A QUANTITATIVE ANALYSIS OF THE MAGNITUDE OF MONEY LAUNDERING ACTIVITIES AND ITS DETERMINANTS IN THE UNITED ARAB EMIRATES

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ABSTRACT

The United Arab Emirates (UAE) has one of the most developed financial sectors in the world. However, it is one of the top destinations for illicit funds and a safe haven for laundered money. This study aims to assess the magnitude and determinants of money laundering (ML) in the UAE from 1975 to 2020. The research is hinged on Masciandaro's ML model. Using the autoregressive distributed lag (ARDL) model-based currency demand function (CDA), the findings indicate that the average size of ML as a percentage of GDP was about 19.034 percent during this period, fluctuating between 15.129 percent and 23.121 percent. Besides, the results confirm that the key factors influencing ML in the UAE include the real estate market, money outflows, arms procurement, the size of the underground economy, gold trade, financial development, and national output. In addition, the results illustrate the presence of a significant non-linear relationship between ML and economic growth. Also, the results demonstrate a "U-shaped' Kuznets curve, or FD-ML-KC (financial development-ML Kuznets curve), with an increase in the magnitude of ML impairing financial development at the initial stage up to a peak point (of about 18.19 percent), after which further increases in the magnitude of ML promote financial development. Moreover, the results of the Toda-Yamamoto causality procedure indicate the presence of a two-way causal relationship between ML and the real estate market (and underground economy), a unidirectional causality from ML to the outflow of money (and financial development, output size), and also from gold trade (and arms imports) to ML. The study's policy implications suggest that the UAE's government should implement policies to deter the laundering of illicit funds through the real estate market, gold trade, remittance systems, and financial institutions to safeguard the economy from external shocks and ensure the integrity of the financial sector.

ANALISIS KUANTITATIF TERHADAP MAGNITUD AKTIVITI PENGUBAHAN WANG HARAM DAN PENENTUNYA DI EMIRIAH ARAB BERSATU

ABSTRAK

Emiriah Arab Bersatu (UAE) mempunyai salah satu sektor kewangan yang paling maju di dunia. Namun, ia juga merupakan destinasi utama untuk dana haram dan tempat perlindungan bagi wang yang dibasuh. Kajian ini bertujuan untuk menilai magnitud dan penentu pengubahan wang haram (ML) di UAE dari tahun 1975 hingga 2020. Penyelidikan ini berasaskan model ML Masciandaro. Dengan menggunakan pendekatan permintaan mata wang berasaskan model lag teragih autoregresif (ARDL), penemuan menunjukkan bahawa purata saiz ML sebagai peratusan daripada KDNK adalah sekitar 19.034 peratus dalam tempoh ini, berfluktuasi antara 15.129 peratus dan 23.121 peratus. Selain itu, hasil kajian mengesahkan bahawa faktor utama yang mempengaruhi ML di UAE termasuk pasaran hartanah, aliran keluar wang, pemerolehan senjata, saiz ekonomi bawah tanah, perdagangan emas, pembangunan kewangan, dan keluaran negara. Tambahan pula, penemuan menggambarkan kewujudan hubungan bukan linear yang signifikan antara ML dan pertumbuhan ekonomi. Hasil kajian juga menunjukkan kewujudan lengkung Kuznets berbentuk "U", atau FD-ML-KC (pembangunan kewangan-lengkung Kuznets ML), di mana peningkatan ML pada mulanya merosakkan pembangunan kewangan sehingga satu titik puncak (sekitar 18.19 peratus), selepas itu peningkatan lanjut dalam ML memajukan pembangunan kewangan. Lebih-lebih lagi, hasil dari prosedur kausaliti Toda-Yamamoto menunjukkan kewujudan hubungan kausal dua hala antara ML dan pasaran hartanah (dan ekonomi bawah tanah), kausaliti sehala daripada ML kepada aliran keluar wang (dan pembangunan kewangan, saiz keluaran), dan daripada perdagangan emas (dan import senjata) kepada ML. Implikasi dasar kajian mencadangkan bahawa kerajaan UAE harus melaksanakan langkah-langkah untuk menghalang pengubahan dana haram melalui pasaran hartanah, perdagangan emas, sistem kiriman wang, dan institusi kewangan untuk melindungi ekonomi daripada kejutan luar dan memastikan integriti sektor kewangan.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller unit root test
ADCB	Abu Dhabi Commercial Bank
ADGM	Abu Dhabi Global Market
AIC	Akaike Information Criterion
AML/CFT	anti-money laundering/counter terrorism financing
ARS	Alternative Remittance Systems
ARDL	Autoregressive Distributed Lag
AOCD	Anti-Organised Crime Department
ASEAN	Association of South East Asian Nations
ASGM	Artisanal and Small-Scall Gold Mining
C4ADS	Centre for Advanced Defence Studies
CBUAE	Central Bank of UAE
CCD	Customer Due Diligence
CCR	Canonical Cointegration Regression
CDA	currency demand approach
CUSUM	Cumulative Sum of Recursive Residuals
CUSUMSQ	Cumulative Sum of Squares of Recursive Residuals
DIFC	Dubai International Financial Centre
DMCC	Dubai Multi-Commodity Centre
DNFBPs	Designated Non-Financial Businesses and Professions
DOLS	Dynamic OLS
EU	European Union
FAFT	Financial Action Task Force

FDI	Foreign Direct Investment
FGLS	Feasible Generalised Least Squares
FIUs	Financial Intelligence Units
FCSA	Financial Competitiveness and Statistical Authority
FinCEN	Financial Crimes Enforcement Network
FMOLS	Fully Modified Ordinary Least Squares
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GMM	Generalised Method of Moments
HSBC	Hong Kong Shanghai Banking Corporation
ICIJ	International Consortium of Investigative Journalists
IMF	International Monetary Fund
IV	Instrumental Variable
IVTS	Informal Value Transfer System
KYC	Know Your Customer
LM	Lagrange Multiplier
MENA	Middle East and North Africa
MIMIC	Multiple Indicators Multiple Causes Model
MLO	Money Laundering Organisation
MWALD	Modified Wald test
NAMLC	National Anti-Money Laundering Committee
NAP	National Action Plan
NARDL	Nonlinear Autoregressive Distributed Lag
NCCTs	Non-Cooperative Countries and Territories
NDB	Emirates National Bank of Dubai

OCCRP	Organised Crime and Corruption Reporting Project
OECD	Organisation for Economic Cooperation and Development
OLG	Overlapping-Generation Growth model
OLS	Ordinary Least Squares
PEPs	Politically Exposed Persons
PP	Phillips-Perron unit root test
RESET	Regression Specification Error Test
SAR	Suspicious Activity Reporting
SIC	Schwartz Information Criterion
SIPRI	Stockholm International Peace Research Institute
STR	Suspicious Transaction Reporting
TBML	Trade-Based Money Laundering
TSLS	Two Stage Least Squares
UAE	The United Arab Emirates
UK	The United Kingdom
USA	The United States of America
VAR	Vector Autoregressive
WDI	World Development Indicators
ZA	Zivot-Andrews unit root test

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

One of the remarkable features of the final decades of the twentieth century is the rapid integration of the global economy through the means of advancements in trade and technology (Bhattacharjee, Chowdhury, & Ghosh, 2020). It has widely been acknowledged that the removal of the traditional economic barriers has created a number of benefits, including the increase in international trade and capital mobility, and the rapid development of global financial market and diffusion of technology, amongst others (Dorel, 2011). Today, individuals and firms can move huge amounts of money freely and rapidly across frontiers with little or no impediments (Tanzi, 1996). Whereas the potential benefits accrue to greater economic integration and the free flow of capital are enormous, there are inevitably some costs. One notable, albeit very destructive, cost that has found motivation from the process of globalisation and market

integration is money laundering (Alldridge, 2008; Arnone & Borlini, 2010; Beekarry, 2011; Bhattacharjee et al., 2020; Buchanan, 2004; Talani, 2018).

Money laundering is simply the process in which proceeds from illegal or criminal activities (such as drug trafficking, sex slavery and prostitution ring, human trafficking, illegal arms deal and weapon trafficking, grand corruption, large-scale tax evasion, insider trading, bribery and so on) are moved, disguised and integrated into the mainstream economy to obscure the link between the illicit funds and the underlying activity or people involved (Javaid & Arshed, 2021; Reganati & Oliva, 2018; Tanzi, 1996; Teichmann, 2020). Though money laundering is not a recent phenomenon, the global economic integration has helped oil the process, and even turning it into a more complex and dynamic challenge than before (Bhattacharjee *et al*., 2020; Blore & Hunter, 2020; Gilmour, 2020; Quirk, 1996, 1997a; Talani, 2018; Tanzi, 1996). Unlike prior the integration of the global economy and the advances in information and communication technology (ICT), the ability to move capital across frontiers faster, seamless and cheaper has enabled money of questionable sources or origins to be easily moved across the globe within seconds (Arnone & Borlini, 2010; Hetemi, Merovci & Gulhan, 2018; Reganati & Oliva, 2018; Tanzi, 1996; Vaithilingam & Nair, 2007).

It has been widely debated and established in the literature that money laundering activities often create both winners and losers. On the one hand, it is argued that the influx of the proceeds of crime and illegal activities for laundering may very well be useful as it helps the expansion of the financial service sector, create income, lower interest rates, improve the access to finance, and spur domestic investment by providing the much needed capital which are critical to economic growth (Alldridge,

2008; Ferwerda & Bosma, 2006; Levi, 2002; Unger, 2006; Villa, Misas & Loayza, 2016). On the contrary, a significant number of studies have demonstrated that the possible economic, social and political consequences of money laundering activities, if left unchallenged or dealt with ineffectively, are, at least, profound. For instance, it is argued that the massive flows of 'dirty' funds for laundering activities can complicate the planning and management of the economy, damage investment potentials, ruin the stability, integrity and reputation of the financial sector, undermine the legitimate private sector and governance, foster crime and corruption, and lead to loss of tax revenues (Bartlett, 2002; Bhattacharjee et al., 2020; McDowell & Novis, 2001). Also, money laundering activities may lead to inexplicable changes in interest rate, asset prices, consumption, and money demand, distortion of an economy's international trade, capital flows and exchange rates, the misallocation of resources through price distortions, and ultimately, the deceleration in economic growth (Alldridge, 2008; Enofe, Aliu & Ombu, 2018; Pietschmann & Walker, 2011; Tanzi, 1996; Unger et al. 2006; Villa, Misas & Loayza, 2016).

For decades, the advice in the law enforcement and political circles on the issue of money laundering was to always 'follow the money-trail.' This is simply because 'following the money-trail' is believed to have the potential of unearthing 'big vulnerabilities in the criminal syndicates,' thus leading to the detection of their underlying criminal activities (Alldridge, 2008; Wechsler, 2001). Unfortunately, tracking the illicit financial flows and analysing the magnitude and extent to which these funds are laundered nationally and globally with definitive precision has remained a daunting task (Pietschmann & Walker, 2011). This is so because the clandestine and illegal nature of money laundering, and so also the underlying activities which generate

the laundered funds, ensure that it occur outside of the normal range of economic and financial statistics, therefore making the direct or precise measurement of its volume by some easily accessible statistics very difficult (Chong & Lopez-De-Silanes, 2007, 2015; Ferwerda, van Saase, Unger & Getzner, 2020; Quirk, 1996, 1997a; Reuter & Truman, 2004; Tanzi, 1996).

Over time, scholars, regulatory authorities and international organisations have put forward some estimates of the amount of illicit funds which are laundered every year, both at the international level and within a national economy, in an attempt to give some sense of the scale of the phenomenon. For instance, at the global scale, the most widely quoted figure for the extent of money laundering was the 'consensus range' of between 2 percent to 5 percent of global gross domestic product (GDP), issued by the International Monetary Fund (IMF) in 1998 (International Monetary Fund [IMF], 1998). One major issue with figures such as the 'consensus' estimates by the IMF is the absence of any "supporting material and methodology documenting how it was established," and the tendency of the estimates (or 'guesstimates') over or underestimating the magnitude of the issue (Schneider, 2007; Tanzi, 1996; Walker & Unger, 2009). To counter this shortcomings, scholars and researchers proposed and employed a number of approaches to determine the flow of illicit financial resources, and therefore the magnitude of money laundering globally and within national economies (Ardizzi, De Franceschis & Giammatteo, 2018; Argentiero, Bagella & Busato, 2008; Bagella, Busato & Argentiero, 2009; De Boyrie Pak & Zdanowicz, 2005; Ferwerda, Kattenberg, *et al*., 2011; Ferwerda, van Saase, *et al*., 2020; Pietschmann & Walker, 2011; Quirk, 1996; Schneider, 2006; Tanzi, 1996, 1997; Teichmann, 2020; Unger, 2007; Unger *et al*., 2006; Walker, 1995, 1999; Zdanowicz, 2005).

In spite of the numerous efforts of scholars in quantifying the magnitude of money laundering activities from different perspectives, available evidence indicates that most of these attempts were in favour of developed economies. In fact, despite being vulnerable to the activities of money launderers (Alldridge, 2008; Aluko & Bagheri, 2012; Bhattacharjee *et al*., 2020; Buchanan, 2004; Gilmour, 2020; McDowell & Novis, 2001; Tanzi, 1996), researchers have paid less attention to the estimation of the magnitude of illicit money that goes through the laundering cycle in rapidly developing and emerging market economies, including the United Arab Emirates (the UAE) (Hendriyetty & Grewal, 2017).

Underpinned by UAE's strategic geographic location, and position as an important international financial centre, and regional hub for trade and investment, together with its political and macroeconomic stability, legacy of open and liberal trade regime, and rapid development, the country has grown to become very attractive to business, capital and investors (IMF, 2003, 2008; Kandil, 2016). The problem, however, it that this development also attracted illicit actors and money of questionable origin into the country (Gibbs, 2017; Page & Vittori, 2020; Shedrofsky, 2018a; Transparency International [TI], 2020). Ordinarily, the country's geographic proximity to conflict zones and illegal drug cultivation zones, together with the large size and degree of openness of its financial sector, booming real estate market, the highly active trade in gold and precious metals and stones, large amount of remittances, cash-based economy, and the large population of migrants, present the country with inherent vulnerability to significant risks of attracting illicit financial flows from around the world for laundering (Bin Belaisha & Brooks, 2014; Blanchard, 2009; Centre for

Advanced Defence Studies [C4ADS], 2018; El Yacoubi, 2018; Financial Action Task Force [FATF], 2020; Kirechu, 2020; Overman, Redding & Venables, 2003).

However, studies suggest that the country's risk to money laundering is significantly exacerbated by a number of factors and conditions which characterise the country's operations, including the absence of transparency, light regulations, relatively high levels of secrecy and anonymity, lax enforcement practices, administrative loopholes, and the seeming disinterest in the source of capital (C4ADS, 2018; FATF, 2020; Kirechu, 2020; Kumar, 2020; Page & Vittori, 2020; Shedrofsky, 2018a; Tax Justice Network [TJN], 2020; TI, 2020; Vittori, 2020). These factors and conditions, in addition to the reluctance of authorities to cooperate with international partners, are reportedly responsible for making the country a permissive environment for illicit actors, and thus money laundering activities (C4ADS, 2018; FATF, 2020; Page & Vittori, 2020; TI, 2020; Vittori, 2020).

Indeed, among activities in the country which are vulnerable to illicit financial flows, credible reports identify the UAE's booming real estate market as a major high risk for money laundering activities in the country (El Yacoubi, 2018; FATF, 2020; Sule & Sambo, 2020). The UAE's real estate market is a significant non-oil driver of the country's economy. In 2020, for instance, the booming construction and real estate sector accounted for about 17.94 percent of the UAE's non-oil GDP, while it attracted an average of over 17 percent of the total foreign (direct and portfolio) capital into the country between 2007 and 2016 (Federal Competitiveness and Statistics Authority [FCSA], 2021). Further, in 2021 alone, the Dubai's high-end luxury real estate market attracted investment worth about Dh.300 billion (equivalent to US$81.74 billion),

through over 84,196 real estate transactions (Dubai Land Department [DLD], 2021). However, evidence suggest that the country's real estate market did not only succeed in attracting investments and wealthy investors – in 2017 about 5,000 millionaires took up residency in the UAE – through the prizing secrecy, anonymity and low tax which it offers, but it also reportedly attracted tainted money and illicit actors from around the world (C4ADS, 2018; Page & Vittori, 2020; TI, 2020).

Like most major real estate markets around the world, studies suggest that the country's luxury real estate market is particularly vulnerable to illicit investments by narcotics traffickers, global kleptocrats, and weapons proliferators (C4ADS, 2018; Kirechu & Vittori, 2020; Page, 2020). This, is allegedly due in part to the lack of due diligence on the source of funds, weak financial regulation but a strong banking system, absence of mandatory reporting of beneficial ownership, and the heavy use of cash for real estate transactions – which makes the placement of illicit funds easy (C4ADS, 2018; FATF, 2020; Kirechu & Vittori, 2020; Page, 2020). Moreover, evidences illustrate that the UAE's high-end luxury real estate market is not only a favourable pass-through for licit and illicit financial flows, but also a significant destination for illicit funds (C4ADS, 2018; Page & Vittori, 2020; Sule & Sambo, 2020; TI, 2020; Vittori, 2020).

In fact, a plethora of cases have shown how the country's high-end real estate market, especially the emirate of Dubai's real estate market, has attracted tainted money and/or provided opportunities for illicit actors to invest large sum of funds without disclosing its origin. For instance, in 2018 an assessment of leaked Dubai's private property database by the Centre for Advance Defence Studies (C4ADS) reveal the

property acquisitions in the UAE's real estate by seven individuals and entities which were sanctioned by the United States, and in some cases the European Union (EU), for varying offenses including terrorism and conflict financing, drug trafficking, nuclear proliferation and grand corruption (C4ADS, 2018). The leaked database illustrates how these individuals and/or entities directly or indirectly purchased a maintained a number of properties worth over US$100 million in the country's real estate market (C4ADS, 2018). Further analysis of the leaked database also linked about 800 properties worth over US$400 million in the Dubai property market to 338 frantically corrupt Nigerian political elites, or their family members, associates, and suspected proxies (Page, 2020).

In addition, throughout 2018 and 2019, the Organised Crime and Corruption Reporting Project (OCCRP) and its media partners revealed the multiple property purchase of a number of current and former public office holders and businesspeople – from Armenia, Kenya, Kyrgyzstan, Nigeria, Pakistan, Russia, South Africa, and Thailand – and their family members and associates in the UAE's real estate market (Gibbs, 2018; Gibbs & Faull, 2018; Gibbs, Faull, & Olawoyin, 2018; Gibbs, Jeory, & Faull, 2018; Page, 2020; Sarukhanyan, 2018; Shedrofsky, 2018a). In some cases, the OCCRP investigators discovered property purchases by individuals and/or their family members which does not relate to what the declared family's income can buy. This as particularly the case of a Member of Armenia's Parliament on a US$1,350 monthly salary who owned an apartment worth about US$350,000, and a powerful former deputy head of Kyrgyzstan's customs service Raimbek Matraimov who earned US$12,300 in 2016, while his wife acquired properties worth over US$12 million in the UAE's real estate market between 2015 and 2017 (OCCRP, 2019b; Sarukhanyan; Shedrofsky, 2018a). Other cases include the investment of over US$104 million in

proceeds of smuggling and tax evasion in the UAE's real estate market by Kyrgyz tycoon Khabibula Abdukadyr, and the purported illegal investment of about US$8 billion in the UAE's high-end luxury real estate market by Pakistanis in 2018 (OCCRP, 2019a; Rana, 2018).

In the economic literature associated to money laundering, the real estate market is identified as one of the favourable, suitable, attractive and mostly-used vehicle for laundering illicit funds (C4ADS, 2018; Tanzi, 1996; Teichmann, 2020). This is mainly because the market offers highly profitable ways to launder illicit funds and minimises the detection risk (Teichmann, 2020). Moreover, the pervasiveness of imperfect information regarding ownership and the details behind substantial financial transactions in the market, and most times, the ability to use cash to purchase large property, also enable illicit actors to launder or place large sums of money into the licit system (C4ADS, 2018). Certainly, the vulnerability of the real estate market to illicit financial flows is not particular to the UAE. In fact, the vulnerability affects most major real estate markets around the world, including London, Toronto, Hong Kong, New York, Singapore, Doha, Sydney, Paris, amongst others (Balani, 2016; Dong & Zhang, 2017; Martini, 2017; Story & Saul, 2015). However, evidence suggest that the vulnerability of UAE's real estate market to money laundering is particularly facilitated by the lax financial regulatory environment, minimal oversight of corporate and property registration practices, financial secrecy and anonymity, and the absence of the mandatory reporting of beneficial ownership in property purchases (C4ADS, 2018; Kirechu & Vittori, 2020; Shedrofsky, 2018a).

The gold market has also been identified as another important driver of money laundering in the country (Bin Belaisha & Brooks, 2014; El Yacoubi, 2018; FATF, 2020; Lewis, McNeill & Shabalala, 2019). The UAE is a relatively new player in the gold trade as the country was not among the global top one hundred gold-importing countries as late as 1996 (Blore & Hunter, 2020; Michael & Hudson, 2021). Two decades later, the country has emerged as the epicentre of the world's gold market, growing to be among the top three gold-importing and exporting countries in the world (Blore & Hunter, 2020). In 2021, United Nations' Comtrade data illustrates that the country imported gold worth US$48.18 billion and exported bullion worth US$33.79 billion, thus emerging as the fourth largest importer of gold (only behind Switzerland, India and the United Kingdom) and the third largest exporter of gold in the world. However, what is problematic about the UAE's gold trade, and thus constitutes a major risk for money laundering, is how the country source its gold (Blore & Hunter, 2020). Typically, while other major gold hubs import the bulk of their gold from relatively few countries, either from other major gold-producing countries or gold hubs, the UAE source its gold from many countries, mostly located in Africa, South America and South Asia, which are better known for artisanal and small-scale gold mining (ASGM).

The main issue with such strategy, specifically the trade in ASGM gold, is that in some of these countries—notably Mali, the Democratic Republic of Congo (DRC), Sudan, Central Africa Republic (CAR), South Sudan, Mali, Peru and Venezuela—armed groups, criminal network often tax ASGM gold miners or smuggle ASGM gold to either finance their welfares or fund their campaigns of bloodshed (Blore & Hunter, 2020; Gurney, 2020b; Lezhnev & Swamy, 2020; Michael & Hudson, 2021). Thus, ASGM gold is sometimes characterised as a "conflict mineral" (Blore & Hunter, 2020).

Moreover, because ASGM gold can be condensed into various shapes and sizes, disguised, and easily smuggled across borders in high volumes, armed groups, criminal networks and corrupt actors frequently use it both as an actual money laundering vehicle and as a source of securing illicit rents to procure arms or fund campaign of terror (Blore & Hunter, 2020; Cassara, 2016; Gurney, 2020b; FATF, 2015; Lezhnev & Swamy, 2020; Mathias & Feys, 2014; Teichmann, 2017; Teichmann & Falker, 2020b). Terrorists are also said to favour gold trade in laundering their proceeds because gold's value "is easy to determine and remains relatively consistent over time" (Gibbs, 2017).

Coincidently, studies suggest that most of the ASGM gold mined in conflict-affect and high-risk areas in East and Central Africa—particularly the DRC, CAR, South Sudan, Sudan, Burkina Faso —are oftentimes smuggled to neighbouring countries—Uganda, Rwanda, Cameroon, Kenya, Tanzania, Togo, Chad or Burundi—then exported to the UAE, particularly the emirate of Dubai (Blore & Hunter, 2020; Lewis, McNeill & Shabalala, 2019; Lezhnev & Swamy, 2020; Martin & Taylor, 2014; Michael & Hudson, 2021). After traders and refiners have successfully obscured their origin, these gold are then exported to markets in Europe, the United States and other parts of the world (Blore & Hunter, 2020; Lewis, McNeill & Shabalala, 2019). This position is in fact reinforced by the series of discrepancies in the gold trade statistics between the UAE and these countries, whereby the volume of gold legally declared and exported from most of these nations is often significantly less than the volume of gold arriving the UAE – an indication that significant volume of gold is either under-declared or being smuggled out of these nations to the UAE (Blore & Hunter, 2020; Lewis, McNeill & Shabalala, 2019; Lezhnev & Swamy, 2020; Martin & Taylor, 2014).

The smuggling of gold into the UAE may not be entirely new. In fact, due to the prevalence of smuggling in the UAE, the stream running through the port of Dubai has been dubbed the 'Smugglers Creek' (Cassara, 2016). Some cases of the gold smuggling in and/or through the UAE is well documented. For example, in the late 2001, it was reported that the Taliban and al-Qaida both smuggled gold out of Afghanistan and through the emirate of Dubai to launder some of their proceeds, sometimes using the famous notorious Russian arm smuggler Viktor Bout's aircraft which used the emirate of Sharjah as its base of operation (Gibbs, 2017; Vittori, 2020).

Besides, in 2013, Amjad Rihan, a former partner at the Dubai office of global accountancy firm Ernst & Young, claimed that his team discovered in its audit of Dubai-based gold refining giant Kaloti jewellery international—the refiner of almost half of golds imported into Dubai—that the firm received several tons of gold from conflict and high-risk countries such as Sudan, Iran and the DRC without properly vetting its suppliers, while also conducting these transactions—amounting to over US$5.2 billion—in cash (Gurney, 2020b; Lezhnev & Swamy, 2020). A later investigation by the BBC Panorama and French media agency Premières Lignes found that the cash from Kaloti was a "crucial part of a US$250 million money laundering operation which used gold sales to launder cash from British and European drug deals" (Robinson, 2019). In particular, the discoveries suggest that the Dubai-based Kaloti jewellery international "purchased 3.6 tons of gold from a company owned by a member of the [money laundering] gang in 2012 alone," and paid the company US$146 million in cash (Gurney, 2020b; Robinson, 2019).

According to reports, the continuous trade in conflict and high-risk ASGM gold in the country, which have also successfully made her a favourable destination for the laundering of smuggled ASGM gold, is facilitated by host of factors and conditions. These include weak customs control, inadequate oversight of the gold souks—a large trading and jewellery market where hundreds of small dealers compete to buy and sell gold in all its myriad forms—and refiners, and the heavy use of cash in gold transactions (Blore & Hunter, 2020; Cassara, 2016; Lezhnev & Swamy, 2020; Martin & Taylor, 2014; TI, 2020). Besides gold, these conditions have reportedly facilitated the smuggling of diamond and other precious stones and metals from conflict and high-risk countries into the country for laundering (Bin Belaisha & Brooks, 2014; Martin & Taylor, 2014).

The UAE is one of the world's largest trading centres for diamonds. In 2021, for instance, the UAE was the second largest exporter (only behind India) and fourth largest importer of diamond, exporting diamonds worth over US$16.58 billion and importing about US$14.72 billion worth of diamonds, ahead of Belgium. However, the pervasiveness of weak institutions in the country have allegedly reinforced the laundering of smuggled Congo's 'conflict diamonds' in the UAE by rebels, organised crime network, corrupt actors, and terror groups (Farah, 2001; Martin & Taylor, 2014; Passas & Jones, 2006; Tidwell & Lerche, 2004). Interestingly, the arrest of individuals and groups attempting to smuggle diamond into the country through airports further emphasise the extent to which the country is considered a favourable destination for the laundering of illicit diamond trade (Al Amir, 2020b; Conway-Smith, 2012; Gulf News, 2012; Morris, 2008; Webster, 2021a).

Furthermore, money remittance services play an essential role in the UAE's international money flows but it also exposes the country to money laundering and terrorist financing risks (El Yacoubi, 2018; FATF, 2020; IMF, 2008; Shedrofsky, 2018b; Siddique, Nobanee, Atayah & Bayzid, 2021; Taghavi, 2012). For instance, the informal, centuries-old *Hawala* remittance system – which allows customers and brokers (called *Hawaladars*) to transfer money or value without any physical money actually moving, often in parts of the world where formal financial institutions have little or no presence – is an important vehicle for remittance transfer in the country (Alrahoomi, 2011; Gibbs, 2017; Shedrofsky, 2018b). The system is essential for the millions of foreign blue-collar workers in the country who must send money to their home countries but are limited by factors and conditions such as tight financial regulations imposed on them, high processing fees in official channels, and the poor or underdeveloped nature of financial infrastructures in their home countries (Gamal, 2016; Gamal & Dahalan, 2015; FATF, 2013b; Naufal & Termos, 2010; Naufal & Vargas-Silva, 2010). Nonetheless, due to the system's lack of transparency and adequate regulation, it has long been identified to play dual role of moving money and value in some parts of the world, and also functioning as a vehicle for moving the proceeds of financial crimes and illegal activities (Casara, 2016; FATF, 2013b; Gibbs, 2017; Shedrofsky, 2018b).

One of the main reasons why individuals who wish to conduct illicit activities or move illicit funds for laundering use the *Hawala* system is because it offers some form of confidentiality (Casara, 2016). Because *Hawaladars* maintain very few records of their transaction, the channel thus offers its users or customers near anonymity. Moreover, research has shown that illicit actors also favour the use the *Hawala* system

for the purposes of trade-based money laundering (TBML) involving gold trade (Blore & Hunter, 2020; Casara, 2016; Shedrofsky, 2018b). Certainly, a combination of the flow of money through informal systems such as the *Hawala* system, a cash-intensive economy together with a loosely regulated gold imports, trade mis-invoicing, and poor oversight of gold-oriented free trade zones are boon to money laundering activities in the UAE (Alrahoomi, 2011; Bin Belaisha & Brooks, 2014; Blore & Hunter, 2020; FATF, 2020; IMF, 2008; Kumar, 2020; Teichmann & Falker, 2020c).

Moreover, while it is generally accepted that money launderers move illicit funds across countries through alternative remittance system, other international funds transfers, and cash couriers, reports suggest that licensed money exchange companies in the country are equally culpable of facilitating illicit financial flows, and thus money laundering, knowingly and unknowingly (IMF, 2008; Siddique et al., 2021; Teichmann & Falker, 2020e). For example, before its designation by the United States and the revocation of its license by the UAE government between 2015 and 2016, Dubai-based Al Zarooni Exchange was allegedly used by the Altaf Khanani money laundering organisation (MLO) to coordinate a network of unofficial *Hawala*-style money exchanges to facilitate the laundering of more than US$16 billion in illicit proceeds annually for terrorist groups, drug cartels, and organised crime groups around the world (Caarvalho, 2016; C4ADS, 2018; US Department of the Treasury, 2015). Most recently, an investigation into the activities of the Khanani MLO alleged that the multinational MLO also moved large amount of the illicit proceeds through the Dubai-based Wall Street Exchange (Besser, 2018; C4ADS, 2018). It is therefore clear that the numerous exchange houses, *Hawaladars*, and 'shell companies' in the country together with the large amount of remittances and the heavy use of cash in transactions increase

the potential for trade-based money laundering, bulk smuggling of cash, the abuse of corporate structures, and the laundering of the proceeds of foreign crime and illicit acts in the country (FAFT, 2020; US Department of State, 2021).

In addition, the growing size of underground economy in the country also poses significant money laundering risk for the country. Research have shown that the size of underground economy in the UAE range from an average of 17.76 percent, 24.4 percent and 10.34 percent of the GDP during the 1984-2006, 1986-2008 and 1990-2010 periods, to 25.9 percent, 25.7 percent, and 26.4 percent over the 1999-2007 and 1991-2015 periods (Alm & Embaye, 2013; Elgin & Oztunali, 2012; Gamal, 2016; Gamal & Dahalan, 2015; Medina & Schneider, 2018, 2019; Schneider, Buehn & Montenegro, 2010). The rising trend of underground economy in the UAE has been particularly attributed to a host of factors and conditions. These include the cost of sending money to home country, the illegal activities of recruitment companies, and the tight regulations imposed on foreign workers – in terms of restrictions in the labour market and the amount which could be remit back to home countries from earned income within a specified period of time (Gamal, 2016; Gamal & Dahalan, 2015). However, in the economic literature, it is well documented that money laundering and underground economy are strongly related (Alm & Prinz, 2013; Cullis & Morley, 2017; Fabre, 2005; Georgiou, 2007, 2010; Hendriyetty & Grewal, 2017; Masciandaro, 1999, 2007; Talani, 2018).

The connection between money laundering and the underground economy is due in part to the fact that the former is a key operation in the underground economy, and almost all activities within the scope of the underground economy phenomenon

often rely on one or more money laundering strategies to legitimise illicit profits generated (Alm & Prinz, 2013; Hendriyetty & Grewal, 2017; Masciandaro, 1999, 2007; Talani, 2018). Therefore, since the size of the underground economy is key in facilitating the flow and successful laundering of illicit funds, camouflaging illicit activities and funds, and making the detection of illicit and money laundering activities difficult, it is obvious that such size of underground economy in the UAE present significant high risk for the country (Achim & Borlea, 2020; Hendriyetty & Grewal, 2017; Javaid & Arshed, 2021; Pietschmann & Walker, 2011). This is however not only for the thriving of illegal activities in the country, but also the laundering of illicit funds generated internally and those from foreign countries. Moreover, as all activities within the scope of the underground economy phenomenon employ various means of money laundering to re-introduce the tainted profit generated into the formal economy, the tendency and capacity of the magnitude of money laundering growing in tandem with the size of the underground economy is not contestable (Achim & Borlea, 2020; Alm & Prinz, 2013; Cullis & Morley, 2017; Hendriyetty & Grewal, 2017; Talani, 2018).

Also, the country's sizable defence budget and arms acquisition may be a vulnerable channel and/or vehicle for the laundering of illicit income. Despite having a population of less than 10 million, coupled with low crime rate and a little or no experience of upheavals like terrorist attacks, protests, violent demonstrations, civil wars, and regime changes, which other countries in the region have to deal with, the military expenditure and equipment purchases of the UAE has grown significantly over time (Vittori & Page, 2020). For example, statistics suggest that the UAE's military spending over the last decade exceeds US$10 billion – a whopping average of over 20 per cent of total public expenditure during the period (World Bank, 2021b). Further,

figures from the Stockholm International Peace Research Institute (SIPRI) indicate that the country's acquisition of modern military equipment between 1972 and 2020, mainly from western military advanced countries such as the US, the UK, and France, worth over US$29 billion (Davidson, 2009; World Bank, 2021b). Acquisition of military equipment from the United States alone over the past decade is estimated to be over US$27 billion (Vittori & Page, 2020).

Indeed, despite having a stable political atmosphere, the sizable defence spending and the procurement of some of the finest military hardware available has provided the UAE with a strong defence shield and has unarguably reduced the threat of foreign invasion (Chandrasekaran, 2014; Davidson, 2009). Besides, the relative stability of the country has been attributed to the robust security and surveillance apparatus built by the Emirati government (Vittori, 2020). Due in part to its possession of some modern military equipment despite the modest size of active personnel at about 63,000, the effective military role of the UAE's military earned her the 'Little Sparta' nickname among the US Armed Forces' Generals and former US defence secretary James Mattis (Chandrasekaran, 2014; Freeman, 2019; Vittori & Page, 2020). However, a number of studies have linked high military spending with corruption (Arif, Khan & Raza, 2019; Gupta, Davoodi & Alonso-Terme, 2002; Hudson & Jones, 2008). Coincidentally, Transparency International's (TI) Government Defence Anti-Corruption Index suggest that the UAE's defence and security sector presents high-risk for corruption, partly because the details of defence budget and process of military procurement and award of military contracts are shrouded in secrecy, neither is it transparent nor subject to civilian and parliamentary scrutiny (TI, 2015b).

In the literature, studies have shown that inherent secrecy and lack of transparency in public spending and procurement in the military and security sector often creates opportunities for corrupt security officials and their business associates to accumulate illicit income (Page, 2020; Willett, 2009). These opportunities include the inflating of defence budget and/or procurement contract values, soliciting bribes from military contractors in exchange for approvals of huge military contracts (especially foreign arms procurement deals) or even the creation of phantom contracts funnelled to defence contractors in exchange for kickbacks (Abu & Staniewski, 2019; Arif, Khan & Raza, 2019; Page, 2020; Willett, 2009). Expectedly, the illicit income generated will require the demand for money laundering services to transform the 'dirty' illicit income into an effective purchasing power, enabling the corrupt actors enjoy the illicit income without fear of confiscation (Carr & Jago, 2014; FATF, 2011; Javaid & Arshed, 2021; Willett, 2009). Besides inducing the demand for money laundering services, huge military spending and/or arms procurement tend to also act as a viable vehicle for the movement, and thus laundering, of the illicit income. This is true when lucrative bribes are deposited by defence contractors into the foreign bank accounts (Swiss bank account) of public officials, or luxury commodities, such as villas, cars, yachts, private jets, diamonds, golds, et cetera, are acquired on behalf of corrupt officials in the defence sector as a compensation in lieu of a bribe (Carr & Jago, 2014; Page, 2020; Willett, 2009).

Giving the seeming attractiveness of the UAE to illicit actors, as well as the prevalence of money laundering in the country, the importance of determining the extent to which 'dirty money' are being laundered in the country cannot be overstressed. Such information about the amount of illicit funds laundered in the country tend to help

politicians, policymakers and relevant stakeholders in visualising the extent of the phenomenon and magnitude of the country's risk and vulnerability, to enable the adoption of the most appropriate policy response (Ferwerda, van Saase, *et al*., 2020; Hendriyetty & Grewal, 2017; Unger, 2009a, 2009b; Walker, 1999). Moreover, a correct estimate of money laundering can help in the accurate determination of the dimension of the criminal economy, the underlying criminal activity which generates the funds available for laundering, and for contrasting these illegal activities (Argentiero, Bagella & Busato, 2008; Walker, 1999). Additionally, the information about extent of money laundering is important for money laundering researches in order to analyse the behaviour of money launderers and/or the effect of their activities (Chong & Lopez-de-Silanes, 2007; Ferwerda, 2009; Walker, 1999). Further, the information about the correct amount of illicit money which is laundered in a given country can help public and private entities contrast with the cost of implementing anti-money laundering measures, and justify the burden placed on those responsible for chasing dirty money (Argentiero et al.2008; Ferwerda, Kattenberg, *et al*., 2011; Levi, 2010; Levi & Gilmore, 2002; Walker, 1999).

Several approaches have been proposed in the literature to quantify the magnitude of money laundering, from the direct approaches of case studies, surveys, interviews, to the analysis of suspicious or unusual transactions and statistical discrepancies in official data, to the use of economic and econometric models (Baguella et al., 2009; Schneider, 2006; Unger, 2007; Walker, 1995). However, the adequacy of these models is difficult to determine due in part to the number of biases or key information gaps which characterised most, if not all, the approaches (Ferwerda, Kattenberg, *et al*., 2011; Ferwerda, van Saase, *et al*., 2020; Pietschmann & Walker,

2011; Reuter & Truman, 2004; Unger, 2007). Since research in this area is still limited and the robustness of the proposed approaches are difficult to ascertain, therefore, it could be fruitful to employ an appropriate approach to estimate the magnitude of money laundering in the UAE (Argentiero et al., 2008; Pietschmann & Walker, 2011; Reuter & Truman, 2004).

In the light of the above, a clear, unambiguous and indisputable estimate of money laundering in the UAE may be obtained by implementing a methodology based on the modification of the Currency Demand Approach (CDA). The proposed method is the product of the modification of the well-known CDA, which was originally suggested by Cagan (1958), developed by Gutmann (1977) and Feige (1979), subsequently refined by Tanzi (1980, 1983), and recently improved by Ahumada, Alvaredo, Canavese (2007, 2009). The approach has been extensively employed to estimate the size of underground economy – another phenomenon which cannot be observed directly – in several countries, including in the UAE (Gamal, 2016; Gamal & Dahalan, 2015). The main assumption of the traditional CDA is that all unregistered and/or illegal transactions are settled in cash in an attempt to conceal all observable traces from the authorities, while high tax burden, regulations et cetera are assumed to be the main causes of underground economy. Therefore, increase in cash holding is an indication of the increase in the size of the underground economy – a phenomenon which covers money laundering activities (Feld & Schneider, 2010; Gamal, 2016; Gamal & Dahalan, 2015; Schneider, Buehn & Montenegro, 2010).

Following a similar pattern, the CDA can be further refined to equally estimate the size of money laundering in a given economy. The modification, and therefore

extension, of the traditional CDA to estimate the volume of money laundering is premised on the argument that money laundering activity, like some aspects of the underground economy, is characterised by the use of both cash and demand deposits (Ardizzi, Petraglia, Piacenza, Schneider & Turati, 2014; Talani, 2018). This is premised on the fact that the decision of illicit actors to either use cash or deposits in bank accounts for laundering is often dependent on degree to which a given country's legal and regulatory regime benign or prohibits money laundering (Pietschmann & Walker, 2011). Therefore, the amount of illicit funds which enters the laundering cycle in a given economy – both those generated locally in a given country and those from foreign countries – can be estimated by separating the demand for cash and account deposits motivated by conventional transactions (legal transactions, tax evasion, underground economy) from those which are influenced by the sheer intent of laundering the proceeds of criminal and illegal activities. In other words, the CDA can be refined to decompose and identify the demand for money and account deposits which can be attributed to the intent to launder illicit funds, and those that are basically driven by conventional factors or conditions (such as interest rate, inflation, tax evasion, underground economy, illicit income generated through kickbacks and corrupt practices, et cetera).

This could be achieved by refining the 'drive' parameter(s) in the recent form of the CDA to capture the factor(s) and/or suspicious activities which influence the demand for cash and account deposits for laundering. In this particular case, the 'drive' factor(s) will relate to the 'intrinsic attractiveness' of a given country to illicit and corrupt actors based on a number of enabling or limiting factors (such as the size of the financial service sector, real estate market, corruption, bank secrecy, FATF compliance,

cash-intensive economy, gold trading, et cetera) which influence the amount and tendency of moving 'dirty money' into a country for laundering. It is expected that when a country seems attractive to illicit and corrupt actors or benign laundering activities – say for instance due to lax anti-money laundering regulation, low compliance of the financial institutions, heavy use of cash for transactions, booming real estate market with low due diligence, and the presence of an active gold trading – the demand for cash and demand deposit for the purpose of laundering illicit funds tend to rise.

The proposed modified version of the CDA is quite similar to the method employed by Ardizzi, Petraglia, Piacenza, Schneider and Turati (2014) to estimate the magnitude of money laundering in Italian regions. The major area of departure is that while the present study considers both the currency in circulation and demand deposits, Ardizzi Petraglia, Piacenza, Schneider and Turati (2014) refined the CDA to estimate only the amount of illicit funds laundered through cash deposit in the current (bank and postal) accounts in Italian regions. In addition, while the study adopted the extent of criminal activities in the country as the drive factors for money laundering, the present study intends to introduce varying factors such as activities in the real estate market, gold trade, remittance, underground economy and military expenditure and procurement into the CDA model as they are assumed to benign the thriving of money laundering activities in the UAE. Whereas the major limitation of the proposed approach is the likelihood of double counting, is it apparent that the proposed method is well suited for countries with cash-based economies and well-developed banking systems but characterised by the heavy use of cash for major transactions, such as the UAE (Alrahoomi, 2011; Ardizzi, Petraglia, Piacenza, Schneider & Turati, 2014; FATF,

2020; IMF, 2008; Kirechu, 2020; Teichmann & Falker, 2020c). In this case, the country's well-developed banking system will help facilitate the placement, and/or the layering and integration of the illicit funds, while the cash-based economy provides a perfect cloak for the illicit funds during the laundering process (Alrahoomi, 2011; IMF, 2008).

The foregoing discussion indicates that the UAE, like most emerging market and rapidly developing economies, have not only become a favourable pass-through for illicit financial flows, but also the destination for money laundering activities. Although the inflow of these illicit funds may have influenced the growth of major sectors of the economy, it is possible that the continued inflow of illicit funds into the country, and therefore their laundering, may have contributed to the loss of tax revenue, ineffectiveness of economic policies, unusual changes in the demand for money, the distortion of capital flows in the country and the fluctuation of economic performance in the country – as seen during the 2008/2009 global financial and economic crisis. Despite the vulnerability of the UAE to money laundering activities, researchers have paid less attention to the estimation of the magnitude of money laundering in the country. In particular, the existing studies focused primarily on the estimation of the magnitude of money laundering either in developed countries/regions or the aggregation of several countries together. Moreover, there is also gap in studies on the determinants of money laundering in the country. It is therefore against this background that the present study seeks to estimate the magnitude of money laundering in the country alongside the factors that influence its size in the UAE for the period of 1975-2020.

1.2 Problem Statement

The emergence of the UAE as a major hub for trade, investment, aviation, and tourism, important international financial centre and real estate market, together with the country's strategic location, political and economic stability, open and liberal trade regime, access to free trade zones, and the highly active trade in precious metals and stones, has not only facilitated the flux of investors and legitimate capitals, but also the flow of illicit financial resources and actors from all over the world (Bin Belaisha & Brooks, 2014; C4ADS, 2018; Kirechu, 2020; Overman, Redding & Venables, 2003). Besides, the country's geographic location at the crossroads of financial flows from Africa, Asia, and the Middle East, large amount of remittance, cash-intensive economy, marked proportion of foreign residents and its close proximity to conflict and large illicit opium cultivation zones, present the country with additional inherent vulnerability to illicit financial and capital flows, and thus money laundering (Bin Belaisha & Brooks, 2014; Blanchard, 2009; Blore & Hunter, 2020; C4ADS, 2018; FATF, 2020; Gibbs, 2018; Page & Vittori, 2020; Overman, Redding & Venables, 2003).

Indeed, the government and relevant authorities in the country may not be entirely blamed for the ugly trend, neither can one hold the actors in the markets and institutions through which illicit funds are laundered accountable. However, this does not negate the fact that the country's economy has benefitted immensely from the flow of illicit financial resources into the country for laundering (Mathiason, 2010). It is alleged that the flow of illicit funds was key in contributing to the country's rapid growth and development, particularly from the late 1990s and early 2000; fuelling the

real estate market boom, enriching the money changers, bankers, and business elites, and turning the country into a major trading hub for gold and diamonds (Gibbs, 2017; Page & Vittori, 2020; Shedrofsky, 2018a).

Nonetheless, reports have shown that the flow of illicit funds for laundering into the country is significantly encouraged by a number of factors and conditions. These factors and conditions include the absence of transparency, light regulations, high level of secrecy and anonymity, lax enforcement practices, administrative loopholes, seeming disinterest in the source of capital, and the reluctance of authorities to cooperate with international partners, all which clearly create a permissive environment for money laundering activities (C4ADS, 2018; FATF, 2020; Kirechu, 2020; Kumar, 2020; Page & Vittori, 2020; Shedrofsky, 2018a; TI, 2020; TJN, 2020). These conditions, according to studies, ensured that the UAE remain, not just a favourable conduit or pass-through for licit and illicit trade and financial flows, but also a significant and conducive environment where "criminals could operate, maintain their illegal proceeds, or use as a safe haven" (Bin Belaisha & Brooks, 2014; C4ADS, 2018; Page & Vittori, 2020; Sule & Sambo, 2020; Vittori, 2020). However, with these factors and conditions in place, it is reported that the country's exposure to money laundering risk or vulnerability is more intense in activities in the real estate market, gold trade, remittance outflow, defence spending and procurement, and the underground economy (Bin Belaisha & Brooks, 2014; El Yacoubi, 2018; FATF, 2020; IMF, 2008; Lewis, McNeill & Shabalala, 2019; Sule & Sambo, 2020; Shedrofsky, 2018b; TI, 2020).

Moving from one sector to another, this position is accentuated by the plethora of evidences which suggest the prevalence of illicit financial flows in an out of the

country, and the laundering of illicit funds in the country. Some of these include the case of alleged smuggling of 'stolen' US$169 million into the country by the former Afghan President Ashraf Ghani, following the capture of Kabul by the Taliban fighters in 2021, in addition to the US$52 million purportedly smuggled into the emirate of Dubai by the former Afghan vice-president, Ahmad Zia Massoud, in 2009, as well as reported smuggling of about US$190 million in proceeds of the Afghan heroin trade into the country in the same year (Hockaday & Brazell, 2021; Mathiason, 2010; Steele & Boone, 2010). Elsewhere, cases of money laundering through 'shell companies' in the country have also surfaced in the past. Examples of such cases include the use of a Dubai-based 'shell company' Tundavala Investments Limited, by Namibian government officials to receive about US$3.5 million in bribes to allocate lucrative mackerel fishing quotas to a fishing company Samheji. Another similar scandal is the alleged use of about 150 'shell companies' in the UAE as vehicles for money laundering in the "Russian Laundromat" scandal – massive Russian laundering scheme involving over US$20 billion (OCCRP, 2017; Rozana, 2019; Seljan, Kjartansson, & Drengsson, 2019; Sophia, 2019; Vilhjálmsson, 2019).

In addition, the booming UAE's high-end real estate market is reportedly awash with tainted money. Such include the over US$100 million worth of property purchases by seven individuals and entities that were designated for several offenses including, drug trafficking, grand corruption, conflict and terrorist financing, money laundering and nuclear proliferation; and the over US$400 million investments in the Dubai property market by 338 frantically corrupt Nigerian political elites, their family members, associates, and fronts (C4ADS, Page, 2020). Other cases of money laundering in the sector include the million-dollar multiple property purchases by a

number of current and former public office holders and businesspeople – from Armenia, Kenya, Kyrgyzstan, Namibia, Nigeria, Pakistan, Russia, South Africa, and Thailand – and their family members and associates in the UAE's real estate market (Gibbs, 2018; Gibbs & Faull, 2018; Gibbs, Faull, & Olawoyin, 2018; Gibbs, Jeory, & Faull, 2018; Page, 2020; Sarukhanyan, 2018; Shedrofsky, 2018a). This also includes the property acquisitions of over US$12 million by the wife of a powerful former deputy head of Kyrgyzstan's customs service; the investment of millions of dollars in proceeds of smuggling business by Kyrgyz tycoon Khabibula Abdukadyr and his family; and the millions of dollars property purchase by six corrupt Namibian officials involved in the 'Fishrot Files' scandal (OCCRP, 2019b; Shedrofsky, 2018a; Smith, 2020; Sarukhanyan, 2019).

More so, the financial system is not shielded from the cases of illicit financial flows, and thus money laundering. Such instances include, but not limited, to the transfer of about US$173 million from Angola's state oil company by Isabel dos Santos, the daughter of former Angola's President and once touted Africa's richest women, through Emirates NBD Bank account in 2017, and the transfer of over US$26 million through Abu Dhabi Commercial Bank (ADCB), and about US$357 million through the Emirates NBD in the 'Russian Laundromat' scandal (Freedberg, Alecci, Fitzgibbon, Dalby & Reuter, 2020; OCCRP, 2017; Rozana, 2019). Also, the UAE's financial system was allegedly used to process of the payments of millions of dollars in kickbacks made by China South Rail (CSR) to facilitate a locomotive procurement deal with Transnet SOC Ltd through the Dubai branch of HSBC in 2017 (Myburgh & Seeao, 2017; Steinhauser & Patrick, 2017).

In addition to the allegations that the country's financial system (banks and money exchange companies) have been used in the past to facilitate terrorism operations (Arkin, 2021; Besser, 2018; Hughes, 2001; Malnick & Heighton, 2017; Sengupta & Howden, 2009; Winer, 2002), evidence suggest that licensed money exchange companies in the country have also been employed as conduit for illicit financial flows and money laundering activities. For example, the Dubai-based Al Zarooni Exchange was reportedly used as the centre of operations by the Khanani MLO to coordinate a network of unofficial *Hawala*-style money exchanges that were used to facilitate the laundering of between US$14 billion and US$16 billion in illicit proceeds annually for terrorist groups, drug cartels, and organised crime groups around the world (Caarvalho, 2016; C4ADS, 2018; US Department of the Treasury, 2015). Reports also suggest that the Khanani MLO moved large amount of the illicit proceeds through the Dubai-based Wall Street Exchange (Besser, 2018; C4ADS, 2018).

Lastly, as one of the world's largest gold and diamond hub, it has also been reported that "opaque business practices and regulatory loopholes" have enabled the smuggling of gold, diamonds and other precious stones and metals from conflict and high-risk countries such as Congo into the country for laundering. One notable case involving laundering through trade in precious metals and stones in the country is the allegation that Kiloti jewellery international, the refiner of about 50 percent of golds imported into the emirate of Dubai, purchased several tons of precious stones and metals "from sellers suspected of laundering money for drug traffickers and other criminal groups" which he paid for – about US$146 million – in cash (Gurney, 2020b; Robinson, 2019; Lezhnev & Swamy, 2020).

In spite of the trend of illicit financial flows, and thus money laundering, in the UAE, little has been done to estimate the magnitude of illicit funds which goes through the laundering cycle in the country every year. In fact, to the best of our knowledge, existing researches on the estimation of the magnitude of money laundering focused either on developed countries/regions or the aggregation of several countries together (Argentiero, Bagella & Busato, 2008; Bagella, Busato & Argentiero, 2009; De Boyrie Pak & Zdanowicz, 2005; Ferwerda, Kattenberg, *et al*., 2011; Ferwerda, van Saase, *et al*., 2020; Pietschmann & Walker, 2011; Quirk, 1996; Schneider, 2006; Tanzi, 1996, 1997; Teichmann, 2020; Unger, 2007; Unger *et al*., 2006; Walker, 1995, 1999; Zdanowicz, 2005).

Further, there appears to be dearth of empirical studies conducted to examine the determinants of money laundering in the country. Most of the existing studies which were conducted to ascertain the determinants of money laundering focused on a group of countries, employing either cross-section or panel data (Ferwerda, Kattenberg, *et al*., 2011; Javaid & Arshed, 2021; Reganati & Oliva, 2018; Vaithilingam & Nair, 2007). Unfortunately, because cross-sectional studies are based on highly restrictive assumptions, their outcome tends to lack general acceptability (Athukorala & Sen, 2004). Thus, the importance of country-specific studies on the determinant of money laundering cannot be trivialised.

In addition, despite the conflicting empirical and theoretical stance on the nature of relationship between money laundering and economic growth, researchers did not deem it important to investigate whether the impact of money laundering on growth is non-linear. On the one hand, a strand of the literature suggests that money laundering

is positively associated with economic growth in the receiving country, albeit in the short-term (Ferwerda & Bosma, 2006; Levi, 2002; Unger, 2007). Positive because the investment of illicit funds helps bridge the capital deficit gap in an economy, raise demand, creates income and improve the domestic trade and investment of the receiving country (Alldridge, 2008; Pietschmann & Walker, 2011; Unger, 2007). On the contrary, it is reported that the tolerance of the continuous flow of illicit funds for laundering have a multiplying effect on the predicate criminal or illicit activities which generate the illicit funds, leading to a mid- to long-term adverse effect on economic growth (Argentiero et al., 2008; Arnone & Borlini, 2010; Bagella et al., 2009; Pietschmann & Walker, 2011; Quirk, 1996, 1997a; Romero, 2022; Unger, 2007; Unger et al., 2006). Thus, since it is asserted that the nature of the effect of money laundering on economic growth cannot be aprioristically determined, perhaps the effect of money laundering on economy growth may be non-linear in nature (Masciandaro, Takáts & Unger, 2007; Quirk, 1996, 1997a; Tanzi, 2000).

Furthermore, empirical studies which explore whether the effect of money laundering on the level of financial sector development varies over time as the magnitude of illicit funds made available for laundering increase are non-existent. Though there exist paucity of studies on the relationship between money laundering and financial development, the literature is replete with diverse opinions on the exact nature of relationship between them. On the one hand are studies which argued that money laundering could enhance financial development by facilitating the availability and access to credit (Alldridge, 2008; Unger, 2007; Unger et al., 2006). On the contrary, others submitted that unchecked money laundering can impair financial development by compromising the soundness of financial institutions and eroding the confidence and

trust of customers in the financial system (Alldridge, 2002; Bartlett, 2002; McDowell & Novis, 2001; Unger et al., 2006; van der Zahn et al., 2007). However, since the extent to which the magnitude money laundering may hamper or facilitate financial development is unclear, it is logical to argue that the effect of money laundering on financial development may be positive (or negative) below a specific threshold and a negative (or positive) effect above the threshold. In other words, it is likely that the relationship between money laundering and financial development would exhibit a somewhat 'inverted U-shaped' (or 'U-shaped') feature.

From the specific presentation above, the present study seeks to quantitatively estimate the magnitude of money laundering in the country alongside the factors that influence its size in the during the period from 1975 through 2020. The current research is relevant and contributes to the literature in a number of ways. First, the study is the first attempt (to the best of our knowledge) that sets out to explicitly estimate the magnitude of money laundering, and assess its determining factors and influence of its size in the UAE. Second, the present research particularly departs from the previous studies on money laundering as it intends to employ a novel method, based on the modification of the recently improved CDA technique, to pin down the amount of illicit money that enters into the laundering cycle in the country annually with a definitive statistical approach. Third, the study employs several robust estimation techniques including the autoregressive distributed lag (ARDL) bounds testing, Gregory-Hansen co-integration test, non-linear ARDL (NARDL) bounds testing, dynamic ordinary least squares (DOLS), canonical co-integration regression (CCR) and fully modified OLS (FMOLS) procedures to estimate the money laundering model and study the determinants of money laundering and its influence in the UAE. Lastly, by identifying

the specific magnitude of money laundering, its determinants and influence in the economy, the study is very important and contribute to the literature as it would shed light on the most appropriate measures to be undertaken by policymakers and relevant authorities to ensure the eradication of illicit financial flow and money laundering in the country. This is important because, evidence has shown that such unchecked flow of illicit funds in the economy could affect the reputation of the economy, thus making it difficult for legitimate capital flowing into the economy, a situation which often has significant implication.

1.3 Research Questions

Based on the foregoing discussion, the following questions are raised:

i. What is the magnitude of money laundering and the factors affecting its size in the UAE?
ii. Is the effect of money laundering on the economy of the UAE non-linear?
iii. To what extent is the level of financial development related to the magnitude of money laundering in the country?
iv. Is there a causal relationship between the magnitude of money laundering and its potential determinants in the UAE?

1.4 Research Objectives

Against the background of the questions raised above, the main objective of the present study is to determine the magnitude of illicit funds which are laundered in the UAE during the period from 1975 to 2020. The specific objectives of the study are:

i. To estimate the magnitude of money laundering and its determinants in the UAE.
ii. To examine the asymmetric effect of money laundering on economic growth in the UAE.
iii. To identify the level of financial development that is related to the magnitude of money laundering in the UAE.
iv. To ascertain the causal relationship between money laundering and its potential determinants in the UAE.

1.5 Research Hypotheses

The hypotheses in their null form are specified as:

H_1^0: The magnitude of money laundering and its determinants in the UAE is unknown.

H_2^0: The effect of money laundering on the economy of the UAE is symmetric.

H_3^0: The extent to which different levels of financial development can be attributed to the magnitude of money laundering activities in the UAE is not known.

H_4^0: There exist no causal association between money laundering and its potential determinants in the UAE.

1.6 Significance of the Study

The motivation for the present study stems from the renewed efforts of the government of the UAE to combat and eradicate the menace of illicit financial flows, and therefore money laundering activities, in the UAE head-on. This is against the backdrop of the rising alleged cases of money laundering in the country and the growing perception among international organisations, law enforcement bodies, civil society networks and the media that the country is the oasis for corrupt and criminal actors from around the world as well as the destination and/or pass-through for illicit financial flows and money laundering.

This research work is, however, topical and justifiable for several reasons. First, the current study focuses on the UAE, one of the countries perceived to be the haven of illicit funds and actors, and money laundering, in the world. Second, research into the magnitude of illicit funds which are laundered in the country are almost non-existent. To the best of our knowledge, the existing research into the magnitude of money laundering is particularly biased towards advanced economies, and in few cases the aggregation of a large number of countries. Third, the present study is very topical given that a novel approach, based on the modification of the recently improved CDA technique, is intended to be employed in a bid to obtain a correct, clear, unambiguous and indisputable estimate of the magnitude of money laundering in the UAE. Fourth, this study is indeed timely since most of the existing studies on the determinants of money laundering focused on a group of countries rather than country-specific level. Fifth, given differing levels of financial development across countries, and the fact that countries with well-developed financial market are likely to attract more illicit funds

for laundering than economies with less developed system for obvious reasons, the present study considers whether the magnitude of money laundering is contingent on the levels of financial development. Lastly, the present study is justifiable given that it considers the non-linear effect of money laundering on the economy, an aspect which researchers have paid less attention to despite the conflicting empirical and theoretical outcome on the effect of money laundering on the growth of the economy.

The present research is very important because it is the first known attempt at estimating the magnitude of illicit funds which goes into the laundering cycle in the UAE annually. In addition, by quantifying the amount of illicit funds which are laundered in the country, the present study tends to shed more light on the most appropriate measures to be undertaken by policy makers and relevant agencies to ensure the successful eradication of the menace of money laundering in the country. Moreover, given the paucity of research on money laundering – its size, determinants, and effect on the economy – at individual country-level, it is expected that this study will rekindle the discourse on illicit financial flows, and money laundering in particular. Lastly, due to the influence and position of the UAE in the GCC and Middle East and North African (MENA) regions, and the global economy at large, it is anticipated that the outcome from the present study will awaken the motivation to quantify the extent of money laundering in countries with similar problem, especially rapidly developing and emerging market economies.

1.7 Scope of the Study

The present study sets out to examine the dynamics of money laundering in the UAE. In particular, the focus of the research is the estimation of the magnitude of illicit funds that enter into the laundering cycle in the UAE. The study also investigates the determinant of money laundering in the country, the non-linear effect of money laundering on the growth of the economy, and whether the magnitude of money laundering is contingent on the level of financial development in the UAE. The country is chosen because of the perception that the country is a safe haven for illicit funds and actors, as well as money laundering. The present study covers the period between 1975 and 2020. The choice of the period is guided by the marked transformation in the country's economy which saw the surge in the inflow of foreign capitals ad investors, and the availability of data for these periods.

1.8 Organisation of the Thesis

The thesis is arranged as follows. Chapter one is the introduction and it consist of the background of the study, statement of the research problem, research questions, research objectives, hypotheses of the study, motivation and significance of the study, scope of the study, and plan of the study. Chapter two is the review of the literature, and it is made up of the conceptual literature on money laundering, an overview of UAE's economy and the extent of money laundering activities in the country, in addition to the international and national response to money laundering issues. Chapter two also considers the theoretical and empirical literature with regards to the issue under

study, and the gap in the literature. Chapter three is the research methodology, and it comprises of model specification, justification of variables, method of analysis, and sources of data. Chapter four is for the presentation and discussion of results. Chapter five contains a summary of major findings, policy implications/recommendations, conclusion, limitation of the study, and recommendation for future research.