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SETTING THE REGULATORY FRAMEWORK FOR DIGITAL ASSETS IN THE FINANCIAL SECTOR – A CASE STUDY OF THE UNITED ARAB EMIRATES

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Abstract

Purpose: This study explores some of the benefits that can accrue to the United Arab Emirate's financial sector if a unified federal-level regulatory framework is set for digital assets.

Design/Method/Approach: A quantitative research approach was utilized in this study. A survey was conducted to collect primary data, which was subsequently analyzed using multiple regression analysis, represented by the formula $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$, where Y denotes regulatory effectiveness and X variables represent AML/CFT controls, cross-border risk management, client protection, licensing efficiency, self-regulation, and ESG considerations respectively.

Findings: The findings in this study show significant benefits associated with implementing a consolidated federal-level regulatory framework, including strengthened AML/CFT controls, improved management of cross-border risks, enhanced client protection, streamlined licensing processes, increased industry self-regulation, and mitigated ESG impacts of crypto mining.

Practical Implications: The study suggests that the rollout of federal level consolidated regulations for Digital Assets in the UAE will foster industry integrity, investor confidence, international cooperation, innovation, and sustainability. The study concludes that establishing a comprehensive federal regulatory framework is crucial for the UAE's crypto industry and recommends actions such as increased international collaboration, continuous regulatory monitoring, targeted educational initiatives, integration of ESG principles, industry partnerships, and regular regulatory reviews to sustain growth and ethical compliance.

Keywords: digital assets, regulatory framework, UAE crypto industry, AML/CFT, ESG considerations.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The pace of digital development is fast changing the business landscape across the globe today. Digitization has become an existential competitive tool for firms across all sectors of the global economy today. A critical review of the literature shows that the development and adoption of new digital technologies such as cloud computing, artificial intelligence, video technologies, big data technology, Blockchain and Digital Assets always introduce new risk types and opportunities to the sectors that adopt them. The emergence of crypto currencies has not been an exception to this. Crypto technology has introduced immense benefits to the global economy and such benefits drive their continuous adoption, growth, and expansion across multiple geographies. It suffices to say that the emergence of crypto technology has also introduced some new risk typologies into the digital financial space in the last two decades. Consequently, a critical study of these risks and how regulators can fashion out regulations to control such risks is timely important at this stage. Some of the risks found in the literature include (i) the Anti-Money Laundering (AML) risks associated with Crypto currencies, (ii) the risks inherent in the anonymity principle of crypto, (iii) the borderless and non-centrally regulated nature of crypto transactions, (iv) the increasing usage of crypto currencies to fund illegal activities.

As the world gets more and more digitalized, digital assets also become more and more relevant. Today, crypto assets have become a significant asset class in the world's investment market and are traded in all major stock exchanges worldwide. It is estimated that Crypto currencies had a 14.3% market share in the total Assets under Management in the world's Stock Exchange as at end 2018, and this could grow to about 30.6% by 2030. These make it imperative for all governments including the UAE to set regulatory frameworks to allow financial institutions operating under their jurisdictions to participate in this fast-growing space to enhance economic growth opportunities in today's digital world.

1.2 The Research Problem Statements

The review of the literature on the regulatory framework in the United Arab Emirates (UAE) shows that existing and new regulations are emerging to regulate the digital assets space. However, due to the unique legal environment that segregates onshore and offshore jurisdictions from the overarching federal-level regulations, these regulations are scattered and disjointed. Empirical evidence in the literature shows that a consolidated, centralized regulatory framework yields significant merits for strengthening the crypto market. Looking at the importance of the development of the crypto industry to the UAE‘s economy and also the willingness demonstrated by the UAE government to embrace and deepen the crypto market, the problem statement this research intends to address is : the identification of the empirical relationship between a consolidated federal level crypto regulations and the Integrity of the Financial System, Consumer Protection, Financial Stability and Market Conduct of the crypto players in the UAE.

1.3 The Research Questions and Objectives

This dissertation aims to answer the following questions:

(a) What factors can impel the formulation of a consolidated federal-level regulatory framework for the Crypto industry in the UAE?

(b) What advantages does the crypto industry in the UAE stand to gain from the formulation of a federal-level regulatory framework?

On the back of these two research questions, this work aims to achieve the following objectives:

(i) To empirically establish the effect of consolidated federal level crypto asset regulations on the enhancement of AML/TCF controls in the crypto currency market in the UAE.

(ii) To assess empirically whether a consolidated federal level crypto regulations can positively impact the management of crypto related cross- border risks.

(iii) To find out whether a consolidated federal crypto regulations can protect crypto currency clients in the UAE.

(iv) To evaluate the scientific relationship between a consolidated federal regulations for crypto assets and the ease with which firms can acquire licenses to do crypto business in the UAE.

(v) To establish whether a consolidated federal level regulations for crypto can promote a self-regulated crypto industry.

(vi) To find the out whether a consolidated Federal level crypto regulation can reduce the effect of crypto mining on the Environmental, Social and Governance landscape in the UAE.

CHAPTER TWO: THE LITERATURE REVIEW

This chapter examines and analyses in detail the theoretical work done by other researchers that are relevant to this work. It also helps to establish the theoretical justification for this work.

2.1. The Definition of a Digital Asset

In this research, the researcher analyzed various theoretical definitions and settled to work with the broad definition in the US Executive Oder as it encapsulates all the definitions coming from Europe and more. On the basis of this, the researcher adopted a broad working definition for Digital Assets in the financial sector. The terms virtual assets, digital assets, crypto assets and cryptocurrencies will be used interchangeably in this work, and will refer to a digital representation of value created by a blockchain technology through crypto algorithms that are digitally traded, transferred, used as an exchange or payment tool, or for investment purposes and this includes Central Bank Digital Currencies, cryptocurrencies and all stable coins. Digital representation of fiat currency is excluded from this definition. Hence the three key characteristics for digital assets in the context of this research are:

(a) is generated through a cryptography and recorded on some form of a digital distributed ledger

(b) is either issued or guaranteed by a central bank, a public authority or not,

(c) is accepted as medium of exchange and can also be used for investment purposes and/or to access a good or service.

2.2. How the Blockchain Technology works

2.2.1. The Development of the Blockchain Technology.

A block chain is a digital ledger of transactions that is distributed among many computers and maintained by a peer-to-peer network. It works by linking sets of data (called "blocks") together into a chain. Copies of this chain are transmitted continuously to all members of the network.

2.2.2. The flow of Blockchain Transactions and their security features

Yuan Yong et al (2017) simplified how the blockchain technology works in a six steps process as: (1) One party signs a transaction with their keys using a wallet software. The transaction is broadcast to the network or directly to the recipient's wallet which will ask validating nodes to verify the transaction. If the network operators do not see an attempt at fraud, the recipient will see an updated balance in their wallet. The new state of the ledger will be recorded in the next block. These processes occur almost instantly. (2) This transaction will record critical data such as time, date, sending and receiving address, the amount of spent coins and an encrypted hash of the individual's digital signature. (3) Due to its decentralized nature, the finalized block is distributed throughout the network for verification from the other operators of the network who must come to consensus on the stage of the ledger. (4) Network nodes run software which does computational cycles of work toward solving complex math problems required to verify the current block. Once a node solves the block, they are awarded the fees and the predetermined new coins and other nodes immediately begin working on the next available block to avoid duplicates. (5) The completed block receives a

unique timestamp and identify codes called “hash”. The block also records the hash of the previous block, creating the immutable quality and orderliness of the blockchain. (6) The updates on the blockchain are shared with members of the network. The integrity of the ledger is confirmed by the matching hashes. Perhaps the most important feature of the blockchain technology that makes it so reliable and marketable is how secured its cryptographic algorithms work.

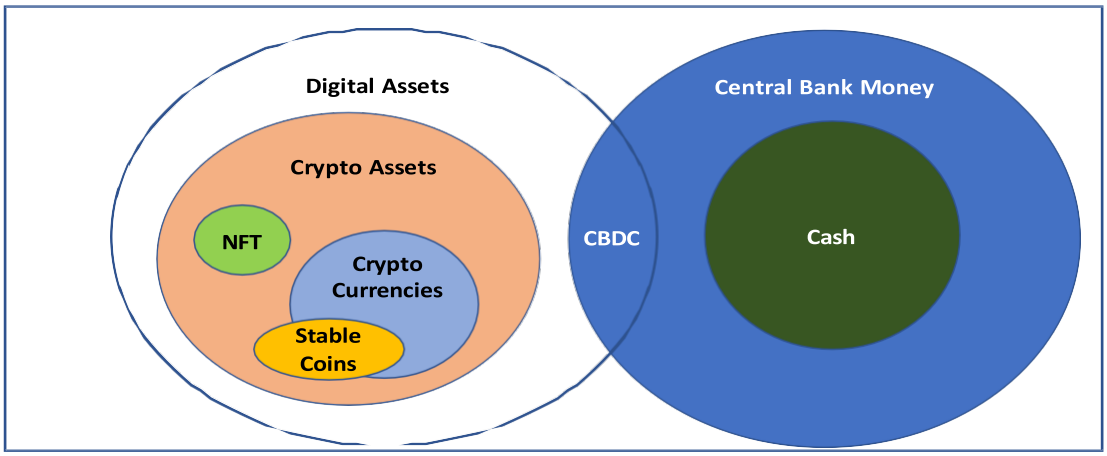
2.3. Crypto Assets versus Central Bank Issued Digital Currencies

Brown, C. et al (2019) indicated that Crypto-assets can take on different forms and have various characteristics. Crypto currencies are the type of digital assets that perform the roles of a currency. They are designed to be used as a general-purpose medium of exchange, store of value and a unit of account. They serve as a peer-to-peer alternative to government-issued legal tender. As shown in figure1.1 below, Digital Assets broadly refer to all Central Bank currencies (CBDCs) and digital currencies. Digital Currencies however include Crypto Assets which is made up of crypto currencies, Non Fungible Tokens (NFTs) and stable coins. Tokens, however, are those crypto-assets that offer their holders certain economic, governance or utility and consumption rights. Broadly speaking, they are digital representations of interests, rights to certain assets, products or services (Snyers, A. et al 2018). Tokens are typically issued on an existing platform or blockchain to raise capital for new entrepreneurial projects, or to fund start-ups or the development of new (technologically) innovative services (Annunziata, F. 2019). Some legal literature and policy documents have referred to cryptocurrencies as “payment tokens”, “exchange tokens” or “currency tokens”. From intellectual perspective, these terminologies are confusing because as tokens generally represent an entitlement to an asset or right, cryptocurrencies generally do not embody intrinsic rights and entitlements. In fact, in some jurisdictions notably in Africa, some central banks have issued warnings to the general public that cryptocurrencies are not legal tenders and the public must desist from their general acceptability as means of payments for goods and services. For example, the Central Bank of Ghana through its Public Directive Notice No.

BG/GOV/SEC/2018/02 (February 2018) warned the general Ghanaian populace that crypto currencies are not recognized as a legal tender in Ghana and that the general public must desist from accepting it as a medium of exchange.

The growing consumer confidence in cryptocurrencies and their underlying technology have led various central banks to initiate projects to rollout their own digital currencies as a complement or substitute for physical banknotes and coins. These initiatives are aimed at rolling out digital currencies that are commonly known as central bank digital currencies (CBDCs). A CBDC is a digital asset or a digitalized instrument issued by a central bank for the purpose of payment and settlement, in either retail or wholesale transactions (Barontini, C. et al, 2019). The issuing central bank holds the sovereign power over it and this is sometimes referred to as sovereign coins in the extant literature. Since CBDCs are different from digital representation of fiat currency, they will be included in the scope of Digital Assets for the purpose of this research.

Figure1.1: The Taxonomy of Digital Assets and Central Bank Money



Source: Hoffman, A. (2022). Note: Not drawn to scale

2.4. Some key Regulatory concerns with Digital Assets

Broadly, regulations have two areas: (i) regulatory tightening- that is, crypto 'bans', whereby the government introduces new regulations or reinterprets existing regulation to prohibit some set of activities involving crypto assets; and (ii) central bank digital currency (CBDC) projects, where the government undertakes to provide an alternative digital asset, whose properties may make it more attractive for some users. These two policy instruments are not mutually exclusive and some regulators have introduced both simultaneously.

2.5. The Emerging Regulatory Trends for Crypto Assets

Key Regulations have also been designed to address the potential money laundering, terrorist financing and tax evasion risks that Crypto Assets pose to the global economy. The EU emphasized that "regulation and innovation should work in hand gloves ". Some of the fundamental issues regulators have sought to legislate over in the digital asset space are: (i) how to ensure that as a fast growing decentralized financial system, it does not pose threat to the strengths of the existing well controlled financial system. Without regulation, crypto poses even bigger risks for the financial system. Crypto markets are growing in size and popularity, so there is the need to think about their systemic risks. Key regulators have taken steps to issue regulations that will ensure the activities of the crypto market players are well controlled to ensure minimal impact on the main stream financial system. In some jurisdictions, regulators have even responded to this by issuing the Central Bank Digital Currency as a competing currency to the private digital asset system. (ii) how to protect consumers: The crypto market is very volatile. Crypto currencies are used in duality as a means of payment and as a financial asset. Without a clear regulatory supervision, clients may be lured into buying unsuitable products because they are often given false promise of value going up without the actual inherent risks being made clear to them.

2.6. The Regulatory Environment for Crypto Assets in the Middle East

The Middle East is one of the fastest growing cryptocurrency markets in the world, making up 7% of global trading volumes (Chainalysis, 2021). While most of the countries have not issued specific laws to regulate them and as such allow their trading as a "commodity" on their trading platforms and guided by their respective securities trading laws and regulations, a few countries have issued specific laws to regulate digital assets and some few have also strictly prohibited trading in crypto currencies due to the risks they perceive to be associated with it. Some of the notable countries which have issued strict prohibitions on crypto currencies are Kuwait, Qatar, Jordan and Iraq. Other Middle East countries such as Saudi Arabia, Bahrain and The United Arab Emirates (UAE) are collaborating to support the development of their Digital Asset Markets. Majority of the Middle East countries such as Oman, Gaza, Westbank, Georgia, Syria, Turkey, Yemen and Georgia have been silent about laws and regulations on crypto assets. Cryptocurrency trading has not been explicitly abolished in all these countries, however, cryptocurrency is not yet recognized as legal tender in either of them. The governments forbid the banks from participating in cryptocurrency transactions and warns citizens of the risks involved. This means individuals can trade in crypto as "commodities" and are required to pay taxes on their gains.

2.7. An overview of the UAE regulatory environment for digital assets

2.7.1 The UAE Legal and Regulatory System

There are seven separate Emirates that came together to form the federation of the United Arab Emirates (UAE) in 1971. These are Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al Khaimah, Sharjah and Umm Al Quwain. The UAE federation adopted a legal system that is designed on the civil law inquisitorial system and also incorporates some aspects of the Egyptian and French civil law. As an Islamic state, it also applies certain Islamic Sharia principles in its adjudicatory processes. The UAE's constitution separates federal matters from local matters and allows each of the seven Emirates to have its own courts to deal with matters that are not reserved for the Federal legal

system. For example, Abu Dhabi, Dubai and Ras Al Khaimah maintain their own separate judicial systems which apply civil law and Sharia principles. Also, under Article 121 of the UAE Federal Constitution, the respective Emirates can establish free zones. In 2004, the Federal Law number eight was issued to specifically permit the setup of variant free zones known as the 'Financial Free Zones'. Article three of the Federal Law number eight permitted the financial free zones to be exempted from all federal civil and Commercial laws except criminal matters. It ought to be noted however, that Federal Anti-Money Laundering laws are treated as criminal laws and consequently apply to all financial free zone jurisdictions. Pursuant to the law permitting the setup of financial free zones, Dubai and Abu Dhabi have set up two Financial free zones - the Dubai International Financial Centre (DIFC) and the Abu Dhabi Global Market (ADGM). As permitted by the law, both the DIFC and ADGM have their own civil courts and separate financial free zone regulators. The DIFC has the Dubai Financial Services Authority (DFSA) as its regulator and its offshore (free zone) court applies the English Common law legal system in its civil adjudicature. Similarly, the ADGM has its own financial regulator as the Financial Services Regulatory Authority (FSRA). In fact, the Civil Evidence, Judgments, Enforcement and Judicial Appointments Regulations 2015 issued by the ADGM makes English Common Law directly applicable in the ADGM. Both the DIFC and ADGM courts conduct proceedings and issue judgements in English. This clearly distinguishes how civil matters are handled by the UAE onshore federal courts from the offshore (free zone) courts. At the federal level however, the UAE has two main financial regulators - the UAE Central Bank (and the Capital Market regulator called the Securities and Commodities Authority (SCA).

2.14 The Operational Definitions of the Research Variables and Hypotheses

The table below summarizes in a concise manner the operational definition of both the independent and dependent variables used in this research as well as their applicable hypotheses – both null and alternative which will be tested in chapter four of this study.

Table 2.1 : The Operational Definitions of the Research Variables and Hypotheses

Variable	Operational Definition	Null Hypothesis (H_0)	Alternate Hypothesis (H_1)
Enhanced AML/CFT	As discussed earlier, the UAE is currently in the FATF grey list and has been classified as a high risk country from AML/CFT perspective internationally. As the government makes frantic efforts to close the AML/CFT loopholes identified during the mutual evaluation process, it is essential that a robust federal level crypto regulations are put in place to prevent any arbitrage for potential money launderers or terror financiers to take advantage. This independent variable will measure the efficiency of AML/CFT regulations in relation to Crypto business in the UAE and assess their impact on a Consolidated Federal level regulation.	**H10**: There is no significant positive relationship between Consolidated Federal Level Crypto regulations and enhanced AML/CFT.	**H1a**: There is a significant positive relationship between Consolidated Federal Level Crypto regulations and enhanced AML/CFT.
Crypto Related Cross-Border Risks	As a decentralized product, crypto currency dealings easily cross national boundaries. Cross-border risks such as sanctions and regulations in other jurisdictions can easily be violated. Conversely, it is also true that crypto operators in other countries may also easily break UAE's consolidated federal regulations	**H20**: There is no significant negative relationship between Consolidated Federal Level Crypto regulations and Crypto related Cross Border Risks.	**H2a**: There is a significant negative relationship between Consolidated Federal Level Crypto regulations and Crypto related Cross Border Risks.
Protection of Crypto Clients	Regulators owe consumers a duty of protection especially in a novel and volatile product area like crypto. Market integrity is a very critical input for the development of the Crypto industry in the UAE. A consolidated federal level	**H30**: Consolidated Federal level Crypto regulations will have no significant	**H3a**: Consolidated Federal level Crypto regulations will have significant

	regulation which protects clients from being lured into buying products that are riskier and complex than their appetites very important in building market integrity.	positive relationship with the level protection Crypto clients have in the UAE.	positive relationship with the level protection Crypto clients have in the UAE.
Licensing for Crypto Business	Different regulators have different licensing requirements for doing crypto business across the two offshore enclaves and even between the two Federal regulators. To achieve the pivotal position that the UAE government envisages in the crypto world, it is critical that all various licensing regimes are brought together and simplified so that once a player acquires the required license, it can operate across the whole of the UAE.	**H40**: A Simplified licensing regime for Crypto Business in the UAE will not lead to Consolidated Federal level regulations for Crypto Assets.	**H4a**: A Simplified licensing regime for Crypto Business in the UAE will lead to Consolidated Federal level regulations for Crypto Assets.
Self Regulated Industry	Because Crypto is an emerging innovation which is developing at a very fast pace, players in the industry are usually ahead of regulatory bodies in the development of its variant products and complexities. Consequently, a well-crafted federal regulation must create an enabling structure that will help the industry players to create a self-regulating environment. The industry can set Ethics and Standards Associations that will set self regulatory rules which will address emerging developments alongside the Federal regulations.	**H50**: A self regulated Crypto Industry in the UAE will not have a significant positive relationship with a Consolidated Federal Level regulation.	**H5a**: A self regulated Crypto Industry in the UAE will have a significant positive relationship with a Consolidated Federal Level regulation.

Environment, Social and Governance (ESG)	Crypto mining consumes a lot of energy because of the usage of the "proof of work" concept. The mining is the act of solving highly complex algorithms through the usage of super computers that are networked to solve the puzzles. Most of these miners use fossil fuel sources and this results in large amounts of carbon emissions. As the UAE government plans to open a crypto mining site in the country, this work will investigate the potential impact of this on ESG.	**H60**: Consolidated Federal Leven Crypto regulations will not have a significant positive relationship with crypto related ESG concerns in the UAE.	**H6a** : Consolidated Federal Leven Crypto regulations will have a significant positive relationship with crypto related ESG concerns in the UAE.
Consolidate d Federal Crypto Regulations	This refers to a comprehensive single document that will contain all the regulations for the Crypto industry at a national level in the UAE. This document will serve as the single point document from which anyone seeking to know all crypto related regulations in the UAE can refer to. It will encapsulate international best practices on regulations in the digital asset space and seek to promote international coordination and cooperation among major crypto markets across the globe. It will supersede any other crypto related regulation issued by any authority within the UAE and must have the power to nullify any other sub-regulation that will conflict this Consolidated Federal Crypto Regulation. This is the dependent variable in this research.	Dependent Variable	

CHAPTER THREE: METHODS AND PROCEDURES

3.1. The Conceptual Framework for the Study

In this research, there is one dependent variable – Consolidated Federal Level Regulations and seven independent variables which will be categorized under four key regulatory pillars. The framework for this study will be constructed as shown in the table below:

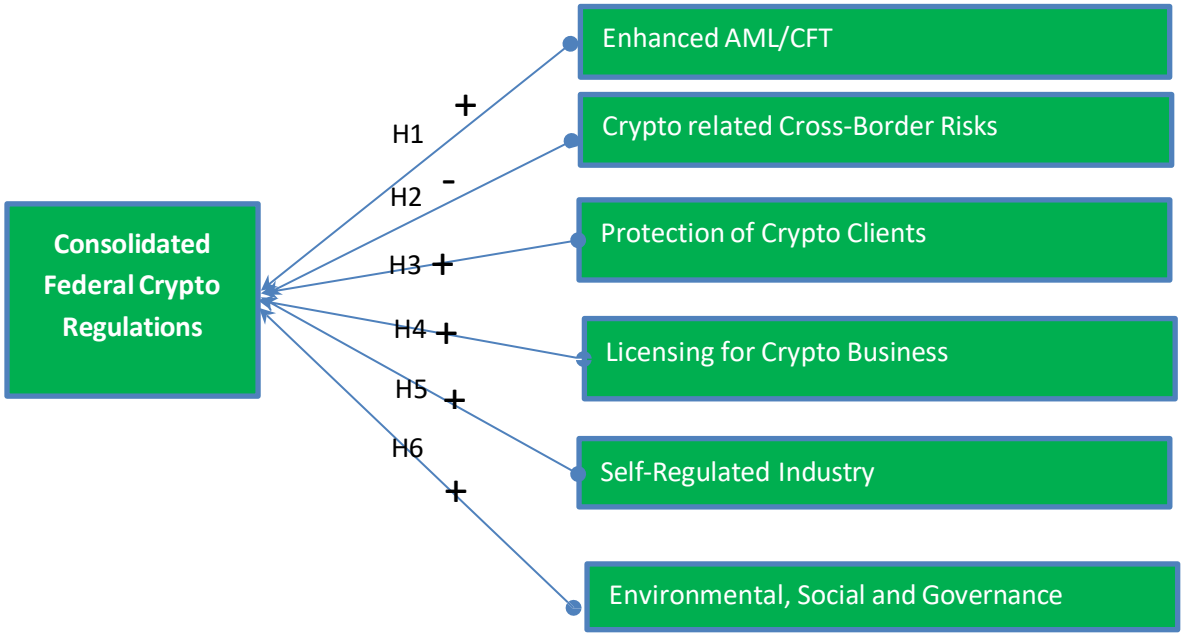
Table 3.1: Conceptual Framework table designed by the researcher

Dependent Variable	Key Regulatory Pillar	Independent Variables	Control Variables
Consolidated Federal Regulations for Digital Assets	**Integrity of the Financial System**	Enhanced AML/CFT Crypto related Cross-Border Risks	Sex, Age, Education, Category of Institution, Emirate of Residence
	Consumer Protection	Protection for Crypto Clients	
	Financial Stability	Licensing for Crypto Business	
		Self-Regulated Industry	
	Market Conduct	Environmental, Social and Governance (ESG)	

As stated in the hypotheses above, this work proposes a positive relationship between the dependent variable (Consolidated Federal Level regulations) and Enhanced AML/CFT, Protection for Crypto Clients, Licensing for Crypto Business, Self regulated Industry and Environmental, Social and Governance (ESG) and a negative relationship with Crypto related cross-border risks.

This can be represented pictorially as below:

Figure 1: Conceptual Diagram by the Researcher



3.2. The Research Design

This is a quantitative research. Both descriptive and inferential statistical tools are utilized as and when they are relevant and applicable to interpret the data collected. Design and analysis tools such as correlation analysis are used to determine the relationship between the dependent and independent variables. Regression analysis is done to determine the cause and effect between the variables in testing the hypotheses. Experimental analytical tools (both parametric and nonparametric) such as the t-tests and ANOVA are employed to determine the significant levels.

3.3. Data Collection Method

Primary data was collected for this study. A survey was conducted and a seven-point Likert scale questionnaire was designed and administered to collect original responses from the sampled population for the analysis of this research. A computer Assisted Data online collection method was employed to reach the sampled respondents who are very busy working professionals but also have

easy access to computers to enable quick and easy responses to be given to the survey questions. Survey Monkeys tool was used to reach the sampled respondents digitally. The seven point Likert scale used to ascertain responses in ranges of "strongly disagree", "disagree", "somewhat disagree", "neither agree nor disagree", "somewhat agree", "agree" and "strongly agree". This approach made it easy for respondents to choose from a wide range of responses that reflected their true and actual psychometric feelings about the variables as it was easy to understand. Also, this enabled the researcher to analyze the responses quantitatively as well as pictorially with the appropriate graphs and diagrams in the analysis.

3.4. Population and Sampling

The population for this study is the number of workers in the various category of crypto related firms and regulatory bodies in the UAE. The size of this population is practically impossible to estimate. Since the population size is unknown, the researcher made use of the Cohen's formula and assumed a conservative estimate of 50 percent of the population proportion [p = 0.50]. The confidence interval is 95 percent, and the margin of error [E] is 0.05. This gave an estimated sample size of 386 which was rounded up to 400. Both probabilistic and non-probabilistic techniques were employed. Firstly, a non-probabilistic quota sampling method was used to split the population into categories and allotted specified quota of sample size for each category. After that, a simple random sampling method was used to select the agreed quota of respondents from each group. Given the estimated sample size of 400, the researcher targeted 200 responses from Regulatory institutions, 25 from Crypto trading firms, 25 from crypto Mining, Exchange and investment firms and 150 from other crypto stakeholders such as other financial and fintech institutions who trade in crypto linked products.

CHAPTER FOUR: RESEARCH FINDINGS

4.1. Introduction and Synopsis

Both descriptive and inferential statistical analytical tools were employed to draw relevant conclusions from the primary data collected through the survey. A significant proportion (50.2%) of the respondents work for regulatory bodies, indicating their involvement in shaping the regulatory landscape. Another 42.2% of the respondents work for Commercial Banks and other Financial Institutions that have crypto assets as a product – this is also a demonstration of their understanding of the topic under study and their willingness to help to shape the regulatory environment for digital assets in the United Arab Emirates. Other respondents work in other digital asset related institutions such as crypto trading firms (4.0%), crypto mining firms (2.0%) and those engaged in crypto-related activities, also contributed. This indicates a range of stakeholders participating in the regulatory framework's development. As a strict inclusion criterion, all respondents were supposed to be employees in selected institutions in the UAE.

4.2. Reliability and Validity Test

To measure the reliability and the repeatability of the test, the researcher employed the Cronbach's Alpha test. The initial Case Processing Summary indicated a total of 251 valid cases. Using the Listwise, no cases were excluded from the analysis. The calculated Cronbach's Alpha value, reported as 0.965. This high Cronbach's Alpha value suggested that the set of 21 questions within the survey demonstrates strong internal consistency and signifies the robustness of the survey instrument in accurately gauging the targeted construct.

4.3. Factors Impelling the formulation of a Consolidated Federal-Level Regulatory Framework for the Crypto industry in the UAE

One of the research questions is: What factors can impel the formulation of a consolidated federal-level regulatory framework for the Crypto industry in the UAE? Descriptive statistical analyses have been employed to answer this question based on the independent variables stated earlier.

Table 3: Descriptive Statistics run from the responses collected in the survey.

Descriptive Statistics					
Independent Variable	N	Minimum	Maximum	Mean	Std. Deviation
AML/CFT	251	1.00	7.00	5.807	1.4181
Cross Border Related Risk	251	1.00	7.00	5.807	1.4181
Protection of Crypto Clients	251	1.00	7.00	5.794	1.35372
Licensing of Crypto Business	251	1.00	7.00	5.758	1.38886
Self-Regulated Crypto Industry	251	1.00	7.00	5.692	1.37592
ESG	251	1.00	7.00	5.432	1.42228
Valid N (Listwise)	251				

The provided table presents descriptive statistics for six different variables: AML/CFT, Cross Border Related Risk, Protection of Crypto Clients, Licensing of Crypto Business, Self-Regulated Crypto Industry, and ESG. The variable AML/CFT contains 251 valid cases, with values ranging from a minimum of 1.00 to a maximum of 7.00. The mean value for AML/CFT is approximately 5.8068, and the standard deviation is approximately 1.41810. The mean value of AML/CFT being approximately 5.8068 indicates that, on average, the responses, or scores for the variable AML/CFT fall around 5.8068. In other words, the average level of the variable is close to 5.8068 when considering all the data points. On the other hand, the standard deviation of approximately 1.41810 provides a measure of the dispersion or spread of the data points around the mean. A higher standard deviation suggests that the data points are more spread out from the mean, while a lower standard deviation indicates that the data points are more clustered around the mean. So, in the context of AML/CFT, a standard deviation of approximately 1.41810 means that the responses or scores are somewhat spread out around the mean value of 5.8068 and that the variable AML/CFT can be the basis for the formulation of federal level crypto regulations in the UAE.

Similarly, the variable Cross Border Related Risk also consists of 251 valid cases, displaying values between 1.00 and 7.00. The mean value for this variable is approximately 5.8068, which coincides with the mean of AML/CFT. The standard deviation is also around 1.41810, matching AML/CFT. So, the mean value for this variable is approximately 5.8068, which coincides with the mean of AML/CFT. The standard deviation is also around 1.41810, matching AML/CFT means that the variable in question, "Cross Border Related Risk," has a similar average value and spread of data as the variable "AML/CFT." Specifically, both "Cross Border Related Risk" and "AML/CFT" have a mean (average) value of approximately 5.8068. This means that, on average, the observations for both variables tend to be close to this value. Since their mean values are close, it suggests that the two variables may have similar central tendencies in the data they represent. Additionally, the standard deviation of "Cross Border Related Risk" is approximately 1.41810, which is also similar to the standard deviation of "AML/CFT." The standard deviation is a measure of the dispersion or spread of data points around the mean. When the standard deviations of two variables are close, it indicates that the variability of data points around their respective means is comparable. In summary, the statement highlights that "Cross Border Related Risk" and "AML/CFT" exhibit similar average values and dispersion in their data, suggesting that they may share certain similarities or patterns in their distribution and hence Cross Border related Risks could also be a justification for the formulation of Federal Level Crypto Assets Regulation in the UAE.

Moving on to the variable Protection of Crypto Clients, it also contains 251 valid cases with values ranging from 1.00 to 7.00. The mean value for Protection of Crypto Clients is approximately 5.7942, and the standard deviation is approximately 1.35372. The mean value of approximately 5.7942 for the variable "Protection of Crypto Clients " indicates the average rating given by the respondents for the protection of crypto clients. In this case, the mean score is around 5.79. Since the rating scale ranges from 1.00 to 7.00, a mean score close to 5.79 suggests that, on average, the respondents' perceptions or evaluations for the level of protection provided to crypto clients are slightly above the midpoint of the scale. The standard deviation of approximately 1.35372 represents the measure

of dispersion or spread of the ratings around the mean value. In the context of "Protection of Crypto Clients", the standard deviation of around 1.35 indicates that the individual ratings are relatively close to the mean value, suggesting a moderate level of agreement among the respondents regarding the level of protection for crypto clients. It implies that the respondents' ratings for this aspect of crypto asset regulations do not vary significantly from the mean, indicating a degree of consensus in their evaluations. Next, the variable Licensing of Crypto Business encompasses 251 valid cases with values between 1.00 and 7.00. Its mean value is approximately 5.7580, while the standard deviation is approximately 1.38886. The resulting mean value of approximately 5.7580 indicates that, on average, the respondents' ratings for licensing of crypto businesses fall close to 5.76. In other words, the typical or representative rating given by the respondents is around 5.76 on a scale from 1.00 to 7.00. The standard deviation of approximately 1.38886 suggests that the ratings for "Licensing of Crypto Business" have a moderate level of variability. The values are somewhat scattered around the mean of 5.7580, with most ratings falling within a range of about ±1.39 units from the mean. The moderate standard deviation indicates that there is some diversity in the respondents' ratings, and they are not all tightly concentrated around the mean. The variable Self-Regulated Crypto Industry has 251 valid cases with values varying from 1.00 to 7.00. The mean value of "Self-Regulated Crypto Industry" is approximately 5.6922. This mean represents the average rating given by the respondents for self-regulation in the crypto industry. The mean is an essential measure of central tendency, indicating the typical or average perception of the respondents towards the self-regulation practices of the crypto industry. In this case, the mean of approximately 5.69 suggests that, on average, the respondents have a moderately positive opinion regarding the self-regulation efforts within the crypto industry. The standard deviation of "Self-Regulated Crypto Industry" is approximately 1.37592. The standard deviation is a measure of variability or dispersion of the ratings around the mean. It indicates how much the individual ratings deviate from the average rating. In this context, the standard deviation of approximately 1.38 suggests that the ratings provided by the respondents for self-regulation in the

crypto industry vary to some extent around the mean value of 5.69. The smaller the standard deviation, the more closely the ratings tend to cluster around the mean, and vice versa.

The mean and standard deviation of “Self-Regulated Crypto Industry" provide valuable insights into the respondents' perceptions of self-regulation in the crypto industry. The moderately positive mean rating of approximately 5.69 indicates that, on average, the respondents have a favorable view of the self-regulatory practices within the crypto industry. However, the standard deviation of approximately 1.38 suggests that there is some variability in the ratings, and not all respondents hold the same opinion. Some may rate self-regulation more positively or negatively than the average. Overall, these descriptive statistics shed light on the overall sentiment towards self-regulation in the crypto industry among the respondents and the extent of variability in their opinions. Lastly, the variable ESG also includes 251 valid cases, displaying values between 1.00 and 7.00. The mean value for ESG is approximately 5.4323, and the standard deviation is approximately 1.42228. This mean represents the average rating given by the respondents for ESG factors. The mean is an essential measure of central tendency, indicating the typical or average perception of the respondents regarding ESG considerations. In this case, the mean of approximately 5.43 suggests that, on average, the respondents have a moderately positive view or opinion regarding ESG factors.

The standard deviation is a measure of variability or dispersion of the ratings around the mean. It indicates how much the individual ratings deviate from the average rating. In this context, the standard deviation of approximately 1.42 suggests that the ratings provided by the respondents for ESG factors vary to some extent around the mean value of 5.43. The smaller the standard deviation, the more closely the ratings tend to cluster around the mean, and vice versa. The mean and standard deviation of "ESG" provide insights into the respondents' perceptions of ESG considerations. The moderately positive mean rating of approximately 5.43 indicates that, on average, the respondents have a favorable view of ESG factors. However, the standard deviation of approximately 1.42 suggests that there is some variability in the ratings, and not all respondents hold the same opinion.

Some may rate ESG factors more positively or negatively than the average.

The descriptive statistics provide an overview of the central tendency (mean) and variability (standard deviation) of each variable. Notably, the variables exhibit similar ranges, but they slightly differ in terms of their means and standard deviations, suggesting variations in the distribution and dispersion of the data. These descriptive statistics serve as a valuable initial exploration of the dataset and lay the groundwork for further analysis and visualization to gain deeper insights into the dataset's characteristics and potential patterns.

4.4. Effect Of Consolidated Federal Level Crypto Asset Regulations On The Enhancement Of AML/TCF Controls in The Crypto Currency Market in the UAE.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760[a]	0.578	0.576	1.9672

a. Predictors: (Constant), AML/CFT

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1318.166	1	1318.166	340.624	.000[b]
	Residual	963.595	249	3.870		
	Total	2281.761	250			

a. Dependent Variable: Consolidated federal level crypto asset regulations

b. Predictors: (Constant), AML/CFT

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.908	0.524		3.639	0.000
	AML/CFT	0.405	0.022	0.76	18.456	0.000
a. Dependent Variable: Consolidated federal level crypto asset regulations						

The regression analysis reveals that the independent variable "AML/CFT" significantly predicts the dependent variable "Consolidated federal level crypto asset regulations," with an R value of 0.760 indicating a strong positive correlation, and an R-squared of 0.578 showing that about 57.8% of the variation in the dependent variable is explained by AML/CFT. The adjusted R-squared (0.576) confirms the model's reliability without overfitting, while the standard error of 1.9672 suggests a moderate average deviation from the predicted values. ANOVA results further affirm the model's statistical significance, with an F-statistic of 340.624 and a p-value of .000, indicating that AML/CFT has a meaningful effect on the dependent variable. Regression coefficients show that AML/CFT has an unstandardized coefficient of 0.405, meaning that for each one-unit increase in AML/CFT, the dependent variable increases by 0.405 units. This effect is statistically significant ($t = 18.456$, $p = .000$), and the standardized beta of 0.760 confirms the strength of this relationship. Overall, the findings suggest that AML/CFT plays a pivotal and statistically validated role in shaping federal-level crypto asset regulations in the UAE.

4.5 **Effect Of Consolidated Federal Level Crypto Asset Regulations On The Enhancement Of Cross Border Related Risk Controls In The Crypto Currency Market In The UAE**

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760[a]	0.578	0.576	1.9672

a. Predictors: (Constant), Cross Border Related Risk

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1318.17	1	1318.166	340.624	.000[b]
	Residual	963.595	249	3.870		
	Total	2281.76	250			

a. Dependent Variable: consolidated federal level crypto asset regulations

b. Predictors: (Constant), Cross Border Related Risk

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.908	0.524		3.639	0.000
	Cross Border Related Risk	0.405	0.022	0.760	18.456	0.000

a. Dependent Variable: consolidated federal level crypto asset regulations

The regression analysis demonstrates a strong and statistically significant positive relationship between Cross Border Related Risk and Consolidated Federal Level Crypto Asset Regulations in the UAE, with an R value of 0.760 and an R-squared of 0.578, indicating that approximately 57.8% of the variation in the dependent variable is explained by changes in Cross Border Related Risk. The model's reliability is supported by an adjusted R-squared of 0.576 and a standard error of estimate at 1.9672, suggesting a good model fit. ANOVA results confirm the model's overall significance ($F = 340.624$, $p < 0.001$), with the regression sum of squares (1318.166) explaining a substantial portion of the total variability (2281.761). The coefficient analysis shows that a one-unit increase in Cross Border Related Risk leads to a 0.405 unit increase in federal-level crypto regulations, with a standardized beta of 0.760, and this relationship is highly significant ($t = 18.456$,

p = 0.000). Overall, the findings confirm that Cross Border Related Risk is a major driver in the enhancement and consolidation of federal-level crypto asset regulatory frameworks in the UAE.

4.6. Effect Of Consolidated Federal Level Crypto Asset Regulations On The Protection

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.807[a]	0.651	0.649	1.78924

a. Predictors: (Constant), Protection of Crypto Clients

b. Dependent Variable: consolidated federal level crypto asset regulations

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1484.62	1	1484.62	463.744	.000[b]
	Residual	797.142	249	3.201		
	Total	2281.76	250			

a. Dependent Variable: consolidated federal level crypto asset regulations

b. Predictors: (Constant), Protection of Crypto Clients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.880	0.497		1.77	0.078
	Protection of Crypto Clients	0.600	0.028	0.807	21.535	0.000

a. Dependent Variable: consolidated federal level crypto asset regulations

The regression analysis reveals a strong and statistically significant relationship between the protection of crypto clients and the development of consolidated federal-level crypto asset regulations in the UAE. With an R value of 0.807 and an R-squared of 0.651, approximately 65.1% of the variation in the dependent variable is explained by the independent variable, confirming a substantial predictive effect. The adjusted R-squared of 0.649 and a low standard error of 1.78924 reinforce the model's robustness and predictive accuracy. ANOVA results support this finding with a high F-statistic of 463.744 and a p-value of 0.000, indicating that the regression model is highly significant. The coefficient table shows that for every one-unit increase in "Protection of Crypto Clients," the consolidated crypto regulation score increases by 0.600 units, with a standardized beta

of 0.807 and a t-value of 21.535, confirming the strength and significance of this relationship. Although the constant term is not significant (p = 0.078), the core predictor variable clearly plays a pivotal role. These findings suggest that enhanced client protection measures are a key driver of comprehensive federal-level crypto regulations, emphasizing their importance in shaping a secure and investor-focused regulatory framework in the UAE.

4.7. Effect Of Consolidated Federal Level Crypto Asset Regulations On The Licensing Of Crypto Business

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.746[a]	0.556	0.554	2.01723

a. Predictors: (Constant), Licensing of Crypto Business

b. Dependent Variable: consolidated federal level crypto asset regulations

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1268.523	1	1268.52	311.735	.000[b]
	Residual	1013.238	249	4.069		
	Total	2281.761	250			

a. Dependent Variable: Consolidated federal level crypto asset regulations

b. Predictors: (Constant), Licensing of Crypto Business

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.972	0.544		3.625	0.000
	Licensing of Crypto Business	0.405	0.023	0.746	17.66	0.000

a. Dependent Variable: consolidated federal level crypto asset regulations

The regression analysis indicates a significant and positive relationship between the licensing of crypto businesses and the development of consolidated federal-level crypto asset regulations in the UAE. The model's R value of 0.746 and R-squared of 0.556 reveal that about 55.6% of the variance

in the dependent variable is explained by the licensing variable, with an adjusted R-squared of 0.554 confirming the model's reliability. The standard error of the estimate (2.01723) reflects a reasonable fit between predicted and actual values. ANOVA results further validate the model's significance, with an F-statistic of 311.735 and a p-value of 0.000, confirming that the predictor variable meaningfully explains variation in federal regulations. The coefficients table shows that a one-unit increase in "Licensing of Crypto Business" leads to a 0.405 unit increase in the dependent variable, with a standardized beta of 0.746 and a highly significant t-value (17.66, p = 0.000). Overall, these results highlight that effective licensing mechanisms play a crucial role in shaping strong and coherent federal-level regulatory frameworks for the crypto industry in the UAE.

4.8 Effect Of Consolidated Federal Level Crypto Asset Regulations On The Self- Regulated Crypto Industry

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.704[a]	0.495	0.493	2.15086

a. Predictors: (Constant), Self Regulated Crypto Industry

b. Dependent Variable: consolidated federal level crypto asset regulations

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1129.832	1	1129.832	244.22	.000[b]
	Residual	1151.929	249	4.626		
	Total	2281.761	250			

a. Dependent Variable: consolidated federal level crypto asset regulations

b. Predictors: (Constant), Self Regulated Crypto Industry

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.516	0.579		4.346	0.000
	Self Regulated Crypto Industry	0.386	0.025	0.704	15.628	0.000

a. Dependent Variable: Consolidated federal level crypto asset regulations

The regression analysis demonstrates a statistically significant and positive relationship between the self-regulated crypto industry and consolidated federal-level crypto asset regulations in the UAE. With an R value of 0.704 and an R-squared of 0.495, the model shows that about 49.5% of the variance in the dependent variable is explained by the self-regulation variable, while the adjusted R-squared of 0.493 confirms the model's robustness. The standard error of 2.15086 reflects a moderate fit between actual and predicted values. ANOVA results support the model's significance, with an F-statistic of 244.22 and a p-value of 0.000, confirming that the predictor variable meaningfully explains changes in federal regulations. The coefficients table reveals that for every one-unit increase in the self-regulated crypto industry, consolidated crypto regulations increase by 0.386 units, with a strong standardized beta of 0.704 ($t = 15.628$, $p < 0.001$). These findings suggest that as the crypto industry adopts more self-governing practices, there is a corresponding increase in regulatory integration and formalization at the federal level, highlighting the importance of industry-led governance in shaping UAE's regulatory landscape.

4.9 Effect Of Consolidated Federal Level Crypto Asset Regulations On ESG

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.556[a]	0.309	0.284	2.92911

a. Predictors: (Constant), AML/CFT

b. Dependent Variable: Consolidated federal level crypto asset regulations

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.659	1	103.659	12	.002[b]
	Residual	231.651	27	8.580		
	Total	335.310	28			

a. Dependent Variable: Consolidated federal level crypto asset regulations

b. Predictors: (Constant), AML/CFT

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.939	2.036		1.935	0.064
	AML/CFT	0.337	0.097	0.556	3.476	0.002
a. Dependent Variable: Consolidated federal level crypto asset regulations						

The regression analysis examining the effect of consolidated federal-level crypto asset regulations on ESG reveals a moderate but statistically significant relationship, with an R value of 0.556 and an R-squared of 0.309, indicating that about 30.9% of the variation in the dependent variable is explained by the predictor AML/CFT. The adjusted R-squared of 0.284 reflects a slight correction for model complexity, and the standard error of 2.92911 indicates moderate prediction accuracy. ANOVA results confirm the model's overall significance ($F = 12.082$, $p = 0.002$), demonstrating that AML/CFT meaningfully predicts variations in ESG-related regulatory outcomes. The coefficient analysis shows that for every one-unit increase in AML/CFT, consolidated federal-level crypto asset regulations increase by 0.337 units, with a standardized beta of 0.556, t-value of 3.476, and a significance level of 0.002—confirming the strength and statistical relevance of the relationship. Although the constant term is not significant ($p = 0.064$), the core predictor AML/CFT has a notable impact, suggesting that enhanced anti-money laundering and counter-terrorism financing measures are key factors driving ESG-oriented regulatory frameworks within the UAE's crypto market.

RECOMMENDATION FOR FUTURE STUDY

5.1 Chapter Synopsis

This chapter summarized the major findings and conclusions of the study, presented the implications of the study's results in relation to both theoretical advancements and practical applications, and offered valuable recommendations for future researchers who may wish to explore similar topics.

5.2 Summary of Major Findings

This study is governed under two main objectives. The first objective seeks to ascertain the factors that can impel the formulation of a consolidated federal-level regulatory framework for the Crypto industry in the UAE and second focus on advantages the crypto industry in the UAE stands to gain from the formulation of a federal-level regulatory framework. Regarding the first research question, the respondents' mean ratings for both AML/CFT and Cross Border Related Risk are approximately 5.8068, indicating that they perceive these factors as important. Given the nature of cryptocurrencies and their potential use in illegal activities, addressing Anti-Money Laundering (AML) and Countering the Financing of Terrorism (CFT) concerns appears crucial for regulatory framework formulation. With a mean rating of about 5.7942, respondents view the protection of crypto clients as significant. This suggests that ensuring the security and rights of individuals involved in the crypto industry, such as investors and users, could be a motivating factor for regulatory efforts. The variable "Licensing of Crypto Business" has a mean of approximately 5.7580. This implies that respondents consider proper licensing and regulation of crypto-related businesses as relevant, which could be a driving force behind the formulation of a consolidated regulatory framework. Respondents' moderately positive mean rating of about 5.6922 for "Self-Regulated Crypto Industry" suggests that they acknowledge the role of self-regulation within the industry. This factor might contribute to the impetus for a consolidated regulatory framework to enhance and standardize self-

regulatory practices. The mean rating for ESG factors is around 5.4323, indicating respondents' moderately positive view of Environmental, Social, and Governance considerations within the crypto industry. Integrating ESG principles into regulations might be seen as a factor driving the formulation of a comprehensive regulatory framework. So, the convergence of moderate mean ratings across these variables suggests that a holistic regulatory approach is needed to address a range of concerns and considerations. A consolidated federal-level regulatory framework that addresses AML/CFT concerns, protects crypto clients, ensures proper licensing, promotes self-regulation, and incorporates ESG considerations could be driven by these perceived factors.

From the findings of the second objective, the formulation of a federal-level regulatory framework for the crypto industry in the UAE brings forth several advantages that can positively impact the industry's growth, stability, and overall reputation. The establishment of a consolidated federal-level regulatory framework ensures robust Anti-Money Laundering (AML) and Countering the Financing of Terrorism (CTF) controls. This advantage fortifies the industry against illicit financial activities, money laundering, and funding of terrorism, enhancing the integrity of the market and fostering a secure environment for investors and stakeholders. This is consistent with the findings of both Renda and Caneppele (2023) and Wronka (2022) who both discovered that AML/CTF regulations and laws must adapt to the decentralized financial systems generated by crypto assets. Thus, emphasizing the importance of implementing and adapting AML/CTF regulations and controls in the cryptocurrency market.

Another advantage is the effective Management of Cross-Border Risks. A federal-level regulatory framework offers the crypto industry the capability to address and manage cross-border risks more effectively. By standardizing regulations across different emirates, the industry gains the ability to navigate cross-border transactions with confidence, minimizing potential risks associated with international operations. This agrees with Kochergin (2021) who holds the view that by introducing and encouraging central bank digital currencies (CBDCs) for retail and wholesale transactions will

help promote safer cross-border payment. However, Banerjee (2020) advised on the critical importance of addressing systemic risks while considering the international nature of crypto-assets. The research highlights the need for effective cross-border cooperation, coordination, and information sharing to regulate and supervise crypto-assets.

Similarly, the adoption of a consolidated regulatory framework ensures better protection for crypto currency clients. The research suggests that such a framework is linked to improved client protection measures, instilling trust and confidence among investors. This advantage is critical for attracting and retaining participants in the crypto market. This is also emphasiszed by Alekseenko, A.P., (2023) that there should be the development of a comprehensive international legal framework aimed at protecting consumers from risks associated with decentralized cryptocurrencies.

Also, the study indicates that a federal-level framework positively impacts the ease with which firms can acquire licenses for crypto business operations. This streamlined licensing process reduces bureaucratic hurdles and barriers to entry, encouraging more businesses to participate in the industry and fostering its growth. As indicated by Alkadri (2018), cryptocurrencies are a legitimate medium of exchange, which can impact how businesses are regulated thus it should be recognized as ‘money’ and also all regulations of money need to be applied to it.

Regarding the promotion of Self-Regulation, the research findings demonstrate that a federal-level regulatory framework encourages the adoption of self-regulation practices within the crypto industry. This advantage empowers industry participants to proactively adhere to best practices, ensuring compliance and ethical conduct. Self- regulation can also contribute to a favorable business environment by reducing the need for extensive external oversight. As pointed out by Howell and Potgieter (2019), the regulation of crypto cannot be played better by government without the entities involved.

Also, this study shows that there is a positive ESG impact. For instance, the study suggests that a

federal-level crypto regulation can mitigate the negative effects of crypto mining on the Environmental, Social, and Governance (ESG) landscape. This advantage aligns with global sustainability efforts, fostering environmentally responsible practices within the industry and enhancing its reputation (Cerchiaro et al. 2021). In light of these research findings, the crypto industry in the UAE stands to gain a comprehensive framework that addresses key challenges, fosters responsible practices, and creates an environment conducive to sustainable growth. The advantages highlighted above underscore the importance of a federal-level regulatory approach in ensuring the industry's success and aligning it with international standards and best practices. The results of the analysis for all the hypotheses put forth in this study have yielded significant findings. In each case, the alternative hypothesis was accepted, while the null hypothesis was rejected. This indicates that there are indeed significant relationships between the variables under investigation, highlighting the meaningful impact of a consolidated federal-level regulatory framework on various aspects of the crypto industry in the UAE. For instance,

(i) The study has successfully established that the implementation of a consolidated federal-level crypto asset regulatory framework enhances Anti-Money Laundering (AML) and Countering the Financing of Terrorism (CFT) controls within the crypto currency market in the UAE. The findings show a significant positive effect of the regulatory framework on bolstering these important controls, contributing to the integrity and security of the market.

(ii) Through empirical assessment, it has been demonstrated that a consolidated federal- level crypto regulatory framework can have a positive impact on managing cross-border risks associated with crypto assets. This suggests that such a framework plays a vital role in addressing and mitigating potential risks that arise from cross-border activities in the crypto industry.

(iv) The study's results affirm that a consolidated federal-level crypto regulatory framework indeed leads to better protection of crypto currency clients in the UAE. The significant relationship established indicates that the framework contributes to enhancing client protection measures,

fostering trust and confidence in the market.

(v) The analysis reveals that a consolidated federal-level regulatory framework for crypto assets positively affects the ease with which firms can acquire licenses to engage in crypto business in the UAE. This implies that the framework streamlines the licensing process, making it more accessible for businesses to operate in the crypto industry.

(vi) The findings demonstrate that a consolidated federal-level regulatory framework can promote a self-regulated crypto industry. The significant relationship established suggests that the framework encourages the adoption of self-regulation practices within the industry, enhancing overall compliance and accountability.

(vii) The study provides evidence that a consolidated federal-level crypto regulation can effectively reduce the negative effects of crypto mining on the Environmental, Social, and Governance (ESG) landscape in the UAE. This implies that the framework has a role in fostering responsible mining practices that align with environmental and social sustainability goals.

In conclusion, the study's analysis has unequivocally demonstrated the significance of a consolidated federal-level regulatory framework for the crypto industry in the UAE. The acceptance of alternative hypotheses and the rejection of null hypotheses underscore the valuable impact of such a framework on various dimensions of the industry, from regulatory controls to client protection, business operations, self- regulation, and ESG considerations. These findings collectively emphasize the importance of a comprehensive and standardized regulatory approach to ensure the sustainable growth and development of the crypto industry in the UAE.

5.3 Discussion of the results

Several factors can impel the formulation of a consolidated federal-level regulatory framework for the crypto industry in the UAE based on the analysis provided. For instance, the data indicates a moderate level of agreement among respondents regarding Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT) measures. The similarity in mean values and standard deviations across AML/CFT and Cross Border Related Risk variables suggests consistent challenges. This consistency supports the need for a federal-level regulatory framework to ensure uniformity in AML/CFT the uniformity in responses regarding cross-border activities, as reflected in the Cross Border Related Risk variable, strengthens the argument for a federal-level approach. Also, there is a consensus in the "Protection of Crypto Clients" variable which suggests a common understanding. This consensus provides a foundation for federal-level regulations to ensure consistent and effective measures for safeguarding crypto clients.

Again, the moderately varied opinions on licensing, as indicated by the Licensing of Crypto Business variable, coupled with a general tendency towards positive evaluations, calls for standardized procedures. A federal-level framework can address this need, ensuring coherence in the regulation of crypto businesses. The same applies to opinions on "self-regulation". Despite some variability in responses, there is the need for federal-level policies. Such policies can strike a balance between industry autonomy and necessary regulatory oversight, fostering a cohesive and effective self-regulatory environment as identify in the study.

Finally, the moderately positive perception of Environmental, Social, and Governance (ESG) factors, coupled with varying opinions, underscores the need for a comprehensive federal-level regulatory framework. Thus, the factors impelling the formulation of a consolidated federal-level regulatory framework in the UAE's crypto industry include the consistency in respondents' perceptions across crucial dimensions such as AML/CFT measures, cross-border risks, client protection, licensing procedures, self-regulation, and ESG factors. These factors highlight the

importance of addressing common challenges, ensuring regulatory uniformity, and fostering the sustainable development of the crypto industry at a national level. As such, we can conclude that the factors can impel the formulation of a consolidated federal-level regulatory framework for the crypto industry in the UAE based on the analysis are AML/CFT measures, cross-border risks, client protection, licensing procedures, self-regulation, and ESG factors.

Also, from the findings of the study, it was noted that consolidated federal level crypto assets have a significant positive effect on AML/CFT. The hypothesis test also shows that the accepted hypothesis is the alternate hypothesis thus leading to the rejection of the null hypothesis. This finding is consistent with the findings of Byttebier and Adamos (2022) whose study emphasized the necessity of a comprehensive regulatory framework to mitigate AML risks associated with crypto assets. According to them, that a well-structured and effective regulatory environment is essential to safeguard cryptocurrency market against potential money laundering activities.

Similarly, the findings of Kirkpatrick et al. (2021) after assessing the global anti-money laundering regulation of digital assets and cryptocurrencies maintained that as digital assets gain popularity, global regulators focus on AML risks thus the understanding of international regulations is crucial for organizations entering the digital asset market. Their findings emphasize the importance of understanding and complying with applicable laws and regulations, which is particularly relevant to organizations entering the digital asset market thus also highlighting the significance of why consolidated federal level crypto assets can have a significant positive effect on AML/CFT. Regarding the second hypothesis, the null hypothesis was rejected as the hypothesis test and the findings also posit that there is a significant positive effect of consolidated federal level crypto assets regulations on cross-border related risk. This finding in consistent with the finding of Zetzsche, D.A. et al. (2021) who after exploring the implications of Distributed Ledger Technology (DLT), such as blockchain, on cross- border payment efficiency from a legal and regulatory perspective concluded that there is the need for global standards and harmonization to mitigate the potential risks

posed by DLT system through the cross-border engagement. Ginneken (2019) also highlighted lack of standardization after investigating the settlement of cross-border transactions through Central Bank Digital Currency (CBDC) and called for the need for international cooperation and standardization thus supporting the argument that consolidated federal level crypto assets regulations are significant in reducing cross- border related risk.

Similarly, the study also shows that consolidated federal level crypto assets have a significant positive effect on the protection of the crypto clients. This finding is evident in the ANOVA table that shows a significant positive effects and relationships. The hypothesis test conducted also shows a rejection of the null hypothesis. These findings suggest that crypto regulations can help to prevent clients from being exploited by crypto institutions and businesses alike. This finding agree with the findings of Khanfar and Khanfar (2023) who investigated the legal protection of cryptocurrency investors in various jurisdictions and recommends the need for regulators in approving crypto asset-related products before it is introduced in to the market. Similarly, Jolly (2022) also noted that the application of General Data Protection Regulation (GDPR) and the use of anonymization techniques by the crypto community to enhance privacy can help protect crypto clients.

A close look at the third hypothesis on the effect of consolidated federal level crypto assets regulations on the licensing of crypto businesses shows that, the alternate hypothesis is accepted as the findings from the analysis shows that consolidated federal level crypto assets regulations does have a significant positive effect on the licensing of crypto business. Huang, S.S. (2021) study shows that the lack of clear and effective regulations for obtaining licensing to crypto business can impact negatively on the licensing of crypto businesses thus the need for crypto businesses to endeavor to have a regulatory framework.

Furthermore, it is observed from the analysis that consolidated federal level crypto assets regulations have a positive effect on the self-regulated crypto industry. This has led to the rejection of the null hypothesis in the hypothesis testing analysis. The conclusion of this study supporting the

findings that consolidated federal level crypto assets regulations have a positive effect on the self-regulated crypto industry is also in line with the conclusions drawn by Angotti et al (2023) who noted that self-regulatory organizations (SROs) offer a high-quality solution to the unique challenges of legislating and regulating the rapidly evolving digital asset industry. As such, in the field of crypto asset regulations in the self-regulated crypto industry, SROs is a complementary mechanism to government regulations, addressing the need for both consumer protection and innovation. Other studies like Howell and Potgieter (2019) proposed that self-regulation, implemented through internal rules and voluntary participation, could be more effective than government regulation in constraining opportunistic behavior within crypto exchanges.

Also, the findings of the effect of consolidated federal level crypto assets regulations on ESG shows that consolidated federal level crypto assets regulations have a positive effect of ESG leading to the rejection of the null hypothesis. This is in agreement with the findings of Ciaian, P., et al (2022) who explored the relationship between Environmental-Social-Governance (ESG) preferences and investments in crypto-assets and found that a strong association between investors' ESG preferences and their exposure to crypto-assets. In other words, investors with stronger ESG preferences tend to invest more frequently in crypto-assets compared to those with lower ESG consciousness. Similarly, Kakinuma, Y., (2023) explored the relationship between ESG equities and Bitcoin. The finding of the study shows that Bitcoin significantly reduces portfolio risk when combined with green stocks, making them suitable for portfolio diversification. The findings are significant for crypto asset regulations on ESG because it provides insights into how Bitcoin, when combined with ESG equities, can contribute to responsible and sustainable investment practices. It suggests that crypto investors can mitigate the negative environmental impact of Bitcoin by including it in their ESG equity portfolios which is consistent with our findings.

In all, the findings from the hypothesis support the conceptual framework that all the independent variables used in the study are significant and positively affected by the dependent variable leading

to the acceptance of the alternative hypothesis and the rejection of the null hypothesis.

5.4 Implications and recommendations of the study

The findings of this study carry significant implications for both the regulatory landscape and the crypto industry in the UAE. The identification of factors that can impel the formulation of a consolidated federal-level regulatory framework underscores the need for a holistic approach that addresses multifaceted concerns within the industry. The study's insights into the perceived importance of factors such as Anti- Money Laundering (AML) and Countering the Financing of Terrorism (CFT) controls, cross-border risk management, client protection, licensing, self-regulation, and Environmental, Social, and Governance (ESG) considerations emphasize the complexity of the regulatory challenges the industry faces.

The empirical evidence supporting the advantages that the crypto industry stands to gain from a federal-level regulatory framework highlights the potential positive impact on multiple fronts. Strengthening AML/CFT controls enhances the industry's integrity, security, and credibility, contributing to the prevention of illicit financial activities. Effective management of cross-border risks fosters international cooperation and minimizes vulnerabilities arising from global operations. Improved client protection instills investor confidence and contributes to market growth. Furthermore, the streamlining of licensing processes encourages innovation and the growth of crypto- related businesses by reducing barriers to entry. The promotion of self-regulation empowers industry participants to adhere to ethical standards and best practices, reducing the need for external oversight and fostering a culture of responsibility. The positive Environmental, Social, and Governance (ESG) impact aligns with global sustainability goals and positions the industry as a responsible player. These implications extend beyond the regulatory framework itself and have broader implications for the development of the crypto ecosystem. A consolidated federal-level regulatory framework can attract domestic and international investors by creating a secure and

transparent environment. The alignment with international standards can enhance the industry's reputation and participation in global financial markets.

Based on these findings, several recommendations can be made:

1. Formulation of Comprehensive Regulatory Framework: The study highlights the significance of addressing a spectrum of factors in the regulatory framework. Regulatory authorities should collaborate to develop a comprehensive framework that integrates AML/CFT controls, cross-border risk management, client protection, licensing procedures, self-regulation mechanisms, and ESG considerations.

2. International Collaboration: Given the global nature of the crypto industry, collaboration with international regulatory bodies and standards-setting organizations can facilitate the alignment of regulations and promote cross-border consistency. This can enhance investor trust and contribute to a harmonized global regulatory environment.

3. Continuous Monitoring and Adaptation: The dynamic nature of the crypto industry requires continuous monitoring and adaptation of regulations. Regulatory authorities should establish mechanisms to assess the framework's effectiveness, identify emerging risks, and adapt regulations to technological advancements and market developments.

4. Educational Initiatives: Stakeholders, including industry participants, investors, and the public, should be educated about the benefits and implications of the regulatory framework. Educational initiatives can foster awareness and understanding, promoting greater compliance and responsible engagement within the industry.

5. ESG Integration: Regulatory efforts should encourage the integration of Environmental, Social, and Governance (ESG) considerations within the crypto industry. Encouraging eco-friendly mining practices, ethical conduct, and responsible corporate citizenship can contribute to sustainability and positive societal impact.

6. Collaboration with Industry: Regulatory authorities should engage with industry players, technology experts, and academia to ensure that the framework remains adaptable and responsive to technological advancements and industry trends.

7. Transparency and Accountability: The regulatory framework should prioritize transparency and accountability. Clear communication of regulatory expectations, reporting mechanisms, and enforcement actions can enhance market participants' understanding and compliance.

8. Regular Review and Enhancement: The regulatory framework should undergo regular reviews and enhancements to reflect changing market dynamics and emerging risks. A mechanism for continuous improvement ensures that the framework remains effective and relevant.

In conclusion, the research findings emphasize the critical role of a consolidated federal-level regulatory framework in shaping the future of the crypto industry in the UAE. By addressing multifaceted concerns and promoting responsible practices, the framework can catalyze sustainable growth, attract investments, and position the UAE as a leading jurisdiction for crypto-related activities. The implications and recommendations derived from this study provide valuable insights for policymakers, industry participants, and stakeholders alike.

5.5 Implication for future research

The findings and insights gained from this study present several avenues for future research that can further enrich our understanding of the regulatory landscape in the crypto industry and its implications. These implications for future research extend beyond the scope of the current study and offer valuable directions for scholars, policymakers, and industry practitioners to explore. A crucial implication for future research lies in investigating the potential for cross-jurisdictional synergies and collaboration in the context of regulatory frameworks for the crypto industry. As digital assets and blockchain technology transcend geographical boundaries, understanding how different countries' regulatory approaches can align, converge, or collaborate becomes paramount. Future

research can delve into the feasibility and benefits of international cooperation among regulatory authorities to establish common standards, frameworks, and guidelines for the crypto industry. This research could explore mechanisms for information sharing, best practices exchange, and harmonization of regulations to create a cohesive global regulatory ecosystem. By examining successful case studies of collaborative regulatory efforts and analyzing challenges faced in achieving convergence, researchers can offer insights into the potential impact on industry growth, innovation, and investor confidence. Investigating how cross- jurisdictional collaboration can mitigate regulatory arbitrage and create a level playing field for market participants can contribute to the industry's stability and legitimacy. Such research can have far-reaching implications, not only for the crypto industry but also for the broader financial sector and global economic stability. It can inform policymakers, regulators, and international organizations about the strategies and mechanisms that can enhance regulatory effectiveness, reduce market fragmentation, and encourage responsible innovation in the crypto space. Ultimately, this line of research could pave the way for the development of international regulatory frameworks that accommodate the unique features of the crypto industry while safeguarding financial integrity, consumer protection, and systemic stability across borders. As the global crypto landscape continues to evolve rapidly, understanding how regulatory collaboration can support a sustainable and secure digital financial future is a timely and critical avenue for future research.

5.6 Limitation of the study

The study's insightful exploration into the factors propelling the establishment of a consolidated federal-level regulatory framework for the crypto industry in the UAE, as well as the advantages inherent in such a framework, is accompanied by certain limitations that warrant consideration. Firstly, the findings are derived from a specific sample of respondents within the UAE's crypto industry, potentially limiting their generalizability due to the potential absence of broader industry representation. Secondly, adopting a cross-sectional approach provides a snapshot of the industry's

landscape at a specific moment, but it might not account for evolving developments or changes over time. The reliance on self-reported data introduces the possibility of participant bias or subjective interpretation, possibly impacting the accuracy of responses. The study's focus on the UAE context might restrict the direct applicability of its findings to other regions with distinct regulatory and industry dynamics. Furthermore, the study's identification of factors and benefits might not encompass the entirety of potential variables at play. While correlations between variables are observed, causational relationships might not be fully established, considering the presence of confounding factors. The potential influence of selection bias, where participants differ from non-participants, could affect the sample's representativeness. The reliance on perceptions and opinions, rather than objective realities, is an inherent limitation. Resource and time constraints might have restricted the scope of the study's data collection and analysis. Lastly, a predominant reliance on quantitative data might overlook qualitative nuances that could enrich the understanding of the industry. To address these limitations and provide more robust insights, future research endeavors could consider employing longitudinal studies, expanding the geographical scope, utilizing mixed-methods approaches, diversifying samples, and allocating more resources to enhance the depth and breadth of analysis.

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