


Estimating reliability of scale development in money mule risk assessment among financial crime compliance officers



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ABSTRACT

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The threat of money mule syndicate continues to undermine the stability of financial system. Over the years, money mule syndicate has helped to launder ill-gotten funds by colluding as intermediary. The defense of financial system from ensuing money mule problem lies in the responsibility of financial crime compliance officers. Submission of Suspicious Activity Report (SAR) by these officers helps in combatting money mule phenomenon at the enforcement level. Hence, the building of money mule risk assessment among financial crime compliance officers is unequivocally critical. This paper presents the estimation of reliability of instrument developed to measure the novel money mule risk assessment based on Judgment and Decision Making (JDM) theory. Professional self-awareness, task complexity and AML software astuteness are the constructs influencing financial crime compliance officers' risk assessment in money mule investigation at bank's level. An instrument with 118 items was developed and disseminated digitally for pilot test. The distribution of instrument targeted financial crime compliance officers working for financial institutions in Malaysia. A total of 31 respondents from commercial banks in Malaysia participated in the pilot test. The four constructs score Cronbach's values above 0.80 which show good and satisfactory reliability for the next phase of data collection.

Contribution/ Originality: This study is a quantitative survey research which intends to assess the JDM competencies of financial crime compliance officers. The primary scope of this study concentrates on introducing the money mule risk assessment which has not been explored, especially in reporting suspicious money mule activity to Financial Intelligence Unit (FIU).

1. INTRODUCTION

Money mule phenomenon has become a menacing threat to the society, with millions of dollars have been reported lost to the laundering syndicate. The money mules are being abused to cleanse dirty money obtained from cornucopia criminal activities such as fraud, Macau scam and cyber-attacks. Amid various trends of financial crime identified by Malaysian Central Bank in 2020, money mule syndicate stood as the most important high-risk money laundering threat to Malaysia (National Risk Assessment, 2020). The money mule phenomenon is predicted to stay as a high-risk financial crime threat in Malaysia for the next three years (Bernama, 2022). The estimation is proven

to brew significant truth when 29,769 Malaysian bank accounts were found to be mule accounts in 2021 (Yong, 2022).

Money mule is defined as an individual who allows personal account to be abused for laundering of criminal proceeds, ostensibly derived from scams, fraud, cyber-attacks and other forms of illegal activities (Esoimeme, 2021; Raza, Zhan, & Rubab, 2020). The money mules facilitate financial crime activities by aiding the criminals to move funds from victim to several other layers of money mule accounts, as illustrated in Figure 1. The action by money mules is an outright criminal collusion to dissemble the money trail, stumbling investigation process by enforcement agency and authority (Loggen & Leukfeldt, 2022; Rani, Zolkafil & Nazri, 2023). Investigator will be left in flummoxing situation as the money mule layering achieves the scheme of distancing the space between the provenance and the beneficiary of the criminal proceeds (Irwin, Slay, Choo, & Lui, 2014). Although the anonymity of perpetrating criminal remains uncovered, money mules can still be arrested and prosecuted under Penal Code 424 (Abd Rahman, 2020) or Section 29(1) of the Minor Offences Act 1955 (Jayamanogaran, 2020).

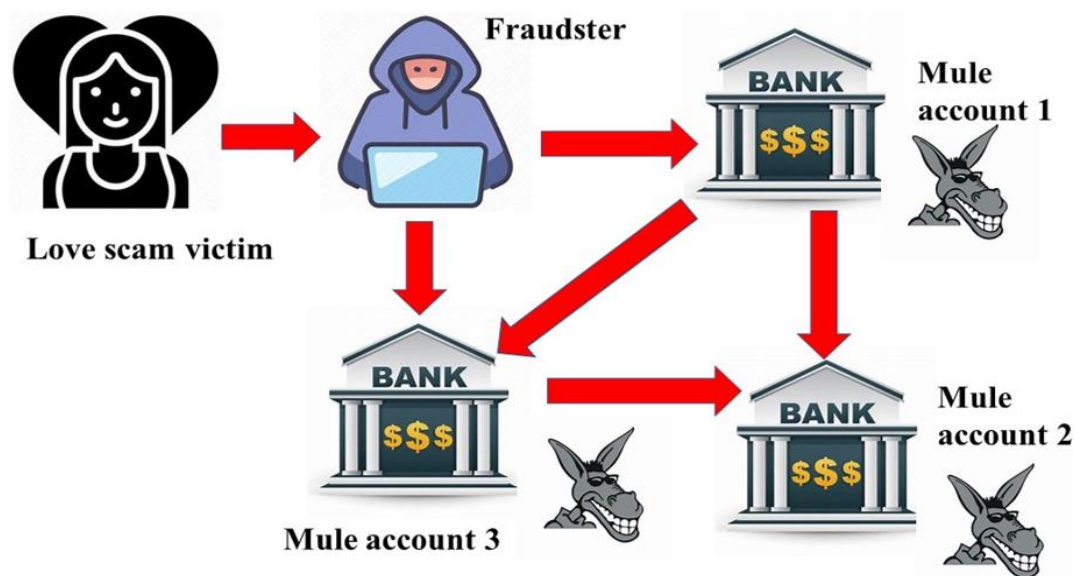


Figure 1. The layering of stolen funds using money mules.

Banks and financial institutions are responsible in monitoring their accounts and raise suspicious activity report (SAR) to the respective jurisdiction's Financial Intelligence Unit (FIU) (Chaikin, 2009; Dalla Pellegrina, Di Maio, Masciandaro, & Saraceno, 2020; Hall, 1995). The SARs provide intelligence to enforcement agency in the investigation of criminal activity, leading to crime mitigation and prosecution of the culprits (Axelrod, 2017; Rani et al., 2023; Viritha, Mariappan, & Haq, 2015). Underneath the obligation, SAR filing produces investigation outcome by financial crime compliance officers employed by the banks which are responsible in monitoring the suspicious account and execute the post-SAR mitigation plan (Gao & Xu, 2009). The stage of SAR filing consists of 3 main procedures; collecting the profile or KYC (Know-Your-Customer) information, the capture of suspicious transactions and analysis of the suspicious activity. The 3 procedures involved in the process of SAR filing are equally emphasized in the money mule risk assessment when performing money mule investigation (Rani, Zolkafil, & Nazri, 2022a). Hence, this study focuses on the factors that influence the effectiveness of money mule risk assessment among financial crime compliance officers.

2. JUDGMENT AND DECISION MAKING

The decision making and judgment is a critical foundation in any financial management, especially across all divisions of bank and corporate institutions. Judgment and decision making (JDM) is conceptually defined as a

deliberate choice of action undertaken by the decision maker with goal to have a maximally intended outcome (Hastie & Pennington, 1995). The JDM as a whole incorporates the elements of value (preference or desire) and belief (judgment or perception) to produce the most accurate and appropriate result. Similar concept of JDM is elaborately discussed by Fischhoff and Broomell (2020) in which the three basic elements of JDM are identified to be (i) judgment accuracy, (ii) outcome prediction based on close possible options, (iii) combination of judgment and preferences to make decision. The application of three basic elements in decision making is largely depended on decision maker's belief and knowledge. Accuracy, preference, quality and little form of heuristic pervade the conceptual introduction and definition of JDM.

The early phase of JDM focused on descriptive research of analytical cognition on task information (Hammond, 1988) and Bayesian task based on probability (Slovic & Lichtenstein, 1971). The dichotomous JDM researches did not further dive into individual factors of JDM process. This is in contrast to JDM in accounting which emphasizes the measurement of individual's performance, on top of the decision-making quality. The architecture of JDM in accounting which assesses the performance must look at the variables that affect it; person, task and environment (S.E. Bonner, 1999). The interactions between these three factors do not occur in isolation, but work in synergy to produce decision that is high in quality and to correct any deficiency in the accounting JDM (Nelson & Tan, 2005). Therefore, JDM theory that abides the constitution of person, task and environment would be very useful in delivering the improvement of accounting JDM performance among accounting professionals.

Judgment and decision making (JDM) has significantly received a wide currency from scholarly perspective. The JDM theory has been thoroughly studied in accounting science research such as on auditors (Dos Santos & Da Cunha, 2021; Fitri & Sawarjuwono, 2020; Ghani, Respati, Darsono, & Yusoff, 2019; Henrizi, Himmelsbach, & Hunziker, 2020; Ichsan & Diantimala, 2016; Iskandar & Sanusi, 2011; Johari, Mohd-Sanusi, & Chong, 2017; Mohd-Nassir, Mohd Sanusi, Ghani, & Prabowo, 2016; Razali, 2020) accounting students (Cahyaningrum & Utami, 2015; Krastev & Lueg, 2016) and bank officers (Mohd-Sanusi, Mat-Isa, Ahmad-Bakhtiar, Mat-Jusoh, & Tarjo, 2022). Different constructs of person, task and environment applied in multitude settings were examined with the purpose of improving decision making performance. However, no prior JDM study has been developed on financial crime compliance officers. Therefore, this study will examine the influence of person, task and environment of money mule risk assessment among financial crime compliance officers.

3. CONSTRUCTS OF JDM IN MONEY MULE RISK ASSESSMENT

Professionalism is the display of knowledge, skills and most importantly a set of acceptable work etiquette expected from the incumbent of a profession (Evans, 2008; Evetts, 2013; Fournier, 1999). It is developed from the sense of being responsible and having accountability on the given job. It is argued that professional labor is expected to exercise a significant level of autonomy, a criterion which has already been inscribed as professional competence at workplace (Fournier, 1999). Aligned with Duval and Wicklund (1972) objective self-awareness theory, self-awareness is a set of traits which the employees should have in accordance to the expected standards, and constantly being conscious to embrace the right behavior independently (Coburn & Canfield, 1993).

The concept of professional self-awareness is introduced from the knowledge of professionalism. It is defined as reflection of self-conscience on accomplishment of job responsibilities, including job tasks (Anzalone, 2000). According to Papanikitas (2017) professional self-awareness extends the qualities of recognizing, appreciating and reconciling difficulties or conflicts at workplace. The approach of professional self-awareness is through reflection of goals, beliefs, values and intellectual condition. The four elements appraise the orientation of a person's professionalism consciousness towards work ethics and conduct.

Task characteristics that tend to complicate decision making including voluminous cues and their disorderly intercorrelations affect the quality of judgment (Karelaia & Hogarth, 2008). This is relatable to task complexity in accounting, which is heavily influenced by task difficulty and task structure (Bonner, 1994). It impacts the judgment

performance verily, depending on the level of clarity and information required to complete the task. In money mule investigation, the task complexity of money mule risk assessment focuses on anti-money laundering (AML) alert validation which is generated by AML detection engine (Chan, 2016) KYC update (Adetunji, 2019) transaction and data analysis (Chang, Tsai, Shih, & Hwang, 2008; Dilla & Raschke, 2015) SAR drafting (Naheem, 2017). These are the compositions of task structure which influence various degree of difficulty in assessing money mule risk.

Automated rules-based monitoring detection tool is important for banks in fulfilling their role as reporting institution as promulgated in the national anti-money laundering framework and address the AML compliance problem (Naheem, 2019; Scott & McGoldrick, 2018). Several AML detection engines such as SAS® AML program, Oracle, Tata Consultancy Services Banking Software (TCS BaNCS) AML program were invented according to the common typologies and AML rule-based detection scenarios, including sudden large account turnover, irregular Automated Teller Machine (ATM) withdrawals, smurfing, cash deposit structuring and multiple bank transfers (Chen et al., 2018). Meanwhile AML case management software which serves its primary purpose of managing case management work, including data reporting, data reporting and case routing to Money Laundering Reporting Officer (MLRO)/Chief Compliance Officer for approval is purchased by banks to accommodate the case investigation process (Ai & Tang, 2011). AML case management allows the SARs to be checked internally in the Financial Crime Compliance (FCC) unit between its officers and MLRO, before being sent to FIU (Naheem, 2019). Both AML software packages are inevitably important and thus astuteness on both systems is indispensable.

Table 1. Case studies and respective red flags incorporation.

No	Case study	Money mule red flags
1.	Case 1	<ul style="list-style-type: none"> • Age • Annual income • Job • Nationality • Address
2.	Case 2	<ul style="list-style-type: none"> • Dormant account resuscitated after wire transfer • Inexplicable connection between wire transfer originator and money mule account holder • Fictional narrative on the incoming wire transfer • Small ATM cash withdrawals or small outward interbank fund transfers/DuitNow to third parties or second tier money mules • Outward wire transfer to high-risk country with cybercrime • The transferred funds were recalled by originating bank under suspicion of scam/fraud through swift
3.	Case 3	<ul style="list-style-type: none"> • Rapid fund movement • Low account balance • Escalation by payment processing center/ Internal escalation from branch on attempt to make large cash withdrawal without proof • Complaint on money account holder lodged by victim via contact centre of email/ Police report received by the bank on possible money mule scam • Semak mule positive match on counterparties/ Beneficiaries
4.	Case 4	<ul style="list-style-type: none"> • Unable to produce supporting document in Request for Information (RFI)/no RFI response • Forged documents provided by money mule account holder to justify account transactions • Purchase of virtual currency using fraudulent wire transfer/fraudulent interbank fund transfer • Adverse news on account holder • Legal/Freezing/Production order

Money laundering risk assessment is crucial in improving the management of financial crime risk detection and improvement of sound AML control (The Wolfsberg Group, 2015). Several past studies have addressed the

importance of money laundering risk assessment within the banking and financial sectors, targeting the AML risk processes (Isa, Sanusi, Haniff, & Barnes, 2015; Naheem, 2019). The input from these papers has helped to introduce the money mule risk assessment, which is defined as assessment of factors or risks on cases which have ground for money mule suspicion (Rani et al., 2022a). The assessment of money mule risks on accounts with potential money mule activities is performed on the identified money mule red flags, which are demonstrated in the KYC information and account transactions via transaction monitoring (Rani, Zolkafil, & Nazri, 2022b). Four Vignette case studies are developed to examine the money mule risk assessment, which is reflected in Table 1.

Based on the JDM theory in accounting that emphasizes the elements of person, task, environment, a framework is proposed based on professional self-awareness, task complexity and AML software astuteness on money mule risk assessment. The hypotheses drawn from this framework are:

H1: Professional self-awareness positively influences money mule risk assessment.

H2: Task complexity negatively influences money mule risk assessment.

H3: AML software astuteness positively influences money mule risk assessment.

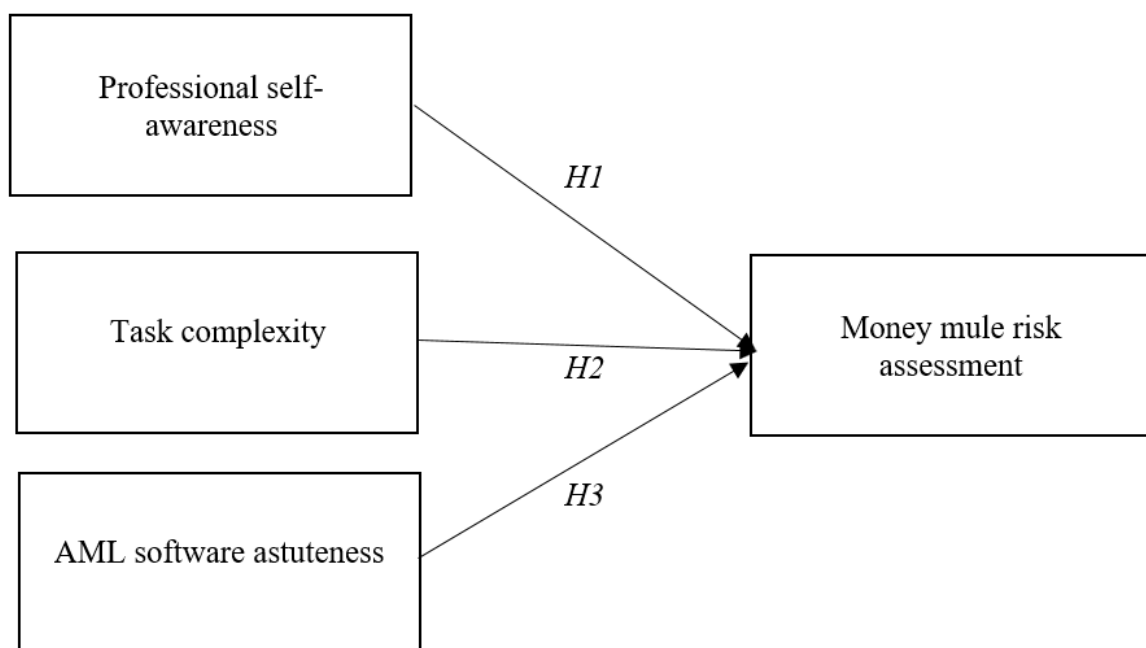


Figure 2. Proposed money mule risk assessment framework.

4. METHODOLOGY

A questionnaire was developed for this study which contains 118 items. The instrument validity began with expert appraisal and review. The main purpose of questionnaire review is to identify any mishap or deficiency in the instrument developed for the research (Ikart, 2019; Olson, 2010). It is indispensable for researcher to produce instrument that uses clear, transparent language and adjust to the other inputs given by the reviewers. The concerns highlighted by the reviewers should be addressed by the researcher before embarking on full data collection. For the instrument appraisal, two academicians from the affiliated university and two AML practitioners were approached for their feedbacks. The dual-pronged appraisals from perspective of academicians and practitioners are meant to ensure the instrument measures the intended constructs of the study (Malhotra, Agarwal, & Peterson, 1996).

According to Johanson and Brooks (2010) pilot study requires more than 30 respondents to produce a recognized output. 31 responses were collected for the pilot study of this research. The instrument was distributed using professional job-hunting social media LinkedIn and CONG (Compliance Officer's Networking Group) contact. Since money mule risk assessment and SAR filing are exclusively delegated to financial crime compliance

officers, the study had to recruit the same category of respondents intended for the actual research. This is to evade response bias if the pilot study is conducted on respondents without experience in money mule investigation and SAR submission. The questionnaire uses seven Likert-type scale which is relatively more reliable, and allows a broader range of selection to respondents (Krosnick & Presser, 2010; Matell & Jacoby, 1971).

5. RESULTS

The demographic profile of pilot study respondents is shown in Table 2. 31 respondents completed the questionnaire. Almost 74% of respondents are female financial crime compliance officers, signifying the domination of female workforce in financial compliance sector. The distribution of respondents in local and international banks is almost equal. Meanwhile, almost half of the respondents are not holding to any AML professional certification offered by various financial crime compliance training consultants. Although it is not made compulsory for financial crime compliance officers to have one, continuing education through certification by professional bodies helps to regulate professional practice, keep their members abreast with latest work trend and build the credibility of the employee (Adams, Brauer, Karas, Bresnahan, & Murphy, 2004; Cervero, 2000). However, the lack of professional body credentials among respondents is offset by quasi-professional trainings provided by each bank as reflected in the number of training hours.

Table 2. Demographic of respondents in pilot study (n=31).

Demographic parameter	Item	Overall (n=31)	
		Frequency	Percentage
Gender	Male	8	25.8
	Female	23	74.2
Age	18 to 30	10	32.3
	31 to 40	17	54.8
	41 to 50	4	12.9
Qualification	Certificate or diploma	2	6.5
	Bachelor degree	23	74.2
	Postgraduate diploma	2	6.5
	Masters	4	12.9
FCC experience	1 to 5 years	13	41.9
	6 to 10 years	15	48.4
	11 to 15 years	1	3.2
	More than 16 years	2	6.5
Professional qualification	ACAMS*	1	3.2
	AICB certification**	4	12.9
	AICB advanced certification	4	12.9
	Certified professional in FCC	2	6.5
	CAMCO***	2	6.5
	Nil	18	58.1
Training hours	1 to 5 hours	18	58.1
	6 to 10 hours	6	19.4
	More than 16 hours	7	22.6
Institution	Local bank	16	51.6
	Foreign bank	15	48.4

Note: *ACAMS: Association of certified anti-money laundering specialists.

**AICB: Asian institute of chartered bankers.

***CAMCO: Certified anti-money laundering & counter financing of terrorism compliance officer.

Reliability test results for the scale of each construct are shown in Table 3. The output shows the coefficient ranges from 0.864 to 0.958. According to Nunnally and Bernstein (1994) Cronbach coefficient value between 0.80 to 0.95 indicates very good reliability. The internal consistency showcases the variance that almost reflecting the true score variance. Good Cronbach's coefficient also means the items designed in the questionnaire are interrelated and have good unidimensionality (Davenport & Davison, 2015). The items that are either self-developed or adapted in

this study are measuring the constructs as framed in Figure 2. This can be interpreted as endorsing condition to pursue with full data collection, based on the sample size that fits the framework.

Table 3. Reliability test for pilot study.

Construct	Number of items	Cronbach alpha	Standard deviation
Professional self-awareness	25	0.880	0.473
Task complexity	20	0.901	0.873
AML software astuteness	10	0.864	0.518
Money mule risk assessment	63	0.958	0.447

6. DISCUSSION

The development of instrument to measure money mule risk assessment using JDM theory is expected to benefit financial crime compliance officers as the targeted unit of analysis, and banking sector as the setting owner. The instrument incorporates critical constructs of internal factors (professional self-awareness and task complexity) and external factor (AML software astuteness) that play significant roles in money mule risk assessment. The framework connects indispensable aspects in performance of money mule investigation for future researcher (academia) and practitioners (banking sector) to use for their resource planning. Relevant stakeholders in money mule investigation in the realm of financial system such as FIU, Central Bank, compliance department and enforcement agency should be able to benefit from future output of this research.

The money mule risk assessment comprises four vignette case studies assimilated with red flags adapted from Rani et al. (2022b) which is shown in Table 2. Vignette case study has been acknowledged to measure people's attitude, perceptions, beliefs and thoughts in decision making (Hughes & Huby, 2001). The illustration of issues measured in the scale by using fictional scenario would make the respondent become clearer with researcher's intention. Moreover, vignettes have multivalent subjects and situations which are closer to the real-life context (Steiner, Atzmüller, & Su, 2016). The risk assessment from vignette responses can be interpreted as possible output if the same scenario emerges in real financial crime compliance setting. Hence, the adaptation of vignette case studies brings a more significant field assessment approach in instrument development. The respondents shall be exposed to on the job decision making and risk assessment that are similarly applicable when filing SAR to the authority.

According to Savona and Riccardi (2019) there is a wide gap in money laundering risk assessment on banking clients by AML practitioners which is not critically studied by academicians. There are rooms for renewal of Client Due Diligence (CDD) methodologies and risk assessment exercises that can be explored for contribution toward strengthening financial system AML control. It is only recently that money laundering risk judgment among bank analyst and compliance officers received attention by academic researchers (Jamil, Mohd-Sanusi, Mat-Isa, & Yaacob, 2022; Mohd-Sanusi et al., 2022). These studies look at risk rating judgment which determines the level of compliance monitoring (Standard Due Diligence/Enhanced Due Diligence) or SAR reporting that should be imposed by the banks on their clients. Therefore, this instrument development will fill up the gap of risk assessment, specifically allocated to money mule risk.

7. CONCLUSION

The reliability test reported through Cronbach's coefficient shows the instrument can be accepted to measure the professional self-awareness, task complexity, AML software astuteness and money mule risk assessment among financial crime compliance officers. The preliminary expert appraisal by academicians and AML practitioners, along with pilot study on 31 financial crime compliance officers were conducted to enhance the quality of the instrument. Surprisingly, the instrument shows strong and high Cronbach's coefficient results which satisfactorily translated

into good internal consistency. The items conceived for this research would be likely to measure the constructs intended for the actual study.

Management of money mule investigation entails SAR filing and other mitigation processes, including client exit and account suspension (Leukfeldt & Kleemans, 2019; Ratnayake, 2022). As a financial crime compliance officer, the individual must have the right set of competencies in investigating money mule cases based on the discernible risks found in the mule account. Therefore, this article quintessentially presents the reliability test for money mule risk assessment instrument which can be profoundly beneficial in training needs analysis for financial crime compliance unit. Besides contribution to practitioner, this article lays additional knowledge to the theory of JDM that applies to financial crime compliance and money mule investigation at bank's level.

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Ethical Statement: This study has received approval from Universiti Teknologi MARA's Research Ethics Committee, in accordance to the ICH Good Clinical Practice Guidelines, Malaysian Good Clinical Practice Guidelines and the Declaration of Helsinki (REC/11/2022 PG/MR/263).

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study.

REFERENCES

- Abd Rahman, M. R. (2020). Online scammers and their mules in Malaysia. *Journal of Law and Society*, 26, 65-72. <https://doi.org/10.17576/juum-2020-26-08>
- Adams, P. S., Brauer, R. L., Karas, B., Bresnahan, T. F., & Murphy, H. (2004). Professional certification. *Professional Safety*, 49(12), 26-31.
- Adetunji, J. A. (2019). Rethinking the internal mechanism of the EGMONT group in financial crime control. *Journal of Money Laundering Control*, 22(2), 327-338. <https://doi.org/10.1108/jmlc-04-2018-0029>
- Ai, L., & Tang, J. (2011). Risk-based approach for designing enterprise-wide AML information system solution. *Journal of Financial Crime*, 18(3), 268-276. <https://doi.org/10.1108/13590791111147488>
- Anzalone, F. M. (2000). It all begins with you: Improving law school learning through professional self-awareness and critical reflection. *Hamline Law Review*, 24(324), 325-371.
- Axelrod, R. M. (2017). Criminality and suspicious activity reports. *Journal of Financial Crime*, 24(3), 461-471. <https://doi.org/10.1108/jfc-03-2017-0019>
- Bernamea. (2022). 2020 national risk assessment report: Five types of crimes contribute to high threat of money laundering activities. *The Malay Mail 21 September*. Retrieved from <https://www.malaymail.com/news/malaysia/2022/09/21/2020-national-risk-assessment-report-five-types-of-crimes-contribute-to-high-threat-of-money-laundering-activities/29386>
- Bonner, S. E. (1994). A model of the effects of audit task complexity. *Accounting, Organizations and Society*, 19(3), 213-234. [https://doi.org/10.1016/0361-3682\(94\)90033-7](https://doi.org/10.1016/0361-3682(94)90033-7)
- Bonner, S. E. (1999). Judgment and decision-making research in accounting. *Accounting Horizons*, 13(4), 385-398.
- Cahyaningrum, C. D., & Utami, I. (2015). Do obedience pressure and task complexity affect audit decision? *Indonesian Accounting and Finance Journal*, 12(1), 92-105. <https://doi.org/10.21002/jaki.2015.06>
- Cervero, R. M. (2000). Trends and issues in continuing professional education. *Trends and Issues in Continuing Professional Education*, 2000(86), 3-12. <https://doi.org/10.1002/ace.8601>
- Chaikin, D. (2009). How effective are suspicious transaction reporting systems? *Journal of Money Laundering Control*, 12(3), 238-253. <https://doi.org/10.1108/13685200910973628>
- Chan, Y. C. (2016). Application of analytics in improving efficiency of transaction surveillance, Sanz, J. L. C. (Ed.), *Business Analytics: Progress on Applications in Asia Pacific*. In (pp. 166-183). Singapore: World Scientific.
- Chang, S.-I., Tsai, C.-F., Shih, D.-H., & Hwang, C.-L. (2008). The development of audit detection risk assessment system: Using the fuzzy theory and audit risk model. *Expert Systems with Applications*, 35(3), 1053-1067. <https://doi.org/10.1016/j.eswa.2007.08.057>

- Chen, Z., Van Khoa, L. D., Teoh, E. N., Nazir, A., Karuppiah, E. K., & Lam, K. S. (2018). Machine learning techniques for anti-money laundering (AML) solutions in suspicious transaction detection: A review. *Knowledge and Information Systems*, 57(2), 245-285. <https://doi.org/10.1007/s10115-017-1144-z>
- Coburn, R. C., & Canfield, J. V. (1993). The looking-glass self: An examination of self-awareness. *The Philosophical Review*, 102(1), 129-131. <https://doi.org/10.2307/2185670>
- Dalla Pellegrina, L., Di Maio, G., Masciandaro, D., & Saraceno, M. (2020). Organized crime, suspicious transaction reporting and anti-money laundering regulation. *Regional Studies*, 54(12), 1761-1775. <https://doi.org/10.1080/00343404.2020.1772963>
- Davenport, E. C., & Davison, M. L. (2015). Reliability, dimensionality and internal consistency as defined by Cronbach: Distinct albeit related concepts. *Educational Measurement: Issues and Practice*, 34(4), 4-9. <https://doi.org/10.1111/emip.12095>
- Dilla, W. N., & Raschke, R. L. (2015). Data visualization for fraud detection: Practice implications and a call for future research. *International Journal of Accounting Information Systems*, 100(16), 1-22. <https://doi.org/10.1016/j.accinf.2015.01.001>
- Dos Santos, C. A., & Da Cunha, P. R. (2021). Effect of trust between the time pressure and complexity in judging and decision-making in auditing. *Journal of Contemporary Administration*, 25(5), 1-17. <https://doi.org/10.1590/1982-7849rac2021200037.en>
- Duval, S., & Wicklund, R. A. (1972). *A theory of objective self awareness*. New York: Academic Press.
- Esoimeme, E. E. (2021). Identifying and reducing the money laundering risks posed by individuals who have been unknowingly recruited as money mules. *Journal of Money Laundering Control*, 24(1), 201-212. <https://doi.org/10.1108/JMLC-05-2020-0053>
- Evans, L. (2008). Professionalism, professionalism and the development of education professionals. *British Journal of Educational Studies*, 56(1), 20-38. <https://doi.org/10.1111/j.1467-8527.2007.00392.x>
- Evetts, J. (2013). Professionalism: Value and ideology. *Current Sociology*, 61(6), 778-796. <https://doi.org/10.1177/0011392113479316>
- Fischhoff, B., & Broomell, S. B. (2020). Judgment and decision making. *Annual Review of Psychology*, 71, 331-355. <https://doi.org/10.1146/annurev-psych-010419-050747>
- Fitri, D. A., & Sawarjuwono, T. (2020). The influence work effort, idealism, and audit expertise towards audit judgment performance. *Option: Human and Social Sciences Magazine*, 36(27), 403-419.
- Fournier, V. (1999). The appeal to 'professionalism' as a disciplinary mechanism. *The Sociological Review*, 47(2), 280-307. <https://doi.org/10.1111/1467-954X.00173>
- Gao, S., & Xu, D. (2009). Conceptual modelling and development of an intelligent agent-assisted decision support system for anti-money laundering. *Expert Systems with Applications*, 36(2), 1493-1504. <https://doi.org/10.1016/j.eswa.2007.11.059>
- Ghani, E. K., Respati, H., Darsono, J. T., & Yusoff, M. M. (2019). The influence of professional scepticism, self-efficacy and perceived ethical climate on internal auditors' ethical judgment in public sector management. *Polish Journal of Management Studies*, 19(2), 155-166. <https://doi.org/10.17512/pjms.2019.19.2.13>
- Hall, M. R. (1995). An emerging duty to report criminal conduct: Banks, money laundering, and the suspicious activity report. *Kentucky Law Journal*, 84, 643-684.
- Hammond, K. R. (1988). *Judgement and decision making in dynamic tasks*. Retrieved from <https://apps.dtic.mil/sti/citations/ADA199907>
- Hastie, R., & Pennington, N. (1995). Cognitive approaches to judgment and decision making. *The Psychology of Learning and Motivation*, 32, 1-31. [https://doi.org/10.1016/S0079-7421\(08\)60306-0](https://doi.org/10.1016/S0079-7421(08)60306-0)
- Henrizi, P., Himmelsbach, D., & Hunziker, S. (2020). Anchoring and adjustment effects on audit judgments: Experimental evidence from Switzerland. *Journal of Applied Accounting Research*, 22(4), 598-621. <https://doi.org/10.1108/jaar-01-2020-0011>
- Hughes, R., & Huby, M. (2001). The application of vignettes in social and nursing research. *Journal of Advanced Nursing*, 37(4), 382-386. <https://doi.org/10.1046/j.1365-2648.2002.02100.x>

- Ichsan, I. M., & Diantimala, Y. (2016). Teamwork on the audit judgment of the Aceh representative office of the financial and development supervisory agency (BPKP). *Journal of Postgraduate Accounting at Syiah Kuala University*, 5(4), 50–59.
- Ikart, E. M. (2019). Survey questionnaire survey pretesting method: An evaluation of survey questionnaire via expert reviews technique. *Asian Journal of Social Science Studies*, 4(2), 1-17. <https://doi.org/10.20849/ajsss.v4i2.565>
- Irwin, S. M., Slay, A., Choo, R. K. K., & Lui, L. (2014). Money laundering and terrorism financing in virtual environments: A feasibility study. *Journal of Money Laundering Control*, 17(1), 50-75. <https://doi.org/10.1108/JMLC-06-2013-0019>
- Isa, Y. M., Sanusi, Z. M., Haniff, M. N., & Barnes, P. A. (2015). Money laundering risk: From the bankers' and regulators perspectives. *Procedia Economics and Finance*, 28, 7-13. [https://doi.org/10.1016/s2212-5671\(15\)01075-8](https://doi.org/10.1016/s2212-5671(15)01075-8)
- Iskandar, T. M., & Sanusi, Z. M. (2011). Assessing the effects of self-efficacy and task complexity on internal control audit judgment. *Asian Academy of Management Journal of Accounting and Finance*, 7(1), 29-52.
- Jamil, A. H., Mohd-Sanusi, Z., Mat-Isa, Y., & Yaacob, N. M. (2022). Money laundering risk judgement by compliance officers at financial institutions in Malaysia: The effects of customer risk determinants and regulatory enforcement. *Journal of Money Laundering Control*. <https://doi.org/10.1108/jmlc-01-2022-0004>
- Jayamanogaran, T. (2020). *Bukit Aman: It is an offence to "rent out" your bank accounts, scammers use them to launder illegal funds*, *Malay Mail 16 July*. Retrieved from <https://www.malaymail.com/news/malaysia/2020/07/16/bukit-aman-it-is-an-offence-to-rent-out-your-bank-accounts-scammers-use-the/1884928>
- Johanson, G. A., & Brooks, G. P. (2010). Initial scale development: Sample size for pilot studies. *Educational and Psychological Measurement*, 70(3), 394–400. <https://doi.org/10.1177/0013164409355692>
- Johari, R. J., Mohd-Sanusi, Z., & Chong, V. K. (2017). Effects of auditors ethical orientation and self-interest independence threat on the mediating role of moral intensity and ethical decision-making process. *International Journal of Auditing*, 21(1), 38-58. <https://doi.org/10.1111/ijau.12080>
- Karelaia, N., & Hogarth, R. M. (2008). Determinants of linear judgment: A meta-analysis of lens model studies. *Psychological Bulletin*, 134(3), 404-426. <https://doi.org/10.1037/0033-2909.134.3.404>
- Krastev, B., & Lueg, R. (2016). The effects of monetary incentives on effort and decision performance: The role of cognitive characteristics. *International Journal of Business Research*, 16, 81–98. <https://doi.org/10.18374/IJBR-16-5.7>
- Krosnick, J. A., & Presser, S. (2010). *Questionnaire design*. Wright, J.D. & Marsden, P.V. (Eds.), *Handbook of Survey Research* (2nd ed.). West Yorkshire, England: Emerald Group.
- Leukfeldt, R., & Kleemans, E. E. (2019). Cybercrime, money mules and situational crime prevention: Recruitment, motives and involvement mechanisms. In *Criminal Networks and Law Enforcement* (pp. 75-89). London: Routledge.
- Loggen, J., & Leukfeldt, R. (2022). Unraveling the crime scripts of phishing networks: An analysis of 45 court cases in the Netherlands. *Trends in Organized Crime*, 25(2), 205-225. <https://doi.org/10.1007/s12117-022-09448-z>
- Malhotra, N. K., Agarwal, J., & Peterson, M. (1996). Methodological issues in cross-cultural marketing research: A state-of-the-art review. *International Marketing Review*, 13(5), 7-43. <https://doi.org/10.1108/02651339610131379>
- Matell, M. S., & Jacoby, J. (1971). Is there an optimal number of alternatives for Likert scale items? Study I: Reliability and validity. *Educational and Psychological Measurement*, 31(3), 657-674. <https://doi.org/10.1177/001316447103100307>
- Mohd-Nassir, M. D., Mohd Sanusi, Z., Ghani, E. K., & Prabowo, H. (2016). Assessment of fraud risk performance: interaction effects of brainstorming and task structure of government auditors. *Management & Accounting Review*, 15(2), 1-16.
- Mohd-Sanusi, Z., Mat-Isa, Y., Ahmad-Bakhtiar, A. H., Mat-Jusoh, Y. H., & Tarjo, T. (2022). Interaction effects of professional commitment, customer risk, independent pressure and money laundering risk judgment among bank analysts. *Journal of Money Laundering Control*, 25(3), 493-510. <https://doi.org/10.1108/jmlc-05-2021-0046>
- Naheem, M. A. (2017). Suspicious alerts in money laundering—the Crédit Agricole case. *Journal of Financial Crime*, 24(4), 691-703. <https://doi.org/10.1108/jfc-12-2015-0074>
- Naheem, M. A. (2019). Anti-money laundering/trade-based money laundering risk assessment strategies—action or re-action focused? *Journal of Money Laundering Control*, 22(4), 721-733. <https://doi.org/10.1108/jmlc-01-2016-0006>

- National Risk Assessment. (2020). *National risk assessment on money laundering and terrorism financing 2020*. Retrieved from https://www.bnm.gov.my/documents/20124/6458991/ar2021_en_wb5.pdf
- Nelson, M., & Tan, H. T. (2005). Judgment and decision making research in auditing: A task, person, and interpersonal interaction perspective. *Auditing: A Journal of Practice & Theory*, 24(s-1), 41-71. <https://doi.org/10.2308/aud.2005.24.s-1.41>
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw Hill.
- Olson, K. (2010). An examination of questionnaire evaluation by expert reviewers. *Field Methods*, 22(4), 295-318. <https://doi.org/10.1177/1525822x10379795>
- Papanikitas, A. (2017). Self-awareness and professionalism. *InnovAiT: Education and Inspiration for General Practice*, 10(8), 452-457. <https://doi.org/10.1177/1755738017710962>
- Rani, M. I. A., Zolkafli, S., & Nazri, S. N. F. S. M. (2022a). Money mule risk assessment: An introductory guidance for financial crime compliance officers. *Asian Journal of Research in Business and Management*, 4(1), 208-217. <https://doi.org/10.55057/ajrbm.2022.4.1.17>
- Rani, M. I. A., Zolkafli, S., & Nazri, S. N. F. S. M. (2022b). The money mule red flags in anti-money laundering transaction monitoring investigation. *International Journal of Business and Economy*, 4(1), 150-163.
- Rani, M. I. A., Zolkafli, S., & Nazri, S. N. F. S. M. (2023). The trends and challenges of money mule investigation by Malaysian enforcement agency. *International Journal of Business and Technopreneurship*, 13(1), 37-50.
- Ratnayake, D. (2022). *What is a money mule and how are they caught*, British computer society: The chartered institute of IT. Retrieved from <https://www.bcs.org/articles-opinion-and-research/what-is-a-money-mule-and-how-are-they-caught/>
- Raza, M. S., Zhan, Q., & Rubab, S. (2020). Role of money mules in money laundering and financial crimes a discussion through case studies. *Journal of Financial Crime*, 27(3), 911-931. <https://doi.org/10.1108/jfc-02-2020-0028>
- Razali, M. F. (2020). Examining types of audit judgment and objectivity threat: Empirical findings from public and private sector internal auditors in Malaysia. *Indonesian Journal of Economics, Social, and Humanities*, 2(2), 91-104. <https://doi.org/10.31258/ijesh.2.2.91-104>
- Savona, E. U., & Riccardi, M. (2019). Assessing the risk of money laundering: Research challenges and implications for practitioners. *European Journal of Criminal Policy and Research*, 25, 1-4. <https://doi.org/10.1007/s10610-019-09409-3>
- Scott, B., & McGoldrick, M. (2018). Financial intelligence and financial investigation: Opportunities and challenges. *Journal of Policing, Intelligence and Counter Terrorism*, 13(3), 301-315. <https://doi.org/10.1080/18335330.2018.1482563>
- Slovic, P., & Lichtenstein, S. (1971). Comparison of Bayesian and regression approaches to the study of information processing in judgment. *Organizational Behavior and Human Performance*, 6(6), 649-744. [https://doi.org/10.1016/0030-5073\(71\)90033-x](https://doi.org/10.1016/0030-5073(71)90033-x)
- Steiner, P. M., Atzmüller, C., & Su, D. (2016). Designing valid and reliable vignette experiments for survey research: A case study on the fair gender income gap. *Journal of Methods and Measurement in the Social Sciences*, 7(2), 52-94. <https://doi.org/10.2458/v7i2.20321>
- The Wolfsberg Group. (2015). *The Wolfsberg frequently asked questions on risk assessments for money laundering, sanctions and bribery & corruption*. Retrieved from <http://www.bis.org/publ/bcbs275.pdf>
- Viritha, B., Mariappan, V., & Haq, I. U. (2015). Suspicious transaction reporting: An Indian experience. *Journal of Money Laundering Control*, 18(1), 2-16. <https://doi.org/10.1108/jmlc-11-2013-0046>
- Yong, S. H. (2022). *Penalise mule account holders to fight scamming*, New Straits Times 18 July. Retrieved from <https://www.nst.com.my/opinion/columnists/2022/07/814170/penalise-mule-account-holders-fight-scamming>

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