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Electronic Money Institution and Protection Framework

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Abstract: *This study aims to address a notable gap in the existing literature concerning electronic money (e-money) in Malaysia. While numerous studies have explored advantages and disadvantages of e-money, consumer behaviors and general issues on e-money, there remains limited understanding of e-money-related institutions and the protective measures they afford. Employing a structured interview guide, primary data were gathered from professionals actively engaged in the e-money sector, who concurrently serve as users. Additionally, secondary data were extracted and analysed from official government websites. Semi-structured interviews formed the primary data collection method, and an in-depth thematic analysis was conducted using Computer Assisted Qualitative Data Analysis Software (CAQDAS), specifically Atlas.ti version 22. The study identifies four key institutions contributing to e-money consumer protection: government entities, private organizations, non-governmental institutions (NGOs), and international entities. Moreover, it delineates five types of protection extended to e-money consumers during payment transactions. These protections encompass security measures, safeguards provided by the Central Bank of Malaysia, merchant-based protections, measures enacted by Telecommunications Companies (TELCOs) and Electronic Money Institutions (EMIs) as well as non-governmental organisations (NGO). The findings of this research offer valuable insights for practitioners and policymakers involved in the e-money ecosystem. Understanding the diverse institutions and protection mechanisms is crucial for fostering a secure and reliable e-money environment for consumers. This research contributes significantly to the current body of literature by presenting insights derived directly from experts with firsthand experience in e-money institutions and protective measures. The study enriches our understanding of the multifaceted landscape of e-money consumer protection, filling a crucial research gap in the existing knowledge base.*

Keywords: Fintech, Electronic Money, E-Money, Institution, Consumer, Support, Protection

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1. Introduction

Electronic money, commonly referred to as 'e-money,' is explicitly defined by the Financial Services Act 2013 (FSA 2013) as a payment instrument, whether tangible or intangible, that electronically stores funds in exchange for funds paid to the issuer. Moreover, it must be capable of serving as a means of payment to individuals other than the issuer (Bank Negara Malaysia (BNM), 2023). In the wake of the COVID-19 outbreak, e-money has gained significant traction due to its offering of a highly convenient and contactless payment alternative to physical currency, which may act as a potential agent for disease transmission.

The surge in e-money adoption is evidenced by Malaysia's robust statistics in 2021, with 2.12 billion e-money transactions amounting to RM 50.5 billion, marking the highest annual figures since 2016 (Bank Negara Malaysia, 2022). Concurrently, the number of merchants registered for Quick Response (QR) code payments soared by 164%, reaching 773,484 by the close of 2020, a substantial increase from 292,969 at the end of 2020 (Bank Negara Malaysia, 2021).

Presently, e-money accounts facilitate a diverse range of transactions, spanning payments for groceries, online purchases, airline tickets, as well as funds transfers. In Malaysia, e-money issuance is limited to approved bank or non-bank e-money issuers (EMIs), encompassing six bank issuers (AmBank (M) Berhad, Bank of China (Malaysia) Berhad, CIMB Bank Berhad, Malayan Banking Berhad, MBSB Bank Berhad, RHB Bank Berhad) and 51 non-bank issuers which includes brands such as Touch 'N Go, Boost, Shopee Pay, and Grab Pay (Bank Negara Malaysia, 2024).

Despite the evident advantages of e-money, including convenience, speed, and low transaction costs, its drawbacks have been explored in various studies within the realm of e-money and financial technologies (fintech) (Kolandaisamy & Subaramaniam, 2020; Yakean, 2020; Zulkefli et al., 2019). Additional research has delved into security and legal concerns (Hassan et al., 2020; Kanimozhi & Kamatchi, 2017; Md. Nor et al., 2021) with Md. Nor et al. (2021) identifying eight general legal issues associated with e-money. However, scant attention has been directed towards e-money-related institutions and the protective measures they offer.

Consequently, this study aims to ascertain the efficacy of existing institutions in safeguarding Malaysian e-money consumers throughout payment processes, ensuring avenues for recourse in the event of rights infringement. The research is guided by the following key questions:

i. What institutions are actively involved in safeguarding e-money consumers?
ii. How do these institutions ensure the protection of e-money consumers during transactions?

2. Literature Review

Scholarly discourse on e-money encompasses various aspects, including consumer behavior, adoption, operational dynamics, product development, as well as legal and security considerations.

To commence, numerous studies delve into consumer behavior and adoption of e-money (Widayat et al. (2020), Suhud et al. (2020), Susan & Djajadikerta (2020). Notably, Indonesian researchers, such as Widayat et al. (2020), explored the adoption of electronic money payment models among Indonesian adolescent clients. Their findings highlighted that customers embrace e-money for reasons including convenience, ease of use, transaction speed, and payment procedure simplicity. Additionally, social circumstances, effort expectations, and attitudes significantly impact e-money behavior (Widayat et al., 2020).

Beyond consumer behavior, studies such as that by (Putra et al., 2019) emphasize the importance of operational aspects and product development in the e-money landscape. Their research on the use of Bank Mandiri e-money in the Ciputat District, guided by the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) model, revealed substantial support for hypotheses related to the adoption of e-money. A Bangladeshi study (Islam et al.,

2019) echoed these findings, emphasizing the role of service quality and deposit interest rates in driving positive e-money uptake.

Furthermore, the crucial role of security in enhancing consumer confidence in e-money services is underscored. Pampori et al. (2018) highlighted the serious repercussions of using weak passwords when shopping online. Ali et al. (2021) emphasized that effective security measures are imperative to protect clients' funds from cyber threats, including surfing assaults, social engineering attacks, phishing attacks, PIN-guessing attacks, brute-force attacks, insider attacks, impersonation attacks, identity fraud, and man-in-the-middle (MITM) attacks. Kang (2018) emphasized the danger of sharing security information with unauthorized individuals.

Concerning legal aspects, discussions span countering the financing of terrorism (CFT), regulatory frameworks, legal and regulatory issues on cryptocurrency, risks related to cryptocurrency circulation, and the prohibition of interest payments. Policy makers are urged to prioritize consumer and investor protection in e-money implementation Restoy (2019). In Malaysia, protection against money laundering activities is enforced through the 'electronic know your customer' (e-KYC) requirement established by the Central Bank (Electronic Know-Your-Customer (e-KYC), 2020).

Legal and regulatory issues related to cryptocurrency are explored by Prasolov (2018), highlighting the lack of global consensus on cryptocurrency regulation. In Malaysia, cryptocurrency is not recognized as legal tender but is considered a security or digital asset under the purview of the Malaysian Securities Commission (SC).

Reviewing the literature between 2013 and 2021, studies addressed diverse e-money issues across countries such as Indonesia, Russia, Ukraine, Italy, Canada, Austria, and Malaysia. Quantitative methods were predominant, though qualitative studies were also undertaken in some instances.

However, despite the extensive literature, scant attention has been given to e-money-related institutions and their protective measures. Existing knowledge is generally broad, which includes but not limited to institutions the Ministry of Domestic Trade and Consumer Affairs (KPDNHEP), Royal Malaysia Police (PDRM), Malaysian Communications and Multimedia Commission (MCMC) and Department of Personal Data Protection (DPDP), and their basic protective functions based on jurisdiction.

Therefore, the conceptual framework depicted in Figure 1 identifies seven (7) main institutions related to e-money, ranging from KPDNHEP to the administration of justice. This study draws on consumer protection theory, emphasizing the importance of safeguarding customer rights and interests, contributing to the broader understanding of financial technology, particularly in the realm of electronic money consumer protection.

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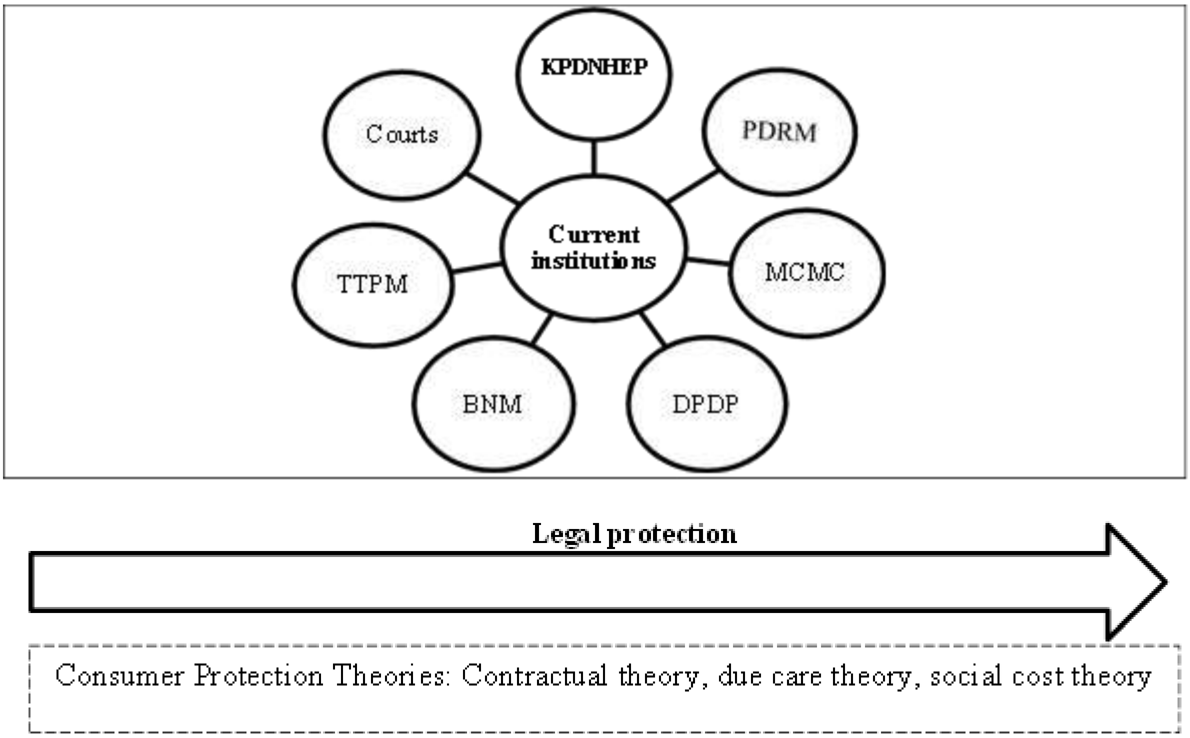

Figure 1: Current institutions and legal protection

3. Research Methodology

This paper used a qualitative research design to better understand the related institutions and type of protection they offer in e-money consumers' retail transaction. This research method allowed the participants in this study's experiences to be investigated in depth from their viewpoints, making it easier to comprehend the meanings and interpretations of the topics highlighted. The process of examining and comprehending the settings and meanings of individuals or groups to solve social and human problems has been defined as qualitative research (Merriam, 2016). The qualitative research emphasises the social constructs of relationships and activities that shape social life, as well as the source of information regarding societal and individual issues (Merriam, 2009).

In total, 13 interviews were carried out for the key stakeholders directly involved in the e-money industry in Malaysia. The participants were selected using purposive sampling/non-probability based on a number of considerations such as users from e-money companies that provides platforms for e-money payment instrument either for e-commerce/services transactions or platform for both payment instrument and e-commerce/services. Besides, the users are also experienced users either male or female above 18 years old that are well acquainted with the use of e-money services as above and residing in Klang Valley areas.

The aforementioned criteria in Table 1 for sample selection are pivotal within this study, serving to ensure a comprehensive representation of three distinct cohorts of e-money users derived from the public, private, and non-governmental sectors of society. This deliberate approach is undertaken to foster a nuanced understanding of the phenomenon under investigation, thereby enriching the depth and breadth of the ensuing analysis.

Table 1: Sample selection of the research

Participant identification	Designation	Organization
U_1_SNMF	Government official	Ministry
U_2_MHY	Government official	Government agency
U_3_MFM	Head of Department	IT company
U_4_SRH	Lawyer	Legal Firm
U_5_ARR	Government official	Ministry
U_6_NBA	Lecturer	University
U_7_HH	Government official	Government agency
U_8_OA	IT expert	IT company
U_9_MFZ	Senior Executive	Aviation company
G_KPDNHEP_5_MHY	Deputy President	Government agency
G_CBM_6_HH	Deputy Director	Government agency
N_PPIM_1_NJ	President	Non-Governmental Association (NGO)
N_MCCA_2_SJ	President	Non-Governmental Association (NGO)

The understanding of the ideas and issues discussed at the interview session led to the generation of codes bases on the features and meanings obtained. This process ensured that all the statements were coded to cover all the data set. The codes statements were regrouped according to the interests and the pattern of connections they have with the objectives of the study. These regrouped codes were checked and re-examined to avoid errors, duplications, appropriateness and omissions. Some of the codes were merged and some were ignored at this stage to produce the third or final sets of codes. This set of codes was examined for relationship and was grouped into themes. These sub-themes are discussed accordingly to address the research questions.

4. Findings

4.1 What institutions are actively involved in safeguarding e-money consumers?

The study identified four separate themes of entities tasked with ensuring the protection of electronic money consumers, comprising government institutions, private institutions, non-governmental institutions and international institutions. The finding is illustrated in the following Figure 2:

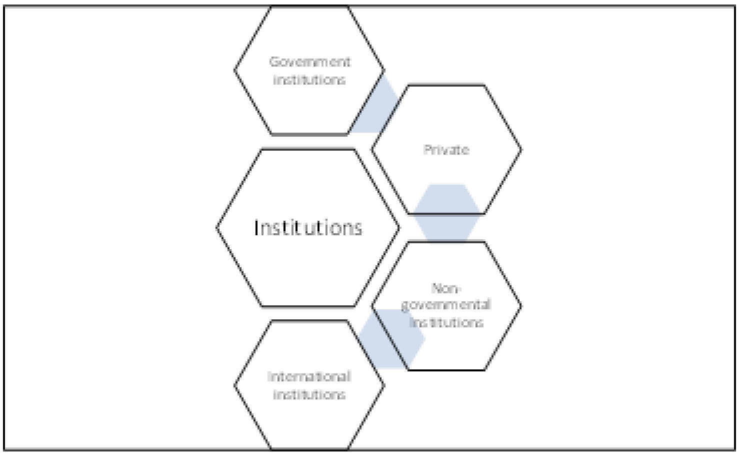

Figure 2: Entities tasked with ensuring the protection of electronic money consumers

4.1.1 Government institution

Through the analytical process, it became apparent that recurrent terminologies signify the presence of analogous entities fulfilling comparable roles and exhibiting characteristic features akin to those of governmental institutions. Government institutions encompass entities engaged in governmental functions, whether at the federal or state level, reflective of Malaysia's dual-tier governmental structure comprising federal and state governments. The examination identified twelve (12) government institutions actively involved in safeguarding the interests of e-money consumers, categorized as government agencies, ministries, judicial administrations, and legislative bodies.

4.1.1.1 Government Agency

As elucidated in the literature, the regulation of e-money in Malaysia falls under the purview of multiple jurisdictions. In accordance with the findings, nine (8) distinct government agencies are implicated in the protection of e-money consumers. This implies that these agencies collectively share responsibilities and duties pertaining to safeguarding e-money consumers. Among the agencies entrusted with overseeing e-money affairs, the Central Bank of Malaysia/Bank Negara Malaysia (BNM) holds paramount significance, alongside the Jabatan Perlindungan Data Peribadi (JPDP), the Malaysian Communications and Multimedia Commission (MCMC), the National Scam Response Centre (NSRC), the Royal Malaysia Police (PDRM), the Perbadanan Insurans Deposit Malaysia (PIDM), the State Islamic Religious Council (SIRC), and the Tribunal Tuntutan Pengguna Malaysia (TTPM).

Notwithstanding the above, this writing will focus on the most important agency for regulating e-money which is the BNM.

4.1.1.1.1 Main Agency: Bank Negara Malaysia (BNM)

In the analysis process, it became apparent that diverse participants' accounts corroborate the central role of Bank Negara Malaysia (BNM). BNM exercises multifaceted authority over e-money, including regulatory oversight, custodianship in financial crime matters, policy formulation, and monitoring of deposit-taking activities.

Regarding regulatory functions, participants highlighted BNM's role as the licensor and regulator for e-money entities, with the power to grant or revoke licenses based on compliance with regulatory standards. This licensing authority confers considerable influence on BNM in ensuring adherence to e-money regulations, as underscored by participants' remarks:

"So, there are many factors that perhaps the regulator should. By the way, Bank Negara Malaysia is regulating all this e-wallet" (U_4_ARR).

"So, e-wallet is an absolute policy under Bank Negara Malaysia, and then anyone who wants to operate the e-wallet as a provider must obtain a license from and comply with everything under BNM" (N_MCCA_2_SJ).

Furthermore, besides its regulatory or licensing authority, BNM's custodial role in the payment system, particularly in matters concerning e-money, was emphasized by participants:

"Maybe can check this with Bank Negara Malaysia if there are specific laws in this" (G_KPDNHEP_1_NFD).

Notably, discussions pointed to BNM's involvement in addressing financial crime cases alongside the Royal Malaysia Police (PDRM) and the Malaysian Communications and Multimedia Commission (MCMC), further illustrating its broad authority:

"We (BNM) will usually go with the police or MCMC. So, the story is that they are all the ones we call the law enforcement agency (LEA). So, if it was like the police, everything that involved cheating would be under the police Penal Code, the Crime Act. As for MCMC, because of (e-money) the transaction requires TELCOs service which is under the purview of MCMC" (G_CBM_6_HH).

As a prominent policy maker, BNM plays a pivotal role in shaping the landscape of e-money through strategic initiatives such as the promotion of electronic payments. This role is underscored by its inclusion in the country's Financial Sector Blueprint and recent endeavors like the 'e-duit project,' aimed at advancing e-payment systems:

"Since the topic touches on the e-wallet (e-money), I mean e-payment. So basically, one of the strategic agendas for Bank Negara is to promote e-payment. So, this year, we have rebranded it; we call it e-duit." (G_CBM_6_HH)

Moreover, BNM's oversight extends to monitoring deposit-taking activities, ensuring the integrity of the national monetary system. While some deposit-taking businesses fall under its purview, exceptions exist for certain sectors like money lending and the capital market, which are regulated by other authorities such as the Ministry of Housing and Local Government (KPKT) and the Securities Commission (SC):

"Whether you have been given the license or the business has to be registered with us (BNM), approval has to be endorsed. So, if e-money is mentioned earlier, it has a nature of business that involves taking money from the public. In other words, the public takes the money, then stores it in your organization, requiring a license".

"So that is why when people ask, they are always confused. Why is there no need for a money lender to get approval...not under Bank Negara, right? Money lender is under KPKT who gave the license to lend money…"

"…Except for the capital market. That is for investment. That is why it is under Securities Commission (SC)" (G_CBM_6_HH).

Overall, BNM emerges as a pivotal entity in the governance of e-money, exercising comprehensive authority across regulatory, custodial, policymaking, and monitoring domains.

4.1.2 Private Institution

In the e-money consumer protection ecosystem, private institutions emerge as the second most significant entities. These institutions, distinct from governmental bodies, operate independently and are not government funded. They encompass a range of organizations, including companies, firms, and individuals. Within Malaysia's e-money landscape, private institutions play a vital role as the primary enablers of payment services, serving as the backbone of the e-money system. Key players in this category include financial institutions, electronic money issuers (EMIs), merchants, telecommunication companies (TELCOs), and OTP service providers.

4.1.2.1 Financial Institution

Financial institutions form the initial layer of e-money payment services, facilitating the transfer of funds from bank accounts to e-money accounts operated by EMIs:

"...I go into the Google Play Store and search for "B". Then I install right, so I have to log in and whatnot after installation. Then I have to link to my credit card, and after linking to my credit card, I have to top up. After top up, then I can use the e-wallet" (U_2_MFM)

It is noteworthy that in Malaysia, BNM has authorized six (6) banks and forty-nine (49) non-banks to operate e-money businesses. These banks, include AmBank (M) Berhad, Bank of China (Malaysia) Berhad, CIMB Bank Berhad, Malayan Banking Berhad, MBSB Bank Berhad, and RHB Bank Berhad.

4.1.2.2 E-money Issuers (EMIs)

On the other hands, EMIs, regulated by BNM, issue electronic money and compete to offer various incentives such as vouchers and cash back to attract consumers:

"...and one another thing is that "T" and "S" e-money sometimes have discounts and vouchers. For example, last month, "T" offered vouchers, etc. So, when we complete the payment process, we can receive a reward like Baskin Robin's cash back" (U_3_SRH).

However, the proliferation of EMIs has led to concerns about choice overload among consumers. To address this issue, initiatives like the "Duit Now QR Code" have been introduced to promote interoperability and innovation in the e-money landscape:

"I think one of the things that we see now is that each e-wallet has a QR code. For example, we now have a national code 'duit now' which is pink. It actually has a journey. So, just like customers, we also have many questions in our minds: who is good? Who is not good right? Because the Malaysian market is not really that big. But then, they are too many players sometimes, maybe it's hard to sustain but as of now as we do not want to stifle creativity and innovation what not.. we let it be first" (G_CBM_6_HH).

4.1.2.3 Merchants

Merchants play a crucial role in accepting e-money payments, but their adoption rates remain relatively low due to factors such as technical challenges and a lack of awareness about the benefits of e-money:

"Acceptance of e-wallets among consumers is pretty good. For instance, "B" got around 9 mil customers, our competitor "T" about 10 mil customers, "M", "S", "G" etc are also doing well. However, acceptance by merchant, especially Tier 4 category (micro-SME-makcik nasi lemak/ food stall/pasar malam) still needs attention" (E_BBADC_1_EC).

Therefore, efforts like the Retail Digitalization Initiative (REDI) aim to promote e-money adoption among merchants and users, resulting in a significant increase in merchant registrations and e-wallet transactions:

"Based on Bank Negara Malaysia report, merchant registration and QR acceptance has increased up to 135% in 2020. E-wallet volume transaction also rose 131% from the previous year 2019" (G_KPDNHEP_1_NFD).

4.1.2.4 TELCOs

TELCOs such as Maxis, U Mobile, Celcom Axiata, Digi Telecommunications, YTL Communications and Telekom Malaysia provide essential internet infrastructure necessary for e-money transactions to function effectively:

"For MCMC because of the transaction (e-money) requires TELCO services, right, under MCMC" (G_CBM_6_HH).

Weak internet connectivity and concerns about data protection pose challenges to the seamless operation of e-money systems:

"I do experience sometimes… when the internet connection is not so good when using "S". Like for example, we already paid and then we just push for pay, and then somehow rather is loading, loading, loading is about the internet connection" (U_3_SRH).

4.1.2.5 OTP Providers

Finally, OTP service providers play a critical role in ensuring secure transactions by delivering one-time passwords promptly:

"If those services require TAC or OTP, it will be done through TELCO per se. But TELCO is not direct either because it is under MCMC. MCMC regulates TELCOs and they also regulate all the content providers that were the SMS providers earlier.. For SMS, they have another service provider right. which is what they call it content provider. The banks also subscribe to that service to send TAC and OTP that has to go through the TELCO's system" (G_CBM_6_HH).

Overall, private institutions play a pivotal role in shaping the e-money ecosystem in Malaysia, driving innovation and facilitating the transition towards a cashless society.

4.1.3 Non-Government Organisation

The third notable category emerging from the analysis comprises non-governmental organizations (NGOs), repeatedly highlighted by participants. NGOs, defined as organizations independent of governmental and for-profit entities, often arise without government involvement. Typically nonprofit, they engage in humanitarian or social endeavours and enjoy public trust. In Malaysia, numerous NGOs advocate for consumer rights, particularly in online banking realms, addressing issues like fraud and cybercrimes. Initially focused on consumerism, many expanded their scope to encompass electronic transactions, including e-money. Notably, three active NGOs advocating for e-money consumers' rights include the Islamic Consumers Association of Malaysia (PPIM), the Malaysian Cyber Consumer Association (MCCA), and the Ombudsman for Financial Services (OFS).

4.1.3.1 PPIM

The Islamic Consumers Association of Malaysia (PPIM) operates independently of the government and was established to address concerns related to Islamic consumerism. PPIM's efforts focus on issues like halal and shariah compliance and unfair treatment of Muslim consumers. Recent complaints received by PPIM highlight issues such as financial losses and electronic transaction discrepancies:

"We happened to be receiving many complaints now, especially lately when we have most of the grievances by consumers that felt or got cheated or short-changed by the system, the so-called system. We have issues like people losing money"

"The money just disappeared. There is something that is very wrong. How can you have a system that can just take away your money recently?"… This is something to do with electronic commerce/transaction. How the money can just disappear. Right, regardless of what channels are being used, but this is related to electronic transfer" (N_PPIM_1_NJ).

These concerns underscore the necessity for effective consumer protection measures, as evidenced by reported cases to the Tribunal Tuntutan Pengguna Malaysia (TTPM).

4.1.3.2 MCCA

The Malaysian Cyber Consumer Association (MCCA) actively champions the rights of cyber consumers. Established to educate, advocate, and defend consumer interests, MCCA represents various consumer demographics, including individuals, families, and businesses:

"MCCA stands for Malaysia Cyber Consumer Association, the association was formed with three philosophy which we are educating, advocating and also defending the consumer. Subject of consumer is very wide, where it could be individual, could be a family, could be a small organization, big organisation, a company and even a government, a ministry, and even a country, they are also, a consumer of cyber" (N_MCCA_2_SJ).

Recognized by the government, MCCA participates in forums to raise consumer awareness and promote advocacy efforts. Additionally, supporting NGOs like the Consumer Association of Penang (CAP) and Consumer Association of Kedah (CAKE) contribute to increasing consumer awareness regarding e-money rights.

4.1.3.3 OFS

The Ombudsman for Financial Services (OFS) serves as an alternative dispute resolution channel approved by Bank Negara Malaysia (BNM). Resolving disputes between financial service providers (FSPs), including EMIs, and financial consumers, OFS plays a crucial role in ensuring fair redress for e-money consumers:

"They called it ADR…Alternative Dispute Resolution. So, we do not engage them. In fact, they are independent parties. Whoever have any financial issues or a dispute against the product or services can refer to this (OFS)" (G_CBM_6_HH).

OFS decisions are binding on financial institutions and offer consumers a robust avenue for dispute resolution. Additionally, BNM mandates financial institutions to include a "deadlock letter" in their communications with customers, highlighting OFS as a recourse for unresolved disputes.

4.1.4 International Institution

Following government and NGOs, international organizations emerge as a significant force influencing local policies or legislation in various countries. This influence is evident in statements like the one made by G_TTPM_5_MHY, linking United Nations initiatives to local consumer protection laws:

"We are confirming to the United Nations Consumers issue, so that is where the CPA (Consumer Protection Act 1999) came in".

These organizations, comprising members from multiple countries, fulfil diverse roles such as data collection, service provision, and dispute resolution, exemplified by institutions like the World Meteorological Organization, the World Health Organization, and the European Union.

4.1.4.1 Regional and International Cooperation

In consumer protection, regional cooperation through bodies like the ASEAN Committee on Consumer Protection (ACCP) complements the efforts of international institutions dedicated to global consumer rights. Key among these are the United Nations (UN) and the Organisation for Economic Co-operation and Development (OECD). The UN, through entities like the United Nations Conference on Trade and Development (UNCTAD), plays a pivotal role in shaping consumer protection policies worldwide. The UNCTAD's Competition and Consumer Policies Programme supports initiatives like the Intergovernmental Group of Experts (IGE) on Consumer Protection Law and Policy, established by the UN General Assembly in 2016. Similarly, the OECD's Committee on Consumer Policy collaborates with stakeholders to enhance consumer policy formulation and enforcement.

4.1.4.2 Consumers International (CI)

Consumers International (CI) stands as the premier global advocate for consumer rights, representing a diverse range of consumer advocacy organizations worldwide.

4.1.4.2 International Consumer Protection and Enforcement Network (ICPEN)

The International Consumer Protection and Enforcement Network (ICPEN) serves as a vital platform for consumer protection agencies worldwide, facilitating information exchange and cooperation on international business activities affecting consumer interests. In essence, these international organizations extend their protective umbrella to e-money consumers through their involvement in e-commerce platforms.

4.2 How do these institutions ensure the protection of e-money consumers during transactions?

4.2.1 Protection on Security of Data and Fund

In the realm of consumer protection within e-money transactions, the foremost concern revolves around ensuring the security of **personal data**. Users expect their information to be safeguarded against unauthorized access or misuse, recognizing that any breach can lead to significant repercussions, including financial loss, identity theft, and reputational damage:

"Because if you're talking about the financial transaction, it has been very smooth sailing so far. My only concern is PDPA because I find that we've been receiving a lot of unwanted calls, as you can see. So perhaps our numbers have been traded" (U_4_ARR)

Interviews with participants underscore a growing apprehension regarding the proliferation of personal data leaks, often attributed to lax data protection measures or consumer ignorance regarding terms of service agreements:

"When we signed up with certain companies, for example, with "S", none of the terms and conditions stated that they will not share the information. They were not included in the terms and conditions, and sometimes we did not read them (U_4_ARR).

While some attribute these breaches to insiders within financial institutions or telecommunication providers, others suggest a broader societal shift during the pandemic, where individuals readily share their contact information across various platforms. Despite these concerns, some users report positive experiences with e-money services, highlighting the importance of robust security measures and prompt resolution of any issues encountered:

"I have not encountered, that's why I've said that I've not encountered any problem yet.. For example, it's being hijacked. None of the issue currently" (U_4_ARR).

Beyond the protection of personal data, ensuring the security of funds within e-money applications emerges as another critical consideration. Participants stress the need for stringent security measures, especially given the rapid and relatively seamless nature of e-money transactions compared to traditional banking processes. Concerns are raised regarding the vulnerability of such transactions to fraudulent activities, underscoring the importance of user vigilance and responsible money management practices:

"*There were complaints that we collect like for example here, if you go to the bank, if you want to cash RM50 thousand of your own money. You have got to sign many forms and tell the bank where you want and what you want to do with the money for what? This doesn't make sense compared with money transactions through electronic channels like e-wallet, which involves scammers that caused a loss of between RM100k-200k in just a few minutes. So, there is something wrong there. Where are the security and protection for this kind of transaction?* (N_PPIM_1_NJ).

While users acknowledge their role in safeguarding their funds, they also express a degree of skepticism regarding the absolute security of online transactions, recognizing the persistent threat of cybercrime. Nevertheless, by adopting prudent security practices and exercising caution in their transactions, users contribute to mitigating the risk of monetary loss or theft within the e-money ecosystem:

"Security for e-money…I think, because for every transaction, I will not upload extra or a lot of amounts because I will use the amount that which is enough for the things that I want to buy" (U_5_NBA).

4.2.2 Protection by Central Bank of Malaysia (BNM)

4.2.2.1 Second layer of redress

G_CBM_6_HH, a senior manager at BNM, outlined the support provided by the Central Bank regarding e-money concerns. BNM assists the public in addressing issues with e-money providers. If initial attempts to resolve complaints with the provider fail, individuals can escalate the matter to BNM's dedicated unit:

"Yes okay so like I said earlier we are from the public facing. So, one of the mandates is actually the redress. Basically, to help the public let say they have problems with their provider be it product or services. So there is actually second level. So we do get it, we have a specific unit that looks at managing all these complaints, you know..."

The public can contact BNM's LINK Department or TELELINK for assistance. These channels aim to promptly address financial sector inquiries and complaints. Established in 2007, this initiative aims to offer efficient solutions to public concerns regarding financial services.

4.2.2.2 Types of Protections by BNM

4.2.2.2.1 Policy Measures

Recent actions by BNM, such as the E-money Policy Document (BNM, 2022), illustrate the bank's commitment to enhancing e-money regulations. This draft, effective from December 30, 2022, replaces previous guidelines and emphasizes safety, reliability, and consumer confidence in e-money transactions:

"The Bank is reviewing the e-money guidelines to ensure the safety and reliability of e-money and preserve customers' and merchants' confidence in using or accepting e-money for the payment of goods and services".

4.2.2.2.2 Actions taken by BNM

BNM employs a variety of enforcement actions, ranging from warnings to penalties, depending on the severity of the offense. While BNM prefers gradual improvement over punitive measures, it demonstrates willingness to investigate and take appropriate action against offenders, as exemplified by its handling of data breaches and mule activities:

"Actually, we don't advertise a lot of things. If that's the case, people don't know, right? So far, I don't think it's okay. We are coming from the angle this is for you...for the industry first, the part the consumer is not ready. We have an industry that is not ready. So that is why if we had a governor before, he looked at this thing as 'name and shame', basically to improve the performance of the financial players. But I mean, in the case of context of e-wallet, they are new, so let's go, while banks that have been around for years and decades, we no longer have the approach of name and shame, right. But that's why we also feel this…they are regulatees. When we regulate, it's not actually the word regulate for the license only, but we are actually the supervisor, in layman's terms is auditor" (G_CBM_6_HH).

4.2.2.2.3 Other Measures

4.2.2.2.3.1 Establishment of Complaint Mechanisms

BNM encourages EMIs to establish complaint mechanisms for consumers, in line with BNM guidelines. These mechanisms ensure timely resolution of consumer concerns and contribute to industry transparency and accountability:

"What can BNM facilitate, is it? Anything that we regulate is bound to our guidelines or standards. Generally, like I said yesterday, every institution Bank Negara regulates should allow the consumer to complain" (G_CBM_6_HH).

4.2.2.2.3.2 Due Diligence

EMIs are required to conduct due diligence to ensure appropriate wallet limits and mitigate financial losses for consumers. By setting thresholds and enhancing vigilance, EMIs can minimize risks and protect consumer interests:

"That is why we call it due diligence. I think that is the part. It used to be due diligence. Now, we have enhanced due diligence. Two parts are, one is the consumer and the other is the merchant because it involves online transaction. This e-wallet is mostly merchant involved. But the merchant is not under regulation or Bank Negara, but KPDNHEP's. So, that is from the perspective of the consumer. For an ordinary "T" account, you only have RM200.00. We manage through the threshold. So, even if it is lost, if let's say there is a loss of money, it is not very much. And you still have the alternative to get redress earlier. So, we control that. Due diligence is very important" (G_CBM_6_HH).

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4.2.2.2.3.3 Sharing of Scammer Activities

BNM actively shares information on detected scams and criminal activities with industry stakeholders, fostering collaboration and safeguarding consumers from fraudulent activities:

"On this case, we have a system which is put in there. We also want the industry to know, fearing that if he is indeed a scammer, as an alert for you to know. Ooh this H actually used to commit criminal activities at company A. So, we need to share that information so when other banks look at it, they also say ooh okay I also do not want to have this customer because it will cause trouble for me..." (G_CBM_6_HH).

4.2.2.2.3.4 Requirement of Internal Complaint Unit

EMIs must establish internal complaint units and periodically submit resolutions to BNM, ensuring accountability and regulatory compliance in addressing consumer grievances:

"...that is why before the process inside that if he says he gets it, we will ask them back, first on your process that once we get the complaint, we will send it back to the institution. Then the institution has to actually explain to us. Explain one, second on the resolution. How do you plan to resolve this customer issue?" (G_CBM_6_HH).

4.2.3 Protection by EMIs

4.2.3.1 Security Protection

EMIs play a crucial role in safeguarding e-money consumers through security measures. While some EMIs impose liability clauses on consumers for security failures, others prioritize consumer protection. They ensure meticulous transaction verification processes and utilize advanced security features like 512-bit SSL encryption to mitigate cyber threats and enhance consumer confidence:

"So, there is a good methodology when the like "S" and "L" for example they are playing roles as to protect the consumer element. It is there… that is good" (N_MCCA_2_SJ).

4.2.3.2 Fund Protection

EMIs implement fund protection measures to safeguard consumers' money stored in e-money accounts. This includes segregating accounts based on transaction volumes and offering convenient refund processes for failed transactions. Through efficient refund procedures and "money-back guarantees," EMIs prioritize consumer satisfaction and financial security, enhancing trust in e-money platforms:

"Because…they have two types (account), you know. One, that of RM thousands, have a more complex process. For the simple limit type, ordinary people will use it. But, for a larger transaction, they imposed more complex, more procedures. So that is why we control it" (G_CBM_6_HH).

"They refunded the money and ah, but if I were to contact the runner themselves and, they would send it back to my place. So far, the experience is I would say, very smooth. I did not encounter any bad experience so far" (U_4_ARR).

4.2.3.3 Financial Inclusivity

E-money promotes financial inclusion by providing cost-effective and accessible financial services, especially to underserved populations. EMIs, guided by BNM's mandate for inclusive finance, extend e-money services to rural areas and underserved communities, offering basic financial services and facilitating economic participation. By enabling transactions for students in hostels and underserved individuals, e-money contributes to a more inclusive and accessible financial ecosystem, aligning with broader socioeconomic development goals.

4.2.4 Protection by Merchants

Merchants play a crucial role in the e-money ecosystem, supplying goods and services to consumers. In interviews, it became clear that merchants offer mechanisms to safeguard consumer transactions. For example, platforms like "S" allow consumers to communicate directly with merchants before payment is released. This enables consumers to rectify mistakes, such as wrong product specifications, without losing money. Merchants also cover postage costs for product changes, ensuring a hassle-free experience for consumers:

"I think that it is not bad experience, but for me it is good actually, because when I use "S" online transaction, for example, if we buy shoes and the size is not what we need so I cancelled the transaction to change the size and actually we can directly...before the transaction is made (payment released to the merchant), also we directly message or text the merchant. So if there is something which is not convenient with the things that we find, so we can change it, without losing any money. The merchant was also responsible for the postage payment. So, we don't lose our money and, we don't have to add on for more postage amount" (U_5_NBA).

4.2.5 Protection by TELCOs

Telecommunication companies (TELCOs) play a crucial role in the e-money ecosystem by providing stable internet connections necessary for payment transactions. Without reliable internet networks, e-money transactions may fail. In addition to facilitating transactions, TELCOs have also been known to assist consumers in accidental purchases. For example, in a scenario described by U_2_MFM, Google Wallet refunded an accidental purchase made by his wife on his secondary phone. The reimbursement was settled by crediting the refunded amount to his phone bill, demonstrating TELCOs' involvement in resolving consumer issues related to e-money transactions:

"So, I say oh, I don't want to purchase this. My wife accidentally purchased this and everything right. So, they say, due to whatever reason, right. So, I need to wait for one month right. So then only they can refund it. So, I wait for one month. So, after one month, I think they don't really refund it. Yeah, uh, and then I actually reported again. You know? And then they actually a refund it, but I didn't. I didn't really get the money. So what they do right. So they refund into my bill, so they refund to my bill.".

5. Discussion

Our research brings forth two significant findings. Firstly, it sheds light on the institutional framework governing e-money, which encompasses Government, Private, Non-governmental, and International Institutions. Secondly, it delves into the mechanisms safeguarding e-money consumers, including security measures and regulatory oversight by entities such as the Central Bank of Malaysia (BNM), merchants, telecommunications companies (TELCOs), and Electronic Money Institutions (EMIs).

5.1 Current Institution vs. Findings

In examining the extent of current e-money institutions' protection towards consumers in payment transactions, our study first sought to understand the overall institutional landscape responsible for e-money consumer affairs. Subsequently, we explored the institutional protection rendered to e-money consumers. Our findings revealed the involvement of four institutions in e-money consumer protection, namely government, private entities, non-governmental organizations (NGOs), and international institutions which is summarised in the following Table 2:

Table 2: Institutional Framework for E-money (LR) vs. Institutional Framework For E-money *(Findings)*

<table>
<tr><th>LR</th><th>Findings</th></tr>
<tr><td rowspan="2">Institution:
KPDN
PDRM
MCMC
DPDP
BNM</td><td>Government Institution:
Main agency: BNM, supporting agencies, ministries, legislative and avenues for redress.</td></tr>
<tr><td>Private institutions:
Financial institution, EMIs, Merchants, TELCOs & OTP providers.</td></tr>
<tr><td rowspan="2">Dispute Resolution Mechanism:
TTPM
MCMC
Administration of Justice</td><td>NGOs:
MCCA, PPIM, CAP, CAKE</td></tr>
<tr><td>International institutions:
UN,OECD, ACCP, CI & ICPEN</td></tr>
</table>

5.1.2 Government Institution: Roles of BNM in Payment Transaction Purview

The discussion on government institutions primarily focused on BNM as the central agency responsible for regulating e-money. BNM's roles extend from maintaining monetary and financial stability to formulating electronic payment policies and enforcing financial crime measures.

5.1.2.1 Financial Crime Enforcement

BNM collaborates with other government agencies like the Royal Malaysia Police (PDRM) and the Malaysian Communications and Multimedia Commission (MCMC) to combat financial crimes, including those involving e-money.

5.1.2.2 Negating Working in Silo Notion

This collaboration negates the notion of government agencies working in silos and promotes effective policymaking and enforcement actions.

5.1.2.3 Electronic Payment Policy Formulation

BNM plays a crucial role in formulating policies related to electronic payments, including e-money, to enhance the efficiency and security of e-payment systems.

5.1.2.4 Licensor for Deposit-Taking Business

BNM acts as the licensor for deposit-taking businesses, including EMIs, ensuring compliance with regulatory requirements to protect consumers' funds.

5.1.2.5 Champion of E-money Concerning Financial and Payment Procedures

BNM serves as a champion for e-money issues related to financial and payment procedures, ensuring consumer protection within its purview.

5.1.3 Other Supporting Agencies: Other Types of Responsibilities

Various government agencies collaborate to protect consumers in areas such as cybersecurity, financial crime enforcement, cellular coverage, awareness and education, consumer fund protection, data protection, and e-money inheritance.

5.1.3.1 Ministry

Two main ministries oversee e-money payment systems: the Ministry of Domestic Trade and Consumer Affairs (KPDN) and the Ministry of Communications and Multimedia (KKD).

5.1.3.2 Legislative & Avenue for Redress

Parliament and the court system play crucial roles in legislating and administering justice, respectively, while bodies like the Tribunal for Consumer Claims (TTPM) provide a convenient avenue for consumer disputes resolution.

5.1.3.3 Private Institution

Private institutions, including financial institutions, EMIs, merchants, TELCOs, and OTP service providers, play supportive roles in enabling and protecting e-money transactions.

5.1.3.4 Non-governmental Institution

NGOs such as the Malaysia Cyber Consumer Association (MCCA) and the Ombudsman for Financial Services (OFS) champion consumer rights and provide dispute resolution mechanisms.

5.1.3.5 International Institution

International bodies like the United Nations, Organisation for Economic Co-operation and Development (OECD), ASEAN Committee on Consumer Protection (ACCP), Consumers International (CI), and International Consumer Protection and Enforcement Network (ICPEN) advocate for consumer rights globally and regionally, contributing to the protection of e-money consumers.

5.2 Protection of E-Money Consumers by the Institutions

5.2.1 Five Key Protections

Protection of e-money consumers involves various stakeholders and mechanisms aimed at safeguarding their interests during payment transactions. The study identified five key forms of protection: security, oversight by the Central Bank of Malaysia (BNM), support from merchants, telecommunications companies (TELCOs), and e-money issuers (EMIs). Table 3 compares the protection provided in legal regulations (LR) with that found in the study's findings:

Table 3: Protection of e-money consumers

LR	Findings
Institution based protection/basic protection: KPDN, PDRM, MCMC, DPDP, BNM, TTPM, Courts	Protection on Security
	Protection by BNM
	Protection by EMIs
	Protection by Merchants
	Protection by TELCOs

5.2.1.1 Protection on Security

Security measures encompass the protection of personal data and money. Leakage of personal data, acknowledged by interviewees, underscores the need for stronger safeguards. Causes of leakage range from inadequate service agreements to consumer ignorance and potential breaches by insiders or hackers.

Ensuring the security of e-money accounts is paramount, although interviewees reported no losses. Participants emphasized maintaining modest account balances and simplified transaction processes, necessitating stringent security measures.

5.2.1.2 Protection by BNM

BNM acts as a secondary avenue for redress after EMIs. Its regulatory role, outlined in relevant legislation, includes formulating policies and overseeing payment systems. BNM provides protection through policy papers, enforcement frameworks, and other measures, guided by documents like the Electronic Money Policy and the Enforcement and Penalty Framework.

Policy papers, such as the Electronic Money Policy 2022, enhance requirements for EMIs, reflecting BNM's proactive approach to regulating e-money. Similarly, the Enforcement and Penalty Framework empowers BNM to take actions against non-compliant entities.

The Complaint Management & Advisory Unit (CMA) at BNM handles consumer complaints, demonstrating the institution's commitment to resolving issues. Due diligence measures, like setting minimum account balances and authentication requirements for transactions, further protect consumers.

BNM's efforts extend to requiring EMIs to report on complaint resolutions and share information on scams. This proactive approach aims to ensure consumer safety and confidence in e-money transactions.

5.2.1.3 Protection by EMIs

EMIs play a crucial role in e-money protection, holding consumers' funds in trust. Liability clauses in agreements vary among providers, with some absolving responsibility for data or money loss or technical glitches.

5.2.1.4 Protection by Merchants

Merchants rely on their existing support systems to address consumer complaints effectively.

5.2.1.5 Protection by TELCOs

TELCOs facilitate refunds but may face challenges related to internet connectivity, impacting e-money usage.

5.2.1.6 Protection by NGOs and International Institutions

NGOs and international institutions contribute to consumer protection by raising awareness and providing redress mechanisms. Collaborative efforts aim to safeguard consumers from fraudulent activities and resolve disputes with financial institutions.

6. Conclusion

The research findings present two key discoveries. Firstly, they elucidate the institutional framework governing e-money, encompassing Government, Private, Non-governmental, and International Institutions. Secondly, they delve into the mechanisms safeguarding e-money consumers, including security measures and regulatory oversight by entities such as the Central Bank of Malaysia (BNM), merchants, telecommunications companies (TELCOs), and Electronic Money Institutions (EMIs).

The examination of current e-money institutions' protection towards consumers in payment transactions reveals a comprehensive landscape involving government, private entities, NGOs, and international institutions. Specifically, BNM emerges as a central figure in regulating e-money, collaborating with other government agencies to combat financial crimes and formulate electronic payment policies. This collaboration underscores effective policymaking and enforcement actions, ensuring consumer protection within the e-money sector.

Various stakeholders and mechanisms are identified to protect e-money consumers, including security measures, oversight by BNM, support from merchants and TELCOs, and the role of EMIs. BNM's regulatory role, reflected in policy papers and enforcement frameworks, aims to enhance requirements for EMIs and empower actions against non-compliant entities. Additionally, EMIs hold consumers' funds in trust, while merchants and TELCOs facilitate refunds and address consumer complaints, albeit facing challenges like internet connectivity.

Overall, collaborative efforts among all e-money stakeholders; government, private, NGOs and international institutions are needed and need to be intensified to raising awareness and providing redress mechanisms, aiming to safeguard consumers and resolve disputes in the evolving landscape of e-money transactions.

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