CHARLES UNIVERSITY
FACULTY OF SOCIAL SCIENCES
Institute of Economic Studies

Money Laundering and Suspicous Activity Reporting in the United States

Bachelor's thesis

Author: Ivana Krouparová
Study program: Economics and Finance
Supervisor: doc. Petr Jánský, Ph.D.
Year of defense: 2021

Declaration of Authorship

The author hereby declares that he or she compiled this thesis independently, using only the listed resources and literature, and the thesis has not been used to obtain any other academic title.

The author grants to Charles University permission to reproduce and to distribute copies of this thesis in whole or in part and agrees with the thesis being used for study and scientific purposes.

Prague, July 27, 2021

Ivana Krouparová

Acknowledgments

I would like to express my gratitude to doc. Petr Jánský, Ph.D., who has been willing to provide me with both his time and knowledge necessary for the creation of this thesis. I also feel the need to recognize the invaluable assistance and patience of my friends without whom I would surely not be able to finish this project.

Abstract

Money laundering is a seriously understudied phenomenon and despite the continuous advancement of detecting technology, continues to be a serious issue today. This thesis provides a detailed definition of money laundering, lists some of the most common examples of how this illegal activity can be carried out in practice, and provides a brief historical overview of the U.S. efforts to combat it. The next segments follow up on previous research in order to evaluate the effectiveness of the U.S. suspicious activity reporting (SAR) system. The paper investigates whether an elevated prevalence of certain offenses, such as financial crime or drug trafficking, could explain the growing number of SARs or if the upward trend could be in part explained by institutions over-reporting in fear of the penalties set by the local regime. The estimates obtained by applying the random effects model on a panel of 51 U.S. states, including the District of Columbia, did not indicate a presence of excessive over-reporting. Instead, the regression results showed a negative correlation between the SAR filing rate and the prevalence of financial crime in the state. A conclusion is drawn that the increasing number of SARs cannot be viewed as a result of more financial crime, implying that systematic under-reporting may be present and thus, putting the effectiveness of the framework in question.

Keywords AML, Money Laundering, SAR, Suspicious Activity Report

Title Money Laundering and Suspicous Activity Reporting in the United States

Abstrakt

Praní špinavých peněz je velmi neprozkoumaný fenomén a přes neustálé zlepšování technologií sloužících k jeho detekci, zůstává i dnes velmi závažným problémem. Tato práce čtenáře seznámí s konceptem praní špinavých peněz, přiblíží časté metody, zkrze které je tento testný čin páchán v praxi a poskytne stručný přehled toho, jak se mu Spojené státy v historii snažily zabránit. V následující části práce navazuje na předchozí výzkum ve snaze zjistit, do jaké míry je aktuální americký systém zpráv o podezřelé aktivitě (dále SARs) efektivní. Konkrétně se zaměřuje na to, zda větší převaha určitých druhů zločinů, například ten finanční nebo obchodování s drogami, má vliv na zvyšující se míru těchto zpráv, nebo ji lze naopak označit za přehnanou. Výsledky získané pomocí tzv. random effects modelu aplikovaného na panel tvořený 51 americkými státy, včetně hlavního města, neprokázaly, že jde o přehnané nahlašování. Naopak analýza prokázala negativní korelaci mezi mírou podaných hlášení a převahou finančního zločinu v daném státě. Práce dospěla k závěru, že každoročně se zvyšující míru SARs nelze jednoduše svést na rostoucí míru finančního zločinu v dané oblasti, a naznačila, že aktuální nastavení amerického SAR systému nemusí být nutně efektivní.

Klíčová slova AML, praní špinavých peněz, SAR, Suspicious Activity Report

Název práce Praní špinavých peněz a zprávy o podezřelé aktivitě ve Spojených státech

Contents

List of Tables

List of Figures

Acronyms

AML anti-money laundering

ATM automated teller machine

BSA Bank Secrecy Act

C.F.R. U.S. Code of Federal Regulations

CFT Countering Financing of Terrorism

CMIR Currency and Monetary Instruments Report

CTR Currency Transaction Report

CTRC Currency Transaction Report by Casinos

DNFBPS designated non-financial businesses and professions

FATF Financial Action Task Force

FBAR Foreign Bank and Financial Accounts Report

FDIC The Federal Deposit Insurance Corporation

FinCEN Financial Crimes Enforcement Network

FIU Financial Intelligence Unit

GVIF generalized variance inflation factor

HC heteroskedasticity-consistent

HIFCA High Intensity Financial Crime Areas

ICE U.S. Immigration and Customs Enforcement

IRS Internal Revenue Service

MER FATF Mutual Evaluation Report

RE random rffects

SE standard errors

STR Suspicious Transaction Report

UNODC United Nations Office on Drugs and Crime

USA PATRIOT ACT Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism

U.S.C. United States Code

VAT value-added tax

VIF variance inflation factor

Chapter 1

Introduction

Despite posing a serious problem for societies and financial institutions both in first-world and developing countries (Beqiri & Beqiri 2018), money laundering is still a relatively understudied phenomenon. Due to its secretive nature and complexity, the proceeds of many criminal activities remain out of sight of law enforcement agencies. Concealing the sources of laundered money makes it virtually impossible to quantify, counteracting the world's endeavor to combat organized crime.

In the United States, the term *money laundering* dates back to the 1920s when the members of the Mafia came up with an idea to legitimize the source of their unusually large income through the purchase of laundromats. First concrete anti-money laundering measures came into effect later in the century with the adoption of Bank Secrecy Act of 1970. Since then, it has been many times amended and accompanied by a more recent legislature. The current AML regime relies heavily on suspicious transaction reporting (STR). The U.S. equivalent, suspicious activity reporting (SAR) became the pillar of the country's AML regime. However, is the system in its current form working effectively?

Despite being a major intrusion into the world's financial system, some experts, such as Levi *et al.* (2018), argue that the AML initiatives in effect today were designed with rather minimal use of reliable and consistent data. Moreover, there is little research evaluating how well these interventions achieve their objectives. The data provided by the Financial Crimes Enforcement Network (FinCEN), show an upward trend of SARs filing in the depository industry.

However, little regard has been given to trying to identify what is driving the rate of suspicious activity reporting up.

Focusing primarily on the United States, the following chapters will provide a more detailed definition of money laundering, identify the common predicate offenses linked to this criminal activity, describe some of the frequently used steps and methods used in the procedure, as well as provide a brief overview of the U.S anti-money laundering initiative.

The second part of the thesis was inspired by a 2016 article by Braun *et al.*, which analyzed the drivers of suspicious transaction reports (or STRs) in 54 countries and, among others, identified a stricter penalty regime for non-compliance with AML/CFT requirements as a potential increasing factor. The authors speculate that the issue may be caused by unnecessary over-reporting, putting the effectiveness of the current AML framework in question.

To see whether similar conclusions could be drawn in the case of the United States, using econometric analysis, this thesis will attempt to assess whether the rate of suspicious activity reports filed to FinCEN every year could be linked to the overall stringency of the state's regulation or simply an increase in the prevalence of financial crime in the area.

Chapter 2

Money Laundering

2.1 Defining Money Laundering

Money laundering is a strenuous financial crime that is harnessed by both white-collar and street-level criminals alike. This chapter will introduce the term money laundering more closely as well as describe the different methods and individual steps involved in the process.

The Financial Action Task Force (or FATF), the main provider of global AML oversight, defines money laundering as "the processing of criminal proceeds in a way that will disguise their illegal origin." (FATF Website n.d.) Such procedure provides those breaking the law with *clean*[1] profits which they otherwise would not be able to enjoy without exposing their real origin and putting themselves at risk.

The definition provided by the The Cambridge Business English Dictionary (2011) further specifies money laundering as "the act of moving money which has been earned illegally through banks and other business, to make it seem to have been earned legally." The use of financial institutions or seemingly legitimate businesses is of crucial importance. Although there are many AML detection systems and reporting obligation policies set in place, organized criminals are systemically piercing any weaknesses within the world's banking system in

[1] The word *clean* stems from the money being laundered, no longer appearing *dirty* (illegally-obtained).

order to cover the money trail and turn their profits into seemingly legitimate assets.

It is should also be mentioned that the term money laundering does not only apply to money in the sense of cash, but any economic benefit. Other non-cash instruments, such as real estate, stocks, precious metals, or even life-insurance policies often get involved in the process as well. (UNODC 2010)

The sources of illicit money flows can be listed and categorized quite easily. On the other hand, the same does not apply to the ways how such proceeds become seemingly legitimate.

2.2 Sources of Laundered Money

Apart from various behavioral determinants, a strong incentive for partaking in any criminal activity is the sight of financial profit. This assumption, comparing criminals' expected utility of committing a crime with the utility that would be achieved otherwise, was analyzed in the article Crime and Punishment: An Economic Approach by Gary S. Becker (1968, p. 176).

As mentioned in the previous section, the goal of money laundering is to grant the criminal the ability to allocate and consume such profits as if they were obtained legally. Thus, by pure reasoning, one can conclude that money laundering is a logical consequence of almost any profit-generating crime.

In particular, the UNODC (2020) identified the four main groups of activities generating illicit financial flows as follows:

- illicit tax and commercial activities
- illegal markets
- corruption
- exploiting activities and financing of crime and terrorism

Most illegally operating enterprises, including narcotic or human traffickers, terrorist groups, or illegal gamblers, prefer to conduct business in cash, as is rarely asked to be explained. (EUROPOL 2015; SWIFT and BAE Systems 2020) This is particularly true for the businesses operating in the illegal drug trade. (EUROPOL 2015) However, in the case of large criminal organizations, these cash proceeds can reach billions of U.S. dollars[2] and therefore, need to be handled differently, t.j. laundered. As a matter of fact, the effort of law enforcement to cut the source of Latin American drug traffickers laid ground for many of the AML policies that are still in effect today.[3]

2.3 Stages and Methods

The following segment will provide an analysis of the three key sequential elements involved in the conventional scheme of money laundering (that is placement, layering and integration), as well as introduce a couple of manners in which each stage is frequently carried out in practice.

Generally, the smaller the amount of illicitly obtained money that needs to be laundered, the easier are these gains to conceal. Larger amounts require more sophisticated methods and often use a combination of multiple instruments simultaneously. That is where money launderers make use of their creativity for the purpose of cheating and making use of the global financial system.

Although money laundering can occur domestically, where international transactions are not necessarily required, a considerable portion of cases includes the movement of funds across country borders. Such conclusion can be drawn from the following remark made by the FATF:

> "Differences between national anti-money laundering systems will be exploited by launderers, who tend to move their networks to

[2] According to the World Drug Report (UNODC 2021, Booklet 2, p. 76), the estimated 2016/2017 annual illegal drug sales were $146 billion in the United States and $34 billion in the EU.

[3] To provide at least one instance, The Money Laundering Control Act of 1986 was incorporated as Subtitle H of the Anti-Drug Abuse Act. As the title suggests, the primary goal of the act was to strengthen the Federal efforts aimed at illegal drug crop eradication and halting the international drug traffic (The Anti-Drug Abuse Act of 1986).

countries and financial systems with weak or ineffective countermeasures." (FATF Website n.d.)

Although transferring money across country borders poses a wide range of risks, when successfully executed, the process leaves little or no paper trail, which makes it more difficult to track. Many government authorities do not have the power to subpoena and access records from a foreign bank or a rather complex authorization process is required.[4] By the time all necessary approvals have been obtained, the money at issue will have traveled through multiple different countries and funneled through several new bank accounts, and later sent back into the country of origin by wire transfer or an investment made in the name of a seemingly legitimate offshore corporation. (Cassella 2004)

Making use of such system shortcomings, criminals can successfully carry out the following three steps constituting the money laundering process.[5]

2.3.1 Placement

The initial step in which illegally obtained funds first enter the legitimate global economy is commonly referred to as placement. The prime objective of this stage is to deposit (or place) unlawful proceeds into the financial system and there are multiple ways in which that can be achieved.

The placement could be considered the most obvious, and therefore particularly vulnerable, as depositing a substantial amount of cash into the financial system without taking any precautions is very likely to raise suspicion of the authorities.

[4] To give a more particular instance, the U.S. federal authorities do not have the power to directly subpoena and access records from a foreign bank, unless they feel the need to invoke the PATRIOT Act. However, the U.S. Department of Justice is usually not in favor of taking such action as it could potentially damage the bilateral relations with the country in question. (Cassella 2004)

[5] It is important to note that, depending on the nature of the criminal enterprise, not all of these steps always have to be taken. Moreover, most of the methods described in the following section tend to overlap. For instance, the use of monetary exchange offices can be categorized among common placement techniques, even though it may just as well be employed in the stage of integration.

Structuring

Transferring money can be efficiently done through the banking system, as it provides a safe and fast environment to move cash to practically any part of the world. In an effort to make criminal exploitation of the financial system more difficult, regulatory authorities have applied new requirements that task financial institutions with reporting any cash transactions exceeding a certain threshold. Perhaps the most notable example is the passing of the U.S. Bank Secrecy Act of 1970 that has set the Currency Transaction Report (or CTR) threshold to $10,000.

Structuring refers to the act of altering financial transactions to avoid the reporting requirement. To avoid detection, launderers frequently opt for splitting up their proceeds into multiple under $10,000 transactions.

However, should a criminal organization have $90,000 it wants to deposit and further process, simply splitting it up into ten $9,000 deposits is still very risky and likely to raise suspicion due to the unusual frequency of payments received by the same account.[6] To tackle this issue, the organization may choose to hire a certain amount of individuals that will later visit a series of banks and deposit the appropriate amount there, each into a different account. These people are often referred to as *smurfs* and despite the frisky title, smurfing is also categorized as a criminal offense[7]. The same can be done through an ATM or a teller window and can result in bypassing the CTR requirement altogether. (Welling 1989)

However, structuring is still not always undetectable. The introduction of the Suspicious Activity Reporting (SAR) encouraged criminals to come up with other inventive ways to launder their proceeds. The SAR requires bank employees to report any suspicious activity to law enforcement or other intelligence agencies even if there is no substantial evidence of financial misconduct.[8] On top of these requirements, in order to comply with the FATF recommendations, most banks have adopted sophisticated AML compliance systems and detection algorithms to monitor every transaction, determine which activity should be

[6] See 31 CFR §1010.313 (b); 31 CFR §1010.330 (b).
[7] See 18 U.S. Code §1956 (a)(1)(b)(II).
[8] See 12 CFR §21.11 (c).

flagged as suspicious and reported to comply with the reporting requirement.[9]

Currency Exchanges and Bulk Cash Smuggling

The U.S. Immigration and Customs Enforcement (ICE) defines bulk cash smuggling as the act of physically exporting illegally obtained currency, checks or certain securities that amount to more than $10,000, the limiting threshold for currency transaction reporting requirements. This process often entails smuggling large volumes of cash through the use of transportation vehicles, cargo shipments, or even small aircraft. (DEA 2020)

However, large amounts of cash are heavy and can take up too much space. A common procedure, closely tied to the process of currency smuggling, takes place in the exchange offices. The lack of the same regulatory oversight that is imposed on other financial institutions such as banks fosters a rather suitable environment for money launderers to refine their incriminated funds.[10] Currency exchange or money remittance offices are mostly cash-based business, where rules regarding identity verification are less stringent and the overall customer-provider contact is generally very brief. (FATF 2010)

One of the first ways launderers often use is exchanging large amounts of local currency that had previously been illegally obtained for a low-bulk currency that makes it easier to be smuggled out of the country. An example of such currency is the rather infamous €500 bill[11], the highest-value Euro banknote. Most people living in the euro area have most likely never physically encountered a €500 banknote, nevertheless, its existence makes it possible for smugglers to transport €20,000 in a single small pack of cigarettes. (ECB 2001, p. 86) Since April 2019, €500 bills are no longer issued by European central banks, they still, however, remain a legal tender. (ECB, 2016 press release)

In the United States, the adoption of the Bank Secrecy Act may have poten-

[9] According to the FATF Annual Report, over 70 % of its member countries demonstrate high technical compliance. (FATF 2020b, p. 30)

[10] The 2010 Report issued by the FATF points out that in most countries money remittance or currency exchange businesses are not explicitly defined as financial institutions, therefore, the same regulation may not always apply.

[11] The European Central Bank has frequently stated that the primary use of €200 and €500 banknotes is for storage purposes. Many ECB officials, including the former president Mario Draghi, have expressed their concerns calling the banknote a "tool for illegal activities" (ECB, 2016 press release).

tially had an impact on the volume of attempts to physically transport cash across the Mexico-United States border. It is speculated that since the Currency Transaction Reports (CTRs) federal law was introduced, bulk currency smuggling has likely gained popularity, however less convenient and complex the logistics may be.[12] (GAO 2008)

As a response, the U.S. government amended the Bank Secrecy Act, making bulk cash smuggling a criminal offense, carrying the penalty of up to 5 years of jail time, and forfeiture of any property up to the amount that was smuggled.[13] Similar to the requirement for domestic banks to keep track of transactions entailing over $10,000, anyone attempting to carry more than $10,000 in currency across the border is now required to file a Currency and Monetary Instrument Report (CMIR) to the Customs Service.[14] However, compliance with this legislation among criminals, on whom the precaution was originally targeted, is likely rather low. (Cassella 2004) The main reason for that being the fact that the reporting relies on the discretion of the person crossing the border, and not the objectiveness of an independent financial institution.

Business Ownership and Blending of Funds

Another way criminals place illicit money into the financial system is by mixing them in with legitimate sales receipts through a cash-based business, also known as a *front*, owned or at least covertly managed by a criminal organization. Using the blending method enables criminal organizations to obscure a certain amount of illegal proceeds under a veil of legitimate sale receipts or simply adding the cash into the till. However, this method comes with a cost - the income is subject to a tax. (Reuter & Truman 2004, p. 35)

Well-known examples of front businesses involved in these illegal operations are car washes, beauty salons, bars, casinos or strip clubs. The common feature of these enterprises that makes them so attractive for money laundering are relatively low operating costs and the fact that they all handle cash on day to day basis.

[12] Bulk cash smuggling is the primary technique utilized by drug traffickers to transport drug money out of the United States, according to the DEA's National Drug Threat Assessment 2020.

[13] See 31 U.S. Code §5332.

[14] See 31 U.S. Code §5316.

Another issue to consider when it comes to criminal groups running a front business is that they may create unfair competition to other businesses. Assuming they are not interested in making a profit, the front can afford to offer their services at much lower prices, undercutting legitimate firms operating in the same area. In extreme cases, the existence of the criminally operated front may result in the creation of a monopoly within a particular sector, resulting in higher prices, lower product quality or, labor displacement. (Beare & Schneider 2007, p. 34)

Casinos

Casinos are also largely popular amongst money launderers as they are particularly vulnerable to criminal exploitation. In 2009, the FATF released a report dedicated specifically to the Gaming Sector, pointing out that casinos operate on an overall low level of transparency, almost exclusively with cash, oftentimes in large volumes, and may even contain a foreign exchange facility on their premises. (FATF 2009b, p. 7)

Illegally obtained money can be inserted into slot machines or converted (or cashed-in) into playing chips and later collected (cashed-out) in cash or casino cheques and justified as winnings. Criminals may also target other gamblers with an offer of an exchange of dirty cash for prize-winning tickets. Problematic gamblers exhibit a tendency to accept the exchange even when getting less than 100 % of the ticket's face value, as long as they receive the money immediately. (FATF 2009b)

The FATF does not forget to mention that structuring is also a common occurrence in a casino. A laundering gambler can attempt to divide their transactions into multiple smaller amounts to avoid the reporting threshold, just like they would when making a bank deposit. However, in many countries, casinos are obligated to report even such cash-ins or cash-outs that exceed $10,000 when aggregated for i.e. the last 24 hours.[15]

One of the factors contributing to the problem is the lack of universally applicable reporting requirements for casinos in all countries. For instance, in the United States, casinos are subject to Bank Secrecy Act and are required

[15]See 31 CFR §1021.313.

to file Currency Transaction Report by Casinos (or CTRC Form)[16], whereas in Macau, China's only legal gambling hub (aside from Hong Kong), proactive measures to prevent financial fraud are still being set in place. (FATF 2017)

2.3.2 Layering

Based on the information provided on the FATF Website, the second step of the process of money laundering relies on carrying out complex financial transactions in order to conceal the illegal source of cash introduced to the financial system after a successfully carried-out placement. This stage is possibly the most complex as it commonly entails international movement of funds to put as much distance between the money and its origin. The more intricate these transactions are[17], the more problematic it becomes for the law enforcement to track them back to their true source, or even detect any illicit activity. The following section will introduce some of the known techniques designated for the purpose of layering.

Cash Converted into Monetary Instruments

Once cash is placed into the financial system, one of the next possible strategies launderers may opt for is to convert it into monetary instruments. In doing so, they obtain a new efficient mechanism to transfer their ill-gotten proceeds all around the world.

Financial institutions, predominantly banks, offer a variety of monetary instruments, such as money orders and cashier's or traveler's checks. Typically, these instruments are purchased to later take on the role of regular physical currency. Despite the fact that their use, the traveler's checks in particular, has been on the decline since the 1990s when a variety of alternatives like credit cards became more convenient and ATMs more available (Gerdes & Walton 2002), they still continue to serve the purpose of layering. (FinCEN, MSB Guide)

In recent years, banks have adopted a new technology referred to as the *Remote*

[16] See 31 CFR §1021.320.

[17] The term *layering* refers to the high number of transactions and financial instruments often involved.

Deposit Capture. The procedure relies on taking electronic images of a check to process the deposit instead of using it in its paper form. Remote Deposit Capture is convenient not only to the bank's customers, who are spared a visit to a local branch or an ATM to deposit a check, but to the bank itself, as it no longer has to physically collect and transport these checks as frequently. (RDC Website n.d.)

However, there have been instances of this process being exploited in money laundering schemes. To provide an example, a criminal can use proceeds resulting from their criminal activity to purchase traveler's checks on the U.S. soil, smuggle them to Mexico and have them scanned in one of the local establishments called *casa de cambio*, an exchange house commonly used by Mexican organized criminals, where the identification requirements may not always be as strict as in the United States. (FinCEN Case Examples n.d.) These institutions then send the scanned images back to the U.S. bank that has issued the check and hence, a new layer is created.

Other activities that criminals engage in is purchasing any monetary instruments below the threshold of $3,000, which is the reporting requirement imposed on monetary service businesses by the Bank Secrecy Act, and place them into a savings account to, once again, avoid the CTR filing threshold. (FinCEN, MSB Guide)

Securities Brokers

According to a 2019 Grand View Research Report, the security market size is expected to reach $167.12 billion by 2025. The constantly growing industry plays a crucial role in the global economy and provides another form of access to the financial system. This gateway presents money launderers with yet another opportunity to exploit the financial system and further engage in criminal activity. The large variety of financial instruments available, high frequency of large international transactions and the speed of money changing hands in securities markets make the industry an easy target for dirty money.

As cash is rarely used in securities transactions, the opportunities for placement here are rather scarce. This may be one of the contributing factors that leads brokers to the notion that there is almost no risk that they are operating with

dirty money and causes them to be less vigilant in screening and reporting suspicious activities than they perhaps ought to be. One of the indicators is the fact that the number of suspicious transaction reports generated by the securities industry is relatively low in comparison to other finance-related industries, such as banking.[18]

Layering is the stage where security markets turn out to be of service the most. The nature of the industry where substantial amounts of funds move rapidly across the globe from one holder to another and secrecy and transactions to tax haven countries are considered a part of daily routine, provides a perfect vehicle to conceal the source of money that does not attract too much attention. Even large overseas transactions can be arranged and executed within a couple of days, which makes any attempt for investigative tracing very complicated or impossible. (FATF 2009a)

According to another report produced by the FATF in 2007, securities can be particularly attractive to money launderers as a way to justify sudden high profits or in so-called *carousel schemes* (or missing trader schemes), in which a seemingly legitimate trader disappears together with an unpaid value-added tax. The anonymity of the fraudsters is further enhanced thanks to the ability to set up an online trading account without ever physically visiting the provider.

2.3.3 Integration

Once the money has been properly placed and layered, it seems as though it has been lawfully obtained (or its origin is at least well obscured) and it is time for the proceeds to return to its original owner without drawing any attention. The purpose of this third and final phase is to re-introduce the money back into the economy in order to be spent or invested into legitimate assets or to fund further criminal activities which come under legitimate business. The integration stage often takes the form of investment or a sale of assets obtained during the layering phase. (FATF Website n.d.)

[18] According to data retrieved from the publicly available Suspicious Activity Statistics, between 2014 and 2020, the number of suspicious activity reports filed in the securities/futures industry makes only around 1 - 2 % of total SAR filings, whereas the reports filed by the depository industry make around 50 %. (FinCEN 2014-2020)

Property Dealing

Investing in real estate provides criminals with a relatively safe way to integrate their money back into the mainstream economy. That is because property can be bought practically anonymously, via trusts or shell companies that make it virtually impossible to identify its true owner. Particularly in the United States, real estate brokers and agents are exempt from performing due diligence over their buyers.[19][20] Moreover, a 2015 research done by the National Association of REALTORS uncovered that international clients make 59 % of their purchases in cash. Another interesting statistic relates to the international clients in the state of New York, where 62 % of purchases over $2 million are also made in cash.

The use of a third party to perform the purchase as the legal owner is also not an uncommon occurrence. Many criminals rely on their, either paid-off or very trusting, close relatives without a criminal record. The property is acquired in their name and the proceeds are transferred to a third party account, without ever having to mention the true owner or source of the funds used in the transaction. What makes this method particularly popular is the difficulty to prove that there was any ill intent behind the transaction. (OECD 2007)

Purchasing an asset with illegally obtained cash can easily raise suspicion, therefore some criminals use loans or mortgages to finance such transactions. In doing so, they can cover up the money they gained in illegal activities and the payback provides a perfect opportunity for mixing illicit funds with the legitimate. Once the loan is granted, the criminal can move on to funnel their money into the banking system via mortgage payments. To avoid direct contact, the money is usually first transferred from an offshore account into a U.S. bank, from which the monthly mortgage payments are then made. (FinCEN 2015)

Another method of integrating money through real estate is the manipulation of property values. Launderers, sometimes with the assistance of real estate

[19] As has been pointed out by Transparency International (2017), The USA PATRIOT Act does contain provisions related to customer due diligence in real estate, however, the industry had been granted a temporary exemption that has not yet been lifted.

[20] The United States has been evaluated as Non-Compliant for Recommendation 22 (DNFBPS): Customer Due Diligence in the most recent Follow-Up Mutual Evaluation Report (2020a).

agents, artificially inflate the property value with the intent to increase the amount of funds a bank is going to provide in form of a mortgage. Other times, the criminal can opt for underestimating the property value instead in order to reduce their tax obligations. (FinCEN 2015)

Front Companies and False Loans

Apart from serving as a safe house for false invoicing, there are other instances when front companies may be of service. Owning a legitimate cash-based business can turn out to be a big advantage. Some criminal organizations that for various reasons, do not wish to be tied to such business in any way, resort to actively seeking out an already operating establishment and using it in their scheme in a similar way. The owner may not even be aware of any illegal activity underway, or is either paid-off or blackmailed to compliance.

To provide an instance, restaurants involved in money laundering schemes operate as a regular legitimate business on a day-to-day basis, with real staff, menu, and profits. The strategy criminals use is to mix in and later justify the dirty money with the legitimate restaurant's profits. The cash turnover in a restaurant is considerably large, which makes it an attractive venture for money launderers, who do not wish their transactions to be easy to trace.

2.4 Estimating Money Laundering

According to the UNODC, an estimated 2 to 5 % of the world's GDP is laundered every year. However, that is only a very rough estimate, as the research in this area is still rather limited and the methods used to measure the volume of proceeds laundered every year are neither highly reliable nor very accurate. Levi *et al.* Nevertheless, the resulting statistics can still be of use and are commonly applied in practice. To give an instance, such calculations can be utilized in comparative studies to see which regions are the most problematic or they can simply serve as a mere depiction of the scale of these illegal operations.

The 2011 report by the UNODC provides a brief overview of the most common techniques used in obtaining estimates of criminal proceeds. The document

mentions field studies or surveys, both of which rely on personal perception of the people interviewed and are therefore subject to unavoidable bias, or perhaps more accurate, statistical discrepancies approach.

Another common method relies on financial transactions data, including suspicious activity reports[21]. However, as will be discussed in later chapters, relying on the volume of filed reports does not necessarily reflect the amount the prevalence of various criminal activities and their generated proceeds. Moreover, sometimes the same money may be counted multiple times as the funds travel through the financial system. (UNODC 2011) Though there is a large number of other methodologies proposed in the literature and no single method is considered as the standard, as each one has its drawbacks.

[21] More information on suspicious activity reports in section 2.5.

2.5 Suspicious Activity Reporting in the United States

Most countries in the world have established Financial Intelligence Units (FIUs), which are, in addition to other monitoring activities, tasked with overseeing and analyzing suspicious transaction reports (STRs). In the context of the United States, the report is referred to as the suspicious activity report and governed by the federal FIU, the Financial Crimes Enforcement Network (FinCEN). FinCEN acts as a safeguard to the financial system by trying to prevent its misuse in illicit activities and money laundering. FinCEN operates primarily under the federal legislation referred to as the Bank Secrecy Act (1970).

2.5.1 Bank Secrecy Act

In 1970, the United States Congress took the first major step in the fight against money laundering terrorist financing and other illicit financial activities by passing perhaps its most critical tool, The Currency and Foreign Transactions Reporting Act of 1970. The word currency in the title refers to the physical transfer of currency from one person to another, including deposits, exchanges, withdrawals and other payments. This was a major advance in the financial services industry as it created a base for new regulatory reporting standards. The bill is more commonly referred to as the Bank Secrecy Act of 1970, or BSA for short.

All U.S. financial institutions have since been obligated to assist government agencies in money laundering prevention and detection. The act requires both private individuals and financial institutions to submit five types of reports to the Financial Crimes Enforcement Network (FinCEN) or the Internal Revenue Service (IRS).

Currency transaction reports (or CTRs) must be filed with FinCEN for each cash transaction involving more than $10,000.[22] In this case, currency refers to the physical exchange of coins or paper between persons. Most banks nowadays use software that files the CTR automatically once the threshold is triggered.

[22]See 31 CFR §1010.330 (b).

If a financial institution employee believes a transaction to be fraudulent, as in a customer trying to systematically avoid the BSA reporting requirement, a suspicious activity report has to be filed. Should such suspicion arise and the transaction exceeds $5,000, the employee is obligated to report the activity within 30 calendar days, otherwise facing a fine or even a prison sentence. The institution is not allowed to inform the customer or business in question about the SAR being filed as all the reports mandated by the Bank Secrecy Act are exempt from disclosure under the Freedom of Information Act.[23]

Another requirement introduced by the Bank Secrecy Act is the Foreign Bank Account Report (FBAR).[24] FBARs concern any individual with a bank account at a financial institution located outside the United States of $10,000 and over and have to be filed annually with the FinCEN.

For certain trade businesses, such as car dealerships, all cash payments involving more than $10,000 from one buyer, arising either from a single transaction or multiple dealings within 24 hours, are subject to a reporting requirement and file the Form 8300.[25]

Moreover, U.S. financial institutions are tasked with keeping records of purchases of monetary instruments, such as money orders or traveler's checks, worth between $3,000 - $10,000, and be able to present them at request for at least another five years to prove compliance.

Since its passing in 1970, the bill has been amended multiple times. One of the most significant changes was introduced after the terrorist attacks of 2001 with the establishment of USA PATRIOT ACT of 2001 (2001). Its Title III added a new provision to the BSA, requiring financial institutions to adopt AML programs with a better-defined strategy. Institutions have since been instructed to apply strict internal policies and controls, appoint compliance officers, provide regular employee training, and be subject to regular independent audits.

[23] See 22 CFR Part 503.
[24] See 31 CFR §1010.350.
[25] See 26 CFR § 1.6050I-1.

2.5.2 Further Efforts In Combating Money Laundering

To further eradicate regional drug trade, the act of money laundering itself has first been established a federal crime with the passing of The Money Laundering Control Act of 1986. Another significant piece of legislation was enacted in 1988 with the ratification of The Anti-Drug Abuse Act of 1986 which extended the definition of a financial institution to real estate agencies and car dealerships.

The requirement of filing suspicious activity reports came with the amendment to the Bank Secrecy Act following the adoption of The Annunzio-Wylie Anti-Money Laundering Act in 1992. SARs thus fully replaced the Criminal Referral Forms which were used previously. Institutions have since been obligated to verify and keep a record of wire transfers and the sanctions in case of BSA violation have been strengthened. (FinCEN Website n.d.)

The Money Laundering Suppression and Money Laundering and Financial Crimes Strategy Acts imposed further provisions on financial institutions. Apart from new conditions related to the registration of Money Services Businesses, both financial and governmental institutions have since been required to develop an anti-money laundering training program for their examiners. Moreover, the legislation led to the identification of so-called High-Intensity Money Laundering and Related Financial Crime Areas (HIFCA) and its respective task force concentrating law enforcement units in these geographic regions. (FinCEN Website n.d.)

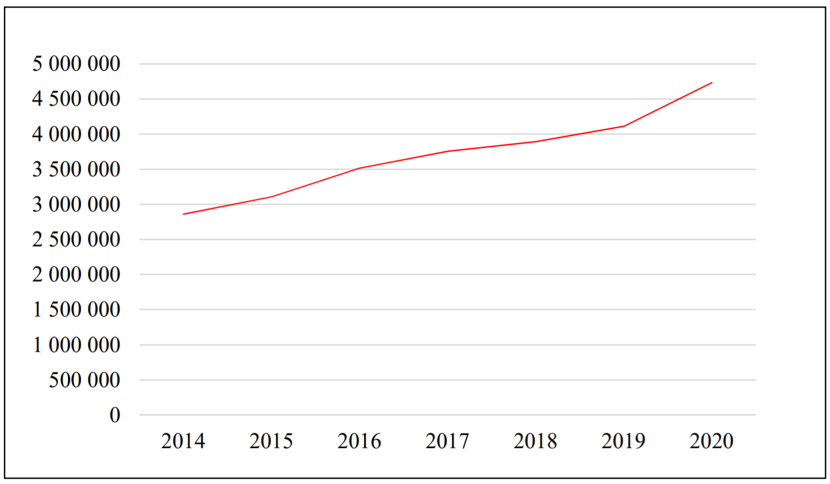
2.5.3 Discussion on the Effectiveness of AML System

A study called Can The AML System Be Evaluated Without Better Data (Levi *et al.* 2018) stresses out the importance of relying on consistent data in AML Policy creation and the little regard even the system evaluating organizations like the FATF give for a systematic data analysis when assessing its effectiveness.

In countries with a robust and well-developed AML framework, it is required by law to report a suspicious transaction without any unnecessary delay. According to the latest FATF Follow-up Mutual Evaluation Report (FATF 2020a), the United States can be considered one of these countries. Although the filing of suspicious transaction reports is required uniformly over the entire United States by the Bank Secrecy Act (1970), certain states seem to exhibit higher prevalence of these filings.[26]

Figure 2.1 shows how the number of SARs filed in the depository industry alone grew almost twofold over the period from 2014 to 2020:

Figure 2.1: Evolution of the total number of SARs filed in the depository industry in the United States from 2014 to 2020



Source: FinCEN (2014-2020), obtained via MS Excel

[26] Based on a calculation of the number of SARs filed by a bank employee every year, Nevada and Arizona exhibit the highest rate of these filings. (manual calculation using data provided by FinCEN, FDIC QBP State Tables and MS Excel)

Some experts, such as Subbotina or Braun *et al.*, argue that part of that increase can be attributed to defensive over-reporting, questioning the overall reliability of suspicious activity reporting systems. They speculate that banks are prioritizing institutional compliance to protect themselves in the eyes of the law instead of taking a more strategic and logical approach in order to contribute to the fight against corruption. As a result, the growing number of filed suspicious activity reports may act as a mask to the non-functional reporting system. With the continuous growth in SARs filed every year, it becomes harder for government agencies to separate the useful information from minor incidents or simple mistakes.[27] (Johnston & Carrington 2006)

The effectiveness of a suspicious reporting system is determined by its capacity to successfully detect criminal activity and the overall quality of the report being filed. (Roule & Kinsell 2002) However, assessing its overall effectiveness is a difficult task. The illicit money that is funneled through the financial system can only be roughly estimated. Though it can be evaluated from many perspectives, the quantity of filed suspicious activity reports is generally used among the main indicators. (Levi *et al.* 2018)

In his article, Chaikin (2009) questioned the effectiveness of the Swiss suspicion reporting system pointing to systematic under-reporting as the main driver of the issue. He also argued that strict adherence to know-your-customer (KYC) rules is the reason why Western countries, such as the United States or the United Kingdom, report a relatively higher number of suspicious transactions compared to other countries. However, Chaikin also mentions such occurrence would, for the most part, take place in the initial stages, before the individuals involved in money laundering realize that they may be subject to an investigation following these reports.

Contradicting Chaikin's conclusions, Subbotina (2009), who focused her research on the effectiveness of the Russian AML regime, argues that the increasing number of suspicious transaction reports may be attributed to the banks' effort to avoid being exposed to legal risk as a result of not reporting certain transactions. Her claim was further supported by Johnston & Carrington (2006) who suspected that such defensive reporting may eventually turn problematic as it overloads the respective authorities with a huge amount of

[27] The phenomenon is sometimes referred to as the incidence of *crying wolf* effect. (Takáts 2011)

reports and thus limits the effectiveness of the following investigative process, even in circumstances where the initial allegations were well-founded.

Chapter 3

Econometric Analysis

This section will attempt to investigate and interpret the relationship between the level of SARs filed within the U.S. depository industry[1] and the selected variables of interest. The panel dataset consists of 51 U.S. states, including the federal District of Columbia, observed over a period of seven consecutive years from 2014 to 2020.

The following analysis was inspired by a study conducted by Braun *et al.* (2016), which attempted to identify potential determinants of STR levels in 54 countries from 2006 to 2012. The study concluded that high levels of STRs can be linked to elevated prevalence of criminal activities, such as organized crime and terrorism, and suggested that overly strict penalty regimes could potentially lead to employees over-reporting in fear of being accused of non-compliance.

The aim of this chapter is to follow up on this research and attempt to apply a similar model to more recent data retrieved from the Financial Crimes Enforcement Network database and determine whether similar conclusions could be made in the case of the United States specifically.

[1] In the United States, the depository institutions include financial institutions such as savings and commercial banks, savings associations, credit unions, trust companies, and United States bank holding companies. (31 CFR §1010.350)

3.1 Methodology

Although the United States had been included among the 54 countries considered in the 2016 Braun *et al.* study, arguably, not all variables used in the analysis would apply when observing only one country in particular. Specifically, including the fact whether the FATF has recently released a Mutual Evaluation Report, as in the original study, would make little sense in terms of the United States.[2]

Moreover, due to the lack of a reliable indicator that could be used as a proxy for the level of the perceived threat of terrorism in each state, this variable will not be considered as well. Instead, other similar variables of interest (prevalence of financial fraud or drug trafficking in the state) were selected, that could potentially affect on the level of SARs filed in the USA. The selection process and sources used to build the panel used in the further analysis are discussed in the following section.

The logic behind selecting SARs filed by entities classified into the depository industry instead of the total amount filed every year was lowering the number of potential determinants (e.g. number of casinos in each state), more available statistics related to the topic and overall easier interpretation of the results. Also, depository institutions are the most prevalent source of these reports. (FinCEN 2014-2020)

3.1.1 Variables and Hypothesis Development

This segment will provide a detailed overview of the variables used in the upcoming analysis. Since the reasoning behind the choice of these variables closely relates to the tested hypotheses, they will be included in this section as well. A concise list including a brief description of these variables is contained in the Appendix (Table A.1).

SAR Rate

[2] The article published by Braun *et al.* concluded that a recently released round of Mutual Evaluation Reports may potentially serve as an incentive to make the evaluated country's AML framework more stringent and thus, drive the level of STRs up. However, the FATF evaluates the United States as a whole and does not provide reports on each state individually.

In the Braun *et al.* study, the ratio of STRs and country GDP was selected to serve as the dependent variable in the analysis rather than absolute figures. The authors explained their choice with the reasoning that the economic size of a country seems to be a significant determinant of varying STR levels. Or more simply, larger GDP implies a larger financial sector, therefore, also more STRs. This way, they presume, it is possible to identify either low or high reporting countries from the sample.

The dependent variable used in the following regression has been slightly altered to achieve a similar objective in terms of individual U.S. states. The number of SARs filed by depository institutions divided by the total number of employees of all FDIC-insured institutions[3] was used to compute the estimated amount of SARs filed by an employee (further referred to as *SAR Rate*)[4]. The amount of suspicious activity reports submitted to FinCEN was obtained through SAR Stats, a publicly available database of SAR filing trend data for period (FinCEN, Filing Trend Data 2014-2020) and transformed using logarithmic transformation to yield a distribution that looks closer to normal. (Wooldridge 2015, Chapter 4)

Financial Crime and Money Laundering

The next two variables were selected to assess whether a higher prevalence of financial crime, and also money laundering in particular, could be linked to a raised level of filed SARs in a given state. Generally, money laundering is classified under financial crime offenses, however, as it is the primary focus of this thesis, it has been included as a separate independent variable. All other forms of financial crime[5] (money laundering excluded) have been included in a separate variable.

Since most crime statistics only measure the number of criminals caught, theoretically, if the money laundering framework were truly effective[6], the elevated rate of SARs in certain states could be interpreted simply as the result of overall higher prevalence of financial crime in the area. Logically, if there is more

[3] Nearly all banks and savings institutions operating in the United States are insured by the Federal Deposit Insurance Corporation. (FDIC QBP State Tables)

[4] Could also be interpreted as the number of reports each bank employee in the state files in a year.

[5] Including categories such as forgery, fraud, theft, embezzlement, tax fraud, etc.

[6] The word *effective* is used in a sense that there is no serious issue with unsubstantiated SARs being filed, or over-reporting.

of such criminal activity, more of it should be triggering a SAR. That leads to the following two hypotheses:

H1: Higher proportion of financial crime increases the SAR rate.
H2: Higher proportion of money laundering increases the SAR rate.

Should the following analysis find a positive relationship between the dependent variable (SAR Rate) and these two variables, in the context of this paper, the AML framework could be considered effective.

The statistics for these two variables were obtained via The United States Sentencing Commission (USSC, Federal Sentencing Statistics 2014-2020, Table 1). The USSC provides annual state reports on the distribution of federal offenders by type of crime.

Drug Trafficking

As was mentioned earlier, drug trafficking is very closely tied to the act of money laundering. Therefore, it could be expected that states with higher proportion of drug crime (not counting drug possession) would experience higher incidence of money laundering. Given that well-targeted AML systems successfully identify criminal activities, more SARs should be filed. The hypothesis is:

H3: Higher proportion of drug trafficking increases the SAR rate.

Crime Rate

It should be mentioned that despite being used by government agencies or criminologists, there is an ongoing debate related to the accuracy of crime statistics (e.g. Buil-Gil *et al.*, 2021). More specifically on how they were calculated and how they should be interpreted. Most widely used crime statistics are assembled based on local police department records, the size and effectiveness of which can differ significantly in each jurisdiction. In certain states, only offenses resulting in incarceration are included in crime statistics. Moreover, due to the differences in state laws, certain acts may be considered as a criminal activity in one state, but not in others. Hence, calculated crime rate statistics for a certain area may not necessarily reflect reality. (Buil-Gil *et al.* 2021)

However, for the purpose of this analysis, this issue will be momentarily foregone and the variable representing the total level of crime in a given state will be included in the regression. The intention behind including the overall crime rate is to serve as a control variable to better assess the effect of specific crime categories of interest in order to avoid the omitted variable bias. (Wooldridge 2015, chapter 9)

The state crime rates used in the regression were retrieved from the U.S. Bureau of Justice, which provides annual imprisonment rates[7] of total jurisdiction population, regardless of the type of offense committed.

Restrictiveness

The intention behind the choice of the last independent variable was to assess whether or not stricter state regulation could be considered one of the potential drivers of the SAR level. Specifically, the amount of regulation in the AML area and the degree of power of local supervising authorities could have an effect on the number of reports filed. (Braun *et al.* 2016)

However, in the United States, the AML regulation and related penalties for non-compliance are widely dictated by the Bank Secrecy Act (1970). The BSA is a federal law, which means there is going to be little difference in its application among various states. Nevertheless, the regulation of the financial sector does indeed differ depending on the U.S. state[8]. On its own, the strictness of these regulations is difficult to comprehensively evaluate due to the lack of publicly available statistics on this topic. Instead, a resource called StateReg Data was used to produce a variable that will serve as a proxy for the level of regulatory strictness[9].

The StateReg database ranks 44 of the U.S. states based on the total restriction count. Assuming that stricter state regulation has a deterring effect on

[7] Imprisonment rate refers to the total number of prisoners under state jurisdiction with a sentence of more than 1 year per 100,000 U.S. residents.

[8] State governments are authorized to charter, regulate, and supervise local depository institutions and other types of companies offering financial services. An instance of these differences can be shown in the state of Delaware, which has been known for its rather lenient rules regarding company information disclosure and taxation, making the area particularly attractive for corporation registration. (Delaware Division of Corporations 2019)

[9] The database is quite new but has already been used for similar purposes in a few studies (e.g. Chambers *et al.*, 2019 or Chambers *et al.*, 2019).

crime[10], the effectiveness of the U.S. AML framework can be tested through the following hypothesis:

H4: Stricter regulation decreases the level of SARs.

[10]Based on the logic used by Becker (1968) stating that more regulations deter crime when they strengthen criminal's perception of the certainty of being caught.

3.2 Estimation

Table 3.1 provides the summary statistics for all variables used in the analysis. The number of observations slightly varies among variables due to the unavailability of data for certain indicators, the dataset is thus unbalanced.

Table 3.1: Summary statistics

Statistic	N	Mean	St. Dev.	Min	Max
lnsar_rate	357	0.786	1.007	−2.568	3.507
fc	357	15.589	7.342	0.662	54.000
ml	357	1.451	1.300	0.000	6.886
drugs	357	32.927	10.076	2.750	68.085
crime	350	395.454	146.130	104.000	818.000
restrictions	315	134,068	72,167	38,961	395,608

A lot of assumptions have been made and some of the variables are closely related, therefore, it is important to address the issue of multicollinearity. In order to verify whether the independent variables are correlated or not, the correlation matrix was calculated as well as the variance inflation factor (VIF). High correlation among independent variables can lead to inflated variance of estimated regression coefficients. (Wooldridge 2015, chapter 3) However, no severe correlation was identified.

Table 3.2: Correlation matrix

	lnsar_rate	fc	ml	drugs	crime	restrictions
lnsar_rate	1.00					
fc	0.07	1.00				
ml	0.17	0.15	1.00			
drugs	-0.22	0.00	0.02	1.00		
crime	-0.02	-0.04	-0.08	-0.20	1.00	
restrictions	0.20	0.15	0.22	0.04	-0.09	1.00

Note: Collinearity present if the absolute values of pairwise correlations exceed 0.7.[11]

In the original study by Braun *et al.*, both fixed effects and random effects models were used to analyze the sample in order to capture both within- and cross-country variation over time. As the data points for variable representing

Table 3.3: Variance inflation factor

	GVIF	Df	GVIF^(1/(2*Df))
fc	1.30	1	1.14
ml	1.27	1	1.13
drugs	1.15	1	1.07
restrictions	1.00	1	1.00
crime	2.28	1	1.51
factor(year)	3.03	6	1.10

Note: Collinearity present if GVIF exceeds threshold of 5.[12]

the state's restrictiveness are time-invariant, its estimated effect would be lost after running the fixed effects regression.

Nevertheless, the results of a Hausman test (1978) failed to reject the null hypothesis that both of these models are consistent and the random effects model was chosen as it is more efficient. Another advantage of the random effects model is that it allows for estimation of time-invariant variables. (Wooldridge 2015, chapter 14)

Year dummies were also included in the regression to take into account effects that may influence all states in a given year to the same amount and obtain the general trend over time.

The results of a Breusch-Pagan test (1979) showed signs of heteroskedasticity, or non-constant variance of the error term. Heteroskedasticity leads to invalid statistical tests of significance. (Wooldridge 2015, chapter 8) In order to address this issue, heteroskedasticity-consistent (HC) standard errors[13] were calculated. (White 1980) Both types of estimates and standard errors are presented on the next page in Table 3.4.

[13]There are overall 5 types of HC standard errors, ranging from HC0 to the newest HC4. The original White's HC0 specification was used as it is the most widely used standard and the sample size is not small. If that were the case, HC3 would most likely be the better choice. (Hayes & Cai 2007)

Table 3.4: Regression results

	(RE)	**(RE with HC SEs)**
	lnsar_rate	lnsar_rate
fc	-0.0076***	-0.0076***
	(0.0028)	(0.0020)
ml	0.0140	0.0140
	(0.0117)	(0.0136)
drugs	0.0005	0.0005
	(0.0022)	(0.0020)
restrictions	0.000003	0.000003·
	(0.000002)	(0.000002)
crime	0.0012***	0.0012·
	(0.0004)	(0.0007)
factor(year)2015	0.1696***	0.0012***
	(0.0354)	(0.0289)
factor(year)2016	0.3192***	0.3192***
	(0.0356)	(0.0438)
factor(year)2017	0.4279***	0.4279***
	(0.0360)	(0.0486)
factor(year)2018	0.4150***	0.4150***
	(0.0386)	(0.05173)
factor(year)2019	0.4540***	0.4540***
	(0.0388)	(0.0524)
factor(year)2020	0.7357***	0.7357***
	(0.0500)	(0.0654)
Constant	-0.4514	-0.4514
	(0.3557)	(0.4711)
Observations	308	308
R^2	0.6207	0.6207
Adjusted R^2	0.6066	0.6066
F Statistic	484.475***	295.419***
Note:		*p <0.1;**p<0.05;***p<0.01

3.3 Results

At first glance, the regression results reflect the overall positive time trend. [14] Compared to 2014, the total SAR rate increased by almost 74 % in 2020.

The only statistically significant variable in both regressions is the prevalence of financial crime. The data provides enough evidence to conclude that the variable is negatively correlated with the SAR Rate. It shows a negative sign, meaning an increase in financial crime is associated with almost one percent decrease in the SAR rate. The data provides enough evidence to reject the null hypothesis for the entire population.

Overall crime rate shows a positive link to the level of SARs filed. However, most of its significance was taken by the use of HC standard errors, making it relevant only at the 0.1 significance level. That is arguably not sufficient as the p-value of 0.05 is the most common choice. (Wooldridge 2015, chapter 4) The same could be said in case of the restrictions variable.

With the exception of financial crime, all variables show a positive relationship, however, there is not enough evidence to conclude that there is any correlation.

3.4 Interpretation

The regression provided enough evidence to reject the first hypothesis (H1: Higher proportion of financial crime increases SAR rate). Or in other words, there is a statistically significant negative effect of the prevalence of financial crime on the on the amount of SARs filed by a bank employee. The analysis therefore suggests that the local AML system is not effective in identifying financial crime. One of the possible explanations is under-reporting, reminiscing the results of Chaikin's study. The U.S. SAR system, similar to those in Switzerland, is efficient to the extent that the usage of it is very high. However, in order to draw further conclusions, further, more detailed analysis would be required.

[14] For verification, see the previously obtained graphical representation - Figure A.1 in the Appendix.)

Moreover, due to the unbalanced panel dataset and the overall inconsistent nature of crime-related statistics, the magnitude of the effect is difficult to interpret.[15]

Assuming the standard 0.05 level of significance applies, the analysis did not provide substantial evidence to link the degree of state regulation to the level of SARs filed. That somewhat contradicts the results of the study by Braun *et al.* (2016), which concluded that stricter penalty-regimes lead to more filed reports.

However, unlike the authors of the 2016 article, who evaluated the effect of the strict financial regulation only, this analysis used an overall number of regulations as a predicting variable, largely for the lack of equivalent statistics in the United States. The penalty for non-compliance is arguably more likely to instigate defensive over-reporting, so even if the significant results were obtained, it would be hard to interpret whether it was the penalty-regime, or other regulatory area that has the effect. Therefore, the difference in results may as well be attributed to the methodology of building the dataset.

Though the relationship was positive, the estimation did not provide enough information to conclude that higher prevalence of drug trafficking or money laundering in a given state has any effect on the level of filed SARs.

[15] Also, the overall results do not take into account the fact that criminals can be moving moving across the various states, or even in and out of the country. The predicate criminal activity may occur in one state, but the resulting proceeds laundered in another.

Chapter 4

Conclusion

The entire field concerning criminal activities is severely understudied. That may be, for the most part, due to its secretive nature, where measurement is difficult and the theories on how to interpret the results are contradicting. But even without the presence of more consistent data, the area benefits from any additional research. That is particularly true for the issue of money laundering. Yet there is very little regard given to how well the global financial system is designed to prevent it.

In order to demonstrate that despite the advancing detecting technology, money laundering is still a present issue, the initial chapters introduced the reader to the key concepts of money laundering. Later segments listed the most common offenses preceding this illegal activity and provided several examples of how the process is carried out in practice. The following section provided a brief historical overview of the U.S. efforts to produce or enhance its AML framework as well as named some of the concerns regarding its the efficiency of the currently used suspicious activity reporting system.

Following up on previous research (Braun *et al.* 2016), the next segment provided a brief econometric analysis attempting to assess the soundness of the claim that the current AML regime is prone to excessive reporting. Using a panel of 51 U.S. states (including the federal District of Colombia), the resulting analysis did not conclude that the U.S. depository institutions file unnecessarily large amounts of suspicious activity reports, t.j. are prone to over-reporting.

However, the results did suggest that the U.S. suspicious activity reporting

framework does not effectively detect financial crime, perhaps explained by systematic under-reporting like in the case of Switzerland. (Chaikin 2009) That should be a major reason for concern as that is the main purpose for which the system had been designed.

However, in order to gain deeper knowledge of the effectiveness of suspicious activity reporting framework, more studies should address these concerns. Perhaps the support and funding by the local government could aid the researching process. All that being said, hopefully this work contributes to the existing literature and may at least inspire further research.

Bibliography

12 CFR §21.11 (c) (2021): Suspicious Activity Report.

18 U.S. Code §1956 (a)(1)(b)(II) (2021): Jury Instruction - Avoiding reporting requirement (CTR).

22 CFR Part 503 (2021): Freedom of Information Act Regulation.

26 CFR § 1.6050I-1 (2021): Returns relating to cash in excess of $10,000 received in a trade or business.

31 CFR §1010.313 (b) (2021): Aggregation.

31 CFR §1010.330 (b) (2021): Reports relating to currency in excess of $10,000 received in a trade or business.

31 CFR §1010.350 (2021): Reports of foreign financial accounts.

31 CFR §1021.313 (2021): Aggregation.

31 CFR §1021.320 (2021): Reports by casinos of suspicious transactions.

31 U.S. Code §5316 (2021): Reports on exporting and importing monetary instruments.

31 U.S. Code §5332 (2021): Bulk cash smuggling into or out of the United States.

Bank Secrecy Act of 1970 (1970): PUBLIC LAW 91-507-OCT. 26, 1970.

Beare, M. E. & S. Schneider (2007): *Money laundering in Canada: Chasing dirty and dangerous dollars*. University of Toronto Press.

Becker, G. S. (1968): "Crime and punishment: An economic approach." *J. Pol. Econ.* **76**: p. 176.

Beqiri, V. & N. Beqiri (2018): "Negative effects on the domestic economy caused by money laundering." *International Journal* **27**: p. 87.

Braun, J., M. Kasper, A. Majdanska, & M. Somare (2016): "Drivers of suspicious transaction reporting levels: evidence from a legal and economic perspective." *Journal of Tax Administration* **2(1)**: pp. 1–31.

Breusch, T. S. & A. R. Pagan (1979): "A simple test for heteroscedasticity and random coefficient variation." *Econometrica: Journal of the econometric society* pp. 1287–1294.

Buil-Gil, D., A. Moretti, & S. H. Langton (2021): "The accuracy of crime statistics: Assessing the impact of police data bias on geographic crime analysis." *Journal of Experimental Criminology* pp. 1–27.

Cassella, S. D. (2004): "Bulk cash smuggling and the globalization of crime: Overcoming constitutional challenges to forfeiture under 31 usc 5332." *Berkeley J. Int'l L.* **22**: p. 98.

Chaikin, D. (2009): "How effective are suspicious transaction reporting systems?" *Journal of Money Laundering Control* .

Chambers, D., P. A. McLaughlin, & L. Stanley (2019a): "Regulation and poverty: an empirical examination of the relationship between the incidence of federal regulation and the occurrence of poverty across the us states." *Public Choice* **180(1)**: pp. 131–144.

Chambers, D., D. Thomas, P. A. McLaughlin, & K. Waldron (2019b): "The effect of regulation on low-income households." .

DEA (2020): "National Drug Assessment." *Report*, United States Drug Enforcement Administration.

Delaware Division of Corporations (2019): "Annual Report Statistics." *Report*, Delaware Division of Corporations.

ECB (2001): "The use of euro banknotes - results of two surveys among households and firms." *Economic Bulletin* **4**: p. 85.

ECB (2016): "ECB ends production and issuance of €500 banknote." *Press release*, [online], accessed July 25, 2021 from `https://www.ecb.europa.eu/press/pr/date/2016/html/pr160504.en.html`.

EUROPOL (2015): "Why Is Cash Still King?" *Report*, European Police Office.

FATF (2007): "Laundering the Proceeds of VAT Carousel Fraud." *Report*, Financial Action Task Force.

FATF (2009a): "Money Laundering and Terrorist Financing in the Securities Sector." *Report*, Financial Action Task Force.

FATF (2009b): "Vulnerabilities of Casinos and Gaming Sector." *Report*, Financial Action Task Force.

FATF (2010): "Money Laundering through Money Remittance and Currency Exchange Providers." *Report*, Financial Action Task Force.

FATF (2017): "Mutual Evaluation Report of Macao, China." *Report*, Financial Action Task Force.

FATF (2020a): "3rd Enhanced Follow-up Report and Technical Compliance Re-Rating." *Report*, Financial Action Task Force.

FATF (2020b): "FATF Annual Report 2019-2020." *Report*, Financial Action Task Force.

FATF Website (n.d.): "Money laundering." [online], accessed July 25, 2021 from `https://www.fatf-gafi.org/faq/moneylaundering/`.

FDIC QBP State Tables (2014-2020): "Qbp state tables." [online], accessed June 15, 2021 from `https://www7.fdic.gov/qbp/index.asp`.

FinCEN (2014-2020): "Filing trend data." Data retrieved on June 13, 2021 from the Financial Crimes Enforcement Network, `https://www.fincen.gov/reports/sar-stats`.

FinCEN (2015): "Money Laundering in the Residential Real Estate Industry." *Report*, Financial Action Task Force.

FinCEN (n.d.): "Money laundering prevention - an msb guide."

FinCEN Case Examples (n.d.): "Illegal casa de cambio launders more than $5 million." [online], accessed July 25, 2021 from `https://www.fincen.gov/resources/law-enforcement/case-examples/illegal-casa-de-cambio-launders-more-5-million`.

FinCEN Website (n.d.): "History of anti-money laundering laws." [online], accessed July 10, 2021 from https://www.fincen.gov/history-anti-money-laundering-laws.

GAO (2008): "Bank secrecy act: Increased use of exemption provisions could reduce currency transaction reporting while maintaining usefulness to law enforcement efforts."

Gerdes, G. R. & J. K. Walton (2002): "The use of checks and other noncash payment instruments in the united states." *Fed. Res. Bull.* **88**: p. 360.

Grand View Research Report (2019): "Security Market Size, Share Trends Analysis Report By System." *Report*, Grand View Research.

Hausman, J. A. (1978): "Specification tests in econometrics." *Econometrica: Journal of the econometric society* pp. 1251–1271.

Hayes, A. F. & L. Cai (2007): "Using heteroskedasticity-consistent standard error estimators in ols regression: An introduction and software implementation." *Behavior research methods* **39(4)**: pp. 709–722.

ICE (n.d.): "Combating bulk cash smuggling." [online], accessed July 25, 2021 from https://www.ice.gov/partnerships-centers/bcsc/faq.

International, T. (2017): "Doors Wide Open: Corruption and Real Estate in Four Key Markets." *Report*, Transparency International.

Johnston, R. B. & I. Carrington (2006): "Protecting the financial system from abuse: Challenges to banks in implementing aml/cft standards." *Journal of Money Laundering Control* .

Levi, M., P. Reuter, & T. Halliday (2018): "Can the aml system be evaluated without better data?" *Crime, Law and Social Change* **69(2)**: pp. 307–328.

OECD (2007): "Report on Tax Fraud and Money Laundering Vulnerabilities Involving the Real Estate Sector." *Report*, Organisation for Economic Co-operation and Development.

RDC Website (n.d.): "Remote deposit capture overview." [online], accessed July 25, 2021 from https://www.remotedepositcapture.com/overview/rdc.overview.aspx.

REALTORS (2015): "Home Buyer and Seller Generational Trends." *Report*, National Association of REALTORS.

Reuter, P. & T. Truman (2004): *Chasing dirty money: The fight against money laundering*. Peterson Institute.

Roule, T. J. & J. Kinsell (2002): "Legislative and bureaucratic impediments to suspicious transaction reporting regimes." *Journal of Money Laundering Control* .

StateReg Data (2020): "Regcensus explorer." Data retrieved on July 13, 2021 from QuantGov, `https://www.quantgov.org/state-regdata/`.

Subbotina, N. (2009): "Challenges that russian banks face implementing the aml regulations." *Journal of Money Laundering Control* .

SWIFT and BAE Systems (2020): "Follow The Money." *Report*, SWIFT.

Takáts, E. (2011): "A theory of "crying wolf": The economics of money laundering enforcement." *The Journal of Law, Economics, & Organization* **27(1)**: pp. 32–78.

The Anti-Drug Abuse Act of 1986 (1986): PUBLIC LAW 99-570—OCT. 27, 1986.

The Cambridge Business English Dictionary (2011): *"money laundering"*. Cambridge University Press.

The Money Laundering Control Act of 1986 (1986): PUBLIC LAW 99-570—OCT. 27, 1986.

UNODC (2010): "Risk of Money Laundering through Financial Instruments." *Report*, United Nations Office on Drugs and Crime.

UNODC (2011): "Estimating illicit financial flows resulting from drug trafficking and other transnational organized crines." *Report*, United Nations Office on Drugs and Crime.

UNODC (2020): "Conceptual Framework for the Statistical Measurement of Illicit Financial Flows." *Report*, United Nations Office on Drugs and Crime.

UNODC (2021): "World Drug Report." *Report*, United Nations Office on Drugs and Crime.

USA PATRIOT ACT OF 2001 (2001): PUBLIC LAW 107–56—OCT. 26, 2001.

USSC (2014-2020): "Federal sentencing statistics." Data retrieved on June 15, 2021 from the U.S. Sentencing Commission, `https://www.ussc.gov/research/data-reports/geography`.

WELLING, S. N. (1989): "Smurfs, money laundering, and the federal criminal law: the crime of structuring transactions." *Fla. L. Rev.* **41**: p. 287.

WHITE, H. (1980): "A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity." *Econometrica: journal of the Econometric Society* pp. 817–838.

WOOLDRIDGE, J. M. (2015): *Introductory Econometrics: A Modern Approach*. Cengage learning.

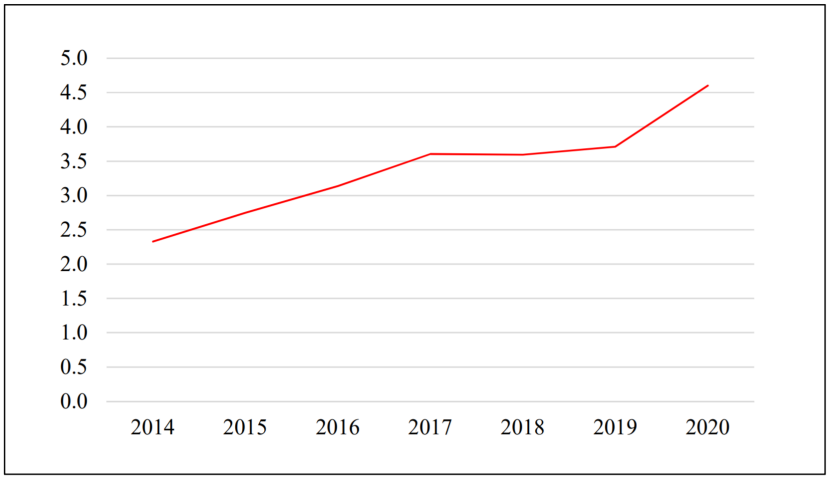
Appendix A

Appendix

Table A.1: List of variables used in regression

Variable	Desctiption
lnsar_rate	natural logarithm of SAR rate (SARs to bank employees ratio)
fc	financial crime (percentage)
ml	money laundering (percentage)
drugs	drug trafficking (percentage)
restrictions	number of regulations in each state (nominal)
crime	total crime (rate)
factor(year)	years dummies (2014 - 2020)

Figure A.1: Evolution of the total average annual SAR rate of the depository industry in the United States from 2014 to 2020



Source: FinCEN (2014-2020); FDIC QBP State Tables (2014-2020), obtained via MS Excel