Anti-money laundering and anti-terrorism financing: a survey of the existing literature and a future research agenda

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Abstract

Purpose – There is a significant focus today on the deficiencies of the financial system as the sector continues to boom while facing the growing pains of financial scandals, money laundering and the financing of terrorism around the world. Here, this study aims to investigate past research and the development of knowledge and practice in the area of countering money laundering and terrorist financing. Additionally, we draw attention to the gaps in the preventive mechanisms adopted by countries to fight against anti-money laundering (AML) and anti-terrorism financing (ATF) and to highlight areas for possible future research.

Design/methodology/approach – This study was carried out through a systematic literature review of the existing work on AML and ATF.

Findings – The general findings of the reviewed papers show the deficiencies in the laws, acts and preventive measures meant to fight money laundering and terrorism financing and support the need for more research in this area in terms of law, regulations and technological matters.

Originality/value – Providing a concrete understanding of the concept of AML and terrorist financing and contributing the theoretical development in the area.

Keywords Research agenda, Anti-money laundering, Anti-terrorism financing

Paper type Literature review

1. Introduction

The growing concerns over money laundering (ML) resulted in the establishment of the Financial Action Task Force (FATF) by the G-71 summit, which was held in Paris in 1989 (Financial Action Task Force Website, 2018a). The FATF was given the responsibilities of analyzing ML activities and proposing, measuring and monitoring the anti-ML measures of its member countries (Financial Action Task Force Website, 2018b). As a result, the FATF issued a report containing a set of 40 recommendations, which were intended to provide a comprehensive plan of action needed to fight against ML called First Recommendations (Financial Action Task Force, 1990). However, after the events of September 11, the FATF issued another nine special recommendations to help countries fight terrorism. The special recommendations were set out to detect, prevent and suppress the financing of terrorism and terrorists acts through the ratification and implementation of UN instruments, criminalizing the financing of terrorism and associated money laundering, freezing and confiscating terrorists' accounts, reporting suspicious transactions related to terrorism, international cooperation, controlling alternative remittance services, controlling and

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monitoring wire transfers and cash couriers and monitoring the vulnerabilities associated with nonprofit organizations (Financial Action Task Force, 2001; Nobanee and Ellili, 2020).

International law considers ML a standalone crime, even though it is usually prosecuted as an ancillary offense (Boister, 2012, p. 103). Boister illustrated that the ancillary nature of ML derives from the necessity of a predicate offense from which the illicit money originates, which can be a serious offense. The predicate offense involves an acquisitive crime that is necessary for the subsequent ML process to take place (Keesoony, 2016). Therefore, the offense of ML "is both dependent on but independent of that predicate offence" (Boister, 2012, p. 100). Generally, the approach in the existing anti-ML regime is "backward looking," concentrating on the origin of the proceeds derived from the crime that has already been committed (Cassella, 2003, p. 93).

To be more specific, ML is the act in which hiding the proceeds of illicit activities is attempted and is the type of criminal activity in which the illegality of the proceeds is concealed by disguising them as lawful and legal earnings (He, 2010; Nobanee and Ellili, 2018). The complete process of ML consists of three stages: the placement of funds into the financial sector, layering the proceeds to hide and disguise their origin/source and the integration of funds to gain the ability to convert the money into other forms of goods and assets (Gilmore, 1995; McDowell and Novis, 2001). In short, ML is the process of creating a veil of legal cleanliness (Leong, 2016). Rider *et al.* (2016) described the process as a typical organized crime with transnational characteristics that involves a number of various jurisdictions with different legal standards. This nature is derived from the fact that illicit proceeds are moved through either formal or informal banking systems of multiple countries to reach an unknown final beneficiary with the purpose of hiding their source by mixing them with legal money or to finance terrorists, extremist groups or organized criminal groups – such as the Russian Mafia: Solntsevskaya Bratva, the Japanese Yakuza: Yamaguchi Gumi, the Italian-American Mafia: Camorra, the Calabria region of Italy gang: Ndarangheta and Mexico's largest drug cartel: Sinaloa. Offenders tend to commit the predicate offense in one jurisdiction and then launder the illicit money in another to make it hard to track (Keesoony, 2016).

However, terrorist financing is the stage at which funds are legally or illegally provided and collected for the commission of the crime of terrorism in the future; therefore, it is preparatory in nature (Tofangsaz, 2012, p. 396). Zubair *et al.* (2015) defined terrorism financing as providing property for terrorists in relation to the proceeds of illegal activities; it also involves carrying out transactions that may or may not be on behalf of terrorists but are meant to assist in the commission of terrorism. The UAE Securities and Commodities Authority (2010) defined terrorism financing as the process of funding groups that intend to commit terrorism according to federal law Act No. 1 (2004). Mechanisms to finance terrorists vary from legal to illegal. Terrorists tend to operate in ambiguity through closed networks and industries that lack transparency. However, terrorists do provide high economically profitable incentives such as contraband cigarettes, counterfeit goods, illicit drugs and charity (Forman, 2006). Forman further illustrated that terrorists always seek techniques to allow them to launder their gained assets through nontransparent trade and the alternative remittance system (such as hawala) or underground banking systems. Terrorists need funding to purchase arms and cover operational expenses, recruitment and training as well as salaries and compensation (Kiser, 2005).

The literature on anti-ML and anti-terrorism financing (AML and ATF) is growing and taking different directions. It is critical to identify what we have learned so far, what evidence is inconclusive and what we still do not know enough about. The main purpose of this study is to review the state of the art of the research in this area, shed light on the dynamics that drive measures in the fight against ML and terrorist financing on a worldwide scale based on the existing literature and identify the gaps for future research. Specifically, we focus on measures for combating ML and terrorist financing and the safeguarding mechanisms injected into financial institutions. A literature review of past studies aimed to collect and examine the laws using technical or argument methods; most of the papers lack a real evaluation of the state of ML or terrorist financing events, most likely due to the lack of statistical data. In this review, we aim to contribute to answering the following questions:

Q1. What are the best ways to enhance the safeguarding mechanisms injected into financial institutions?

Q2. How can we possibly identify a case of AML and/or ATF?

We answer these questions by means of a systematic review of the literature on AML and ATF. This paper aims to present an integrated summary of the existing body of knowledge of AML and ATF published in high-ranked databases. We identify where the conclusions of previous research meet and diverge to set the agenda for future possible research.

This review is motivated by two key factors: the recent events of ML meant to finance terrorism around the world and the current state of the AML and ATF literature is exacerbated by the fact that, in addition to the lack of a concrete understanding of the concept, there has also been an alarming lack of theoretical development in the area.

The literature used in this review was classified by the year of publication (Figure 1 and Table 1), number of citations, type of paper, publisher and journal rank in five databases (Scopus, ABDC, ABS, Scimago and the Web of Science). Moreover, the papers were categorized based on the coverage of each study:

- AML regulations, criminology and trends.
- ATF regulations, trends, economics, financial economics, behavioral and social sciences (criminology) and socioeconomics.
- AML and ATF regulations and trends.

This categorization was followed by detailed content analysis. Through the content analysis, the results, findings and recommendations of each sample study were illustrated and highlighted. The findings of this review have several implications. First, the review provides a synthesis of the research on AML and ATF and shows how the direction of the recent studies in this area of research was growing and taking different directions prior to the events of September 11. Second, for governments and officials, this review highlights the common challenges associated with the international measures of AML and ATF and provides ways to enhance risk mitigation associated with the FATF recommendations to

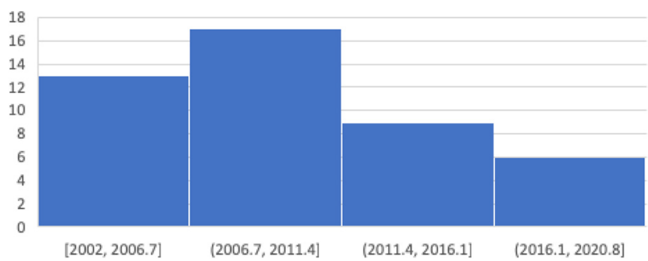

Figure 1.
Number of articles based on the year of publication

Table 1.
Journal quality

Journal	Google Scholar citation	Impact factor				
		Scopus	ABDC	ABS	Scimago	Web of Science
1. *PLoS ONE*	1	1.111	NL*	NL	1.164	Q1
2. *The Business Lawyer*	5	0.708	A	NL	0.33	Q3
3. *International Studies Quarterly*	150	1.825	A	NL	2.581	Q1
4. *The Cambridge Law Journal*	20	1.664	NL	NL	0.213	NL
5. *Journal of Law and Society*	74	0.742	B	2	0.291	Q3
6. *International and Comparative Law Quarterly*	89	1.1	A	NL	0.369	NL
7. *Public Choice*	73	1.196	A	3	0.991	Q3
8. *The Journal of Law, Economics, and Organization*	133	1.794	NL	NL	1.585	Q3
9. *Journal of Economic Surveys*	31	2.465	B	2	1.462	Q1
10. *Criminology and Public Policy*	24	1.009	NL	NL	1.473	Q1
11. *The Journal of Creative Behavior*	55	1.1	NL	NL	0.506	Q2
12. *Journal of the American Society for Information Science and Technology*	153	NL	NL	3	NL	Q1
13. *Socio-Economic Planning Science*	4	NL	C	2	NL	Q2
14. *Expert Systems with Applications*	67	NL	C	3	1.271	Q1
15. *Journal of Criminal Law and Criminology*	137	0.596	NL	NL	0.336	NL
16. *Review of Law and Economics*	59	0.41	NL	NL	0.195	NL
17. *Journal of Business Law*	1	NL	A	2	NL	NL
18. *Research in International Business and Finance*	90	1.442	B	2	0.548	NL
19. *Journal of Financial Crime*	63	0.936	C	NL	0.228	NL
20. *Crime and Justice*	252	2.295	NL	NL	1.517	Q2
21. *Knowledge and Information Systems*	0	NL	C	NL	0.726	Q2
22. *Expert Systems with Applications*	20	NL	C	3	1.433	Q1
23. *Computers and Security*	32	NL	NL	NL	NL	Q2
24. *Information and Communications Technology Law*	57	NL	NL	NL	NL	NL
25. *International Politics*	53	NL	NL	NL	NL	Q3
26. *European Journal of Law and Economics*	51	NL	C	1	0.337	NL
27. *Crime, Law and Social Change*	50	0.911	B	NL	0.409	Q3
28. *British Journal of Criminology*	85	NL	NL	NL	1.34	Q1
29. *Financing Terrorism*	105	NL	NL	NL	NL	NL
30. *University of Pennsylvania Law Review*	22	NL	NL	NL	1.842	Q1
31. *Regulation and Governance*	26	2.292	NL	NL	1.866	Q1

(*continued*)

Table 1.

Journal	Google Scholar citation	Impact factor				
		Scopus	ABDC	ABS	Scimago	Web of Science
32. *JCMS: Journal of Common Market Studies*	39	1.778	NL	3	1.873	NL
33. *Development Policy Review*	21	1.177	B	NL	0.751	Q3
34. *JCMS: Journal of Common Market Studies*	3	1.778	NL	3	1.873	Q1
35. *Political Science Quarterly*	61	0.598	A	NL	0.228	Q4
36. *International Studies Perspectives*	6	1.17	NL	NL	0.983	Q3
37. *Public Administration*	0	1.783	NL	NL	1.989	NL
38. *Review of financial economics*	91	0.777	NL	1	0.379	NL
39. *Economic Inquiry*	33	1.193	A	3	0.992	Q3
40. *Social Issues and Policy Review*	91	3.453	NL	NL	2.748	Q1
41. *Risk Analysis*	12	1.381	NL	NL	1.01	Q1
42. *International Studies Review*	0	1.461	NL	NL	1.201	NL
43. *Communications of the ACM*	80	2.629	A	2	0.709	Q1
44. *The Annals of the American Academy of Political and Social Science*	190	1.564	NL	NL	1.225	Q1

Note: NL* = Not listed

provide a higher level of compliance among the entities involved. Third, the review provides researchers with a better understanding of the subject and opens doors to address the gaps illustrated in the previous literature.

Upon searching Google Scholar, under the keywords of "review of the literature on AML and ATF or financial economic crimes," no paper was found to extensively review the subject from the perspective of our study or even from a general perspective. However, a few papers were found that reviewed some predicate offenses, such as corruption, fraud, human trafficking and child pornography. Google Scholar was chosen as the basis for this search because it searches within most of the databases available. For that reason, our review is considered among the first initiatives to fully analyze the existing literature on AML and ATF.

This paper proceeds as follows: Section 2 discusses the methodological approach used to review the existing literature. Section 3 discusses the results of the citation-based analysis and content analysis. Finally, Section 4 discusses conclusions and suggestions for future research.

2. Methodology

The systematic review provides a collective understanding of the studied subject through a blend of theories such that the review process enables the enhancement of the methodological rigor for scholars and develops a reliable knowledge base for professional practitioners (Tranfield *et al.*, 2003). In this paper, we have adopted the systematic literature review methodology proposed by Prasad *et al.* (2018).

For this review, a set of inclusion criteria was applied to narrow the extensive body of research down to a manageable set of papers to be able to conduct a comprehensive analysis. We first started by searching for papers on AML and ATF in "Scopus, ABDC, ABS, Scimago and Web of Science" by using several keywords related to the subject, such as "countering Money-Laundering and Terrorist Financing," "fighting economic crime," "predicate offences," "FATF recommendations" and other keywords related to the subject of AML and ATF. The search resulted in 120 papers, which were narrowed to 44 papers based on the following inclusion criteria:

(1) We limited our literature search to the time window of 2002–2018, as concerns about AML and ATF were raised and attracted attention prior to the events of September 11.

(2) Cut-off point measures:

- Google Scholar citation number of 50 and above;
- Or, Scopus impact factor of 1 and above;
- Or, Scimago impact factor of 1 and above;
- Or, ABDC a rank of A and above;
- Or, ABS a rank of 3 and above; and
- Or, Q1 and Q2 ranking in Web of Science.

As illustrated by Prasad *et al.* (2018), acquiring citations from Google Scholar has the advantage of providing references from peer-reviewed journal articles as well as working papers, books and other nonscholarly materials, such as widely read newsletters. Moreover, Harzing and Alakangas (2016) proved the superiority of Google Scholar with regard to both reaching publications and counting citations. In terms of the choice of 50 citations and above, we followed Cole (1970), Åström (2010) and Prasad *et al.* (2018) to ensure quality, attainability and the availability of reasonably impactful articles in our sample.

The choice of the rest of the cut-off criteria (from b to f) was intended to ensure that all of the articles are peer reviewed and published in highly ranked journals, which will provide a higher level of quality work.

Papers that mainly focus on AML and ATF were used, and those discussing a single predicate offense (e.g. fraud, corruption) were not selected. Moreover, the Social Science Research Network (SSNR) database was also searched to obtain new studies related to the subject. After shortlisting the papers through the systematic approach and applying the inclusion criteria, the papers were classified and analyzed by several sets of dimensions, such as quality, subject, type of paper, type of methodology and journal.

3. Quality distribution

In this carefully defined sample set of relevant studies, the earliest study was published in 2002, and most of the studies were published after the events of September 11, with a peak between 2008 and 2011 (Figure 2). This result confirms our prior knowledge that research on AML and ATF is a recent focus of systematic research and is still a novel but quickly growing research field. The shortlisted papers appear in a wide range of academic journals (Table 2), with most being published in Wiley. More than half of the studies are found in law and economics journals, followed by criminology journals and journals on governance.

3.1 Articles' Google citation distribution

Figure 2 presents the selected impactful research articles based on the number of Google Scholar citations they received. It is evident from the figure that Levi and Reuter are the most cited authors, with 252 citations for their article, entitled "Money laundering," which was published in 2006. The next highest number of citations was received by an article written by Levi, entitled "Money laundering and its regulation," with 190 citations. Levi's article was published four years earlier in 2002. There is a total of four papers that have been cited more than 100 times between 2002 and 2009. The most recent study authored by Chen,

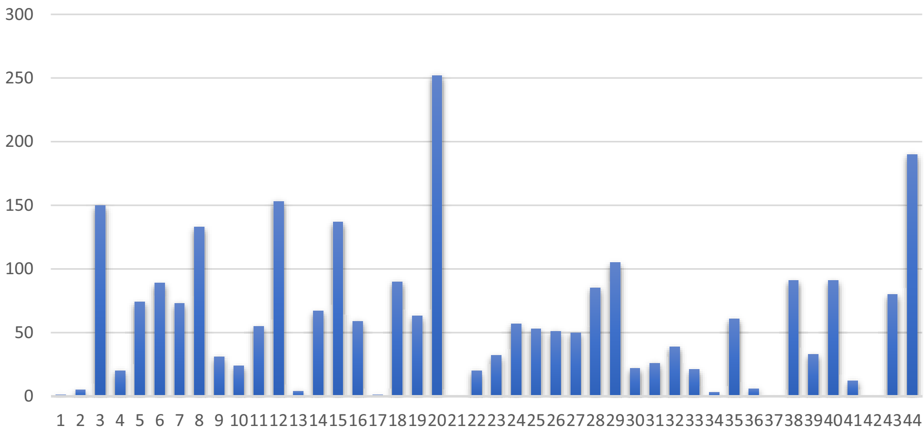

Figure 2. Articles' Google citation distribution

Note: Figure 2 presents the 47 research articles and their number of citations (updated as of November 1, 2018)

Article name	Author	Journal	Publisher
1. Do countries consistently engage in misinforming the international community about their efforts to combat money laundering? Evidence using Benford's Law	Deleanu (2017)	PLoS ONE	Public Library Science
2. Current developments in anti-money laundering laws	Teitelbaum and Kaufmann (2003)	The Business Lawyer	American Bar Association
3. Power and discourse in policy diffusion: Anti-money laundering in developing states	Sharman (2008)	International Studies Quarterly	Wiley
4. The financial services authority and money laundering: A game of cat and mouse	Ryder (2008)	The Cambridge Law Journal	Cambridge University Press
5. Money laundering and globalization	Alldridge (2008)	Journal of law and society	Wiley
6. The EU legislative framework against money laundering and terrorist finance: a critical analysis in the light of evolving global standards	Mitsilegas and Gilmore (2007)	International and Comparative Law Quarterly	Cambridge University Press on behalf of the British Institute of International and Comparative Law
7. Turnover of organized crime and money laundering: some preliminary empirical findings	Schneider (2010)	Public choice	Springer
8. A theory of "Crying Wolf": The economics of money laundering enforcement	Takáts (2011)	The Journal of Law, Economics, and Organization	Oxford University Press
9. The economics of counterterrorism: A survey	Schneider et al. (2015)	Journal of Economic Surveys	Wiley
10. Terrorist use of the Internet by the numbers: Quantifying behaviors, patterns, and processes	Gill et al. (2017)	Criminology and Public Policy	Wiley
11. Malevolent creativity in terrorist organizations	Gill et al. (2013)	The Journal of Creative Behavior	Wiley
12. Uncovering the dark web: A case study of Jihad on the web	Chen et al. (2008)	Journal of the American Society for Information Science and Technology	Wiley
13. Analysis of topologies and key players in terrorist networks	Ozgul (2016)	Socio-Economic Planning Science	Elsevier
14. Conceptual modeling and development of an intelligent agent-assisted decision support system for anti-money laundering	Gao and Xu (2009)	Expert Systems with Applications	Elsevier

(continued)

Table 2. Journal and publisher distribution

Article name	Author	Journal	Publisher
15. The tenuous relationship between the fight against money laundering and the disruption of criminal finance	Cuéllar (2002)	Journal of Criminal Law and Criminology	SSRN
16. The risk-based approach in the new European anti-money laundering legislation: A law and economics view	Dalla Pellegrina, and Masciandaro (2009)	Review of law and Economics	SSRN
17. Financial inclusion: A challenge to the new paradigm of financial technology, regulatory technology and anti-money laundering law	Lee (2017)	Journal of Business Law	SSRN
18. Money laundering—a global obstacle	Buchanan (2004)	Research in International Business and Finance	Elsevier
19. Money laundering control and suppression of financing of terrorism: Some thoughts on the impact of customer due diligence measures on financial exclusion	De Koker (2006)	Journal of Financial Crime	Emerald
20. Money laundering	Levi and Reuter (2006)	Crime and Justice	University of Chicago Press
21. Machine learning techniques for anti-money laundering (AML) solutions in suspicious transaction detection: a review	Chen et al. (2018)	Knowledge and Information Systems	Springer London LTD
22. Using social network analysis to prevent money laundering	Colladon and Remondi (2017)	Expert Systems with Applications	Pergamon-Elsevier Science LTD
23. New payment methods: A review of 2010–2012 FATF mutual evaluation reports	Choo (2013)	Computers and Security	Elsevier Advanced Technology
24. Virtual money laundering: the case of Bitcoin and the Linden dollar	Stokes (2012)	Information and Communications Technology Law	
25. Global financial governance and the developing anti-money laundering regime: what lessons for international political economy?	Tsingou (2010)	International Politics	Palgrave Machilland LTD
26. False and reluctant friends? National money laundering regulation, international compliance and non-cooperative countries	Masciandaro (2005)	European Journal of Law and Economics	Springer
27. Balancing financial threats and legal interests in money-laundering policy	Van Duyne et al. (2005)	Crime, Law and Social Change	Springer

Table 2.

(continued)

Article name	Author	Journal	Publisher
28. Suppressing the financing of terrorism: Proliferating state crime, eroding censure and extending neo-colonialism	McCulloch and Pickering (2005)	British Journal of Criminology	Oxford University Press
29. Terrorist finance, money laundering and the rise and rise of mutual evaluation: a new paradigm for crime control?	Levi and Gilmore (2002)	Financing terrorism	Springer
30. Funding terror	Baradaran et al. (2013)	University of Pennsylvania Law Review	The University of Pennsylvania Law School
31. Even clubs can't do without legitimacy: Why the anti-money laundering blacklist was suspended	Hülsse (2008)	Regulation and Governance	Wiley
32. A new role for for-profit actors? The case of anti-money laundering and risk management	Bergström et al. (2011)	JCMS: Journal of Common Market Studies	Wiley
33. Global anti-money laundering standards and developing economies: The regulation of mobile money	Vlcek (2011)	Development Policy Review	Wiley
34. Involuntary public policy-making by for-profit professionals: European lawyers on anti-money laundering and terrorism financing	Helgesson and Mörth (2016)	JCMS: Journal of Common Market Studies	Wiley
35. The fight against terrorist financing	Clunan (2006)	Political Science Quarterly	ACAD Political Science
36. Securitizing money to counter terrorist finance: Some unintended consequences for developing economies	Vlcek (2015)	International Studies Perspectives	Oxford University Press
37. Combating terrorism by constraining charities? Charity and counter-terrorism legislation before and after 9/11	Bolleyer and Gauja (2017)	Public Administration	Wiley
38. Terrorism activity, investor sentiment, and stock returns	Drakos (2010)	Review of financial economics	Elsevier
39. The economics of terrorism	Intriligator (2010)	Economic Inquiry	Wiley
40. Psychological factors in terrorism and counterterrorism: Individual, group, and organizational levels of analysis	Kruglanski and Fishman (2009)	Social Issues and Policy Review	Blackwell Publishing

(continued)

Table 2.

Article name	Author	Journal	Publisher
41. A framework for analyzing the economic tradeoffs between urban commerce and security against terrorism	Rose et al. (2014).	Risk Analysis	Wiley
42. Different disciplinary perspectives on understanding and countering crucial aspects of terrorism: The quest for an integrated approach remains an ideal	Sloan (2010)	International Studies Review	Oxford
43. Detecting money laundering and terrorist financing via data mining	Zdanowicz (2004)	Communications of the ACM	Association for Computing Machinery
44. Money laundering and its regulation	Levi (2002)	The Annals of the American Academy of Political and Social Science	Sage Publishing

Table 2.

Z., Teoh, E. N., Nazir, A., Karuppiah, E. K. and Lam, K. S., entitled "Machine learning techniques for anti-money laundering (AML) solutions in suspicious transaction detection: a review," received 0 citations, suggesting that the studies on AML and ATF are relatively new and need more analysis among the researchers to gain a proper understanding of the subject and analyze it accordingly.

3.2 Journals' impact factor/quality distribution

Table 3 presents the number of articles followed by journals and impact factors provided by Scopus, ABDC, ABS, Scimago and the Web of Science. As indicated in the table, only 21 journals listed in Scopus received an impact factor greater than 1; the other four received lower scores, while 14 were not listed in Scopus. Of these 22 rated journals, eight are rated as "A category"; out of these, two received an impact factor less than 1, and one was not listed in Scopus. Five journals were under the "B category," with four of these listed in Scopus. Six out of the 44 were "C category." The rest were not listed in ABDC.

According to the ABS journal ranking, only six articles belong to category "3" (high rank), five journals fall under category "2," two are listed as "1" and the other 28 journals have not fulfilled the minimum criteria to get them ranked by ABS. Of these 44 journals, seven had not received any ranking in Scimago, 16 received an impact factor greater than 1 and 19 received an impact factor less than 1.

The last database is the Web of Science. The finding suggests that, among the 44 journals, only 34 journals are listed, and the remaining 12 are not listed by Web of Science. Among these, 15 are category "Q1" (highest rank), and 5 are category "Q2" (second highest). The rest are category "Q3," and only one under category "Q4" (lowest). The findings provide an interesting outcome on studies related to AML and ATF. Overall, two journals are listed in all the databases that have received a high impact factor, "Communications of the ACM" and "Journal of Economic Surveys." However, "Communications of the ACM" gets a higher number of citations and crossed the cut-off point of 50. Surprisingly, the journal "Financing terrorism" has not been evaluated by any database and yet received 105 citations, exceeding most of the other journals that have already been evaluated and ranked. The following journal in the ranking is "Information and Communications Technology Law," with 57

Article name	Type of paper/methodology
1. Do countries consistently engage in misinforming the international community about their efforts to combat money laundering? Evidence using Benford's Law	Empirical
2. Current developments in anti-money laundering laws	Technical paper
3. Power and discourse in policy diffusion: Anti-money laundering in developing states	Argument paper
4. The financial services authority and money laundering: A game of cat and mouse	Technical paper
5. Money laundering and globalization	Literature review
6. The EU legislative framework against money laundering and terrorist finance: a critical analysis in the light of evolving global standards	Technical paper
7. Turnover of organized crime and money laundering: some preliminary empirical findings	Empirical
8. A theory of "Crying Wolf": The economics of money laundering enforcement	Empirical
9. The economics of counterterrorism: A survey	Review
10. Terrorist use of the Internet by the numbers: Quantifying behaviors, patterns, and processes	Empirical
11. Malevolent creativity in terrorist organizations	Conceptual
12. Uncovering the dark web: A case study of Jihad on the web	Case study
13. Analysis of topologies and key players in terrorist networks	Empirical
14. Conceptual modeling and development of an intelligent agent-assisted decision support system for anti-money laundering	Conceptual
15. The tenuous relationship between the fight against money laundering and the disruption of criminal finance	Technical paper
16. The risk-based approach in the new European anti-money laundering legislation: A law and economics view	Theoretical paper
17. Financial inclusion: A challenge to the new paradigm of financial technology, regulatory technology and anti-money laundering law	Technical paper
18. Money laundering—a global obstacle	Technical paper
19. Money laundering control and suppression of financing of terrorism: Some thoughts on the impact of customer due diligence measures on financial exclusion	Literature review
20. Money laundering	Descriptive review
21. Machine learning techniques for anti-money laundering (AML) solutions in suspicious transaction detection: a review	Review
22. Using social network analysis to prevent money laundering	Empirical
23. New payment methods: A review of 2010–2012 FATF mutual evaluation reports	Technical paper
24. Virtual money laundering: the case of Bitcoin and the Linden dollar	Conceptual
25. Global financial governance and the developing anti-money laundering regime: What lessons for international political economy?	Technical paper
26. False and reluctant friends? National money laundering regulation, international compliance and non-cooperative countries	Empirical
27. Balancing financial threats and legal interests in money-laundering policy	Argument paper
28. Suppressing the financing of terrorism: Proliferating state crime, eroding censure and extending neo-colonialism	Technical paper
29. Terrorist finance, money laundering and the rise and rise of mutual evaluation: a new paradigm for crime control?	Technical paper
30. Funding terror	Empirical/technical Technical paper

(*continued*)

Table 3. Journal methodology used

Article name	Type of paper/methodology
31. Even clubs can't do without legitimacy: Why the anti-money laundering blacklist was suspended	
32. A new role for for-profit actors? The case of anti-money laundering and risk management	Comparative
33. Global anti-money laundering standards and developing economies: The regulation of mobile money	Literature review
34. Involuntary public policy-making by for-profit professionals: European lawyers on anti-money laundering and terrorism financing	Case study
35. The fight against terrorist financing	Argument paper
36. Securitizing money to counter terrorist finance: Some unintended consequences for developing economies	Argument paper
37. Combating terrorism by constraining charities? Charity and counter-terrorism legislation before and after 9/11	Comparative
38. Terrorism activity, investor sentiment, and stock returns	Empirical
39. The economics of terrorism	Conceptual
40. Psychological factors in terrorism and counterterrorism: Individual, group, and organizational levels of analysis	Technical paper
41. A framework for analyzing the economic tradeoffs between urban commerce and security against terrorism	Conceptual/theoretical
42. Different disciplinary perspectives on understanding and countering crucial aspects of terrorism: The quest for an integrated approach remains an ideal	Book review
43. Detecting money laundering and terrorist financing via data mining	Empirical
44. Money laundering and its regulation	Technical paper

Table 3.

citations. This outcome indicates that high-quality journals are not satisfied with the contributions provided by the current articles in the field.

3.3 Journal's type of paper/methodology

To obtain a better understanding of the heterogeneity of the studies reviewed, we analyzed the type of methodology and labeled the papers accordingly. From this exercise, it emerged that the studies can be divided into eight distinct categories. Most of the reviewed papers (44) are different types of qualitative studies. The vast majority of those (30) adopt different approaches such that 13 are technical, seven are review papers, four are arguments, four are conceptual, two are case studies, one is a comparative paper, one is theoretical and two are mixed methods. The remaining nine studies are quantitative in nature, adopting statistical methods (such as Benford's law, turnover, probability, comparative statics and data mining) or econometric approaches. It is worth mentioning that most of the data used in these papers were vague and lack proper interpretation, while other data were extracted from published annual or statistical reports available to the public. These data mostly do not represent the actual statistics of the amount of ML, nor do the actual funds go to terrorists, as most go undetected. This finding suggests that governments should provide research access to accurate and concrete data to properly analyze ML and terrorist financing, which would, in turn, provide the government with better ways to counter them. Table 3 below provides the type of methodology used in the reviewed papers. Additionally, Figure 3 shows the number of each type of methodology.

4. Content analysis distribution

As the majority of the papers were qualitative in nature, with almost a quarter adopting quantitative approaches, it is interesting to investigate the themes of such studies. To do so,

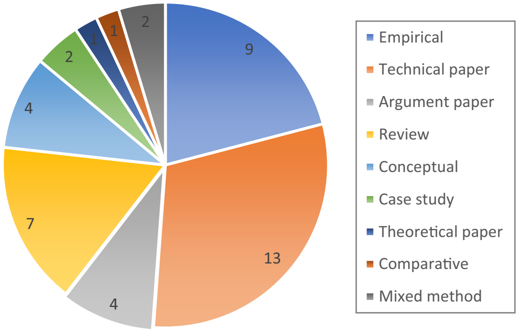

Figure 3.
Articles by type

we performed a content analysis of these studies and classified them under the following three categories based on the similarity of the themes shared by them, as listed below:

(1) research articles related to AML;

(2) research articles related to ATF; and

(3) research articles related to both AML and ATF.

As shown in Table 4, the 21 AML articles were classified under different categories such that 15 studies are related to regulations, two to criminology and the rest (four) fall in the trend category. Upon examining the objectives of each article, it is found that most of the 15 articles under the category of "regulations" aimed to either criticize, analyze or investigate the laws and procedures meant to counter ML. The general findings suggest that AML practices are far from effective and recommend that regulators and authorities be required to enhance and update their practices and laws. Among the 15 articles that presented recommendations, one article, "Even clubs can't do without legitimacy: Why the anti-money laundering blacklist was suspended," provides no recommendations. Moreover, two studies fall under the criminology category and have the objectives of examining the ML process and shedding light on its financial means, which fall under the category of organized crime groups. The findings of these two articles suggest the importance of cooperation between different actors to find a proper solution to fight ML and show how important organized crime turnover is. The articles come with the recommendation of providing an appropriate detection method and insist on conducting further research in this area. The remaining four articles fall under the trend category. The general objective of these articles is to provide a comprehensive way to measure and assist the AML system through technology and computational algorithms. Each paper supports the analyzed objective. The final recommendation of the four papers is to inject a technical analysis method to combat ML.

As shown below, there are 14 ATF articles. Among these, four falls under regulations, six under economics (one under financial economics and another under socioeconomics), two under trends and the last two fall under criminology. Articles in the regulations category were published with the objectives of studying how to counter terrorism and its related factors and to examine the efficiency of the financial laws. The findings of these papers suggest the ineffectiveness of some financial laws and the need for cooperation from different countries and financial entities. In terms of recommendations, the two articles on regulations recommended conducting more research to study the ATF legislative framework and the necessity of enforcing international regulations. No recommendations were made in the

Table 4.
Journals' category based on the subject

(AML) Study	Objectives	Findings	Recommendations	Category
1.Balancing financial threats and legal interests in money-laundering policy	To criticize the finding of the existing literature about the fight against ML To present an argument on how the proceeds of crime should not remain in the possession of the malefactors	The global and political arguments about the effectiveness of AML practices are not effective	The current guidelines for AML requirements should be updated from time to time to enhance the effectiveness of the process	Regulations
2.A new role for for-profit actors? The case of anti-money laundering and risk management	Analyzing the third EU AML instructions and means of risk management in terms of democratic accountability	Upon comparing the UK and Swedish risk-based decision processes, the results show that the procedures used could endanger the traditional liberal understanding of democratic accountability	Further research should examine the link between ML and terrorism, as the securitization of AML measures has shifted an accountability burden from the public actors to the private actors who will take the blame for suspicious money transactions that could be linked to terrorist attacks	Regulations
3.A theory of "Crying Wolf": The economics of money laundering enforcement	Investigating how redundant reporting can lower the information value of reports	The available empirical evidence is shown to be consistent with the model's predictions The model can be used to further analyze the role of disclosure in corporate finance	Enhanced policy measures have been suggested using the model (decreasing fines, introducing report fees)	Regulations

(*continued*)

(AML) Study	Objectives	Findings	Recommendations	Category
4.Do countries consistently engage in misinforming the international community about their efforts to combat money laundering? Evidence using Benford's Law.	To use forensic analysis on a set of compliance indicators and to detect any anomalous statistical patterns using Benford's law	Although some countries misinformed the international community regarding their effort in fighting ML, their actions could be an unintended consequence of the international community's pressure to put fighting ML at the top of their national agendas	Applying Benford's law to future statistics might be beneficial in detecting potential suspicious report manipulation	Regulations
5.Even clubs can't do without legitimacy: Why the anti-money laundering blacklist was suspended	To investigate international organizations' efforts to secure compliance with their rules	Compulsion is not a "sustainable" mode of governance	The author did not present any recommendations	Regulations
6.False and reluctant friends? National money laundering regulation, international compliance and noncooperative countries	To empirically test the theoretical relationship of the noncooperative countries and territories (NCCT) in ML and terrorist financing	To reduce the global risks of terrorism and organized crime: A pure "name and shame" approach may prove counterproductive. Moreover, the actual effect of blacklisting is to increase the expected national benefits rather than improve international political enforcement	Lax financial regulation (LFR) countries must not be excluded from the FATF monitoring action	Regulations
7.The financial services authority and money laundering: A game of cat and mouse	To critically assess the effectiveness of the financial services agency (FSA) measures to reduce the extent of ML	Given the large number of sources available to criminals to launder their illicit revenue, the effectiveness of the legal objective will always be questioned	Serious organized crime agencies must build upon the recommendations made by the Lander review and, through its new powers, attempt to rebuild confidence in the suspicious activity reports regime	Regulations

(continued)

Table 4.

Table 4.

(AML) Study	Objectives	Findings	Recommendations	Category
8.Global financial governance and the developing anti-money laundering regime: what lessons for international political economy?	To analyze the political, institutional and regulatory evolution of the AML regime	Political and public policy considerations have interfered with financial governance arrangements	Public issues such as drug trafficking, corruption and terrorism should be addressed	Regulations
9.Money laundering and its regulation	To examine definitions of ML and the conceptual and actual role its regulation plays in dealing with drug markets	Detected cases of ML involves the same out-of-place judgments. However, the impact of AML efforts on enforcement resources, organized crime markets or drug consumption levels remains modestly understood	Following illicit money needs to be pursued more seriously with more resources	Regulations
10.Power and discourse in policy diffusion: Anti-money laundering in developing states	To explain the international spread of AML policies and to argue about the process of diffusion in the developing world	The process of diffusion is derived by power and does not reflect rational learning	Researchers who intend to study diffusion should be aware of the effects of compulsion. For international relations, it should be possible to advance power-based explanations that are outside the rationalist and materialist frames	Regulations
11.The risk-based approach in the new European anti-money laundering legislation: A law and economics view	To analyze AML measures using the principle agent framework when a risk-based approach is applied	The existence of asymmetric information upon designing of AML regulation that is consistent with the RBA depends on FIs' participation, quality of the supervision and the cost of supervision	National authorities have to separate the relative maliciousness of different predicate offenses. Additionally, it should be better to have a list of the predicate offenses, depending on their relative social costs	Regulations

(*continued*)

(AML) Study	Objectives	Findings	Recommendations	Category
12.The tenuous relationship between the fight against money laundering and the disruption of criminal finance	To examine the fight against ML as a case study of the separation between an enforcement system's objectives and performance	Combating ML seems to deliver less than what it promises	To force some changes in substantive criminal statutes and regulatory policy to improve the system	Regulations
13.Money laundering—a global obstacle	To examine the ML process	Cooperation between regulatory and law enforcement agencies and the public and private sector across borders is necessary to find an extensive integrated solution	The impact of ML is still varied, and an accurate methodology to detect and measure ML needs to be developed	Criminology
14.Turnover of organized crime and money laundering: some preliminary empirical findings	To shed some light on the size and development of the financial means of the organized crime	The resulting figures are very preliminary, with a large percentage of error. However, the paper gives a clear picture of the importance of organized crime turnover	To take the current empirical information and do further research	Criminology
15.Machine learning techniques for anti-money laundering (AML) solutions in suspicious transaction detection: a review	To provide a comprehensive survey of machine learning algorithms and methods applied to detect suspicious transactions	Current methods and algorithms in the literature have placed little emphasis on data quality	Reinforced learning is needed, and training should be considered	Trends
16.Conceptual modeling and development of an intelligent agent-assisted decision support system for anti-money laundering	To formulate an AML conceptual model	Conceptual modeling and development of an intelligent agent-assisted decision support system for AML	The model is able to provide more adaptive, intelligent and flexible solutions for AML.	Trends

(*continued*)

Table 4.

Table 4.

(AML) Study	Objectives	Findings	Recommendations	Category
17.Virtual money laundering: the case of Bitcoin and the Linden dollar	To present an analysis of the ML risks of two virtual currencies	Although these cryptocurrencies present an advantage for laundering money, they are unsuitable to laundering on a large scale	To incorporate the Linden dollar and Bitcoin within the AML scope	Trends
18.Using social network analysis to prevent money laundering	To explore the opportunities for the application of network analytic techniques to prevent ML	Risk profiles can be predicted by using social network metrics	To study structural holes and network centrality to identify clients at a higher risk of fraud. Additionally, the contributed metrics should be combined with other tools to allow for rapid detection of suspicious nodes with the final aim of preventing ML	Trends
19.Current developments in anti-money laundering laws	To give a focused discussion of the ML and terrorist financing provision act	Many of the relevant developments with respect to legal implementation are still evolving	To finalize the implementation of regulations that might be different from the descriptions of the proposed regulations	Regulations
20.Money laundering and globalization	To trace the different imperatives generated by the combination of ML events and the advent of globalization	Globalization has hastened international cooperation in criminal justice	The FATF must show greater transparency and accountability. Moreover, the current AML regime should be required to use a global regulatory impact assessment to show its true costs and benefits	Regulations

(*continued*)

(AML) Study	Objectives	Findings	Recommendations	Category
21.Money laundering	To examine ML regimes and review the gaps in the current research papers	How well the system works in suppressing crimes and preventing terrorist acts is entirely a matter of speculation. No published papers provided an empirical assessment	To research the set of obligations on businesses to assist in law enforcement to help in crime reduction	Regulations
22.Combating terrorism by constraining charities? Charity and counter-terrorism legislation before and after 9/11	To address the method of countering terrorism by constraining charities	The day-to-day activities of charities are most likely to be affected	To study the legislative framework and how it is implemented and interpreted by government authorities and to study how charities respond to new legal realities	Regulations
23.A framework for analyzing the economic tradeoffs between urban commerce and security against terrorism	To present a framework for an economic consequence analysis of counterterrorism measures	The spillover impact can vary significantly across countermeasures. Additionally, the spillover effects are significant but smaller than the macroeconomic consequences of the stimulated attacks	To use the spreadsheet program in emergency management practices	Economics
24.Funding terror	To examine the efficiency of the financial laws that prohibit the formation of shell companies and monitor suspicious bank transfers	International laws requiring customer identification to form shell companies are not effective	To enforce international regulations and to work more closely with the private sector to suppress terrorism financing	Regulations
25.Malevolent creativity in terrorist organizations	To present a conceptual framework to simplify the complex nature and multiple drivers of creativity and innovation within terrorist organizations	The model is capable of assessing a terrorist organization's capability of creatively formulating new ideas and technologies that may later become a terrorist innovation	To benefit from the theoretical framework in practically countering terrorism	Trends

(continued)

Table 4.

Table 4.

(AML) Study	Objectives	Findings	Recommendations	Category
26.Psychological factors in terrorism and counterterrorism: Individual, group, and organizational levels of analysis (criminology)	To investigate and analyze the psychological factors involved in terrorism and counterterrorism on individual, group and organizational levels	Psychological factors play an important role in countering terrorism at all its relevant levels of analysis	To be aware of the tradeoffs and paradoxes and how they may playout in countering any case of terrorism	Behavioral and social sciences
27.Suppressing the financing of terrorism: Proliferating state crime, eroding censure and extending neo-colonialism	To set out the nature and impact of some of the ATF measures post-9/11 and to pinpoint a case study of alternative remittance banking systems	The financial regulations are directed to activities outside the corporate level of capital investment and is aimed at targeting nonprofit organizations, charities and solidarity groups and communities and individuals popularly stereotyped as terrorists	Authors did not preset any obvious recommendations	Regulations
28.Securitizing money to counter terrorist finance: Some unintended consequences for developing economies	To argue that national and international measures against terrorist finance frames the securitization of money	Constraining legitimate financial transactions in pursuing the minority of illicit transactions, though securitizing money may not be the most accurate means of dealing with terrorist attacks	By labeling money as the fundamental component of an existing threat, it was possible to vindicate unusual measures to observe financial transactions	Economics
29.Terrorism activity, investor sentiment, and stock returns	To explore if terrorism exerts a significant negative impact on daily stock market returns	Terrorist activity leads to significantly lower returns on the day a terrorist attack occurs	Authors did not preset any obvious recommendations	Financial Economics

(*continued*)

(AML) Study	Objectives	Findings	Recommendations	Category
30.Terrorist use of the Internet by the numbers: Quantifying behaviors, patterns, and processes (criminology)	To investigate how terrorists use the internet to commit crimes	The results suggest that extreme-right-wing individuals were significantly more likely to learn and communicate online	Cooperation between different entities should be reframed as a fight against opportunities for violence rather than as a fight against expressions of radical ideas and thoughts	Behavioral and social sciences
31.The economics of terrorism	To understand terrorism as an economic phenomenon and control it	The world is not safe	New anti-terrorism initiatives have to be undertaken to prevent terrorists from using weapons of mass destruction	Economics
32.The fight against terrorist financing	This paper addresses the complexity of TF and discusses the several factors that interact within this topic	TF is complex and requires cooperation from different countries and financial institutions	There was no illustration of any recommendations	Regulations
33.Uncovering the dark web: A case study of Jihad on the web	To develop a novel methodological approach to collect and analyze dark web information	The suggested methodology is useful and has a high potential to assist in different aspects of legal investigations	To develop enhanced techniques to collect large volume dark web contents	Trends
34.The economics of counterterrorism: A survey	To review the existing theoretical and empirical contributions on the previously proposed anti-terrorism economic strategies	The findings suggest that the strategies that involve influencing the benefits of terrorism do not usually stop terrorism but rather encourage alternative and innovation effects	• To explore the interactions between terrorism and anti-terrorism acts • To identify the determinants of the responsiveness of terrorists to the pro and con incentives set by anti-terrorism • To identify the factors that contribute to the extremist parts of a country's population and their support of terrorism	Economics

(*continued*)

Table 4.

Table 4.

(AML) Study	Objectives	Findings	Recommendations	Category
35.Analysis of topologies and key players in terrorist networks	To examine the basic ideological stream of terrorism in history, classify it and characterize it	The ideological differences between terrorist groups explain the differences in the structural links between the main players	Authors did not preset any obvious recommendations	
Socioeconomics	36. Different disciplinary perspectives on understanding and countering crucial aspects of terrorism: The quest for an integrated approach remains an ideal	To understand the multidimensional aspects of a subject that has been both emotionally and intellectually demanding in recent and contemporary times	The application of theory in different environments may be questionable when viewed through the prism of an individual's society with their own perceptions and values. The challenge is not new but particularly demanding in understanding the often covert and clandestine word of terrorism	Targeting terrorism finances should be required reading for all those interested in
understanding one of the most crucial aspects of modern terrorism	Criminology			
37.The EU legislative framework against money laundering and terrorist finance: a critical analysis in the light of evolving global standards	To examine the evolution of the EU AML legislative framework	The FATF standards are not fully implemented	A continuous effort in the EU to align the framework to adopt to the FATF standards is needed	Regulations
38.Detecting money laundering and terrorist financing via data mining	To detect ML through analyzing and evaluating the 2001 US import and export transactions data produced by the US Department of Commerce and Bureau of Census and contained in the	The author has estimated the amount of money transferred to Al Qaeda watchlist countries	To use this analysis in real time to determine which transactions should be audited and which cargo shipments should be inspected. The use of data mining can contribute to	Trends

(*continued*)

(AML) Study	Objectives	Findings	Recommendations	Category
	US Merchandise trade database		increasing the quality of intelligence information	
39.Financial inclusion: A challenge to the new paradigm of financial technology, regulatory technology and anti-money laundering law	To evaluate the claim that FinTech has the ability to revolutionize financial inclusion and to examine whether regulatory technology (RegTech) can be used by regulators for tracking and monitoring AML and countering financial terrorism (CFT) compliance activities	The author finds that there is no real evidence of whether FinTech enables the revolution of financial inclusion. Moreover, AML/CFT laws might push SMEs to borrow from the unregulated underground economy	Financial inclusion requires a holistic and comprehensive treatment of the problem by the regulator, financial institutions policymakers and other stakeholders who can appreciate and will respect that financial inclusion is a form of civil rights	Regulations
40.Involuntary public policy-making by for-profit professionals: European lawyers on anti-money laundering and terrorism financing	To analyze how for-profit professionals are forced into public policymaking	The authors illustrate that their findings provide a first step in understanding the new role of for-profit professionals as involuntary public policymakers and its possible effects	The authors encourage more research to enable theory development on how for-profit professionals follow rules and demands by the state while simultaneously attending to their own rules and demands within the profession	Regulations
41.Money laundering control and suppression of financing of terrorism: Some thoughts on the impact of customer due diligence measures on financial exclusion	The purpose of this paper is to explore the relationship between AML and combating the financing of terrorism CDD measures in the financial services industry and exclusion from financial services	Countries should consider the impact that CDD requirements, which may have an impact on financial exclusion, when they design their AML/CFT systems	Multidisciplinary research is required to improve the understanding of the broader interaction between AML/CFT objectives, financial exclusion and economic development, especially in countries with a large informal economy. Moreover, this matter should be considered from an economic	Regulations

(*continued*)

Table 4.

Table 4.

(AML) Study	Objectives	Findings	Recommendations	Category
			and law enforcement perspective, both nationally and internationally	
42.New payment methods: A review of 2010–2012 FATF mutual evaluation reports	To provide an improved understanding of the ML and terrorism financing risk environment	The author concluded with a three-pronged evidence-based AML/CTF approach, with the aim of helping governments and key stakeholders improve knowledge of the nature and dimensions of the problem and of suitable risk management and mitigation strategies that would enable scarce resources in fighting ML and terrorism financing threats to be more effectively allocated and, hence, make the most impact	There is a need to engage and encourage cooperation between FATF member and nonmember countries to reduce the global risk of ML and terrorism financing	Regulations
43. Terrorist finance, money laundering and the rise and rise of mutual evaluation: a new paradigm for crime control?	To describe the rise of mutual evaluation and to stress on the significance of this act	Though we doubt that those areas in which mutual evaluation has been firmly established will be reigned back, newer international conventions and other instruments outside the EU and applicant countries' framework may find it more difficult to get countries to agree to be monitored	The FATF will have put in place a process to identify non-cooperative jurisdictions in this sphere and compel 43 improvements	Regulations
				Regulation

(*continued*)

(AML) Study	Objectives	Findings	Recommendations	Category
44. Global anti-money laundering standards and developing economies: The regulation of mobile money	To discusses the confluence of international initiatives to counter ML and terrorist finance with migrant remittances and the growing use of mobile telephone technology for more than making a call	The experience of Kenya and the Philippines with regulating m-money should be closely assessed by other developing economies when considering the introduction of similar systems to advance financial inclusion and ease money transfers among the unbanked	It is encouraged to implement an m-money services by recognizing the development and social-welfare opportunities offered by the technology in the context of a developing economy	

Table 4.

remaining two articles. The objectives of the other six articles in the economics category show that research revolved around studying the concept of ATF and reviewing some existing literature on the subject. Most of the articles made significant findings regarding the researched objectives. While two articles did not present any recommendations, the remaining four articles agreed on the importance of undertaking new ATF procedures.

Finally, six articles discussed both AML and ATF. Thus, five articles fall under the regulations category and aimed to examine the legislative framework of AML and ATF, evaluating the regulatory technology used and analyzing the relationship between AML and ATF and its related customer due diligence (CDD). The finding finalized that some international standards are not fully implemented, and there is no evidence showing that regulatory technology is effective. The common recommendation of these articles is that more research is needed, and cooperation among different countries is required.

To summarize, Table 4 presents the breakdown of the reviewed papers based on their subjects. From the table, we can conclude that the existing literature on AML and ATF has placed a great deal of emphasis on examining both ML and terrorist financing laws, typologies, FATF standards and recommendations, detection methods and other regulatory measurements. A total of 21 studies (approximately 49 per cent) focus on AML. In total, 15 reviewed articles (approximately 35 per cent) focus on ATF. The remaining eight articles (approximately 16 per cent) discuss AML and ATF. Therefore, there is a greater number of studies focused on a certain theme that may fail to give new insights over a period of time. The content of these papers is discussed in detail in the table above. However, there is a lack of quality studies on the subject as a whole. First, the authors did not present recommendations in some of the listed articles. Second, the results were vague and lack proper interpretation. Finally, the conclusions did not adequately tie information together. This result probably better explains the reason why so many articles are published in relatively high-quality databases. Therefore, it is very important call for future research on AML and ATF so that more novel studies are performed to enhance different dimensions of AML and ATF related to current FATF recommendations, risk mitigation, safeguarding mechanisms and regulatory technologies that can analyze and detect ML/TF.

5. Future research agenda on anti-money laundering and anti-terrorism financing

This paper uses a systematic literature review to provide a review of research conducted on AML and ATF. Peer-reviewed articles from high-ranking journals with 50 or more citations from 2002 to 2018 were considered for the detailed citation and content analysis. The citation-based analysis suggests that there has been an increase in research related to AML and ATF after the events of September 11. However, after examining the content of the selected articles, it was found that the majority of the studies lack quality and concrete empirical analyses to properly analyze AML and ATF. The current state of the academic research also suffers from the absence of information and data about AML and ATF, as most of the related data and statistics are considered confidential. Therefore, this paper tries to further explore the scope of possible future research on AML and ATF. For example:

- more focused studies on detecting schemes using machine learning are needed;
- using an artificial intelligence system to identify potential ML/TF accounts;
- examining alternative remittance systems, their risks and how to properly control them;

- study of predicate offense typologies; and
- examining pyramid marketing and its role in AML and ATF and the lack of laws in some countries to criminalize it (comparison between Sharia and law).

The paper contributes significantly to scholars and professional practitioners by providing insights through a detailed systematic review of the existing research studies on AML and ATF. First, the paper provides a comprehensive and detailed description of the available literature on the subject. Then, the paper describes the nature of the available studies and clearly discusses the gaps in the literature. Finally, the paper points out the directions for future research that may enable impactful studies on AML and ATF to be published in top-tier journals. To the best of our knowledge, this study is the first to make a detailed review of what has been studied so far in AML and ATF and to identify scope for further research work.

This review has several implications. First, the paper reveals that there are gaps in both regulations and legislative laws and the technology used by countries to fight ML and terrorist financing. Second, the paper clearly shows the need for cooperation among different parties and entities in the war against ML/terrorist financing. Third, one purpose of this study was to more deeply examine the phenomenon of ML/terrorist financing, which remains relatively underexplored in different dimensional contexts. Finally, we provide the elements to initiate more quality research on AML and ATF. The issues discussed in the suggested research agenda could help to provide more sophisticated elements to fight ML and terrorist financing, which would be useful to authorities, policymakers and regulators who define requirements, technologies, and laws. The limitations of this paper are that it has not considered studies with fewer than 50 citations, and the findings may change if one includes all the studies irrespective of the number of citations. Moreover, the paper may ignore a few recent and important studies.

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