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### **Note**

Please note that the full text of this essay was included in the examiner's copy of the dissertation. To avoid any kind of plagiarism or dual publication, it is not included in the freely accessible version of the dissertation but can be requested from the author.

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## 2.2 Essay No. 2: An Expectation-Performance Gap between Money Laundering Reporting Officers and Their Directors – Evidence from Germany

by Lars Haffke\*

### Abstract

Anti-money laundering requires both financial and non-financial businesses to perform certain obligations to combat money laundering. For this purpose, directors employ a Money Laundering Reporting Officer (MLRO). This paper applies the model of the audit expectation-performance gap to the relationship between such officers and their directors. This enables the scrutinization of the state of private affairs in anti-money laundering efforts. Therefore, this paper reports the results of a paired survey of 136 MLROs and their directors conducted in Germany. It finds that while there is no knowledge or performance gap amongst MLROs and directors, expectations amongst them are partially unreasonable and their communication needs to be improved. Additionally, this study suggests that MLROs of non-financial businesses are less knowledgeable, perform AML duties more poorly, and communicate less effectively with their directors. The findings cast serious doubt on the effectiveness of the AML system amongst German non-financial businesses. Actions by both companies and supervisory authorities are suggested.

**Keywords:** money laundering; compliance; AML directive; designated non-financial businesses and professions (DNFBP); designated financial businesses (DFB); performance-expectation gap

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\* The author is the sole author of this paper.



## 2.3 Essay No. 3: Biases in Risk Assessments Under EU Anti-Money Laundering Law – Evidence of the Better-Than-Average Effect from Germany

by Lars Haffke\*

### Abstract

Anti-Money Laundering (AML) regulation is becoming increasingly important for businesses in the EU. For day-to-day regulatory compliance, companies employ a Money Laundering Reporting Officer (MLRO). Obligations follow a risk-based approach, making their extent subject to the degree of AML risk of the company or situation. For this purpose, MLROs must constantly assess risk, for example by conducting annual risk assessments of the company. This paper reports the results of a survey of 228 German MLROs. It shows that MLROs' risk assessments are biased by a better-than-average effect. Across industries, they believe their own company's risk to be below that of the average competitor, both when measured directly and indirectly. Likewise, MLROs were not able to correctly assess industries' AML risks when compared with national risk assessments. Risks were especially underestimated for high-risk industries. Biases in risk assessments were found to be higher amongst MLROs from the non-financial sector. This paper advocates for companies, supervisors, and regulators to consider this fact when following the risk-based approach by raising awareness, designing trainings, and making AML supervision more effective.

**Keywords:** anti-money laundering (AML); compliance; risk-based approach; supervision; financial markets law; risk assessments

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### Note

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\* The author is the sole author of this paper.

## 3 Conclusion

### 3.1 Results and Implications

#### 3.1.1 EU AML Law and Blockchain Technology

Essay no. 1 asked if EU AML law is fit for purpose with regards to Blockchain technology. Analysing the provisions introduced by AMLD5, it interpreted the legal text and defined the scope of obliged entities with regards to Blockchain intermediaries. AMLD5 defined the newly introduced obliged entities with reference to the term ‘virtual currencies’.

The paper has shown that AMLD5 does not adequately reflect the types of tokens or obliged entities it ought to include. Although the directive sought to cover ‘all potential uses’ of virtual currencies (Rec. 10 AMLD5), it only lists specific uses in its definition. The economic terminology used (means of exchange) was found to be limited to its wording. Therefore, AMLD5 only covers currency tokens. Consequently, crypto exchanges and wallet providers are not covered by EU AML law if they do not accept or trade currency tokens. The first essay highly recommended expanding the definition to cover all forms of crypto assets. While AMLD5 covers both centralised and decentralised fiat-to-crypto exchanges, crypto-to-crypto exchanges are not established as obliged entities. Neither are tumbler service providers. However, the first essay argued that they are necessary to be included in AML law due to their function as gatekeepers and a high risk to be used for money laundering.

Miners and non-custodian wallet providers are not covered. As argued, this does not need to change from a regulatory perspective. However, by introducing ‘providers engaged in exchange services between virtual currencies and fiat currencies’ (Art. 1(1)(c) AMLD5) as an obliged entity, the legislator unintentionally included issuers of currency tokens. As argued, it is sensible to do so. To avoid delamination problems, it is important to treat issuers of all kinds of tokens equally by altering the definition of virtual currencies. The first essay found urgent need to change AMLD5 in these regards.

The findings are of interest for academics, practitioners, and lawmakers. Considering academic literature, in particular at the time of online publication of the essay in early 2019, no legal analysis of the provisions of AMLD5 had been available to regulators or lawmakers. AMLD5 had not been implemented into national laws. Proposals for national legislation had not been published. National lawmakers were thus able to consider the present findings. Likewise, they were able to consider FATF (2019) guidance on virtual assets and virtual asset service providers. As shown by Fromberger *et al.* (2019) and Rennig (2020), the findings of

essay no. 1 were at least partially taken into account by national lawmakers: For example, the German implementation of AMLD5 expanded the term virtual currencies to cover investment tokens (but not utility tokens; see § 1 XI 2 KWG).

In July 2021, the European Commission proposed a new AML and CFT legislative package.<sup>30</sup> As part of the package, EU AML law will be largely transferred into a first EU AML Regulation (COM(2021) 420 final, ‘AMLR1-Draft’). Art. 2(13) AMLR1-Draft abolishes the definition of virtual currencies in favour of a new definition of ‘crypto-assets’. This definition references Art. 3(1)(2) of the drafted regulation on Markets in Crypto-assets (COM(2020) 593 final; ‘MiCA-Draft’), which includes all types of tokens, irrespective of their categorisation (Patz, 2021). Similarly, Art. 2(14) AMLR1-Draft includes crypto-asset service providers as obliged entities. This will, among others, extend EU AML law to cover crypto-to-crypto exchanges (see Art. 3(1)(8) MiCA-Draft). To counteract anonymity in crypto transfers, a revised Transfer of Funds Regulation (COM(2021) 422 final) would require crypto-asset service providers to record clear names when transferring assets. This shows that legislative debates have already considered findings of the first essay, highlighting its relevance for both theory and practice.

### **3.1.2 AML Expectation-Performance Gap**

Essay no. 2 researched whether expectation-performance, knowledge, and communication gaps exist between MLROs and directors in Germany. This question allows to shed light on the functionality and effectiveness of German AML law. Before analysing the gaps, a framework was conceptualised theoretically, building on the audit-expectation performance gap. Unlike Krambia-Kapardis *et al.* (2019) and unlike studies on auditors (Fisher & Naylor, 2016; Porter, 1993), a knowledge gap between MLROs and directors overall could not be established in this dissertation. Rather, results indicated that both MLROs and directors have a broad understanding of the MLRO’s role. Both groups believed non-existing responsibilities of MLROs to be legally required.

Likewise, directors held high expectations in their MLROs. Several non-existing responsibilities were rated by directors and MLROs alike to be tasks that MLROs should carry out. Even tasks that would constitute the maximum level of assurance but were impossible to be carried out (‘guaranteeing that the company is not being used for money laundering’) were expected, contributing to an unreasonable expectations gap. This is somehow understandable,

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<sup>30</sup> See chapter 1.2. and footnote 4 for references.

as directors seek all their compliance officers to reduce risk and potential liabilities, both for the company and directors personally (Institute of Internal Auditors (IIA), 2020; Miller, 2018; Nietsch, 2018). However, MLROs were found to share the same view overall. Other statements formed part of the deficient standards gap. As argued, a clear distinction between the two gaps is not possible. A deficient performance gap was not found for MLROs, confirming the findings of Krambia-Kapardis *et al.* (2019).

Turning to the communication gaps, a communication gap on knowledge could neither be clearly found nor rejected. However, a performance-communication gap was found for three non-existing responsibilities<sup>31</sup>, meaning that a significant share of directors erroneously believed their MLRO to carry out these tasks. Likewise, directors' and MLROs' expectations were highly congruent for existing responsibilities, while showing an expectation-communication gap for non-existing responsibilities. Communication of knowledge, non-performance of tasks and expectations was worse for non-existing responsibilities.

Results on RQ3 cast doubt on the effectiveness of the German AML system in the non-financial sector. Directors and MLROs showed less knowledge regarding AML responsibilities. Core tasks, like filing suspicious transaction reports, were reported not to be carried out more often than in the financial sector. Particularly worrying are higher rates for erroneous beliefs of performance of tasks. As performance of core tasks should not be up for debate, these developments are especially disturbing.

The paper adds to the stream of literature that applies the expectation-performance gap model (see Quick, 2020). Particularly relevant is the theoretical advancement of the model in the AML context. Going beyond the group dimension (Krambia-Kapardis *et al.*, 2019), an individual paired assessment of MLROs and directors becomes possible and theoretically warranted. A paired analysis of MLROs' and directors' expectations on AML tasks did not exist in the current literature. It allowed insights into the expectations of AML's core actors.

The found gaps should be of large concern for companies, regulators, and supervisory authorities. For companies, the fact that a high number of directors mistakenly believed their MLROs to provide a higher level of assurance than they actually do creates risks for fines and reputational damage. Several countermeasures appear suitable. Training programmes for directors could decrease their belief in artificially high levels of assurance. Clear working instructions as well as frequent, clear, and continuous communication between MLROs and

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<sup>31</sup> These tasks were: guaranteeing the business cannot be used for money laundering, monitoring legal compliance changes, and consulting the transaction partner's MLRO in case of complex transactions.

directors could lead to more realistic expectations. While this applies to both the financial and non-financial sector, the latter needs a strengthened level of supervision. Increased control activities, more guidance, and a less fragmented supervision are required to counteract a partially ineffective AML system in the German non-financial sector (Friedrich & Quick, 2019).

### **3.1.3 Risk Assessments and the Better-Than-Average Effect**

Essay no. 3 analysed whether MLROs are subject to a BTA effect when assessing AML risks and whether their general risk assessment capabilities are adequate. As EU AML law, like all other FATF member states, follows a risk-based approach, these capabilities are particularly relevant.

The paper found a BTA effect among MLROs across all industries using the direct method. The effect was slightly larger among DNFBPs. When calculating the effect via the indirect method, the effect was maintained for all industries except insurance companies, tax consultants and auditors. For financial institutions and DNFBPs, the effect was attributable to perceiving their own risk to be below that of the average peer, while correctly assessing their industry's risk. Banks, tax consultants and auditors, on the other hand, perceived their own industry's risk to be below its actual level as classified by the German NRA. Additionally, banks further contrasted their own risk downward from the incorrectly perceived risk of the average peer. Regarding general risk assessment capabilities, MLROs from all industries underestimated the risk level of high-risk industries. For medium- and low-risk industries, over- and underestimations were observed with no clear pattern. MLROs from DNFBPs generally assessed industries' risks lower than their colleagues in the financial industry.

The findings are relevant to both academia and practice. As a BTA effect had not been researched among MLROs, the essay adds to the stream of literature on the BTA effect in different contexts, including managerial areas (Rhee *et al.*, 2005; Zell *et al.*, 2020). It further contributes to the ongoing debate on the risk-based approach in AML law. Adding a practical problem to the literature, doubt is casted on the effectiveness of the approach as such. This result is important for supervisory authorities and companies alike. Following a principal-agent approach (Dalla Pellegrina & Masciandaro, 2009; Friedrich & Quick, 2019), increased supervisory activity is required. However, the essay further found that German AML supervision is fragmented and arguably ineffective in the non-financial sector (Maume *et al.*, 2019). A stringent supervision, providing high-quality guidance, is warranted. The European

Commission's proposal for an EU level AML supervisory authority for DFBs (COM(2021) 421 final) is welcomed but should be expanded to DNFBPs.

### **3.1.4 Summary**

Overall, the essays have shown that EU and German AML law is not fully effective. While it addresses current challenges, AMLD5 is not fit-for-purpose with regards to Blockchain technology. It does not comply with FATF recommendations. Changes are urgently necessary to stay up to date with recent technological advancements. The second and third essay casted doubt on the effectiveness of German AML efforts, particularly in the non-financial sector. If AML law is to fulfil its aim to safeguard the country's and Union's financial systems, its actors must communicate more effectively about task and expectations, be better trained in assessing risks, and be more stringently supervised. Considering the rapid speed of technological development, AML will become even more important for companies and regulators in the future. As empirical research on AML is still rare but highly welcomed and necessary, academics will be crucial in the future of AML policy development. Therefore, the remaining sections of this dissertation discuss its limitations and highlight areas for future research.

## **3.2 Limitations**

The results of this dissertation must be interpreted considering its limitations. Regarding the first essay, it must be kept in mind that Blockchain technology is decentralised. The low level of technical standardisation might impair the completeness of the arguments made. There might be other intermediaries or those with slightly altered functionalities that should be covered by AML law. These might not have been considered in the essay and the proposed legal changes. Likewise, research on AML risks of Blockchain intermediaries was nascent and has evolved since. The FATF (2021) has issued guidance on virtual assets. Supervisory authorities have more detailed information by now. Likewise, the European Commission is likely to update the risk level of Blockchain intermediaries in their next SRNA. These findings could not have been considered in the first essay. The legal changes proposed by the European Commission (see chapters 1.2 and 1.3), however, incorporated proposals made in this dissertation.

Turning to the survey conducted for the second and third essay, the response rate might appear artificially low compared to other surveys on the audit expectation-performance gap and BTA effect. This might have impacted the study's results. However, the low response rate is

explained by various reasons. First, as mentioned, there is no central database for AML obliged entities. Data used is likely to contain companies that are not subject to AML law at all. For example, in Germany, only specific law firms are obliged entities, while others are not (Pelz, 2022). Precise information on the AML status of companies is, in the absence of a central register, only available to supervisory authorities. Second, data quality might have decreased response rates. Individuals surveyed might no longer work for the company due to high turnover rates. Third, directors had to be contacted first. Getting higher-level employees involved in any survey is more challenging than lower-level employees, leading to lower response rates. Further, directors were required to refer contact details of their MLROs. Most importantly, AML is a very sensitive topic. Respondents are more reluctant to answer questions on it, making high response rates significantly more difficult to achieve.

Secondly, only German companies were surveyed. The external validity for other countries might thus be limited. However, this is unlikely to be a major issue. German AML law follows EU law. The latter is based on FATF recommendations, which is supposed to be the case for virtually all countries. Differences in laws are rather a matter of national particularities. Further, the FATF (2022c) regularly finds problems with countries' compliance with recommendations for DNFBPs throughout almost all its member states. To the knowledge of the author, mandatory trainings of MLROs do not exist in other countries either. It is therefore unlikely that the tendency for larger gaps and effects amongst DNFBPs will only be found in Germany.

Third, this study used questionnaires. Albeit covering a wide range of AML tasks and industries in the survey, their selection or ordering might have unintentionally biased results. Misunderstanding of questions cannot be fully eliminated. However, expert interviews before the study and careful wording of questions tried to limit this effect. Wherever possible, scales tested in prior literature were used.

### **3.3 Future Research**

Money laundering will remain a problem. Legislative developments and media attention increase its relevance for governments and supervisors. Recent actions and proposals by the European Commission and FATF highlight the topic's high priority. Therefore, based on the findings of this dissertation, areas for future research shall be proposed.

New technological developments will continue to challenge AML (Akartuna *et al.*, 2022): While the main concern is currently Blockchain technology, challenges to AML are not limited to it. The wider area of FinTech and new payment methods pose further threats to the financial

system. As the speed of technological change is unlikely to decrease anytime soon, new technological developments should be scrutinised with regards to AML on a regular basis. At the time of writing this dissertation, legal literature on the draft for the first EU AML Regulation and its accompanying laws was not available. Therefore, a thorough analysis of the legal package with regards to technological changes should be conducted. Scholars and practitioners would benefit from insights into recent money laundering schemes with new technologies (Teichmann & Falker, 2021a, 2021b). While the FATF regularly reviews AML laws of its member states, a comparative academic and legal analysis of AML laws with regards to new technologies is warranted.

This dissertation has emphasised the need for MLROs and directors to work together effectively. It would be relevant to study the AML expectation-performance gap not only in Germany, but in other countries and jurisdictions, both in- and outside the EU. Considering that findings of Krambia-Kapardis *et al.* (2019) and this dissertation are not fully aligned, more research is needed to put them into a larger context. Scandals and media attention on money laundering are likely to increase response rates for future studies on the AML expectation performance gap. It would further be interesting to study determinants of the gaps, as well as which measures are able to narrow them. The proposed model is, however, not limited to AML as such, but can be studied in other compliance contexts, e.g., between Data Privacy Officers and their directors.

Moreover, MLROs have been shown to be subject to a BTA effect. Studies on this effect amongst MLROs in other countries are highly warranted. Researching whether a BTA effect exists amongst AML supervisors when assessing AML risks, on the other hand, would be of particular interest for practitioners and scholars. It would also be worthwhile to know if the effect applies to other compliance officers (e.g., Data Privacy Officers). However, MLROs might be subject to other psychological biases in the course of their work and be unaware of them. For example, it could be researched whether MLROs tend to see themselves less biased with regards to AML risk assessments than their colleagues (bias blind spot). In any case, it should be studied how to avoid the BTA effect amongst MLROs. A longitudinal study design of MLROs would allow to assess which measures are able to reduce a BTA effect. Specific trainings programs for MLROs could be developed. Well-trained MLROs are essential to ensure that AML policy is prepared for the future challenges it will face.



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*Note: This bibliography does not include statutory laws or judgements as is customary for legal works, i.e., no laws, directives, regulations, their proposals, or case law.*

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# Appendix

## Appendix 1 – Declaration of Authorship – Fromberger



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And to whom it may concern

### Declaration on Publications Integrated into a Cumulative Dissertation

Dear ladies and gentleman,

I, Mathias Fromberger (born 23.07.1989), hereby certify that Lars Haffke (born 29.09.1994) was leading and in charge ("federführend") in creating the following publication and is therefore its first author:

Lars Haffke, Mathias Fromberger und Patrick Zimmermann, 'Cryptocurrencies and anti-money laundering: the shortcomings of the fifth AML Directive (EU) and how to address them', accepted for publication in the Journal of Banking Regulation, published "online first" on April 13, 2019

DOI: <https://doi.org/10.1057/s41261-019-00101-4>

Munich, 11 November 2019

  
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## Appendix 2 – Declaration of Authorship – Zimmermann



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And to whom it may concern

### Declaration on Publications Integrated into a Cumulative Dissertation

Dear ladies and gentleman,

I, Patrick Zimmermann (born 13.05.1990), hereby certify that Lars Haffke (born 29.09.1994) was leading and in charge (“federführend”) in creating the following publication and is therefore its first author:

Lars Haffke, Mathias Fromberger und Patrick Zimmermann, ‘Cryptocurrencies and anti-money laundering: the shortcomings of the fifth AML Directive (EU) and how to address them’, accepted for publication in the Journal of Banking Regulation, published “online first” on April 13, 2019

DOI: <https://doi.org/10.1057/s41261-019-00101-4>

Munich, 11 November 2019

A handwritten signature in blue ink, appearing to read 'P. Zimmermann', followed by a long horizontal flourish.

Patrick Zimmermann, Ass. Jur.