Grey Zone Enablers:
The Impact of Canada's Pacific Rim Strategy on the Vancouver Model of Money Laundering

by

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Abstract

This thesis explores the economic security and prosperity policy challenges that make British Columbia and Canada vulnerable to money laundering and illicit finance. It studies the influence of Canada's Pacific Rim strategy on provincial efforts to combat money laundering by examining the hearing transcripts from the Commission of Inquiry into Money Laundering. The first part uncovers latent factors and confounders that weaken BC's resilience against money laundering through thematic content analysis with unsupervised and semi-supervised topic models. The second part enhances the Walker-Unger economic gravity model by integrating cultural and ecological dimensions influenced by the Vancouver model of money laundering and the Pacific Rim strategy. It identifies vulnerabilities despite implemented countermeasures and investigates factors affecting the proportion of money laundering flow between Canada and China. This study demonstrates that socio-computational approaches with proxy variables enhance ethical intelligence-led policing strategy, especially when access to fair, accurate, and transparent data is limited.

Keywords: Money Laundering; National Security; Organized Crime, Gravity Model; Hybrid Threats; Canada-China Relations

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俗語話，“馬死落地行”。

This thesis journey started amidst the onset of the COVID-19 pandemic. However, I wrote most of the manuscript after the third wave hit Canada. Interwoven in its narrative is an undercurrent of lives shattered by the dual forces of police brutality and racial violence, alongside the toll of the pandemic. There can be no consolation. My gratitude has emerged not from profound grief but from the transformative lens it has permanently cast. Contende ad lūcem sapientiae et quaere meliōra.

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I am honoured to live, study, work, and play on the traditional and unceded lands of the Sḵwx̱wú7mesh Úxwumixw.

Celîs-i halvetim, varım, habîbim mâh-ı tâbânım
Enîsim, mahremim, varım, güzeller şâhı sultânım

- Muhibbi, Kanuni Sultan Süleyman

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List of Acronyms

AML	Anti-Money Laundering
ATM	Automated Teller Machine
BC	British Columbia
BCFSA	British Columbia Financial Services Authority
BERT	Bidirectional Encoder Representations from Transformers (Model)
BoW	Bag-of-Words (Model)
CAD	Canadian Dollars
CCDI	Canadian Centre for Diversity and Inclusion
CCP	Chinese Communist Party
CEPII	Le Centre d'Études Prospectives et d'Informations Internationales
CFSEU-BC	Combined Forces Special Enforcement Unit of British Columbia
CFO	Civil Forfeiture Office
CFT	Countering the Financing of Terrorism
ChIS	Chinese Intelligence Service
CIFA-BC	Counter Illicit Finance Alliance of British Columbia
CorEx	Correlation Explanation (Model)
CSIS	Canadian Security Intelligence Service
EFT	Electronic Funds Transfer
EU	European Union
FATF	Financial Action Task Force
FDI	Foreign Direct Investment
FINTRAC	Financial Transactions and Reports Analysis Centre of Canada
FIU	Financial Intelligence Unit
FVEY	Five Eyes (Intelligence Alliance)
GDP	Gross Domestic Product
GNP	Gross National Product
GPEB	Gaming Policy and Enforcement Branch
IC	Intelligence Community
IDEA	Inclusion, Diversity, Equity, and Accessibility

IFFs	Illicit Financial Flows
IMF	International Monetary Fund
IVTS	Informal Value Transfer System
JIGIT	Joint Illegal Gaming Investigation Team
KWIC	Key Word in Context
KYC	Know Your Customer
LDA	Latent Dirichlet Association (Model)
LCTR	Large Cash Transaction Report
MEOC	Middle Eastern Organized Crime
MSB	Money Services Business
NAOC	NATO Association of Canada
NATO	North Atlantic Treaty Organization
NSIRA	National Security and Intelligence Review Agency
OMG	Outlaw Motorcycle Gang
PCMLTFA	Proceeds of Crime (Money Laundering) and Terrorist Financing Act
PEP	Politically Exposed Person
PPSC	Public Prosecution Service of Canada
PRC	People's Republic of China
RCMP	Royal Canadian Mounted Police
ROC	Republic of China (Taiwan)
SAR	Special Administrative Region
SRO	Self-Regulatory Organization
STR	Suspicious Transaction Reporting/Report
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TBML	Trade-Based Money Laundering
TF-IDF	Term Frequency – Inverse Document Frequency
TOC	Transnational Organized Crime (Convention)
UK	United Kingdom
UN	United Nations
UNODC	United Nations Office on Drugs and Crime
VIR	Voluntary Information Record

Glossary

Actor	A natural person, and where relevant, a corporation or business entity.
Black Market Peso Exchange	An informal value transfer system typology of trade-based money laundering that converts proceeds of illicit drug trafficking into Latin American fiat currencies.
CIFA-BC	The Counter Illicit Finance Alliance of British Columbia is an RCMP-led information-sharing partnership bringing together multisectoral public and private organizations with the shared vision of combatting money laundering and financial crime.
Cullen Commission	Commission of Inquiry into Money Laundering in British Columbia.
Elite Capture	A situation in which a local elite diverts resources from international donors; symptomatic of corruption, discrimination, influence, or foreign interference.
Evidence-Based Policing	A data-driven, research-focused model credited to the American criminologist Lawrence Sherman that individualizes justice through legislation, policy reforms, and victim-centred approaches to postmodern policing (Sherman, 1998).
Fei Ch'ien	An informal value transfer system that exists in China, Southeast Asia, and Pacific Rim countries. 飛錢 or "flying money." This Chinese underground banking system is also referred to as shadowing banking, 地下錢莊.
Five Country Ministerial	Forum for the Five Eyes security ministers to discuss collaboration on public safety and national security issues facing each of the partner countries.
Five Eyes	The Five Eyes is a signals intelligence alliance between Australia, Canada, New Zealand, the United Kingdom, and the United States as parties to the UKUSA Agreement.
Five Power	The Five Power Defence Arrangements are a series of bilateral defence relationships established between Australia, Malaysia, New Zealand, Singapore, and the UK.
Guanxi	關係, a term used in Chinese cultures where a person's social network is comprised of mutually beneficial personal and business relationships, signifying a system of implied personal trust and reciprocity.

Intelligence-Led Policing	A data-driven and proactive approach to law enforcement and crime reduction that emerged in the early 1990s. This policing model was built on by the British criminologist Jerry Ratcliffe, with the 3i model comprised of the concepts of Interpret, Influence, and Impact (Ratcliffe, 2016).
IVTS	Any system, mechanism, or network of person or business entities that transmit funds or an equivalent value payable to a third party in another geographic location. Variants are primarily based in ethnic communities including, for example, fei ch'ien (Chinese), hawala (Middle Eastern, Indian sub-continent), havaleh (Persian), padala (Filipino), and phoe kuan (Thai).
NATO	The North Atlantic Treaty Organization is a 31-member intergovernmental military, collective security alliance.
Target Hardening	Crime prevention and threat mitigation by making entities or environments less attractive targets.
Vancouver Model	A system of money laundering typologies and tactics that emerged in Metro Vancouver, British Columbia. Coined by the Australian criminologist, John Langdale, it is comprised of interconnected networks involving casinos, Chinese underground banks, illicit drug markets, and transnational organized crime groups.

Preface

This thesis is an original intellectual property of the author, Ashleigh Rhea Gonzales. All the work presented henceforth was conducted at the International CyberCrime Research Centre at Simon Fraser University, Burnaby campus. The work is ultimately a component of a more extensive research collaboration with Dr. Richard Frank. None of the text of the thesis is taken directly from previously published articles.

Chapter 1. Portions of the introductory text are modified from previous written introductory material from the research papers entitled “Money Laundering and Transnational Organized Crime: Theoretical Perspectives on the Vancouver Model” completed for the graduate seminar course, CRIM 800: Criminological Theory I and “First Comes Benford, Then Comes FINTRAC: Evaluating Suspicious Transactions from the Vancouver Model of Money Laundering” completed for the Crime Reduction Research Program funded-project, “Detecting Money Laundering: An intelligent system for automatic detection of money laundering typologies from FINTRAC disclosures,” and for CRIM 861: Research Methods II: Quantitative Methods.

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Chapter 5. Portions of the research methods and text are modified from the research paper, “First Comes Benford, Then Comes FINTRAC: Evaluating Suspicious Transactions from the Vancouver Model of Money Laundering.”

Chapter 1.

Introduction

> *Significant portions of some large Canadian urban centres are also owned by Chinese entrepreneurs. For example, it is estimated that Li Ka-Shing owns with his son at least one sixth to one third of downtown Vancouver. These "corporate" figures have become an influential presence on the political and economic landscapes of Toronto and Vancouver and at the provincial and federal levels. The triads, the tycoons and ChIS [Chinese Intelligence Service] have learned the quick way to gain influence is to provide finance to the main political parties.*
>
> *(RCMP-CSIS Joint Review Committee, Project Sidewinder, 1997)*

> *But wait. If for a moment we remove ourselves to a less lofty vantage point, that of a small city on one edge of the former British Empire, this assumed neoliberal future becomes a little more dubious. In 1989 this city was transforming almost before our eyes from a provincial backwater, an achingly beautiful yet placid city, into a global metropolis, a gateway between West and East. In this year, just one year after the Hong Kong property magnate Li Ka-Shing purchased the former Expo '86 lands for a negligible sum, property in Vancouver, British Columbia, was the hottest real estate in the world. It was a city on fire.*
>
> *(Dr. Katharyne Mitchell, Crossing the Neoliberal Line: Pacific Rim Migration and the Metropolis, 2004)*

There have been several government-commissioned reports on the Vancouver model of money laundering after Langdale (2017) first identified it. Popularized by German (2018) and codified through the Commission of Inquiry into Money Laundering in British Columbia by Austin Cullen ("Cullen Commission"), the former Assistant Deputy Attorney General to the BC Supreme Court, that took place from 2019 to 2022 (Cullen Commission, 2019). Investigations and countermeasures against money laundering have increased in both provincial and federal prioritizations, particularly since British Columbia's (BC) then-Attorney General David Eby's commission of an independent review of anti-money laundering (AML) policies and practices affecting Metro Vancouver gaming, real estate, and luxury goods sectors. Evidence that emerged from those reports indicates that proceeds of crime, predominantly involving serious and organized crime, have been laundered in Metro Vancouver and the province of BC for several years, mainly through casinos and real estate (German, 2018; German, 2019a; German, 2019b; Maloney, Somerville, & Unger, 2019). Academic case studies, literature reviews,

and policy assessments provided to the BC provincial government and the Cullen Commission deconstruct the Vancouver model of money laundering ("Vancouver model") and survey it against a wide range of money laundering techniques implemented around the world from AML research and existing Canadian legislation, policy, and regulations (Cullen Commission, 2021; Frank & Gonzales, 2020; Sharman, 2021; Leuprecht, Simser, Cockfield, & Clement, 2021; Schneider, 2020). The common underlying issues were the failures in the intelligence cycle in handling the types and volume of information; the systemic deficiencies in cross-organizational and whole-of-government cooperation to enact and enforce AML controls and regulations; and the geostrategic, economic, sociodemographic, and ecological factors that have been exploited to make BC and Canada highly vulnerable to money laundering.

The takeaway message from the Cullen Commission is that money laundering is a complex and highly politicized issue in BC. The final report resulted in a total of 101 recommendations to strengthen the existing AML framework, with a thematic emphasis on amending the characterization of predicate offences that substantiate money laundering as a crime, increasing internal controls, and capacity building of law enforcement (Cullen, 2022). The three-year commission was established under BC's *Public Inquiry Act* by Order in Council in 2019 and followed the four previously cited independent reports: The three "Dirty Money" reports documented in German (2018, 2019a, 2019b) and Maloney, Somerville, and Unger (2019) wherein the casino gaming, luxury vehicle, horseracing, and real estate sectors were evaluated for money laundering. Their mandates were to report on the methods and severity of money laundering in BC, assess the efficacy and gaps of the several regulatory agencies, financial institutions, and law enforcement bodies, and identify any barriers to effective enforcement and control.

1.1. The Current Study

1.1.1. The Problem

The pervasive and endemic nature of money laundering and the alarms sounded by a select few motivated the BC government's response. However, there is a scant focus on the historical and geopolitical circumstances that could have contributed to the problem. Unlike some studies submitted to the Cullen Commission that diminish or gloss

over the potential impact of cultural and sociodemographic factors, this research illuminates the growing tensions between Canadian national rhetoric and the policies of social liberalism and multiculturalism, demonstrating direct security and economic threat implications.

The current study challenges Canada's Pacific Rim strategy, which originated from the post-World War II era of development and encompasses socioeconomic concepts and diplomatic relationships (Resnick, 1985). By examining the Cullen Commission hearing transcripts, this study can determine to what extent BC and Canada's economic prosperity agendas, leveraging ties to the Asia-Pacific region and communities, played in the current problems the province faces in recognizing and combatting money laundering. The influx of newer transnational wealthy migrant communities from Eastern Asia and the Chinese diaspora has become a leverage point not only for transnational organized crime and the illicit drug trade but also for politically exposed persons (PEP), professional enablers, and nation-state threat actors seeking corruption targets. This exploitation transforms the cultural landscape of a diverse but otherwise traditionally British Canadian city for their ill-gotten gains.

The ensuing downstream effects place significant stress on the Canadian criminal justice system. Money laundering, when viewed as both an economic crime and a national security issue, compromises the integrity of financial systems, fortifies illicit markets, and erodes trust in public institutions. This research underscores how the key features of the cumulative Pacific Rim strategy have contributed to the region's vulnerability to money laundering activities that characterize the Vancouver model.

1.1.2. The Gap

Previous research has yet to distinctly investigate the interconnected convergence of hybrid security threats that render BC and Canada extremely vulnerable. In many ways, these same challenges brought forth by the Pacific Rim strategy were designed to enhance neoliberal and multicultural ideologies. Consequently, a system of systems without adaptive controls eventually leads to increased disorder as those in power representing governments and business sector regulators replace public accountability with self-serving advantages in what could be defined as systemic corruption (Pasculli, 2017).

1.1.3. Originality

This thesis addresses the gaps in previous research by examining the interconnected hybrid security threats that make BC and Canada susceptible to money laundering and illicit financial flows (IFFs) reinforcing transnational illicit drug trafficking and organized crime networks. Unlike most research on money laundering, the current study intentionally explores the entangled relationships among these threats, revealing their interdependence and the totality of their impact on the region.

By recognizing that these challenges are deliberately aligned with neoliberal and multicultural ideologies, the current study adds nuance to understanding underlying and competing motives to engage in money laundering and a reticence to combat it. The current provincial and federal anti-money laundering/countering the financing of terrorism (AML/CFT) regimes highlight significant imbalances in the regulatory and criminal justice systems' willingness to test adaptive controls when compared with Canada's closest allies. In taking this position, the thesis asserts that those in positions of power could be complicit in perpetuating and benefitting from the systemic corruption sustained by these IFFs.

This study is designed to work within the constraints of data and human resources that are commonplace for applied criminology studies, where its success can hinge on privileged access to police data, expertise, and resources. Instead, this research adopts a creative empirical approach to overcome these constraints. The methodological framework contributes to a more reliable and accurate understanding of money laundering and IFFs, advancing criminological knowledge.

To that end, this study pursues three main research questions:

1. What factors of Canada's Pacific Rim strategy have weakened British Columbia's ability to counteract the threat of money laundering?
2. What factors remain vulnerable despite the countermeasures implemented to strengthen strategies against hybrid threats via money laundering?
3. What factors indicative of the Vancouver model affect the estimated proportion of money laundering flow between Canada and China?

1.1.4. Rigour

This thesis is interdisciplinary, as it spans the fields of criminology, economics, security studies, and geography, and its approach lies between linguistics, machine learning, and econometric techniques. Due to the known limitations in access to and quality of data, very few studies investigating or measuring the extent of money laundering and IFFs can accurately apply an entirely empirical approach. As a two-part study, I address these limitations and gaps through a mixed-method research design. The first part involves a machine-learning-assisted qualitative analysis of the Cullen Commission hearing transcripts by building unsupervised and semi-supervised topic models. In the second part, I adapt the Walker-Unger gravity model of money laundering from Maloney, Somerville, and Unger (2019) to operationalize an intelligence-led policing approach to understand the Vancouver model better. I incorporate enrichment factors derived from the findings from Part 1 of the study by extending the attractiveness and cultural distance indices of the model. An econometric estimation of the gravity model is then calculated. Thematically, these proxy measures consider the unique environment shaped by Canada's cumulative Pacific Rim strategy. Finally, through regression analyses, I evaluate the significance and impact of each factor on the proportion of bilateral money laundering flow between BC, Canada, and subnational China.

1.1.5. Significance

This thesis has significant implications for enhancing the AML/CFT regimes in BC and Canada and can inform investigative and regulatory policy, procedure, and practice. Unlike most previous research, it explicitly examines the cross-cutting issues influencing the magnitude, scope, and resilience of the money laundering problem in BC. Committed to an inclusive and victim-centred approach, my research philosophy aims to tailor the intelligence-led and evidence-based policing models to account for a diversity of perspectives and lived experiences (Ratcliffe, 2016; Sherman, 1998; CCDI, 2023). The potential operational benefits of the enriched gravity model designed for this study are also significant. It is adapted to capture the local typologies and indicators of the Vancouver model and streamlined for more straightforward implementation. By undergoing a semi-log transformation and statistical significance tests, the enriched gravity model can be used as an investigative tool to assist law enforcement in

identifying and prioritizing vulnerabilities that need target hardening. The methods employed also advance interdisciplinary approaches to criminology for future research applications. Lastly, the thesis findings contribute to the capacity for empirical evaluation in post hoc critiques of both the Cullen Commission and the study by Maloney, Somerville, and Unger (2019) investigating money laundering in BC.

1.2. Money Laundering as a Crime

Money laundering was made a criminal offence in Canada under the *Criminal Code of Canada* ("Criminal Code") in 1989, and the first iteration of legislation in what is now known as the *Proceeds of Crime (Money Laundering) and Terrorist Financing Act* (PCMLTFA) was introduced in 1991. These actions were in concert with the 1989 G-7 Summit in which the Financial Action Task Force (FATF) was created as an AML/CFT framework for international coordination (Maloney, Somerville, & Unger, 2019, p. 25). For the most part, the international community recognized money laundering as a global issue by the late eighties (Unger, 2017, p. 7). Notwithstanding, there remains a substantial gap between what was outlined as criminal money laundering offences under section 462.31 of the Criminal Code (Criminal Code, 1985), the PCMLTFA, and what has been successfully detected, investigated, disrupted, and prosecuted under these laws in Canada (FINTRAC, 2019a; Public Prosecution Service of Canada (PPSC), 2019).

Money laundering is a fundamental process in the overall success and sustained profitability of transnational organized crime (TOC) in which the source of assets (e.g. money, property) derived from criminal or unlawful activity is obscured. As such, if a criminal organization cannot legitimize their proceeds of crime or illicit funds, the viability of its selected predicate crimes as the main modes of business would be put at risk. Under section 462.31(1) of the Criminal Code, a money laundering offence is defined as follows:

> Every one commits an offence who uses, transfers the possession of, sends or delivers to any person or place, transports, transmits, alters, disposes of or otherwise deals with, in any matter and by any means, any property of any proceeds of any property with the intent to conceal or convert that property or those proceeds, knowing or believing that, or being reckless as to whether, all of a part of that property or of those proceeds was obtained or derived directly or indirectly as a result of

(a) the commission in Canada of a designated offence; or

(b) an act or omission anywhere that, if it had occurred in Canada, would have constituted a designated offence (Criminal Code, 1985).

From an economic perspective, Masciandaro (2007) offers the following definition of money laundering as a crime:

> [G]iven that the conduct of any illegal activity may be subject to a special category of transaction costs, linked to the fact that the use of the relative revenues increases the probability of discovery of the crime and therefore incrimination, those transaction costs can be minimized through an effective laundering action, a means of concealment that separates financial flows from their origin (p. 4).

The diversity of money laundering as a crime is fundamental in understanding how criminology and economic theories can account for its behaviour. At its core, money laundering requires at least one predicate offence. For the Canadian context, money laundering as a criminal offence stems from the intentional concealment of finances or property that originate from the commission of a laundry list of predicate crimes "under the *Criminal Code* or other federal act[s including, but] [sic] not limited to those related to illegal drug trafficking, bribery, fraud, forgery, murder, robbery, counterfeit money, stock manipulation, tax evasion and copyright infringement" (FINTRAC, 2019a). Predicate offences might also apply for legally grey activities vaguely defined by the criminal organization provisions of the Criminal Code (Freedman, 2006). Before engaging in an act that constitutes money laundering, actors have been known to commit various conventional transactions and interactions to support their operations. However, the emergence of patterns in the combination and sequencing of these processes, the intent, and the types of actors (i.e. persons, business entities) involved are what render these techniques as subprocesses in the money laundering crime cycle. Table 1.1 provides a summary of the predicate crimes and their associated threat ratings set forth by the Department of Finance Canada:

Table 1.1 Money Laundering Predicate Crime Threat Ratings

Threat Rating	Predicate Crime
Very High	Capital Markets Fraud Commercial (Trade) Fraud Corruption and Bribery Illegal Gaming Illicit Drug Trafficking Mass Marketing Fraud Mortgage Fraud Third-Party Money Laundering
High	Currency Counterfeiting Counterfeiting and Piracy Human Smuggling Human Trafficking Identity Fraud Payment Card Fraud Pollution Crime Robbery and Theft Tax Evasion/Tax Fraud Tobacco Smuggling and Trafficking
Medium	Extortion Firearms Smuggling and Trafficking Illegal Fishing Loan Sharking Wildlife Crime

Adapted from Department of Finance Canada (2023). *Updated Assessment of Inherent Risks of Money Laundering and Terrorist Financing in Canada*. Government of Canada.

1.2.1. Transnational Organized Crime

The "transnational" dimension of organized crime attests to the fact that many organized crime groups operating in and out of Metro Vancouver are cross-border. However, neither the United Nations Office on Drug and Crime (UNODC) in its 2000 signing of the *United National Convention Against Transnational Organized Crime and the Protocols Thereto* nor the Government of Canada specifically define transnational organized crime, albeit "organized crime" in the *Criminal Code* is defined under section 467.1 (United Nations, 2004; Freedman, 2006). Therefore, in pursuit of a specific definition, this study assumes the definition put forth by the United States National

Security Council under the Barack Obama administration as any self-perpetuating criminal enterprise with sophisticated business operations and structure, wherein,

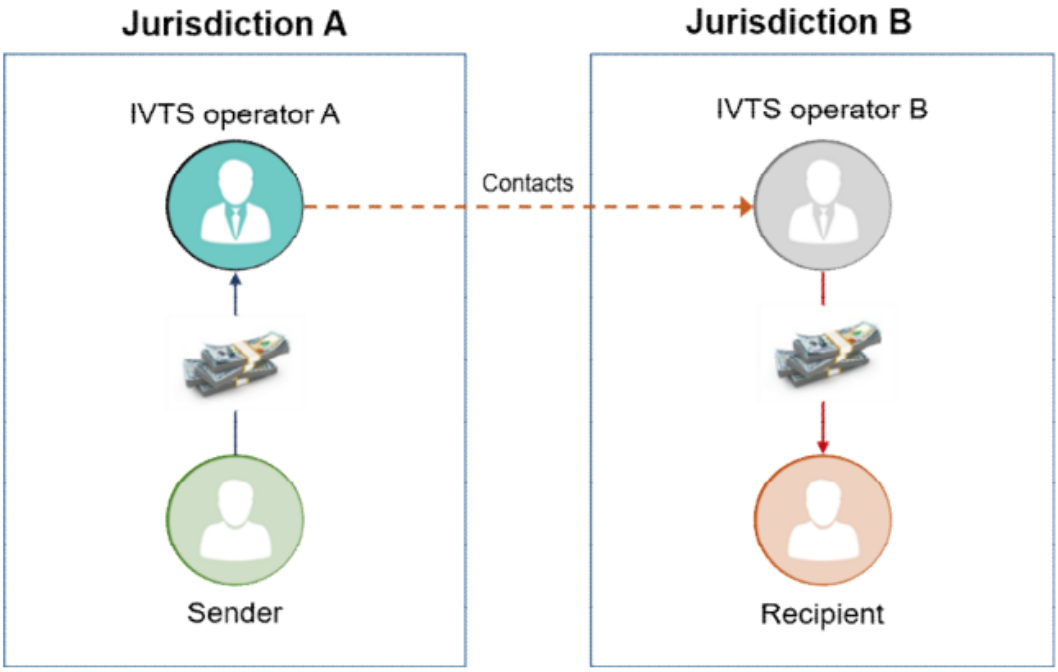
> "[F]or the purpose of obtaining power, influence, monetary, and/or commercial gains, wholly or in part by illegal means, while protecting their activities through a pattern of corruption and/or violence, or while protecting their illegal activities through a transnational organizational structure and the exploitation of transnational commerce or communication mechanisms" (National Security Council, 2016).

According to Bruinsma (2015), the transnational aspect can be further described as follows:

> "[T]ransnational crime is not synonymous with organized crime, even when organized crime groups are very active crossing borders with their crimes. States, governments, armies or business corporations, and many entrepreneurial individuals also have a long tradition in committing and facilitating transnational crimes" (p. 1).

The involvement of TOC groups and nation-state threat actors in money laundering is well-documented across the world. However, much of past research has focussed chiefly on activities in the United States, Europe, and, to a lesser extent, the Middle East. In the case of the Vancouver model, Langdale (2017) and German (2019a) indicate that TOC groups predominantly from China use Metro Vancouver as a hub for illicit activity. What is unique to the Vancouver model are the collaboration and convergence of networks between the TOC groups, BC-based outlaw motorcycle gangs (OMG), and local street gangs in the conduct of their primary business streams. Through an alliance with Latin American cartels and Middle Eastern organized crime (MEOC) groups, the Vancouver model's money laundering network superimposes an intersection with transnational illicit drug trafficking networks and exploits the reliance on the informal value transfer system (IVTS) and underground banking system (fei ch'ien) by wealthy Chinese citizens coming into the region (German, 2019a, pp. 46-47) that circumvent the capital restrictions of their home country. Figure 1.1 illustrates a simplified model of IVTS between two jurisdictions. To develop a better understanding of what has made money laundering in Metro Vancouver unique, it is vital to understand the processes at a universal level across the world, as well as what it is about Metro Vancouver that creates a criminogenic environment for money laundering, IFFs, and the hybrid threat to thrive.

Figure 1.1 Informal Value Transfer System



Source: Financial Transactions and Reports Analysis Centre of Canada (2022). Sectoral and Geographic Advisory. Underground Banking through Unregistered Money Services Businesses.

1.3. Money Laundering as a Cycle

Money laundering as a cycle is a collection of processes in which the proceeds obtained through illicit and criminal activity – “dirty money” – are transformed into “clean money,” or money in which its criminal origins are made difficult or nearly impossible to trace (FINTRAC, 2019a). Laundering “dirty money” helps conceal and separate the finances from the people, businesses, and activities that produced it in the first place (Masciandaro, 2007). When investigating the money laundering process, it is traditionally described as a series of three phases or stages (Maloney, Somerville, & Unger, 2019, pp. 17-19), with a fourth integrated phase proposed by van Koningsveld (2013) and fifth phase adopted by Schneider (2020): Placement, layering, integration, justification, and extraction/repatriation. The formalization of this framework assists in developing and enacting AML legislation and law enforcement disruption strategy.

The diagram in Figure 1.2 illustrates the five money laundering phases described in the following sections.

1.3.1. Placement

Placement is the first phase of transferring illegal money into the legitimate financial system, such as via a banking institution. The way this is performed depends on the type of predicate crime and source of funds, for example, for predominantly cash-based predicate offences such as street-level drug trafficking and sex-trade-related offences. In this scenario, one way to keep a large amount of currency undetectable could be to divide a single, large amount of funds into multiple, smaller amounts and deposit them into several different bank accounts with the intent to evade detection as a suspicious transaction such that a large, singular transaction may spur. From there, money orders, bank drafts, crypto assets, or other monetary instruments are purchased and subsequently integrated into circulation, potentially also to a foreign country. This might especially be the case in countries where the legal restrictions on this type of process are less stringent than in the source country.

1.3.2. Layering

Layering occurs at the end of the placement phase, in which a system of complex transactions is created to separate the illegally procured funds from their source. This step can be conducted several times, with each iteration separating the funds further from their illicit origins. Through layering, transferring funds from one bank account to another and not in a 1:1 relationship in terms of value transferred, thus renders the transactions more difficult to track back with each iteration. This phase may occur between different banking institutions and account types and between other monetary instruments and countries altogether. With every iteration, the source of funds thus gains increasing legitimacy (Maloney, Somerville, & Unger, 2019, p. 18).

Figure 1.2 Five Phase Money Laundering Cycle

1.3.3. Integration

Integration is the third phase of money laundering, wherein the layered funds are then made available back into the economy in a way that operates as or mimics regular business activity. When funds change hands at this stage, such as through the payment of wages, the funds again enter the financial institutions and thus achieve legal status. As the Vancouver model demonstrates, other integration methods can be through the purchase of assets such as real estate, luxury goods, and vehicles.

1.3.4. Justification

A concurrent fourth phase of money laundering, referred to as justification, was introduced by van Koningsveld (2013), which takes place between the layering and integration phases (Maloney, Somerville, & Unger, 2019, p. 19). Justification is the process in which the funds are made to look legitimate through layering with the goal of concealment and integration with the goal of personal use without the risk of reprisal and thus is considered a component of both the second and third money laundering phases.

1.3.5. Extraction/Repatriation

Separating the extraction phase as a fifth and final phase has been proposed by Schneider (2020) in response to a conflated phase of “integration/extraction” detailed in Maloney, Somerville, and Unger (2019) and German (2018) in their examinations of the Vancouver model. First coined by Schneider (2004) as repatriation, this process involves extracting the funds for use into the hands of the beneficiary. At this phase, the cycle is completed with the end goal of utilizing the funds for personal use.

1.4. The Vancouver Model of Money Laundering

The Vancouver model was coined in 2017 by the criminologist John Langdale, a transnational crime and financial crime expert based in Australia (Langdale, 2017). Within a month of his presentation outlining four case studies of crime threats to Australia, then-Attorney General of BC, the Hon. David Eby, had publicly acknowledged the newly discovered phenomenon and specific money laundering typologies involving casinos, the ethnic Chinese diaspora, and illicit drug trafficking networks (Mackin, 2018).

The term “typology” in the context of AML research refers to the various techniques used to launder money and facilitate IFFs. Money laundering networks and the actors therein are increasingly creative in developing methods. They are adaptive to the conditions of the economy, financial markets, and regulatory frameworks in which they operate. As a result, the methods employed and favoured vary by location and the period they occur as regulatory and law enforcement priorities evolve. The techniques may also be used independently or in combination, depending on the objectives of the actors and the phases of the crime script. The following describes some common money laundering typologies from the Vancouver model (FINTRAC, 2019a; Maloney, Somerville, & Unger, 2019; Langdale, 2017; German, 2018).

The Vancouver model is characterized as “complex networks of criminal alliances” (Langdale, 2017). Central to the activity are the Chinese underground banks acting as the launderers, washing funds in and out of China from Metro Vancouver to tertiary locations through fei ch’ien networks. The two main client groups of the laundering process are:

1. Those involved in the North American illicit drug trade supplied by Chinese methamphetamine, heroin, fentanyl, and precursor chemicals, and Latin American cocaine moved by cartels and other TOC groups; and,

2. Chinese high rollers engaged in transnational capital flight activities such as casino gambling, junket operations, and high-end Canadian real estate investment (Langdale, 2017).

The highest profile examples of the Vancouver model are those which have been described in the Royal Canadian Mounted Police (RCMP) investigation, Project EPIRATE, and the Combined Forces Special Enforcement Unit – British Columbia (CFSEU-BC) investigations, Project ATHENA and Project ENATIONALIZE (Payne, 2021; Robinson, 2020; McLaughlin, Eby, & Considine, 2023).

Project EPIRATE has become canon in BC's open secret and complicity narrative of IFFs. A Metro Vancouver-based Chinese underground bank, also known as a money services business (MSB), named Silver International laundered upwards of CAD 1 billion per year by distributing funds in and out of approximately 600 bank accounts in China, the illicit drug trafficking networks, and casino junket operators to predominantly fund Mainland Chinese high rollers in BC casinos (German, 2019a; FATF,

2018; FINTRAC, 2018). However, in contrast with traditional banking, only the value of the funds or an equivalent would be transferred from its foreign source to Canada through an IVTS and not the funds itself. Thus, the operations functioned as a process that mutually served both types of client groups, all involved within the same financial ecosystem:

- Ultra-wealthy gamblers were able to move their funds between China and Canada, which would otherwise have limit and source restrictions on fiat currency;
- TOC groups were able to cleanse their proceeds of crime and ill-gotten gains through this demand, and,
- As a result, the launderer earned a commission of between three and five percent per transaction (FATF, 2018, p. 34).

In response, the Counter Illicit Finance Alliance of British Columbia (CIFA-BC) was established as a public-private partnership to combat money laundering in Canada through the lawful sharing of information, with primary objectives to improve the understanding and detection of the threat of money laundering, strengthen financial systems and controls, and disrupt the criminal networks that engage in the associated criminal offences (FINTRAC, 2019b; Royal Canadian Mounted Police "E" Division - British Columbia, 2021; Project Athena and CIFA-BC, 2021). What began as an intelligence probe known as Project ATHENA by the CFSEU-BC to investigate the use of bank drafts at BC casinos expanded nationally due in part to the growing enforcement prioritization of this type of offence by the government, and the gaps that have emerged in the information sharing between the parties involved in law enforcement, the Financial Transactions and Reports Analysis Centre of Canada (FINTRAC), regulators, and business sectors.

Project ENATIONALIZE has been the latest chapter in BC law enforcement's public effort to combat alleged criminal money laundering, predicate offences, and concurrent offences synonymous with the Vancouver model. It was also the first major criminal money laundering investigation in BC concluded in the post-Cullen Commission era. Despite the multi-year investigation and growing public awareness gaining momentum from the public inquiry, the BC government fell short of its new hardline narrative against money laundering. From a criminal justice perspective, ultimately, the evidence did not meet the legal threshold for charge approval with the current language

of the PCMLFTA and *Criminal Code* defining predicate offences and the characterization of criminal organizations under these laws according to the Special Prosecutor appointed to review the submission to Crown (McLaughlin, Eby, & Considine, 2023).

However, what remains evident are the sociodemographic and ecological factors that breathe life into the sophisticated modus operandi of the Vancouver model. Some of the most common typologies present in the various sensitive business sectors affected by the Vancouver model are described below (FINTRAC, 2019a).

1.4.1. Capital Flight

Capital flight is demonstrated in asset procurement in the integration phase of money laundering. While most foreign capital inflows to Metro Vancouver and BC are legitimate, they are widely viewed as a backbone of the Vancouver model. Family, such as spouses and children, of corrupt persons move to Canada to secure residency and a path to citizenship. Instead of the beneficial owner of the wealth listed as the asset or property owner, it is usually a family member or corporate entity that holds the title to the property purchased in BC. Therefore, this action renders the actual owner's identification obscured and more challenging to trace. German (2019b) also addresses the related typology of *speculative investment* often demonstrated in BC real estate, wherein investors acquire funds of unknown origin and represent them as their own to secure mortgages from Canadian financial institutions. This can be employed in conjunction with nominees to separate themselves from the funding source.

1.4.2. Nominees

A *Nominee* is a typology often employed in conjunction with capital flight and is thus one of the most used methods of the money laundering cycle and layering phase (FINTRAC, 2019a). The main objective of using nominees, also commonly referred to as “straw” persons or companies, is to conceal the actual owner and source of ill-gotten funds through the nomination of a third party – individuals or trustees – other than the actual launderer to facilitate the concealment of the source and ownership of assets.

1.4.3. Smurfing

Smurfing is the structuring of usually a large amount of money into cash and bank draft deposits performed by several individuals or by a single actor functioning as a money mule, breaking down large value transactions into multiple smaller amounts to avoid trigger amounts that would otherwise be reported to the government. For example, financial transactions of $10,000 or more might trigger mandatory reporting of a suspicious transaction report (STR) to FINTRAC, the regulatory requirement in Canada. The term “smurf” is derived from the idea that the persons involved are conducting regular transactions much below the threshold of those reporting requirements to evade detection.

1.4.4. Money Services Businesses

Money services businesses (MSB) is the general term for any business that provides at least one of the services of a currency exchange (fiat and virtual), underground bank, remittance agency, informal banking network, or crowdfunding platform (FINTRAC, 2023). FINTRAC (2018) has identified this typology that works with professional enablers such as accountants, bankers, and lawyers to exploit the financial and regulatory systems’ gaps to aid and abet TOC groups (p. 1). These types of businesses pose a more significant threat when the professional enablers facilitating money laundering are those who own the businesses as well. MSBs can be used to remit the proceeds of crime in one currency that can then be exchanged to offshore bank accounts in another currency.

1.4.5. Trade-Based Money Laundering

Trade-based money laundering (TBML) can be categorized further into two typologies: Falsified trade documents for phantom shipments, misrepresented goods, multiple invoicing, and incorrect invoicing, and the Black Market Peso Exchange (BMPE) wherein TOC groups inject ill-gotten gains into the US or Canadian financial systems through structured cash deposits, electronic funds transfers, or cash couriers to various types of corporations including trading companies, wholesalers, and brokerages (Cassara, 2016).

1.4.6. Casino Gambling and Loan Sharking

Casino gambling and *loan sharking* were the early typologies in the Vancouver model. These methods are often employed with other typologies, such as capital flight and MSBs. Some of the indicators were persons bringing in large amounts of cash and bank drafts to casinos for purchasing gambling chips. After low-activity gaming (or none at all), the gambler cashes out the chips in exchange for a casino cheque, either identified as the proceeds of gaming or as non-gaming revenue. Prior to the increased lens on money laundering operations in BC casinos and their subsequent ban, the act of *refinement* – exchanging "dirty" smaller bills for "clean" larger bills – and *chip passing* – the physical handoff of casino chips between individuals – were also common techniques utilized in these typologies.

1.5. Thesis Overview

The thesis is organized into six chapters: *Chapter 1 Introduction* summarizes the scope of the study, key concepts, and research questions. *Chapter 2 Security Challenges* provides a background of the threat landscape that renders BC vulnerable to money laundering activities and the geopolitical, sociodemographic, and ecological structures magnified by Canada's Pacific Rim strategy. *Chapter 3 Theoretical Perspectives* is a literature review of the criminology theories of rational choice and social disorganization and the economic models of expected utility and gravity grounding the study. *Chapter 4 Methods* outlines the hypotheses, sample data, procedure, measures, and analytic strategy through a topic modelling case study of the Cullen Commission hearing transcripts and an enrichment of the attractiveness and cultural distance indices of the Walker-Unger gravity model utilizing open-source country summary statistics from Canadian and international governance institutions. *Chapter 5 Results* details the results of the study and evaluates the impact that the topics suggest are relevant in the public discourse. *Chapter 6 Discussion* summarizes the implications of the findings and contrasts this with the countermeasures in place to combat the threat of money laundering. It also discusses the limitations of the findings and proposes areas of future directions for investigation.

Chapter 2.

Security Challenges

This chapter specifies the national security context of Canada's exposure to nation-state threat actors such as China's Party-State-Military-Market nexus and foreign interference activities. To regain its middle power identity, Canada could look to a more concerted effort towards coordination of strategic policies across levels of government, regulators, sensitive business sectors, and academia and a cooperative synthesis of its economic prosperity agenda and its national security priorities. Canada's foreign and domestic economic prosperity policies magnified through its Pacific Rim strategy coupled with its politically turbulent China strategy have thematic consequences exemplified through the events examined under the Cullen Commission. This juxtaposition presents how TOC and nation-state threat actors have been permitted to proliferate in Canada through BC as an economic gateway to Asia Pacific countries.

Capitalizing on the Pacific Rim strategy, China's growing national security threat is a relatively new concept to Canadians. Tensions in Canada-China relations drastically escalated to an inflection point in 2018 with the detention of the Two Michaels (Agence France-Presse, 2021; Blanchfield & Olser Hampson, 2021). What ensued during their 1,019 days of detention was a complex struggle in international diplomacy between two superpowers – The United States and China – with Canada caught in a Catch-22 as a softening middle power. China's actions have been perceived across Western democracies as retaliatory hostage by China for Canada's role in the arrest of Huawei executive Meng Wanzhou on behalf of the US under an extradition treaty shared by the two nations (Global Affairs Canada, 2020). As part of a deferred prosecution agreement in 2021, Meng acknowledged making false statements about Huawei's business with Iran for banking services in violation of US sanctions. For their end, the US dismissed the bank fraud and all other charges against Meng in December 2022 (Thomson Reuters, 2022). The discourse of diplomatic tensions between Canada and China remains to this day.

However, the hybrid threat of the Chinese Communist Party (CCP) and nation-state threat actors within Canada has been on the radar of the Canadian intelligence

community (IC) since at least the mid-1990s: A joint intelligence probe led by the RCMP and the Canadian Security Intelligence Service (CSIS) known as Project Sidewinder warned of evidence of influence operations via economic measures by Chinese-Canadian tycoons, triads, and state actors associated with Chinese intelligence services allegedly working in collaboration for their respective espionage and criminal aims (RCMP-CSIS Joint Review Committee, 1997; Security Intelligence Review Committee, 2000).

Canada and its partners across the traditional Five Eyes (FVEY) alliance – Australia, the United Kingdom, Canada, New Zealand, and the United States – have acknowledged the common hybrid threat that China's comprehensive espionage and malign interference operations pose within their respective democracies (Australian Government, 2018; New Zealand Government, 2021; UK Government, 2019). Economic subversion and threat finance in the name of competitive advantage on the global stage underpin the pervasiveness of the hybrid threat. Despite the Canadian IC's early acknowledgment of the threat through Project Sidewinder, such transparent strategic communication and agreement through policy implementation have only come to the fore overtly since 2018.

Canada and its FVEY counterparts are locked in continued public debate to put forth strengthened measures to counteract hybrid threats to the economy. In hindsight, the emergent risk has been widely downplayed due to the many who have benefitted or continue to benefit from the tensions between Canada's economic development efforts and security challenges. At the same time, a concurrent challenge to a strictly Western-centric approach is the cultural concept of guanxi, through which trust in business is fostered by social relationships and networks. However, an extreme and inappropriate reaction to in-group thinking is the tendency to flatly dismiss the proposition of foreign interference of this kind as xenophobic due to the British Columbian and Canadian values of ethnocultural diversity, Asia Pacific diaspora, and neoliberalism as ethos (Brown, 2019). In place of public acknowledgement of the threat and a robust whole-of-system policy framework to combat it, a succession of federal governments and their provincial counterparts for decades deprioritized a risk-based approach to national security in favour of its economic prosperity agenda.

At present, domestically, the IC is actively engaging with the Canadian public, especially in academia and innovation sectors, about foreign interference, acknowledging that Canada remains a "permissive target" (CSIS, n.d.; McGill Research and Innovation, 2021). However, abroad, departments in charge of economic development from the same federal government declare that "Canada remain open to foreign investment that benefits Canadians by driving innovation as well as economic and employment growth" (ISEDC, 2022). While these two agendas, in many ways, are not treated as mutually exclusive, the disparate paradigm in which they are communicated pushes the perceptual narrative to criminal organizations and nation-state threat actors that the hybrid threat is an unmitigated open secret.

2.1. The Hybrid Threat Defined

Inbound foreign direct investment (FDI) and IFFs as economic drivers of money laundering operations are not passive issues. While the term "hybrid threat" could be an ambivalent one synonymous with "grey zone" or "hybrid warfare," the North Atlantic Treaty Organization (NATO) proposes that "hybrid threats combine military and non-military as well as covert and overt means, including disinformation, cyber attacks, economic pressure, deployment of irregular armed groups and use of regular forces" (NATO, 2021). According to Rao (2023), the grey zone exploits a multitude of interconnections between societies for incremental rewards. This study synthesizes these definitions of hybrid threats, at least in the case of China's operations within the Canadian context, as those which aim to exploit the grey zones between legitimate legal endeavours and criminality. The *CSIS Act* defines foreign interference as activities that are "detrimental to the interests of Canada and are clandestine or deceptive or involve a threat to any person" (CSIS Act, 1985). These tactics are often designed to infiltrate in plain sight and, therefore, operate below the threshold for impactful, coordinated response and interdiction.

2.2. Chinese Communist Party and the Chinese State: Party-State-Military-Market Nexus

Beyond its original mandate, the FVEY alliance has expanded its threat spectrum and geographical focus to include operations regarding China. The rationale stems from

the CCP and its increased aggression in the global power competition (Rao, 2023). Pacific Rim geopolitics is increasingly influenced by the US-China rivalry. With that, at the tactical, operational, and strategic levels, Canada and its allied programs exist within the dynamic and interconnected spheres of the great power competition between the US and China and the political, economic, and operational risk vacuums where China retains influence in Canada.

The economic threat measures the Canadian IC perceives against the country have been actively driven as part of China's Party-State-Military-Market nexus and not solely as its growth as a superpower in the name of international development and cooperation (CSIS, 2018; NSICOP, 2021). There is a strategic gain in these partnerships that culminates in something ideologically problematic to Canadian sovereignty, destabilizing democratic sensibility when persistent and at scale. This convergence can be accelerated through common goals that nation-state threat actors share with TOC and legitimate economic development, such as international trade and investment migration (Volek, 2019). The Chinese nexus is facilitated through high-volume FDI and IFFs leveraging sophisticated money laundering operations in Canada's soft spots for economic infiltration – the real estate and financial sectors – and other sensitive sectors such as innovation, technology, and academia.

Broadly, the NATO Association of Canada (NAOC) has emphasized Canada's vulnerability to hybrid foreign threats without a comprehensive national security strategic policy at the federal government level (De Sapio, 2022). From an international relations perspective, Canada should also scrutinize China within the context of its domestic controls to understand its aggressive foreign interference agenda. These are positioned as both contributing to and aggravating the threat landscape today. According to CSIS (2018) and Brady (2018), foreign interference in the Xi Jinping era can be grouped into four objectives:

- Manage the Chinese diaspora overseas as agents of Chinese foreign policy;
- Emphasize intra-group relations within the Party-State-Military-Market nexus;
- Execute a global, multi-platform strategic communication plan; and,
- Form a China-centric economic strategic bloc (CSIS, 2018, p. 77).

Meanwhile, China's increasing enforcement of domestic controls, including its efforts against pro-democracy movements, massive corruption crackdowns, a perceived depreciation of the yuan and the country's overall economic stability, and migration waves to Western democracies pressurize the conditions of capital flight of its citizens. These actions enable the exploitation of transnational money laundering networks to facilitate the movement and insulation of wealth entering the Canadian economy through illicit means.

2.3. Pacific Rim Strategy

With a history of quiet diplomacy post-9/11, Canada has been positioned at a disadvantage – grey zone espionage and interference have been a public safety threat. Hybrid threats took a back seat to the priorities of terrorism, extremism, and overt Russian-style interference. By 2010, CSIS released its first public report assessing the potential risk of China's posturing on the global stage; it was not until 2018 that the Service categorically acknowledged Canada's "strategic rivalry" with China (CSIS, 2010; CSIS, 2018). Meanwhile, exceptive legislation and regulatory policies, despite the integration of several national security enhancements, continually developed asymmetrically to the harmonization of enforcement measures and strengthening of sensitive business sectors. This imbalance furthers foreign interference agenda and exacerbates an economic dependence on international trade and investment, incentivizing elite capture at all levels across government, industry, and academia (Burton, 2019; Cooper, 2020; Thompson, 2022; Cooper, 2022a; Cooper, 2022b). The microcosm of criminogenic, economic, and geopolitical features has thus rendered Canada a hub for international money laundering operations (Langdale, 2017).

From a historical perspective, Canada's Pacific Rim strategy exponentially magnified its vulnerability to economic espionage, foreign interference, and TOC operations. This strategy originated in BC in the early 1960s and was introduced federally by the Pierre Trudeau government by the early 1970s (Resnick, 1985; Blanchfield & Olser Hampson, 2021). It has remained popular to the present day as a high-level set of policy frameworks for domestic economic prosperity and stimulus through multi-sector dependencies on FDI, and migration flows from Asia Pacific countries as part of a neo-colonial vision of BC, the province deemed "Canada's Gateway to the Pacific." Periods of misalignment between the Pacific Rim strategy and

its evolving China strategy between major political eras of the Canadian federal governments – led by Pierre Trudeau, Brian Mulroney, Jean Chrétien, Stephen Harper, and Justin Trudeau – add texture to the security challenges at play (Blanchfield & Olser Hampson, 2021, pp. 42-53).

Metro Vancouver's geographic positioning oriented towards Asia as a major port city opens the region to many positive outcomes, such as international trade and migratory patterns originating before the formation of Canada, the 1997 handover of Hong Kong from the UK to China, and the most recent increased transnational migration, tourism, and investment from mainland China. However, Mitchell (2004) argues that the transnational migration flows central to neoliberal ideals eventually become disruptive, stating,

> "Because of the vast wealth and cosmopolitan savvy of many of the immigrants who landed in Vancouver, they were able to contest, both discursively and by their very nonwhite presence in white neighbourhoods, many of the normative assumptions of what constituted Canadian liberalism and national identity. They also challenged, implicitly and explicitly, national narratives of tolerance, rationality, universality, normality, and harmony associated with legitimacy and consent in governance, narratives foundational to the premise of a liberal Western nation" (p. 4).

This unique position, in conjunction with the proximity of a shared border with the US, adds a direct line to major trade networks to the south, across international waters to east and southeast Asia, and to the east coast of Australia, where several of its major cities are also international ports along the Pacific Rim.

The openness of Canadian society is specifically how threat actors penetrate its fundamental institutions. The diversity of its ethnocultural communities, such as the Chinese diaspora, is a proud cornerstone of modern Canadian capitalism. As a "contemporary empire of the Pacific," this strategy is centred on BC as part of a new international division of labour. Unlike metropolitan hubs in other parts of Canada, no single commodity has dominated the BC economy, allowing for a diversification of monopolistic capitalism to prosper. A hallmark of BC capitalism and neoliberalism for decades has been its trend of an "absentee class" that leverages Canada's investment migration scheme that accounts for a considerable measure of control in the economy (Volek, 2019). Despite functioning as a metropolitan centre for western Canada, its

geographically peripheral status vis-à-vis the centre (Ontario, and to some extent, Québec) operates as both a resource-rich and capitalist province with less federal oversight. Reinick (1985) provides a sobering assessment of this framework as “the formula for a new dependency for BC and Canada” as increased joint ventures and natural resource trade across Asian markets increased. In the 1960s, Japan dominated this cooperation. For the subsequent two decades, this was characterized by what was known at the time as the “new industrialized countries” of Hong Kong, Taiwan, and Korea. Lastly, the focus shifted to the People’s Republic of China on the helms of its first industrial revolution in the late 1980s to 1990s, which has continued to the present day.

The influx of negative impacts is comingled with Metro Vancouver’s advantageous, unique local features, therefore predominantly increasing thriving illicit drug trafficking networks and the operation of nation-state threat actors in local government (German, 2018, p. 37). Consequently, it is the Metro Vancouver region’s positioning on the global stage that concerned Langdale (2017), highlighting the susceptibility of Australia’s major coastal cities, such as Sydney and its economy, also falling victim due to the local socioeconomic, ecological, and structural similarities between the two geographic regions.

2.4. Economic-Based Threats to National Security

AML/CFT benchmarks frame the narrative of economic-based threats to national security. Within a global context, Canada ranks 121 out of 152 countries according to the 2023 Basel AML Index, which calculates a money laundering and terrorism financing risk score according to FATF methodology along a scale of zero for low risk and 10 for high risk. Amongst the FVEY intelligence alliance and Five Country Ministerial security forum, Canada ranks second highest after the United States in terms of risk, as illustrated in Table 2.1. Money laundering and terrorism financing risk scores for East Asia and the Pacific region are tabulated in Table 2.2.

Table 2.1 FVEY Country Basel AML Index ML/TF Rankings

	FVEY Country	Basel AML Risk Score	Global Ranking, 2023 (*n* = 152)
1	United States	4.30	119
2	Canada	4.28	121
3	Australia	3.69	137
4	United Kingdom	3.66	140
5	New Zealand	3.38	146

Source: Basel Institute on Governance (2023). Basel AML Index: 12th Public Edition. https://index.baselgovernance.org/ranking

Table 2.2 East Asia and the Pacific Region Basel AML Index ML/TF Rankings

	East Asia and the Pacific	Basel AML Risk Score	Global Ranking, 2023 (*n* = 152)
1	Myanmar	7.78	3
2	Laos	7.44	10
3	Vietnam	6.96	19
4	Solomon Islands	6.86	23
5	Cambodia	6.78	26
6	China	6.77	27
7	Tonga	6.43	35
8	Thailand	5.82	45
9	Palau	5.68	50
10	Philippines	5.64	53
11	Vanuatu	5.45	60
12	Malaysia	5.21	72
13	Indonesia	5.01	82
14	Mongolia	5.00	83
15	Samoa	4.95	85
16	Fiji	4.70	101
17	Japan	4.66	106
18	Korea, South	4.56	112
19	Brunei Darussalam	4.38	117
20	Singapore	4.30	118
21	Taiwan	4.00	133
22	Australia	3.69	137
23	New Zealand	3.38	146

Source: Basel Institute on Governance (2023). Basel AML Index: 12th Public Edition. https://index.baselgovernance.org/ranking

Regarding FDI and IFFs, the threat has been deemed serious at the strategic national security level yet is quelled by a broad spectrum of opinions regarding whole-of-government policymakers, academia, and sensitive business sectors that protect benefactors of the established framework. Denial of the hybrid threat with regards to

China is most apparent when issues raised in the name of national security are beaten down by proponents in all levels of society that have prospered the most in what could otherwise be perceived as an erosion of Canada's sovereignty as it experiences a declining middle class and rising economic inequality (Vieira, 2019).

For inbound FDI, China ranks third among Canada's top investors as of the 2021-2022 fiscal year, with nearly half of these investments in the business and services industry (ISEDC, 2022). Within the same report, China has been the top country of origin subjected to national security reviews of inbound investments since 2015. As a related but separate transactional relationship, bilateral trade with China was worth almost CAD 100 billion in 2019, accounting for eight percent of Canada's total international trade. However, that share has decreased in recent years from 5.1% for the 2020-2021 fiscal year to four percent as of 2021-2022. Contributing factors to this decrease in bilateral trade have been attributed to increased diplomatic tensions between Western democracies and China with concern to the Hong Kong protests and the impact of the COVID-19 pandemic on the global supply chain (Human Rights Watch, 2019; Statistics Canada, 2022).

A complete picture of IFFs is more challenging to compile. Underlying IFFs in BC is the Vancouver model characterized by its complex networks connecting the Chinese Party-State-Military-Market nexus to criminal networks and the typologies used to launder the proceeds of crime within the local economy and internationally (Schneider, 2020; Langdale, 2017). Since 2019, the Canadian federal government has piloted efforts to strengthen AML controls with the BC provincial government to address its vulnerabilities to IFFs (Cullen Commission, 2021; Department of Finance Canada, 2023). According to the Expert Panel on Money Laundering appointed to the public inquiry, Maloney, Somerville, and Unger (2019) estimated that CAD 46.7 billion had been laundered in the Canadian economy in 2018, with 72 percent of that figure attributed to the real estate sector in BC. Capital flight is a common typology in IFFs and an integral feature of the Vancouver model and, consequently, the Pacific Rim strategy. Since China imposed its sweeping national security law affecting Hong Kong in 2020, the Financial Transactions and Reports Analysis Centre (FINTRAC) has recorded over CAD 43.6 billion in electronic funds transfers alone attributed to capital flight from Hong Kong to Canada (Wu & Saminather, 2021). The Cullen Commission, diplomatic fallout from the geopolitical unrest in Hong Kong, and allegations of foreign interference provide

snapshots of how significant and widespread the hybrid threat has become (Cullen, 2022; Hogue, 2023).

2.4.1. Lessons Learned from New Zealand's Small State

During the Jacinda Ardern government, New Zealand softened its posture against the Chinese hybrid threat relative to its FVEY nations counterparts (Malpass & Coughlan, 2021; Köllner, 2021). The diminishment of assertiveness could be attributed to what their federal government considers "inevitable disagreements." Their nurturing of the New Zealand-China relations as a protective effort of its economic dependency strategy parallels Canada's Pacific Rim strategy anchored by BC (Malpass, 2021). The launch of the country's first national security strategy by the Chris Hipkins government confirms its strategic acknowledgement of China as a primary driver in the global competition (New Zealand Government, 2023).

Whereas New Zealand's strategic and geographically closest ally, Australia, has calculated that it can afford a more risk-based approach to national security due to its middle power status, so too could the whole of Canada jointly advocate for this approach. The tension therein lies with how closely the Canadian federal government intends to coordinate economic countermeasures with its provincial counterparts and how much would be at stake for their respective economic prosperity agendas.

The most contentious issue with evaluating the hybrid threat is best encapsulated in the parallels between Resnick's (1985) cautionary assessment of BC and the Pacific Rim strategy and Brady's (2018) assessment of why New Zealand is a strategic economic target for China. The root cause is understanding how much each Canadian provincial economy must rely on dependency strategies to stay afloat, let alone grow. For the case of New Zealand, the then-Ardern government was signalling that its reliance on international trade for economic prosperity cannot afford to shift the global balance and thus may call on its larger partners (FVEY, Five Power, NATO) to extend their protective securities to the small state (Köllner, 2021). Dependency as a means of economic prosperity is a strategy that Canada has fully embraced in the past. Its recent reinforcement of several national security measures coupled with its recent, albeit unsuccessful, attempt for a seat on the United Nations (UN) Security Council indicate that it is preparing for a coherent whole-of-government policy paradigm shift that

balances supports between its economic, immigration, national security, and foreign policy agendas (Paikin, 2021; Immigration, Refugees and Citizenship Canada, 2022; Department of Finance Canada, 2022; Global Affairs Canada, 2022).

2.5. Countermeasures in Progress

The Canadian IC and its US counterparts identify China, Russia, and Iran as the most aggressive nation-state actors of espionage and foreign interference operating in Canada (CSIS, 2021; Vigneault, 2021; National Intelligence Council, 2021). At the same time, Canada remains vulnerable to the hybrid threat as it shifts decades of prioritization of dependency strategies for economic prosperity to a more whole-of-government policy framework. Economic security remains a priority for CSIS, which has made strides to extend its intelligence cycle mandate to advise other federal departments and the public that the threat to Canada's national security is also a threat to its economic prosperity interests (Public Safety Canada, 2022).

BC and Canada have made several policy measures to combat the hybrid threats posed by TOC networks and nation-state threat actors employing FDI and IFFs. Recognizing the vital facilitator role that professional and political enablers have, the provincial and federal governments have taken additional proactive legislative and administrative measures to increase safeguards. Nevertheless, assessments by the government, expert think tanks, and academics acknowledge that the country remains not fully resilient against the totality and dynamics of the hybrid threat.

At the federal level, legislative amendments that came into force in 2019 enhanced protections against election interference: The Election Modernization Act and the consolidated Security of Information Act. With these enhanced powers, businesses and special interest groups are prohibited from using money obtained from foreign sources to donate to or pay for activities for the entirety of the election cycle. However, this is only a modest improvement on the previously acceptable CAD 500 limit from foreign third-party sources. Additional measures were introduced to combat disinformation by persons or entities, which must meet several criteria to comply with existing privacy laws and social media advertising transparency to identify partisan support (Elections Modernization Act, 2018). Despite this, techniques to occlude the

source of funds and circumvent these countermeasures are still coming to light in the public discourse (Cooper, 2022a).

For distinctly economic countermeasures, several initiatives have been underway. Public Safety Canada conducted an open consultation with targeted stakeholder groups to modernize its approach to addressing evolving economic-based threats. The consultation continued its policy actions on research security in 2020 and 2021, strengthening its foreign investment reviews through amendments to the National Security Guidelines of the Investment Act of Canada (Public Safety Canada, 2021). IFFs have been deemed a "public safety hot issue" in briefing documents from Public Safety Canada to Parliament, which has committed to expanding budgetary allotments to support enforcement efforts.

Several regulatory and legislative measures have moved towards modernizing the existing AML legislative framework, primarily through the PCMLTFA and the *Criminal Code*. In 2020, BC provincially implemented the Land Owner Transparency Registry for sector-specific enhancements to bring transparency to beneficial ownership. The *Speculation and Vacancy Tax* for its real estate sector also came into effect in 2020 and expanded in 2022 to include additional communities facing housing affordability (Land Title and Survey Authority of British Columbia, 2022; Ministry of Finance - Province of British Columbia, 2022). BC has also implemented additional property transfer tax for foreign entities and taxable trustees. More commonly referred to as the *BC Foreign Buyer Tax*, the 20% additional property tax applies to foreign entity-owned properties in regional districts with a competitive real estate market. This has been deployed in conjunction with the *BC Provincial Nominee Program*, an economic immigration program enabling the provincial government to prioritize immigration candidates to meet the demands of BC's labour market needs (WelcomeBC, 2022). While the federal government had proposed a foreign buyer's tax to stimulate the housing market for Canadian nationals and permanent residents, it has been, for the most part, spearheaded at the provincial level in BC and Ontario (Gold, 2020; Shakil & Kao (Eds.), 2022).

To address the hybrid threat facilitated by the loopholes and weakened controls impacting the Pacific Rim strategy specifically, Parliament established the House of Commons Special Committee on Canada-Chinese Relations in 2019 to examine and

review consular, economic, legal, security, and diplomatic relations with China. Its closest departmental stakeholder is Global Affairs Canada, but it is purported to consult across the federal government in addition to its panel consultations with academics (Global Affairs Canada, 2020). The Department of Finance Canada has more widely opened for consultation on strengthening the current AML/CFT regime in a post-Cullen Commission climate (Department of Finance Canada, 2023).

In reviewing BC's and Canada's recent and current efforts to strengthen their policy frameworks to combat hybrid threats employing the Vancouver model, three gaps emerge: First, the standard line of defence is legislative and constitutional, yet budgetary allocation alone without human or technological resource allocation stunts enforcement capabilities of these countermeasures. With that, it remains unclear what Canada's national security posture or its longer-term geopolitical strategy is. Finally, the practical application of the current countermeasures will remain limited without an overt, concerted cross-platform coordination and communication of its economic prosperity agency and national security strategy.

2.5.1. Macro-Policy: Whole-of-Government versus Big-Picture Strategy

Canada's economic policy modernizations aligning with the BC provincial efforts to combat the economic hybrid threats indicate that a Pacific Rim-focussed compendium of economic strategies is also shifting its position in the international order. While David Eby's New Democratic Party-led BC government post-Cullen Commission has escalated a more protectionist, economic stability, anti-corruption agenda, how those efforts translate at the national level within Justin Trudeau's Liberal Party-led federal government is less evident and remains to be seen.

Canada purports a whole-of-government approach to protect Canadians from national security threats. However, it maintains that "while the intelligence community and other key government partners have distinct and separate mandates, they share a common goal of keeping Canada, Canadians, and Canadian interests safe and secure" (CSIS, 2021a). By emphasizing a distinction between federal government departments and agencies, this debilitates by design a big-picture strategy that coordinates to tackle hybrid threats. However, Canada follows a regulatory framework, such as the National

Security and Intelligence Review Agency (NSIRA), which reviews all national security and intelligence activities across all federal departments and agencies. Therefore, the macro-policy mechanism is in place for adopting a coordinated framework with oversight.

2.5.2. Micro-Policy: Balance via Risk-Based Prioritization

From the Canadian IC's perspective, future economic prosperity lies in its innovation and commercialization of sensitive research and the means to guarantee it through national security regulatory provisions appended to existing legislation. While Canada has made active efforts to increase scrutiny of FDI and strengthen the electoral system provincially and federally, there has been a paradigm shift in developing a national security-literate population. This follows Canada's transition from economic prosperity through dependency on FDI and investment migration and more towards a greater focus on research and development in sensitive business sectors (Vigneault, 2021). The updated implementation of the BC Provincial Nominee Program in 2022 signals that the provincial government is learning from the "over-success" of the Pacific Rim strategy framework and that a risk-based change of focus towards targeted national security issues could calibrate towards closing within-government department and within-group policy gaps.

Chapter 3.

Theoretical Perspectives

The criminology theories reviewed in this section contextualize the motivations for actors engaging in illicit and grey zone activities and the structural conditions facilitating money laundering and illicit finance crimes. In the case of the Vancouver model, the most applicable theories are those that can understand the roles of risk tolerance and monetary utility as factors in the money laundering cycle. However, economic or financial analysis is a modern development in the study of criminal activity. Becker's (1968, 1974) economic deterrence theory marks the shift to economic explanations in rational calculation. At the micro-level, rational theories, specifically rational choice theory, address the cost-benefit analysis of crime and assume that individuals are conscious actors exercising control of their criminal behaviour (Becker, 1974; Eckblom & Tilley, 2000; Williams III & McShane, 2018; Akers, 1990; Grasmick & Bursik Jr., 1990; Paternoster & Simpson, 1996; Piliavin, Gartner, Thornton, & Matsueda, 1986; Loughran, Paternoster, Chalfin, & Wilson, 2016). At the macro-level, the systemic model of social disorganization theory seeks to understand the ecological and structural conditions that produce this type of deviance from societal norms that have enabled the Vancouver model to proliferate (Shaw & McKay, 1942; Bursik, 1988; Shadnam & Lawrence, 2011).

Economic theories may also aid in this examination, from the microeconomic theory of expected utility (von Neumann & Morgenstern, 1944; van Duyne, Harvey, & Gelemerova, 2018) to the macroeconomic theories of gravity (Walker & Unger, 2009; Ferwerda, et al., 2011; Maloney, Somerville, & Unger, 2019). For these reasons, the complexity of money laundering merits the need for a multidisciplinary approach to understanding the embeddedness of this type of criminal behaviour in the execution of more traditionally studied predicate crimes. From both the criminological and economic perspectives, this chapter aims to uncover the inherent interdependence between the money laundering cycle of the Vancouver model and the criminogenic structural and internal factors to the hybrid threat of TOC and nation-state threat actors that participate within it.

There are complementary arguments on how criminological and economic theories can be applied at both the micro and macro levels to explain the money laundering cycle, what motivates actors to engage in this type of crime, and how it impacts society on a greater level. The theoretical perspectives of rational choice and social disorganization theories frame this discussion. At the same time, a review of the economic models of expected utility and gravity provides the groundwork from an empirical perspective. An evaluation of economic deterrence effects bridges the gap between the two fields of study.

3.1. Criminology Theories

Unger (2007) asserts that “a comprehensive economic theory regarding money laundering is still missing” (p. 32). The same could be said of a broader criminology theory. What criminology theory does merit is the behavioural consideration of the actor at the micro level and the ecological and systemic factors at the macro level. The rational choice and deterrence perspectives share a heritage from the Classical School of Criminology and provide the earliest explanations of individual criminality, where the focus is on the legal definition of crime. Social disorganization theory and the gravity models in economics have their roots in considering geographic and social locations in evaluating the attractiveness and inertia to explain crime patterns. The selection of rational choice and social disorganization theories emphasizes the crime and the opportunities to commit the crime, not the behaviours or motivations of the criminal offender or facilitator.

3.1.1. Rational Choice Theory

The analysis of money laundering, TOC, and nation-state threat actors from this perspective is by no means exhaustive. Further, one should not assume that those participating in organized crime or hybrid threats are constrained only by rationality. The involvement of the economic element of this type of crime serves as an underlying characteristic in applying any criminology theory. Concerning money laundering activities, the motivating factor is to increase the liquidity of the proceeds generated from predicate crimes. There is an assessed need to weigh the probability of detection and the risk of punishment against the expected gains of liquidity net of the economic costs

of the money laundering cycle. The application of rational choice theory is thus based on a person's classical intuition in the cost-benefit analysis in the commission of the crime. In other words, what is the likelihood that an actor will be incriminated for involvement in a money laundering offence, and what is the associated punishment if found guilty in the criminal justice system or by a regulatory body? Gilmour (2016) favours the application of rational choice theory to ground money laundering studies as it "explains crime at the individual level [and] more specifically at the actual location of the crime" (p. 3).

The development of the rational choice model is attributed to the work of Cornish and Clark (1986, 1987) and is considered a general approach to the broader group of contemporary rational theories. It borrows from the behavioural economic approach to crime demonstrated by Becker (1986, 1974), which assumes that criminals make rational decisions. Rational choice theory posits that people engage in criminal activity to meet a socially constructed perception of commonplace needs. Decision-making is performed on two levels: Involvement decisions, which are those in which the individual decides whether to participate in, continue with, or withdraw from a criminal offence, and the second level of event decisions, which are those in which the techniques in order to carry out a criminal offence based on the requirements of the demand are selected (Gilmour, 2016, pp. 2-3). In consideration of a cost-benefit analysis, if the techniques involved are complicated or come with increased risk, the individual's decision to be involved with such criminal offence is negatively impacted.

Cornish and Clark (1987) posit that the demand of a criminal offence is crime-specific, and therefore, the rational choice is also contingent on the type of crime. Money laundering has been falsely perceived as a "victimless" crime. In the case of BC and Canada, money laundering is a crime that is very unlikely to lead to a criminal conviction or regulatory sanctions (Public Prosecution Service of Canada (PPSC), 2019; Office of the Superintendent of Financial Institutions, 2020). Consequently, an actor's likelihood to participate at any stage of the money laundering cycle is higher given the perceived overall gains through a cost-benefit analysis. Should the structural characteristics of the crime be considered non-violent (for the most part), the potential of a high monetary reward increases the consideration of such potential gains through engagement in the criminal offence.

Gilmour (2016) considers the rational choice perspective in understanding the money laundering cycle for its ability to demonstrate how, at the micro-levels, criminals "display preferences for easy, rewarding, and safe crimes while taking into account risk, effort, and the potential reward" (p. 3). Rational choice can establish the criminal calculation in the selection of targets. The theory, therefore, supports the notion that both the criminal actors and the macro-level system are adaptive to local economic and regulatory conditions to evade detection and, ultimately, prosecution in the longer term. Given that this theory is based on the concepts of logic and decision-making, it is thus applicable to the structural characteristics of money laundering, which are process-oriented in their design.

dalla Pellegrina, Di Maio, Masciandaro, and Saraceno (2019) offer an empirical approach to the application of the rational choice model at the organizational level, such as in criminal organizations. From the perspective of the hybrid threat actor, the article suggests that criminal organizations are "rational agents" that decide to infiltrate the legal economy through money laundering to invest in legitimate assets with their cleansed proceeds (pp. 5-6). They also address the involvement of professional enablers in the white market, such as accounting and finance professionals, in the participation of investment strategies that are utilized as part of the money laundering cycle. While they acknowledge the potential role of violence in the participation of money laundering activities, they do not explicitly consider it as a decision-making variable in their empirical model. Positioning the Vancouver model as a victimless crime is flawed due to its intermingling with illicit drug trafficking, TOC, and nation-state threat actor networks, and it highlights an area for consideration worth incorporating in future work. Their application of rational choice is responsive to the TOC group's cost-benefit analysis weighing engagement in money laundering offences, which are subject to the legal systems in the economies where they launder the money and by the licit and illicit markets in which they intend to inject their assets. Thus, a critical factor in the dalla Pellegrina, Di Maio, Masciandaro, and Saraceno (2019) organizational model is their concept of vulnerability that subjects a legal economy to "criminal infiltration by identifying the local factors that are statistically significant in explaining the activities of criminal organizations" with a focus on the rational components of the model represented by institutional and economic factors that inform regulatory policy. Referencing the rational choice paradigms of celerity, certainty, and severity, this model

considers these factors in conjunction with the efficacy of law enforcement efforts. Thus, like previous research, rational choice theory is advantageous and relevant to the regulatory policy provided its punitive response to criminal behaviour as a means of deterrence.

3.1.2. Social Disorganization Theory

While the main theoretical framework for money laundering has centred on rational choice and its root in deterrence theory, the other half of AML/CFT policies and anti-organized crime have also been framed within social disorganization theory. The factual nexus between hybrid threats results from nation-state threat actors collaborating with TOC groups caused by the breakdown of conventional social norms, which is not a stretch.

Social disorganization theory was introduced from the Chicago School of Criminology by Shaw and McKay (1942). It describes crime due to structural challenges and not individual traits, so it is considered a macro-level approach. Sampson and Groves (1989) extended the theory by proposing intersecting factors of family disruption, economic status, ethnic heterogeneity, and transiency. The study findings indicated a relationship between the structural variables of socioeconomic status, ethnic heterogeneity, and residential mobility with significant effects on criminal offending rates. Traditional structural variables have also been studied with sociodemographic and community factors, such as religious institutions and voluntary organizations as agents of social control (Rose, 2000; Putnam, 2000). Sanctioned governments and criminal organizations often take advantage of community-based organizations, such as charities and non-profits, to hide the movement of funds that could be linked to money laundering and financing of terrorism. (Government of Canada, 2021).

The central idea is that the gradual compromise of social conventions weakens the integrity of the ecological location or neighbourhood. The more a neighbourhood loses the ability to provide adequate oversight and control over its community, the more the ability to manage the behaviour of its members is compromised. For TOC and nation-state threat actors, there are no functional authorities to control their behaviour in the neighbourhoods in which they operate. This can be supported by Hoffman (2002)

and Swart and Kinnie (2003), who found that white-collar crimes increased as social disorganization factors increased.

As a theory applied to urban centres, the study of the Vancouver model under social disorganization theory allows for parallels to be drawn to unique characteristics of the ecology of the area and factors of internal forces that may be contributors to the attractiveness of money laundering as a crime to take place. Conditions that have rapidly changed the landscape of BC and Metro Vancouver could also be viewed as structural challenges under social disorganization theory. Rapid population growth has been spurred by Canada's pro-migration policies and increased national security, democratic, and economic threats in the home countries of migrants coming to the region. This has been discussed previously in section 2.3 Pacific Rim Strategy. The Pacific Rim strategy was the main contributor to welcomed ethnic heterogeneity and increased population represented by Asia Pacific cultures and diaspora. Residential mobility and transiency factors could be represented by the transnational absentee class leveraging investment migration schemes such as golden visas (Volek, 2019). Just as any of these structural characteristics alone is not a direct cause of money laundering as a crime, under a social disorganization perspective, they, in combination, facilitate crime by deprivation of resources to combat the complex phenomenon of the Vancouver model effectively.

3.2. Economic Theories

Whereas criminological concepts have been criticized as simplistic, economic models have been used as a stepping stone to close the gap between theory and applied research. The rational choice approach and the economic deterrence model have been used as the framework for economists to conceive explanations for the money laundering cycle from the individual actor level to the perspective of the legal economy (Gilmour, 2016; dalla Pellegrina, Di Maio, Masciandaro, & Saraceno, 2019).

The economic approach can be grouped into three main theoretical perspectives. The standard economic approach, the criminal infiltration approach, and the social opportunity approach (Kruisbergen, Kleemans, & Kouwenberg, 2015, pp. 238-239). Where rational choice is considered a micro-level theoretical perspective that focuses on the individual actor's decision-making process, the standard economic model extends this through the concept of profitability. In contrast, the other perspectives reflect power

and proximity, respectively. Thus, those who participate in money laundering activity are not dissimilar from those who perform similar activities within a legal, globalized economy, such as professional enablers of money laundering such as accountants, lawyers, realtors, notaries, publicists, and real estate developers (France, 2021). What, therefore, separates those who engage in this type of criminal activity and those who do not, according to Kruisbergen, Kleemans, and Kouwenberg (2015), is the importance of power in the criminal decision-making process that motivates participation, as it is the "key crime enabling organized crime groups to develop their influence in […] democracies" (p. 239).

Two of the more commonly utilized economic models in the study of hybrid threat-driven money laundering and IFFs are detailed in sections 3.2.2 and 3.2.3.

3.2.1. Economic Approach to Deterrence

Classical Criminology is based on the utilitarian notions of free will and human rationality. With rational choice, the commission of a crime is performed by an individual who weighs a cost-benefit analysis, though not necessitating a perfect or complete internal analysis before coming to such a conclusion as to whether to engage at some level in a criminal offence. Deterrence theory is considered the counterpart to this, wherein crime is controlled through punishment based on the pillars of celerity, certainty, and severity.

In terms of risk theory, the closest application in the study of money laundering is Becker's model of economic deterrence (Becker, 1968, 1974). Deterrence theory, like rational choice, stems from the Classical School of criminological thought. The theoretical logic is that crime is reduced by determining the expected cost of committing a crime high enough to dissuade potential criminals from engaging in the offence. In other words, the most efficient way of deterring crime is by associating the severest of punishments to crimes with the lowest probability of being committed. Therefore, through the reduction in the probability of detection and eventual conviction, the economic costs of enforcement and prosecution with the aim of criminal conviction are also minimized. Conversely, if the severity of the punishment is enforced, then the deterrence effect of the associated punishment continues.

The Becker model sets the framework for behavioural economic models of money laundering. While the individual activities within the money laundering cycle are not necessarily inherently criminal, their connections to the predicate crimes that create the demand for the laundering process are. Therefore, the means through which economic deterrence is best applied is in the development and implementation of AML controls and regulations. Provided the adaptive nature of the actors that engage in these types of criminal activity, the application of a deterrence framework through the regulation of the sectors in which the money laundering networks operate is a means to make those sectors less attractive by decreasing the viable methods in which to operate through the disruption of the typologies used and increased risk of punishment through enforcement, sanctions, and forfeiture efforts.

Unger and den Hertog (2012) note that the majority of AML policy is found in the financial sector (p. 296). In the case of Canada, this is the environment through which FINTRAC and CIFA-BC garner increasing importance in their facilitator roles of sharing money laundering and illicit finance intelligence with its partners in law enforcement and the engagement of PPAPs with financial institutions and other regulated sectors. This is most evident through the Know Your Customer (KYC) model to identify clients and build client relationships, the filing of suspicious transaction reports (STRs) in the banking sectors, the submission of Voluntary Information Records (VIRs), and other various types of financial transaction reporting requirements such as in the casino and gaming sector coordinated by FINTRAC and Gaming Policy and Enforcement Branch (GPEB) in BC. However, the most impactful way to employ Becker's model to create and uphold deterrence effects is through punishment via the pillars of celerity, certainty, and severity, even when considering that the total number of actual crimes may remain underreported or uninvestigated.

The strategies in which criminals evade prosecution, sanctions, and civil forfeiture of their laundering activities differ and depend on the type of risk the actor is willing to tolerate. Certainty and severity of punishment have different deterrence effects based on the actor's risk tolerance level. For example, Beccaria (1963) and Bentham (1830) place greater emphasis on the certainty of punishment rather than the severity of it as a means of deterrence. This idea continues to contemporary deterrence theory, further distinguishing the various types of deterrence effects. For this purpose of the Vancouver model, the four subtypes of deterrence are considered:

1. Absolute: When the existence of punishments deters an unknown amount of crime.
2. General: When the effect serves as a public example to deter others from committing similar crimes.
3. Perceptual: When the perceived effects of punishment are inversely related to the decision to commit the crime.
4. Specific: When the effect refers to the specific actor that committed the crime.

Absolute deterrence is most applicable to AML policy enforcement resulting from the Canadian context in which celerity and certainty are low, though the severity of punishment is comparatively high. The following section discusses this in greater detail, which applies the theoretical frameworks to the Vancouver model.

3.2.2. Expected Utility Theory

Expected Utility Theory (Piliavin, Gartner, Thornton, & Matsueda, 1986) plays a central role in the assessment of risk under abstract uncertainty within the rational choice model. Utility is the satisfaction derived per choice by a decision-making actor and assumes that humans in their decision-making process are innately driven by self-fulfilling pleasure. Considering the condition of a money laundering actor's risk of punishment (e.g. criminal conviction), their utility can be defined as follows:

$$E(U) = (1 - p)U(y) + pU(y - F) \quad (1)$$

Where $E(U)$ is the actor's expected utility from a given money laundering activity, p is the likelihood of criminal conviction for said activity, y is the anticipated return on investment (e.g. time, participation, assets) in the activity (tangible and intangible), and F is the anticipated punishment (e.g. legal, social, psychological) resulting if the participant in criminally convicted for the money laundering activity (p. 101). The expected utility model provides a straightforward mechanism for researchers to simulate a criminal actor's risk assessment in their decision-making process to engage in illicit activity or components of a money laundering activity network. This behavioural approach does not assume that the actor has a complete awareness of the implications of their participation, positive or negative. Still, it is a method to bring an empirical approach to the rational choice framework. Application of expected utility can work at both the

microeconomic and macroeconomic levels. However, it is most associated at the micro level, provided that aside from the effect of externalities, the decision-making process at the individual level is an otherwise homogeneous one.

3.2.3. Gravity Models of Money Laundering

The gravity model detailed in this section refers specifically to the Walker-Unger model of money laundering (also sometimes referred to as the Utrecht gravity model) proposed by Walker (1995), Unger et al. (2006), Unger (2007), and Walker and Unger (2009). It is an econometric model to estimate the amount of money laundering between geographic regions and economies. Thus, this model is instrumental in measuring trade-based money laundering (TBML), where Ferwerda et al. (2011) estimate that for 2004 US figures, Canada was ranked first in absolute TBML flow out of the US at USD 18.3 billion and ranked third in absolute TBML flow into the US at USD 21.6 billion (p. 3). The model indicates that the flow level of the proceeds of crime into a country determines the "attractiveness" of said country in conjunction with the geographic distance that separates country i from country j.

The Walker (1995) prototype version of the gravity model is defined as follows:

$$F_{ij} \Big/ \sum_i F_{ij} = \left(\left(\frac{GNP_j}{Population_j}\right) Attractiveness_j\right) / Distance_{ij}^2 \quad (2)$$

where F_{ij} is the amount of money laundering flowing between country i and country j. Flow is defined as the share of money laundering participants' income being transferred between country i and country j, Mass factor of j is represented by $\frac{GNP_j}{Population_j} Attractiveness_j$ and Mass factor of i by $\sum_i F_{ij}$. Unger et al. (2006) assigned the first Mass factor as per capita income, Gross National Product, and the second Mass factor as Attractiveness, defined as the sum of weighted factors contributing to the quality and suitability of country j for money laundering. Therefore, applying this gravity model in AML enforcement could be used to identify and rank key actors and organizations to estimate larger-scale money laundering networks. However, gravity models have been implemented predominantly at the macroeconomic level between countries, but at the same time, could be focussed on smaller ecological locations.

The Walker model in its prototype form has limitations as it relies on accurate data with expertise to "fill in gaps in statistical evidence" (Maloney, Somerville, & Unger, 2019, p. 115). Thus, the popularization of the Walker gravity model is from its adaptations in Unger et al. (2006) and Unger (2007). In the *Expert Panel on Money Laundering in BC Real Estate*, Maloney, Somerville, and Unger (2019) utilized the following calculation to measure money laundering flows between country i and country j for time t:

$$F_{ijt} = \left(\frac{Attractiveness_{jt}}{Cultdist}\right)\left(\frac{1}{\sum_{i=1}^{N}\left(\frac{Attractiveness_{jt}}{Cultdist_{ijt}}\right)}\right) \tag{3}$$

The Attractiveness index is specified by Unger et al. (2006) as follows:

$$Attractiveness_{jt} = GDPpc_{jt} \times \left(3BS_{jt} + GA_{jt} + SWIFT_{jt} + BD_{jt} - 3CF_{jt} - CR_{jt} - EG_{jt} + 10\right) \tag{4}$$

where $GDPpc$ is the Gross Domestic Product (GDP) per capita. The factors that increase a country's attractiveness index are defined by BS as the bank secrecy of a country, GA as government AML policy; $SWIFT$ as given a value of 1 if the country is a member of the Society for Worldwide Interbank Financial Telecommunication (SWIFT) banking system and if otherwise, a zero; and, BD as the ratio of bank deposits to GDP to estimate the size of the country's financial sector. The factors that decrease attractiveness for money launderers are defined by armed conflict and corruption variables (Maloney, Somerville, & Unger, 2019, p. 120). CF is a discrete ordinal variable ranging from zero (no conflict) to four (current war). CR is a continuous variable ranging from zero (no corruption) to five (high corruption) indexed by the Netherlands and determined by the World Bank. EG is a dichotomous variable to signify a country's membership to the Egmont Group of Financial Intelligence Units, which have a money laundering intelligence sharing agreement (Egmont Group, 2023).

To factor in more ecological, social, and cultural nuances to the Distance variable set by the initial Walker gravity model, Maloney, Somerville, and Unger (2019) adopted the notion of Cultural Distance between two countries after Unger et al. (2018):

$$Cultdist_{ijt} = Comlang_{ij} + Colony_{ij} + Trade_{ij} + Distance_{ij} + Migrants_{ij} \tag{5}$$

They define distance as not only the physical space between country i and country j for time t, but also the commonalities, established economic ties, and cultural diaspora; where $Cultdist$, Cultural Distance, is the sum function where $Comlang$ is common language; $Colony$ indicates if the two countries share a colonial history; $Trade$ is the relative importance of the bilateral trade agreements with country j for country i with an inverse relationship assigning a value of zero if they are the most important trading partner; and $Distance$ is the physical distance between the two countries scaled to a range of one to seven. The variable measuring the relative number of migrants to and from country i and country j is further defined by Maloney, Somerville, and Unger (2019) as follows:

$$Migrants_{ij} = \frac{migrants\ from\ j\ in\ i}{population\ of\ i} + \frac{migrants\ from\ i\ in\ j}{population\ of\ j} \quad (6)$$

3.3. Applications to the Vancouver Model

Each of the theories discussed can be applied explicitly to the Vancouver model. There is a natural intersection in the various criminology and economic theories, with the broader context of money laundering, TOC, and hybrid threat nexus research integrated under the umbrella of rational choice theory. Parallel behavioural analysis under social disorganization theory aims to address the limitations of any rational choice or economic model where discrete empirical data, such as monetary values, may be lacking due to the reliance on estimation through interpolation. The overall inspiration is driven by the economic analysis introduced by Becker's proposition, which grounds contemporary deterrence theory and the economic models of expected utility and gravity. The main criticism of these theoretical perspectives is their generality in addressing specific concerns of criminal money laundering, both from the view of the threat actor or threat group and the AML policy.

Despite a wide range of AML measures and policies in Canada and worldwide, the fact remains that in Canada, particularly in BC, the status quo deterrence effects leading up to the Cullen Commission have appeared to be little to none concerning the proportionality of measures in place. Further, the more significant threat of money laundering activity is the prolific injection of IFFs, not only infiltrating the legal economy

but bolstering it to levels that create interdependence between the legal, illicit, and shadow economies.

The case study of the Vancouver model in the application of these theoretical perspectives already reveals BC's suitability as a playground for money laundering syndicates to thrive. Rational choice and deterrence are based on the pillars of celerity, certainty, and severity, which can be applied as follows:

For celerity, Canadian case law has demonstrated that the pathway between the instigation of money laundering activity to detection, enforcement prioritization, investigation, charge approval, prosecution, conviction, and ultimate sanctions, forfeiture, or imprisonment is by no means an expeditious process. With Canadian criminal trials subject to the R v Jordan (2016) framework, cases are required to be conducted within a "reasonable" time of up to 18 months between the pressing of charges and the trial for cases without preliminary inquiry and 30 months otherwise (R. v. Jordan, 2016). To avoid charges being stayed under this framework, what has in effect happened is law enforcement, or the PPSC may delay bringing charges upon the suspects altogether until they can satisfy additional disclosure requirements established by R v Stinchcombe (1991).

Technological, human resourcing and institutional constraints in the IC and law enforcement communities are under-equipped to handle the sheer volume of information and raw intelligence generated by this type of crime, which further delays the creation of actionable intelligence for investigation or the ability to investigate all reported illicit activity. Based on the workflow of financial reporting requirements to FINTRAC, while some require regulated sectors to report within 24 consecutive hours (such as casino disbursements and large transactions equal to or greater than CAD 10,000), the guidance for filing STRs is within 30 days (FINTRAC, 2019a). FINTRAC analysts then review the incoming reports and collate the data before passing on their intelligence products to the relevant law enforcement agencies. Those disclosure reports require further analysis to evaluate investigative potential. All in all, the time between the money laundering events and the initial review by law enforcement officials could easily create backlogs that were several months to years in the making.

For certainty, one of the most high-profile cases in recent Canadian history fell apart before it made it to trial due to inadvertent disclosure to the defence counsel by Crown (FINTRAC, 2018, p. 34) that revealed information to identify sensitive sources. In other circumstances, wherein a person or business entity is charged for predicate crimes in addition to charges for money laundering offences, the PPSC, in the negotiation of a guilty plea, may drop the money laundering offences in exchange for a guilty plea on the predicate or related crimes. This, therefore, skews the efficacy of the legal application of the law as it pertains directly to section 462.31 of the Criminal Code and of the PCMLTFA as instead of pursuing criminal charges under these offences, Crown and suspected money launderers effectively use it as more of a bargaining chip.

Lastly, for severity, sentencing guidelines and ranges under section 462.31 of the Criminal Code are hybrid. If a person is indicted for a money laundering offence, the maximum penalty is ten years' incarceration (Criminal Code, 1985). However, if they are prosecuted by summary conviction instead, that penalty has a maximum of two years less a day and a maximum fine of CAD 5,000. Under the PCMLTFA, the maximum penalty for a violation is CAD 100,000 if committed by a person and CAD 500,000 if committed by an organization. However, between 2002 and 2018, only 50 money laundering cases were brought to trial in BC, resulting in 34 persons or entities being charged with at least one criminal offence and only 10 of those being found guilty (Russell, 2019). Again, these figures do not account for instances in which the accused were found guilty of other offences but acquitted of money laundering, nor does this statistic account for circumstances in which the money laundering charges were dropped or not pursued due to a technicality or as a part of a plea agreement.

The last means of deterrence effects is through the application by law enforcement to civil forfeiture. In BC, this is conducted through the Civil Forfeiture Office (CFO) to confiscate the proceeds of crime of entities involved in money laundering. Asset recovery through the CFO appears to be the most viable and popular option provided that the threshold for proving a civil claim is lower than a criminal charge: The decision is contingent on the likelihood that the assets are derived from the proceeds of crime in comparison to a criminal conviction in which the threshold requires proof beyond a reasonable doubt.

3.3.1. Critiques

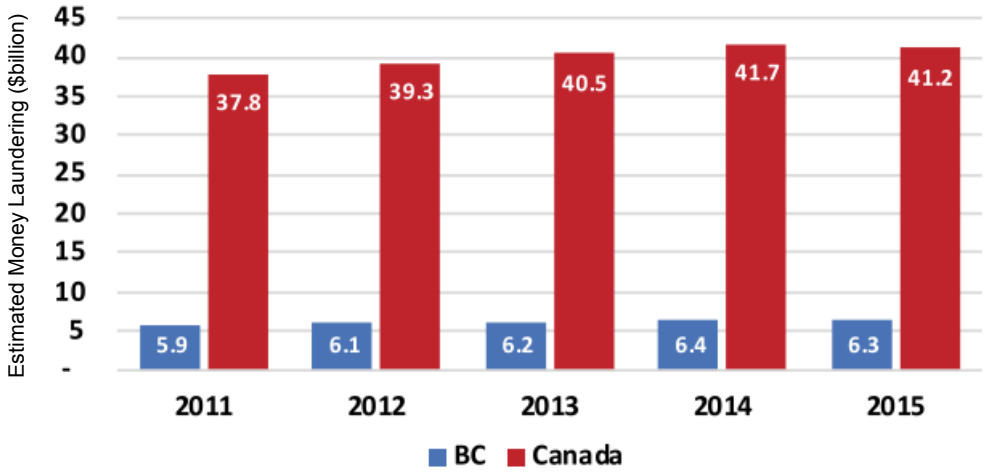
It is apparent that the perceived threat of prosecution or sanctions to money laundering participants earning and cleansing the proceeds of crime and, as a result, gaining more significant influence in the legal, social, and political economies is disproportionately low for the laws in Canada as they have been designed. These market conditions call into question the efficacy of a deterrence framework of punishment. Instead, these conditions should motivate law enforcement and policymakers to adopt nudging as a behavioural crime prevention strategy while continuing capacity building for early detection and disruption approaches to combatting money laundering and IFFs (Holz, List, Zentner, Cardoza, & Zentner, 2023; Armey & Melese, 2018).

The Cullen Commission's final report establishes direct responsibilities henceforth on the BC provincial government as well as recommendations for targeted business sectors, including financial institutions, crypto assets, real estate, luxury goods, and the corporate sector. However, it did not calculate the monetary flow laundered through the provincial economy, nor did it evaluate the relative impact of each risk factor on the volume or sophistication of money laundering in BC. The “wet finger estimate” utilized by the International Monetary Fund and FINTRAC estimates money laundering at two to five percent of GDP. This renders an estimated range of CAD 6 to 14 billion per year for BC and CAD 47 to 147 billion per year for Canada (Maloney, Somerville, & Unger, 2019, p. 45).

Maloney, Somerville, and Unger (2019) were the first to apply the Walker-Unger gravity model to estimate money laundering in BC and Canada annually from 2011 to 2015. Their model estimated a range of CAD 5.9 to 6.3 billion per year for BC and CAD 37.8 to 41.2 billion for Canada. While the money laundering estimates show a total increase over time, the authors concede that their model findings were on “the lower bound of the IMF 2 percent to 5 percent of GDP rule of thumb” (p. 126). They also conclude that their methodology was limited in calculating the estimations by regions in Canada, underestimating money laundering in BC, Ontario, and Quebec, and overestimating money laundering in Alberta and the Prairies. They attribute this to the weight of importance assigned to crime rates and GDP, which were both on the rise in

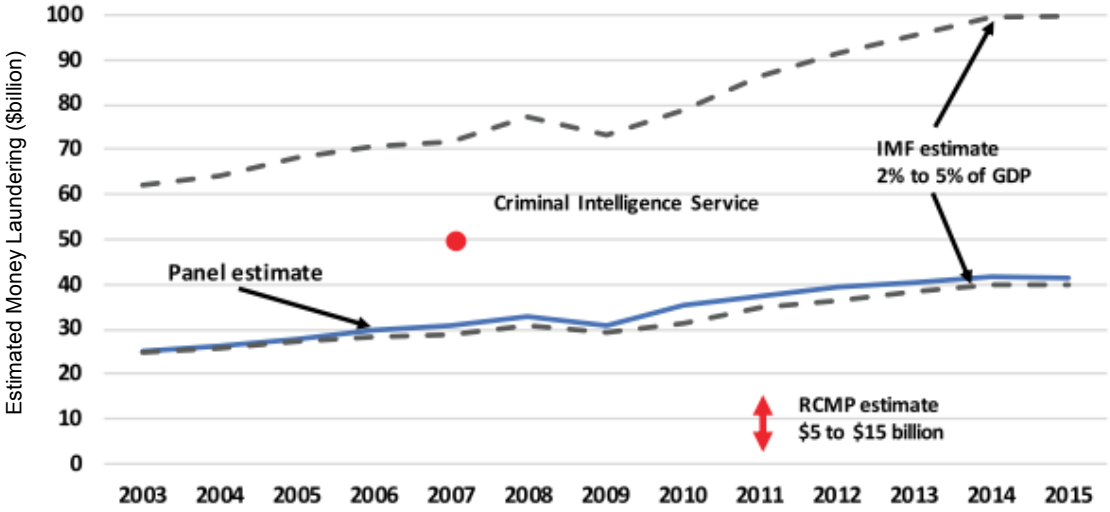
the latter two regions until the start of the oil price crash in 2015. Figure 3.1 and Figure 3.2 summarize their findings below.

Figure 3.1 Estimated Money Laundering in BC and Canada, 2011 to 2015



Source: Maloney, Somerville, and Unger (2019, p.48).

Figure 3.2 Comparison of Money Laundering Estimates for Canada, 2003 to 2015



Source: Maloney, Somerville, and Unger (2019, p. 48).

While gravity models have inevitable limitations, the Walker-Unger gravity model, as a strategic technique, provides the most comprehensive methodology to account for criminogenic, ecological, and sociodemographic factors. While the gravity model is a strictly macro-level approach to understanding money laundering, the report by Maloney, Somerville, and Unger (2019) highlighted areas for improvement that could be addressed in future Vancouver model case study applications.

Reviewing the Vancouver model under this theoretical framework demonstrates how the deterrence effects are negatively mitigated and how the local features of BC and Metro Vancouver create environments for money laundering activity to grow and adapt. Understanding the rational choice perspective at the criminal, organizational, and local economic levels indicates that expansion and adaptation of money laundering activity will persist if regulators and legal enforcement with an AML mandate remain unsupported and incomplete in their application. Therefore, a gap also remains in creating a model that can encapsulate the unique conditions of the Vancouver model. We can better identify threat actors, complicit professional enablers, and typologies leveraged despite increased detection, controls, or enforcement efforts by considering the individual, TOC group, and hybrid threat perspectives to simulate the decision-making process and represent the adaptive crime script. By adapting the Walker-Unger gravity model as a starting point to measure the macroeconomic impact of money laundering activity in the local and neighbouring economies, we can employ a measure to assess the efficacy of criminal disruption if provided with longitudinal data prior to and post enforcement efforts as a validation process. Constraints to criminological study and measurement of transnational money laundering for BC and Canada, such as data availability and accuracy, should not deter attempts to enrich the theoretical and empirical notions to understand it.

Chapter 4.

Methods

While hybrid threats leveraging money laundering in the Vancouver model are a national security and economic threat to Canada, some effects benefit cultural and economic development, growth, and diversification. Therefore, the juxtaposition of Canada's Pacific Rim strategy with the Vancouver model is intentional. For geopolitical and other strategic policy motives, government, business sectors, regulatory bodies, and residents alike may silently support illicit financial activities to relieve other internal pressures or capitalize on opportunities to improve their situations. Disparate studies of IFFs, TOC, and foreign interference have made progress despite the barriers and limitations to criminological explanations due to the complexity, limited accessibility, and lack of data. Therefore, this chapter details the strategy taken for the current study, combining experimental methods to mitigate these coexisting challenges. The study aims are to evaluate the research questions within a synthesized framework that progresses the criminology and economic theories of social disorganization and economic gravity and inform future directions to assess this phenomenon under rational choice and expected utility as data becomes more available and accessible.

This chapter describes the design and organization of the research methods. The current study employs a two-part mixed methods design combining natural language processing and econometric estimation methods: Part 1 is an incremental two-phase thematic content analysis comprised of bag-of-words (BoW) and term frequency-inverse document frequency (TF-IDF) vectorization techniques to feed unsupervised and semi-supervised topic models.

The approach is incremental, applying a baseline unsupervised Latent Dirichlet Association (LDA) topic model, followed by a semi-supervised Correlation Explanation (CorEx) topic model anchored with the salient results from the LDA topic model. The goal is to identify the contributing and latent factors of Canada's Pacific Rim strategy manifesting through the Vancouver model. In Part 2, the study estimates the proportion of money laundering flows by combining the interpretable results from the thematic content analysis in Part 1 with open-source statistical time series data comprised of

measurable variables as proxies for the latent factors. Through an enrichment adaptation of the Walker-Unger economic gravity model injecting additional attractiveness and cultural distance characteristics identified in Part 1, it then tests the estimation model of the proportion of money laundering flows for BC and Canada with China.

4.1. Hypotheses

Building on the research questions introduced in section 1.1.3, the current study proposes one hypothesis for Part 1 of the study and alternative and null hypotheses for Part 2. The main interest lies in identifying thematic relationships between the Vancouver model and Canada's Pacific Rim strategy. Interpretable common factors, including latent and confounding factors, are then empirically evaluated to determine if they have any statistically significant effect on the estimated proportion of money laundering flow for BC and Canada with China by measuring the delta between the attractiveness and cultural distance index factors implemented in Maloney, Somerville, and Unger (2019) and the enriched adaptation proposed in this thesis.

4.1.1. Part 1: Thematic Content Analysis

The thematic content analysis in Part 1 addresses the first two research questions of the current study, namely:

1. What factors of Canada's Pacific Rim strategy have weakened British Columbia's ability to counteract the threat of money laundering?
2. What factors remain vulnerable despite the countermeasures implemented to strengthen strategies against hybrid threats via money laundering?

The goal of Part 1 is to identify any contributing latent factors from the Cullen Commission hearing transcripts. This study assumes that factors that contribute to the Vancouver model of money laundering are also factors that are indicative of Canada's Pacific Rim strategy. Therefore, the hypothesis is as follows:

H_1: Attractiveness and cultural distance index factors demonstrated in the Vancouver model of money laundering are factors in Canada's Pacific Rim strategy.

4.1.2. Part 2: Bilateral Money Laundering Flow Estimation

A concurrent goal of Part 1 is to inform additional variables for enriching the attractiveness and cultural distance calculations in the Walker-Unger gravity model defined in section 3.2.3. Calculation of the gravity model for money laundering will address the third research question:

3. What factors indicative of the Vancouver model affect the estimated proportion of money laundering flow between Canada and China?

To validate this research question, the alternative and null hypotheses are stated below:

H_α: Enriched attractiveness and cultural distance measures related to hybrid threats leveraging Canada's Pacific Rim strategy have an effect on British Columbia's vulnerability to money laundering in addition to those utilized in Maloney, Somerville, and Unger (2019).

H_0: Enriched attractiveness and cultural distance measures have no effect on British Columbia's vulnerability to money laundering.

This evaluation is not a direct replication of the calculation by Maloney, Somerville, and Unger (2019), and a failure to accept the alternative hypothesis does not imply a failure in answering the related research question. Rather, the underlying assumption is to indirectly assess the impact of hybrid threats leveraging these factors by estimating the proportion of money laundering flows with additional measurable proxy variables representative of the characteristics and typologies that make up the Vancouver model.

4.2. Sample Data

The data were collected from six open-source datasets: For Part 1, the Cullen Commission hearing transcripts; and for Part 2, measurable proxy variables were sourced from the Cullen Commission Final Report, Statistics Canada Census Profiles, Alberta Gambling Research Institute (AGRI), Le Centre d'études prospectives et d'informations internationales (CEPII), and the Basel AML Index for the years available between 2011 and 2021. These data supplement the open-source statistics utilized in the calculation found in Maloney, Somerville, and Unger (2019) for the years 2011 to 2015, and additional observations were collected to extend that dataset to 2021. To increase the robustness of the sample data and capture the nuances of the research

questions, five regions representing Canada and China were simulated: BC, Canada, China, Hong Kong SAR, and Macau SAR. There was insufficient regional data for the Republic of China (Taiwan); therefore, the country data were excluded from the analysis. Data interpolation, where possible, and next observed values techniques were used to impute the missing values across the time series. The data sources are described below.

4.2.1. Cullen Commission Hearing Transcripts

The hearing transcript data from the Cullen Commission helps address the research questions by providing evidence and insights into the factors contributing to money laundering in Metro Vancouver. Part 1 of the current study is a thematic content analysis leveraging topic models as a machine learning technique to create meaningful topic groups from the text language data. The Cullen Commission produced 119 transcript documents for the public hearings made available on its website (Cullen Commission, 2019). The exception to not making the hearing transcript available online was if the witness, document, or evidence required a protective exemption, such as a publication ban, sealed materials, or a closed hearing. As such, those transcripts are not included in the sample data. Further, some witnesses provided affidavits in lieu of attending public oral testimony. Those affidavits are not included in the sample data to control for document type (i.e. legal hearing transcript versus affidavit) and question-answer witness testimony oral discourse style.

The transcripts within the Part 1 sample are from the public hearings that took place from February 2020 to October 2021, in addition to the Oral Hearing Participants Standing on October 19th, 2019, and the Application Hearing on December 19th, 2019. The decision to include the two public hearings from 2019 is that they provide an overview of the rationale and subject matter of the subsequent witness interviews that were to take place in 2020 and 2021. 221 people are listed as witnesses to the Cullen Commission, with 198 associated with a corresponding transcript document. More than one witness may appear within one hearing session, a witness may attend more than one session, and testimonies could be held with individual witnesses or witness groups of two or more people. The inquiry team was a 12-person legal team, including Commissioner Austin Cullen. There were 23 entities granted Participant Status represented by 66 members as their respective legal counsel.

As a part of the public inquiry, witnesses were primarily interviewed over a live-streaming video conference due to the COVID-19 pandemic. The hearings took place over five time periods grouped by themes detailed in Table 4.1:

Table 4.1 Description of the Cullen Commission Transcript Sample (*n* = 119)

Time Frame	Theme	*n*
October 2019	Oral hearing participants standing	1
December 2019	Application hearing	1
February 2020	Opening statements Participants set out the issues and matters that they want to Inquiry to address	3
May to June 2020	Money laundering overview Regulatory models	17
October 2020 to September 2021	Main hearings to address specific issues: • Gaming, casinos, horseracing • Real estate • Professional services, including accounting and legal • Corporate sector • Financial institutions and money services • Luxury goods • Cryptocurrency • Cash-based businesses • Trade-based money laundering • Other sectors • Asset recovery • Enforcement and regulation • Government response • Other jurisdictions' approaches	94
October 2021	Closing submissions	3

Source: Cullen Commission (2019). Transcripts. *Commission of Inquiry into Money Laundering in British Columbia.* https://cullencommission.ca/transcripts/

4.2.2. Country Summary Statistics

A customized dataset was created by sourcing Canada and China subnational and country statistics and index ratings from the Cullen Commission, AGRI, Statistics Canada, CEPII, the Basel Institute on Governance, the World Bank, and the United

Nations. To calculate the money laundering requirement, missing subnational data were supplemented with incident-based crime statistics from Statistics Canada for BC, the Hong Kong Police Force, and the Macao SAR Government (Statistics Canada, 2022; The Government of the Kong Kong Special Administrative Region, 2021; Macao Special Administrative Region, 2022). They supplement the data sources used in the calculation of the proportion of money laundering flow estimation from Maloney, Somerville, and Unger (2019). The complete list of data sources for Part 2 of the study is detailed in Table 4.2.

Table 4.2 Country Summary Statistics Data Sources

Source	Data	Years
Enrichment factors		
Cullen Commission	Final Report	2011 to 2019
AGRI	Canadian Gambling Statistics	2011-2021
Statistics Canada	Census Profile	2011, 2016, 2021
CEPII	CEPII Gravity Database	2011 to 2021
Basel Institute of Governance	Basel AML Index	2012 to 2021
World Bank	Doing Business	2011 to 2020
	World Development Indicators	2011 to 2021
	World Governance Indicators	2011 to 2021
United Nations	International Migrant Stock	2010, 2015, 2020

4.3. Model Architecture

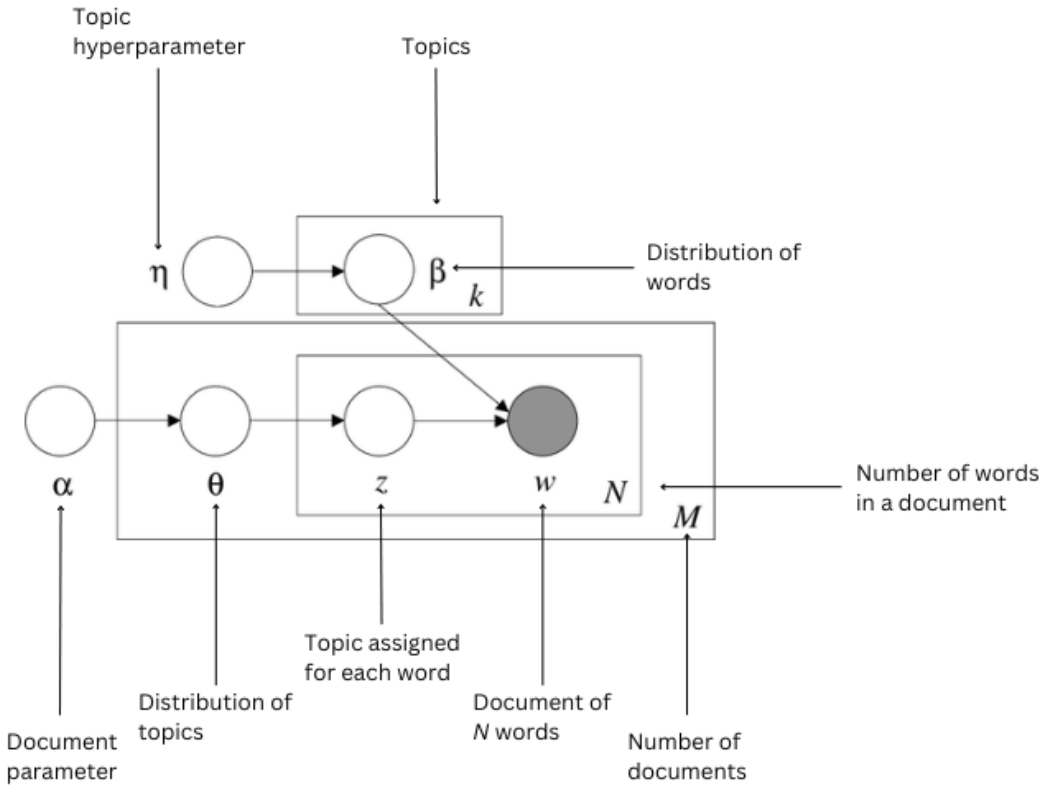
This section provides a general overview and description of the topic model architecture within a managed human-in-the-loop strategy used for the current study. The thematic content analysis of the Cullen Commission hearing transcripts will allow for identifying salient topics and themes related to Canada's Pacific Rim strategy within the context of a public inquiry focused on money laundering, confirming their correlation from a qualitative perspective.

4.3.1. Unsupervised Latent Dirichlet Allocation Topic Model

Latent Dirichlet Allocation (LDA) is an unsupervised, generative statistical model that Blei, Ng, and Jordan (2003) adapted for machine learning applications. This is a common baseline technique in topic discovery. This method was chosen as it allows for the allocation of several topics within a document or observation and assumes that

multiple words can provide weighted contributions toward a topic group. Compared to qualitative thematic content analysis, the analysis pipeline is expeditious once a raw text corpus has been transformed into a machine-readable format.

Figure 4.1 Graphical LDA Model



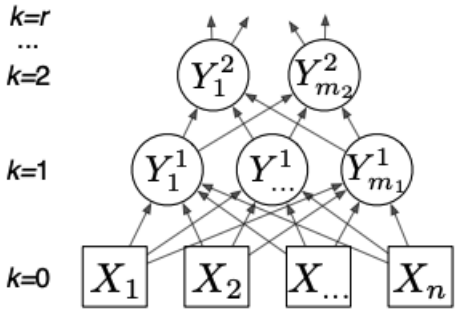
Annotated LDA model adapted from Blei, Ng, and Jordan (2003).

4.3.2. Semi-Supervised CorEx Topic Model

Anchored Correlation Explanation (CorEx) is a semi-supervised topic model developed by Gallagher, Reing, Kale, and Ver Steeg (2017). The rationale for applying a second topic model is to counteract one of the common limitations of this method – translating what might appear to be spurious topics into interpretable concepts contextualized by the input sample data. The CorEx topic model is designed as an alternative model for fine-tuning and validating semantically disparate words into demographically correlated topics while fixing the number of topics remains a semi-qualitative evaluation based on the notions of total correlation similar to eigenvalue distribution. Thus, the goal is to explore further latent topics that arise from the data

without additional assumptions compared to supervised approaches while providing more direction than a completely unsupervised modelling approach.

Figure 4.2 Graphical CorEx Model



Source: Gallagher, Reing, Kale, and Ver Steeg (2017).

The CorEx algorithm aims to represent substrate information in a document collection to maximize the salient information of the sample data, as illustrated in Figure 4.2. The bottom layer represented by X_i are observed variables, and each substrate group represents a latent topic, Y_j. Each substrate represents descriptions that become more granular with tighter bounds. Anchor words act as seeds into the system, allowing for the topic curation by human intervention. Weights can also be assigned to each anchor word, but the topic model can still override these topic choices if the data does not fit the model well enough. The number of topics can also be customized: Selecting a large set of topic groups allows for more "undercooked" topics in a smaller model to surface, while "overcooked" topics in a larger model become more interpretable in a smaller model. Unlike the LDA topic model, it is discriminative and assigns topics based on the calculation of shared information between words and topics as well as the polarity of those associations.

4.3.3. Gravity Model with Enriched Attractiveness and Cultural Distance Factors

The econometric gravity model in Part 2 is enriched with measurable variables that represent the latent factors and confounders discovered in Part 1 of the study. The final topic model identified 22 latent factors of mutual interest to the Pacific Rim strategy and the Vancouver model. Of those, 19 latent factors are not discretely represented in

the base gravity model from Maloney, Somerville, and Unger (2019). These latent factors are represented by the proxy variables in Table 4.3:

Table 4.3 Description of the Enrichment Variables

Latent Factor	Variable	Description
Attractiveness indicators		
(Civil) asset forfeiture	AF	Value of non-PCMLFTA seizures[1]
Beneficial ownership registry	BO	Dummy, yes = 1
Casino regulatory bodies	CB	Canada commercial gambling net revenue
Casino transactions	CT	Large cash transactions at casinos[1]
Criminal financial investigations	FI	Outcomes of prosecuted PCMLFTA charges
Information sharing and privacy	RL	Rule of law risk score[5]
Lottery corporation	LC	Canada ticket lottery net revenue[2]
Money laundering as a crime	MLC	Non-conviction rate of results of ML charges[1,3]
Money services business	MSB	MSBs registered count[1]
Mortgage brokers	MB	Canada mortgage and housing corporation, conventional mortgage lending rate, 5-year term[3]
RCMP and politics	TI	TI Corruption perceptions index[5]
Real estate	RE	Investment in building construction[3]
Suspicious transactions and activity	ST	FINTRAC Cross border currency reports[1]
Trusts and lawyers	TL	Dummy, Self-regulation = 1
Unexplained wealth and housing market	UW	Dummy, Illicit enrichment laws[5] = 1
Cultural distance characteristics		
Chinese diaspora	CD	Dummy, ever share same colonizer[4] = 1
Common language of diaspora	commlangD	Dummy, yes = 1
Fei ch'ien networks	FC	Dummy, yes = 1
China policy and Five Eyes	DD	Diplomatic disagreement score[4]
Vancouver model activity & transnational organized crime	VT	Dummy, yes = 1

Source: 1. Cullen Commission. 2. AGRI. 3. StatsCan. 4. CEPII. 5. Basel Institute of Governance.

The enrichment variables contribute to the gravity model's attractiveness index and cultural distance calculations. Table 4.4 provides the summary statistics for the money laundering requirement and the independent variables used to estimate the dependent variable, the proportion of money laundering flow from country *i* to country *j* for year *t*, below:

Table 4.4 Description of the Part 2 Sample (*n* = 110)

Variables	M	SD	Min	Max
Enrichment variables				
Attractiveness indicators				
AF	.94	.84	.10	1.78
BO	.98	.13	.00	1.00
CB	1,477.33	1,219.49	100.00	2,938.00
CT	2,828.57	2,333.50	225.00	5,543.00
FI	1.43	.22	1.08	1.78
RL	3.60	.00	3.60	3.60
LC	.01	.00	.00	.01
MLC	.93	.09	.60	1.00
MSB	586.77	.96	74.00	1,763.00
MB	3.99	.36	3.28	4.57
TI	3.23	.14	2.96	3.48
RE	4,763.46	795.27	3,816.77	6,592.64
ST	29,232.18	19,499.80	5,072.00	65,533.00
TL	1.00	.00	1.00	1.00
UW	.00	.49	.00	0.00
Cultural distance indicators				
CD	.40	.49	.00	1.00
commlangD	1.00	.00	1.00	1.00
FC	.60	.49	.00	1.00
DD	2.63	.00	2.63	2.63
VT	.90	.30	.00	1.00
Maloney, Somerville, & Unger (2019)				
Attractiveness indicators				
$GDPpc_i$	43,790.29	21,880.24	5,447.00	90,873.93
$GDPpc_j$	47,662.45	3,038.50	42,158.00	52,409.00
BS	1.00	.00	1.00	1.00
GA	.00	.00	.00	.00
SWIFT	1.00	.00	1.00	1.00
BD	.00	.00	.00	.00
CF	.00	.00	.00	.00
CR	.00	.00	.00	.00
EG	1.00	.00	1.00	1.00
Cultural distance indicators				
commlang	.60	.49	.00	1.00
colony	.60	.49	.00	1.00
trade	.47	.37	.01	1.00
distance	4.02	2.63	.00	7.00
migrants	1.40	.22	1.05	1.75

For Part 2, the attractiveness index enrichment variables are specified as follows:

$\boldsymbol{AF_{j,t}}$ is the value of non-PCMLFTA seizures conducted through civil asset forfeiture. Countries with defined asset forfeiture powers, such as through the BC CFO, where the burden of proof falls on the respondent, can act as a deterrent to money launderers. However, the risk of deterrence is greatly attributed to the effectiveness and frequency of these cases. To be consistent with the Maloney, Somerville, and Unger (2019) protocol, the original variable was rescaled to a range of 1 to 4.

$\boldsymbol{BO_{j,t}}$ is the beneficial ownership registry of a country. It is a dummy variable that uses a 1 for the existence of beneficial ownership registries for a given year and a zero if none exists. Two outcomes of the Cullen Commission recommendations were the enactment of the Land Owner Transparency Registry and the BC Corporate Beneficial Ownership Registry. Prior to their creation, no such self-reporting registry of this nature existed in BC or Canada.

$\boldsymbol{CB_{j,t}}$ is the economic impact of casino regulatory bodies. This is measured by BC's and Canada's commercial gambling net revenue. When the net revenue of casino gambling is high, it indicates the size of the gaming sector and cash-based activity, which makes the country more attractive for money laundering.

$\boldsymbol{CT_{j,t}}$ is the number of large cash transactions at casinos. A casino that dealt with a high volume of large cash transaction reports, which are mandated through FINTRAC, would be attractive to money laundering activity because high volumes of cash within singular transactions are more prevalent in that business sector. These types of reports differ from suspicious transaction reports as they do not indicate any suspicion about the provenance of the funds.

$\boldsymbol{FI_{j,t}}$ is the outcome of criminal financial investigations. This was measured by the outcome of prosecuted PCMLFTA charges for both BC and Canada. A high value of this variable would have an inverse effect on the attractiveness of a country for money launderers.

$\boldsymbol{RL_{j,t}}$ is the Rule of Law risk score from the Basel Institute of Governance. The measure has been rescaled from 1 to 4 in line with previous studies. The index value for Canada was also used for BC.

$LC_{j,t}$ is the lottery corporation sector in a country. This is represented by the Canada ticket lottery net revenue per year. It is considered an attractiveness measure because net revenue indicates the industry's size and how profitable it is for governments and public companies to continue operating an income-generating business.

$MLC_{j,t}$ represents money laundering and organized crime. The measure relies on the idea that non-conviction rates in Canada are far more prevalent than conviction rates, particularly in BC. The statistics were extracted from the incident-based crime statistics table maintained by Statistics Canada (Statistics Canada, 2022).

$MSB_{j,t}$ is the number of money services businesses registered with FINTRAC. MSBs are a group of wealth transfer companies that can range from traditional foreign currency exchanges to hawala, fei ch'ien, and cultural remittance centres as IVTSs, to crypto asset exchanges for the unregulated decentralized finance (DeFI) industry.

$MB_{j,t}$ is the conventional mortgage lending rate on a five-year term, according to the Canada Mortgage and Housing Corporation (CMHC). This indicates the overall health of the real estate sector according to the posted mortgage rates from the major chartered banks in Canada.

$TI_{j,t}$ is the Transparency International Corruption Perceptions Index source. In line with other measures, the score has been rescaled from 1 as highly corrupt to 4 as very clean. It measures how corrupt a country's public sector is perceived to be based on 13 input expert data sources.

$RE_{j,t}$ is the measurement of the real estate sector according to the amount of investment in building construction for a country. For BC and Canada, these measures were derived from the total investment value of construction of non-residential and residential buildings.

$ST_{j,t}$ is the number of FINTRAC cross border currency reports. Maloney, Somerville, and Unger (2019) detailed that FINTRAC is the only FATF-reporting country's financial intelligence unit (FIU) that cannot provide statistics on STRs relative to country associations. As such, this measure of cross border currency reports serves as a proxy measure because it captures the inflow frequency of currency over CAD 10,000 being declared at a Canadian border crossing.

$TL_{j,t}$ is a dummy variable for trust accounts and lawyers. If a self-regulatory organization (SRO) monitors conduct in the legal profession, then a 1 is used. If a profession's activity in a country is under the jurisdiction of a government regulator, it gets a zero.

$UW_{j,t}$ is unexplained wealth and housing market. A country with illicit enrichment laws is assigned a dummy score of 1. A country that does not have these types of laws is attractive to money launderers as it lessens the onus of people bringing money into a country to justify its source. Like civil asset forfeiture laws, illicit enrichment laws require the respondent to prove that their funds are not connected or derived from criminal activity.

The enrichment variables that contribute to the cultural distance characteristics of the gravity model are detailed as follows:

The Chinese diaspora component of the Vancouver model is characterized by the refinement of three additional variables: ***CD*** is a dummy variable for whether country *i* and country *j* ever shared the same colonizer. ***CommlangD*** is a dummy variable representing whether the two countries share common languages as locations within the diaspora. ***FC*** is a dummy variable to indicate whether fei ch'ien networks are established in the destination country as a particular IVTS subclass.

$DD_{i,j,t}$ is the UN diplomatic disagreement score. In line with previous studies, BC and Canada within-country and bilateral associations were given a score of 0.1 so that the natural log could be calculated for this measure. The smaller the score, the more aligned the two countries are in their international policy.

$VT_{j,t}$ is a dummy for the Vancouver model and nexus with TOC groups. A score of 1 indicates that the two countries share the unique indicators of the Vancouver model, and a zero indicates that they do not.

4.4. Analytic Strategy

The current study performs analyses to extract the thematic topic information from the Cullen Commission hearing transcripts and reduces them into interpretable topic groups to enrich the Walker-Unger gravity model originated in Unger et al. (2006)

and applied in Maloney, Somerville, and Unger (2019). Figure 4.3 illustrates the human-in-the-loop methodological framework of the current study.

4.4.1. Transparency Statement

The materials, sample data, and computational notebook files to reproduce the analytic strategy are available on GitHub: https://github.com/ashleighgonzales/vancouver-model/

4.4.2. Data Preparation and Tools

The first step was to preprocess the sample data so the topic models could analyze it. Both the LDA and CorEx topic models can be deployed at the phrase, paragraph, page, or document level. The data were analyzed at the page level due to sample size and to simplify the text preprocessing stage. In Adobe Acrobat Pro, for each hearing transcript document, the title page, appearance list, table of contents, and list of exhibits that precede the transcript portion were removed from the sample. Each document file was then compiled into a single PDF file for enumeration before dividing the sample at the page-level observation. This created a sample dataset of 17,431 text files or page-level observations.

The subsequent steps in the data preparation were performed within the Python 3 coding environment: Preliminary development, testing of data preparation, and exploratory data analysis protocol scripts were documented and performed in the JupyterLab computational notebook environment (Kluyver, et al., 2016). This text preprocessing stage to transform the data leveraged the PyPDF2, PDFMiner, os, Pandas, re, Natural Language Toolkit (NLTK), Collections Counter, Gensim, and pyLDAvis libraries.

Figure 4.3 Functional Diagram of the Analytic Strategy

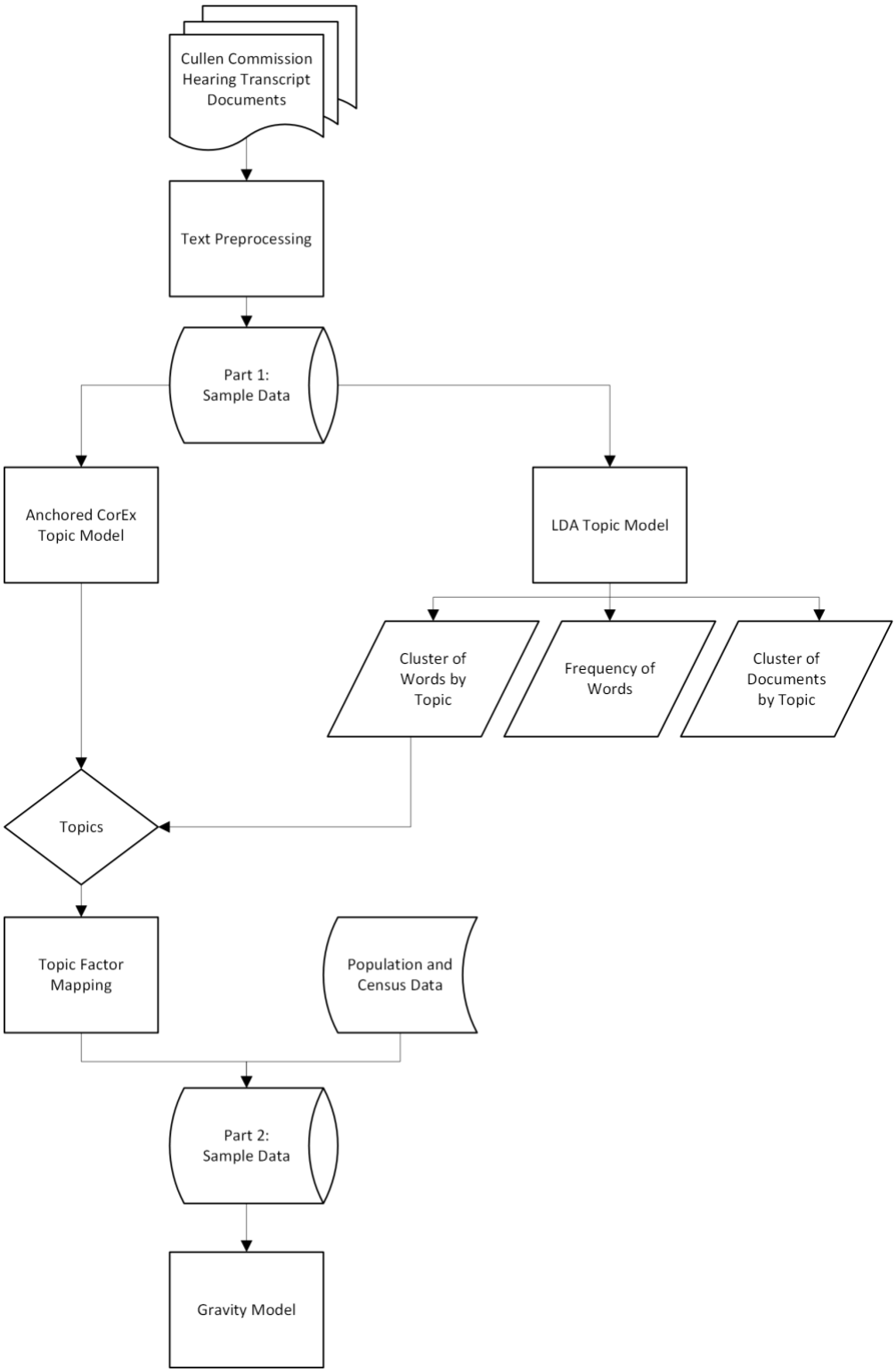
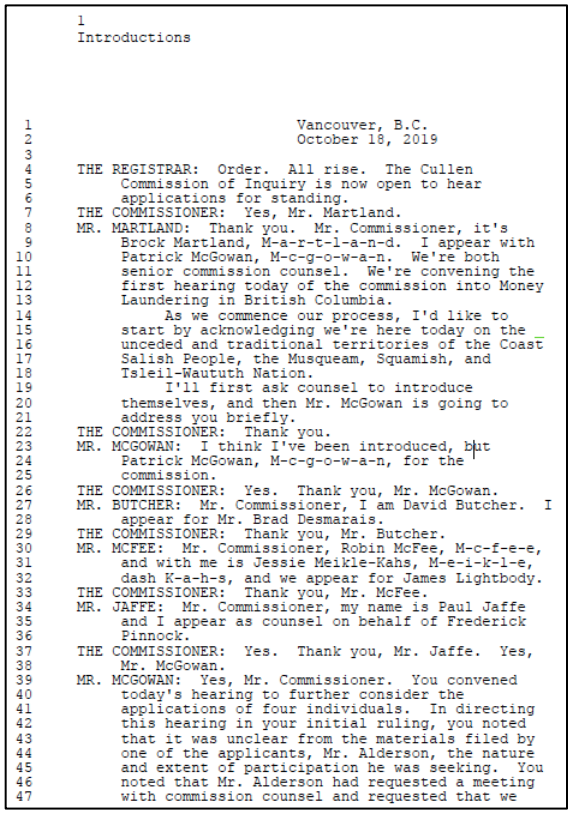


Figure 4.4 Sample Page-level Observation Before and After Text Preprocessing



1
Introductions

1 Vancouver, B.C.
2 October 18, 2019
3
4 THE REGISTRAR: Order. All rise. The Cullen
5 Commission of Inquiry is now open to hear
6 applications for standing.
7 THE COMMISSIONER: Yes, Mr. Martland.
8 MR. MARTLAND: Thank you. Mr. Commissioner, it's
9 Brock Martland, M-a-r-t-l-a-n-d. I appear with
10 Patrick McGowan, M-c-g-o-w-a-n. We're both
11 senior commission counsel. We're convening the
12 first hearing today of the commission into Money
13 Laundering in British Columbia.
14 As we commence our process, I'd like to
15 start by acknowledging we're here today on the
16 unceded and traditional territories of the Coast
17 Salish People, the Musqueam, Squamish, and
18 Tsleil-Waututh Nation.
19 I'll first ask counsel to introduce
20 themselves, and then Mr. McGowan is going to
21 address you briefly.
22 THE COMMISSIONER: Thank you.
23 MR. MCGOWAN: I think I've been introduced, but
24 Patrick McGowan, M-c-g-o-w-a-n, for the
25 commission.
26 THE COMMISSIONER: Yes. Thank you, Mr. McGowan.
27 MR. BUTCHER: Mr. Commissioner, I am David Butcher. I
28 appear for Mr. Brad Desmarais.
29 THE COMMISSIONER: Thank you, Mr. Butcher.
30 MR. MCFEE: Mr. Commissioner, Robin McFee, M-c-f-e-e,
31 and with me is Jessie Meikle-Kahs, M-e-i-k-l-e,
32 dash K-a-h-s, and we appear for James Lightbody.
33 THE COMMISSIONER: Thank you, Mr. McFee.
34 MR. JAFFE: Mr. Commissioner, my name is Paul Jaffe
35 and I appear as counsel on behalf of Frederick
36 Pinnock.
37 THE COMMISSIONER: Yes. Thank you, Mr. Jaffe. Yes,
38 Mr. McGowan.
39 MR. MCGOWAN: Yes, Mr. Commissioner. You convened
40 today's hearing to further consider the
41 applications of four individuals. In directing
42 this hearing in your initial ruling, you noted
43 that it was unclear from the materials filed by
44 one of the applicants, Mr. Alderson, the nature
45 and extent of participation he was seeking. You
46 noted that Mr. Alderson had requested a meeting
47 with commission counsel and requested that we

introductions vancouver bc october registrar order rise cullen inquiry open hear applications standing commissioner martland martland thank commissioner brock martland martland appear patrick mcgowan mcgowan senior counsel convening first hearing today money laundering british columbia commence process id like start acknowledging today unceded traditional territories coast salish people musqueam squamish tsleilwaututh nation ill first ask counsel introduce mcgowan going address briefly commissioner thank mcgowan think ive introduced patrick mcgowan mcgowan commissioner thank mcgowan butcher commissioner david butcher appear brad desmarais commissioner thank butcher mcfee commissioner robin mcfee mcfee jessie meiklekahs meikle dash kahs appear james lightbody commissioner thank mcfee jaffe commissioner name paul jaffe appear counsel behalf frederick pinnock commissioner thank jaffe mcgowan mcgowan commissioner convened todays hearing consider applications four individuals directing hearing initial ruling noted unclear materials filed one applicants alderson nature extent participation seeking noted alderson requested meeting counsel requested

(Left) Source: Cullen Commission (2019). Oral Hearing Participants Standing – Transcript from Oct 18, 2019. p. 1. (Right) Sample page-level observation after text preprocessing protocol.

Legal transcripts were annotated with pleading numbers along the left margin to indicate the corresponding line number. For example, each page of the hearing transcripts had the numbers one to 47 listed from the top to bottom on the left side margin. Figure 4.4 illustrates a sample page observation before and after the text preprocessing protocol.

Data cleaning and text preprocessing are necessary to ensure that the data injected into the language models are optimally represented. Table 4.5 provides a complete list of the text preprocessing techniques used to prepare the sample data for Part 1. Regular expression (“Regex”) was used to remove all standalone digits. While overapplication was observed using this regex, for example, removing the numerical date, this straightforward approach to remove extraneous numerical data does not affect the topic curation process as it relates to the hypotheses of the current study. Lower casing is a common technique for text mining problems. It converts the text into all lower-case characters so that words like “money,” “MONEY,” and “Money” are treated in

the same manner. The techniques of white space, punctuation, and stop word removal each work to improve the saliency of meaningful word concordance and n-gram sequences. Lemmatization and stemming are strategies to truncate a word to its base morphological form to increase the categorization accuracy of language models.

Table 4.5 Text Preprocessing of the Cullen Commission Hearing Transcripts

Text Preprocessing Technique	Description
Legal pleading number removal	Remove numerical digits from the text
Lower casing	Convert text into all lower-case characters
Whitespace removal	Remove extra whitespace from the text
Punctuation removal	Remove punctuation from the text
Stop word removal	Remove common, low-information words from the text
Common word removal	Determine the most frequent words from the text to evaluate whether to exclude from the sample
Lemmatization	Remove inflection and derivation affixes based on word morphology
Stemming	Remove probable affixes based on heuristic rules

Other data preparation components were to understand the sample data and conduct exploratory data analysis on possible relationships between variables. In the case of topic modelling, the analytic strategy involved taking unstructured data and reclassifying them to discretize as necessary. The techniques previously described are straightforward. Common word removal is similar in that it quantifies the most frequent words that appear in the sample data. However, the decision on whether to exclude these words from the data is entirely dependent on the researcher's contextual knowledge of the data. After calculating the top ten most frequent words, the top seven were removed from the sample. The last three were retained in the sample as it was unclear from the data exploration what impact they might have on the topic models in Part 1. Table 4.6 details the ten most frequent words from the Cullen Commission transcript data after stop word removal ($N_{words} = 1{,}760{,}414$) and the rationale for exclusion from the sample. The final sample data size after text preprocessing contained a total page count of $N_{page} = 17{,}431$, total word count of $N_{wordsum} = 1{,}603{,}522$, and unique word count of $N_{wordunique} = 23{,}890$.

Table 4.6 Top 10 Most Common Words in Sample

Word	N	Removed	Rationale
Q	34,883	✓	Question marker
Mr.	32,079	✓	Honorific for a participant
Commission	29,153	✓(suppressed)[1]	Referential to the Cullen Commission
Would	16,520	✓	Non-content word
Exam	15,383	✓	Legal examination marker
Yes	14,712	✓	Non-content word
Ms.	14,162	✓	Honorific for a participant
Know	12,179	✗	
Money	11,898	✗	
That's	10,980	✗	

4.4.3. Word Embeddings

Word embeddings facilitate the quantification of language by approximating words to the semantic level by creating vectors. The LDA topic model was deployed with BoW and TF-IDF to vectorize text representation into numerical data. The dictionary of the topic model was a bag of words on the dataset using the Gensim library. A dictionary comprised of word tokens from the sample data used the filter parameters defined in (7):

$$10 < f(\mathrm{w} \in 0, 1^{V}) < 0.25M \tag{7}$$

Any tokens that appeared in less than ten page-level observations or more than 25% of the total sample data were excluded to encourage robust topic formation. From there, a BoW was generated for each page-level observation.

The TF computed the frequency of the words within each page-level observation to the total number of terms within the same observation. The IDF is the $\log_{10}$ of the ratio of the total number of observations to the number of observations in the sample data in which the term is present. This formed the corpus for the final topic models.

[1] Word removal only applied to the instances where the word was used as an honorific or synonym for the Cullen Commission.

4.4.4. Topic Models

The first step was to create baseline versions of the LDA topic model. Both BoW and TF-IDF versions of the corpora were used. Because a value must be assigned to the baseline, the number of topics was set at $k = 20$ with the qualitative assumption that the final number of salient and relevant topics would come below this threshold. The model perplexity and coherence scores were then calculated to determine which LDA baseline model to pursue further.

To evaluate the LDA topic model, the following steps were performed: As the coherence score for the LDA topic model using the TF-IDF corpus was higher than the one using BoW only, hyperparameter tuning was continued with the TF-IDF version of the model only. Hyperparameter tuning of the topic model was conducted to determine the following:

- Optimal number of topics, k;
- Document-topic density measured by Dirichlet hyperparameter alpha, a; and,
- Word-topic density measured by Dirichlet hyperparameter beta, b.

Once the optimal number of topics was determined at $k = 15$, the alpha and beta hyperparameters associated with the highest coherence score were selected. These values were then inputted into the final LDA topic model.

After LDA analysis, the CorEx topic model as an anchored, semi-supervised approach was used as an additional data reduction strategy to optimize the inputs for the econometric model. The content and number of topics in the optimized LDA model were evaluated through a qualitative, human-in-the-loop process to assign thematic categories as anchors for the CorEx model informed by the tuned LDA topic model results. In the CorEx model design, the probability distributions of documents across the total number of topics do not need to equate to 1. Therefore, some topics can have no document assignments. Spurious topic creation is a by-product of the model's requirement to assign a specific number of topics for the discriminative model. The number of topics was therefore set at $k = 50$ to allow for the addition of other latent topics and conceptually spurious or inter-topic polysemous ones. Anchor sets were then

curated to maximize the total coherence score of the baseline model. A total of 15 anchors tuned the final model.

The last step classified the resultant topics and identified those eligible to be carried forward in the Part 2 gravity model. The topics were grouped into three categories: Pacific Rim strategy, general money laundering, and other (including conceptually spurious topics).

4.4.5. Econometric Gravity Model Estimation

The proportion of money laundering flow between Canada and China is estimated. The final selection of variables was based on the results of the thematic content analysis in Part 1 and the availability of measurable proxy variables to represent the factors for both countries to estimate the proportion of flow. The base model mirrors the input variables of the gravity model of money laundering from Maloney, Somerville, and Unger (2019). The enrichment factors within the attractiveness and cultural distance indices aim to simulate money laundering flows based on the mutual insights gained from the Vancouver model through the lens of Canada's Pacific Rim strategy.

Some externalities, such as the variation in geopolitical environment and economic strategies between countries, constrain the availability, reliability, and consistency of public data. As such, the measurable variables included in the enriched gravity model are those for which data were available or imputable for both countries. Where possible, some measurable variables for subnational regions mirror or are relative to a proportion of the whole-of-country values in the calculation for those regions.

4.4.6. Modelling the Proportion of Bilateral Money Laundering Flow

The econometric estimation procedures aim to account for the semi-log parameters and heterogenous gravity data. The dummy variables rarely change over time, except for the legislative changes, such as the beneficial ownership registries in BC in 2019. The estimation of the gravity formula was calculated using semi-log transformation to make it multiplicative. It specified the natural logarithm of all the

continuous variables within the model. The dichotomous variables remained untransformed. The equation is detailed in (8), where for each year, t:

$$\begin{aligned}\ln F_{i,j} = \beta_0\varepsilon + &\left[\beta_1 \ln GDPpc_j + \beta_2 \ln BS_j + \beta_3 GA_j + \beta_4 SWIFT_j + \beta_5 \ln BD_j + \beta_6 CF_j + \beta_7 CR_j \right. \\ &\left. + \beta_8 EG_j\right] \\ &+ \left[\beta_9 \ln AF_j + \beta_{10} BO_j + \beta_{11} \ln CB_j + \beta_{12} \ln CT_j + \beta_{13} \ln FI_j + \beta_{14} \ln RL_j \right. \\ &+ \beta_{15} \ln LC_j + \beta_{16} \ln MLC_j + \beta_{17} \ln MSB_j + \beta_{18} \ln MB_j + \beta_{19} \ln TI_j \\ &\left. + \beta_{20} \ln RE_j + \beta_{21} \ln ST_j + \beta_{22} TL_j + \beta_{23} UW_j\right] \\ &+ \left[\beta_{24} commlang_{i,j} + \beta_{25} colony_{i,j} + \beta_{26} \ln trade_{i,j} + \beta_{27} \ln distance_{i,j} \right. \\ &\left. + \beta_{28} \ln migrants_{ij}\right] \\ &+ \left[\beta_{29} CD_{i,j} + \beta_{30} commlangD_{i,j} + \beta_{31} FC_{ij} + \beta_{32} \ln DD_{i,j} + \beta_{33} VT_{i,j}\right]\end{aligned} \tag{8}$$

Implementation of the gravity model aligns with the protocol established by prior research estimating money laundering flows (Unger, 2007; Maloney, Somerville, & Unger, 2019; Ferwerda, et al., 2011; Ferwerda, van Saase, Unger, & Getzner, 2020). This simplified the estimation of the dependent variable, as defined by Maloney, Somerville, and Unger (2019) as $F_{i,j,t}$, "the proportion of all money generated for laundering in country *i* in year *t* that flows to country *j*" expressed as a natural log (p. 121).

Bivariate analyses were conducted across 33 predictor variables in the model to measure possible correlations between the conventional attractiveness index and cultural distance characteristics and the enrichment variables that capture latent factors from Canada's Pacific Rim strategy and the Vancouver model. Factor analyses were then performed as a data reduction strategy to optimize the inputs for the multiple regression models with a four-component composition. 22 predictor variables were inputted into the PCA procedure, resulting in a refinement down to 13 enrichment variables and four base variables.

Multiple regression analyses examined the relationship between the dependent variable represented by the proportion of all money generated for laundering in country *i* to country *j* in year *t* that flows to country j, $F_{i,j,t}$. It is expected, due to the complexity and obfuscation techniques characteristic of money laundering, IFFs, and economic fraud

activities, that multicollinearity and endogeneity could also be present to some extent in the sample data. In line with previous research, multiple linear regression was applied as it is a standard procedure for the macroeconomic gravity models of international trade and money laundering. As the MLR confirmed multicollinearity in several independent variables, this was addressed by applying stepwise regression to conservatively address the most salient predictor variables that were not as heavily influenced by covariance in the gravity model. This led to a reduction to five parameter variables – three enrichment variables and two base variables – that comprise the final regression model predicting the outcome variable, the proportion of money laundering flow between country *i* and country *j.*

Chapter 5.

Results

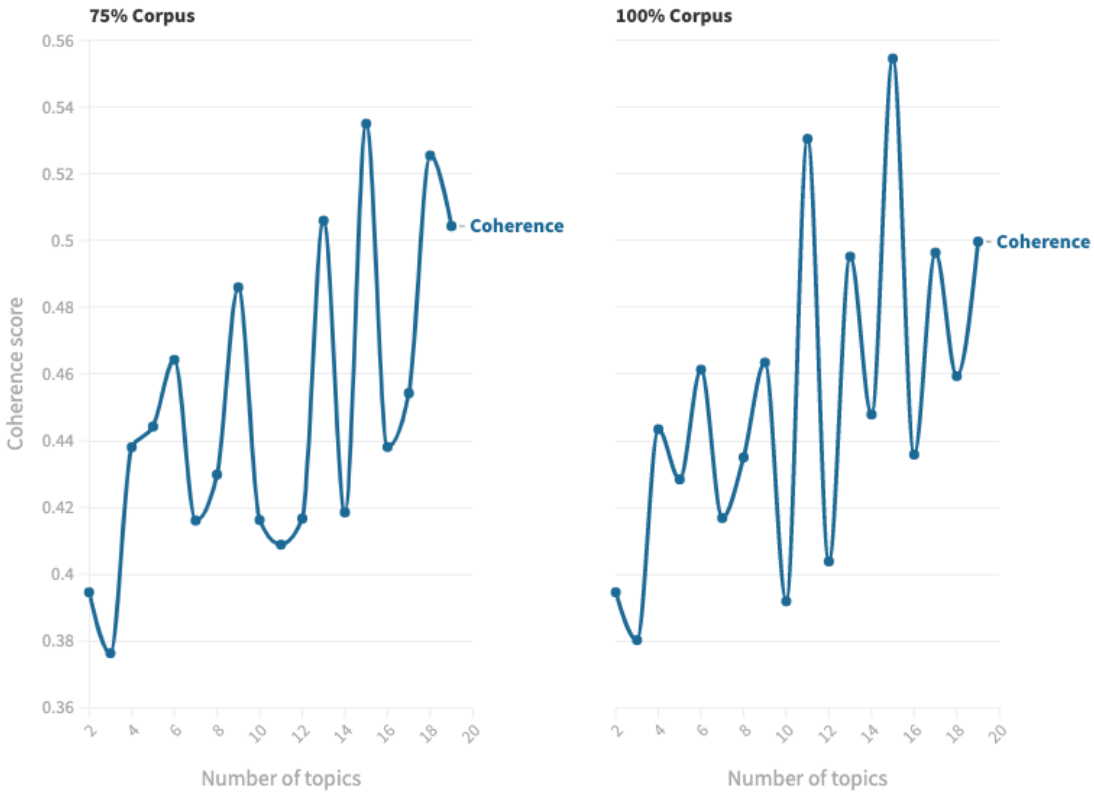
This chapter presents the evidence from the two-part study of the Vancouver model within the context of Canada's Pacific Rim strategy. The first experiment applies topic modelling algorithms to measure latent factors of the Vancouver model from text data sourced from the Cullen Commission hearing transcripts. The optimal number of topics and the quality of thematic categories were evaluated under the framework of the Pacific Rim strategy through a human-in-the-loop process to develop anchors for the second semi-supervised topic model. The resultant topics from the LDA model were divided into two categories: money laundering and administrative. The topics classified under the money laundering category were carried forward as anchor inputs for the second topic model. The CorEx model was first deployed unanchored with topics set at $k = 50$. A second-pass, anchored version was then deployed with the anchors derived from a combination of the results of both topic models. Applying both generative and discriminative approaches to fine-tuning further validates the latent factors and confounders that emerged from the sample data.

In the second experiment, the salient factors from the Part 1 experiment were correlated to measurable proxy variables, enriching the attractiveness and cultural distance indices of the gravity model. The estimation results propose an enriched calculation of the proportion of money laundering flows, deploying an adaptation of the Maloney, Somerville, and Unger (2019) model. By calculating subnational money laundering in Canada, this framework analyzes bilateral money laundering within the context of its relationship with national and subnational China. While the rigour required for the gravity model approach for estimating money laundering remains the same, this experiment nonetheless contributes to the academic ability to quantify the phenomenon without the benefit of fully reliable, accessible, and normally distributed public quantitative data.

5.1. Part 1: Thematic Content Analysis

The baseline LDA model using a BoW corpus resulted in an overall coherence score of $tcs_{BoW} = 0.380$. The baseline LDA model using a TF-IDF corpus had an overall coherence score of $tcs_{TF-IDF} = 0.420$. These were computed using the Gensim *CoherenceModel* package. The topic coherence scores chart illustrates the final LDA model selection with the fixed alpha and beta hyperparameters in Figure 5.1.

Figure 5.1 LDA (TF-IDF) Topic Coherence by Number of Topics



Hyperparameter settings: *a = symmetric, b = 0.31.*

The alpha and beta hyperparameter combinations that resulted in the highest coherence score assisted in selecting the optimal number of topics. For both 75% corpus ($c_v = 0.555$) and 100% corpus ($c_v = 0.535$) validation sets, the optimal number of topics is $k = 15$, with hyperparameters tuned at $a = symmetric, b = 0.31$. These resulted in 32.1% and 27.4% improvements over the baseline model's coherence scores, respectively. The terms with the highest saliency and relevance scores are presented in rank order by topic in Table 5.1.

Table 5.1 Tuned LDA Topic Model Results (*k* = 15)

Topic	Top 10 Most Relevant Terms by Topic
0	forfeitur, unexplain, investing[2], crime[2], wealth, order, case, inform[2], property, civil
1	cash[2], bclc[2], casino[2], patron, gpeb, investing[2], recal, player, buying, transact[2]
2	lawyer, society, rule, law, isaac, mcphee, bain, avison, ferri, jeanett
3	atm, joel, bryanna, gibbon, sharma, sushil, gateley, tradebas, paddon, trade
4	gpeb, minist, investing[2], bclc[2], graaf, vander, direct, game, polic, cash[2]
5	elgar, union, credit, inform[2], gilchrist, company[2], canada[2], bcfsa, fintrac, assess
6	countri, crime[2], page, canada, commission[1,2], martland[1,2], transact, exhibit[1,2], cash[2], data[2]
7	data[2], inform[2], registri[2], estat, real, exhibit[1,2], work[2], martland[1,2], commission[1,2], question[1,2]
8	mortgag, broker, cash[2], lender, casino[2], transact[2], okay[1], busi, regul, document[1,2]
9	registri[2], company[2], ownership, prest, inform[2], benefici[2], commission[1,2], public, reuter, registrar[1,2]
10	jin, commission[1,2], casino[2], page[1], cash[2], exhibit[1,2], liu, investing[2], registrar[1,2], wit[1,2]
11	asset, king, investing, mcmeel, cab, butler, bureau, estat, real, kevin
12	commission[1,2], document[1,2], registrar[1,2], bclc[2], exhibit[1,2], inform[2], okay[1], transact[2], investig, cash[2]
13	account, law, govern, canada[2], work[2], regul, benefici[2], ownership, feder, isaac
14	commission[1,2], wit[1,2], document[1,2], adjourn, registrar[1,2], exhibit[1,2], mcgowan, minut, hear, question[1,2]

1. Conceptually spurious term. 2. Multi-context term.

5.1.1. LDA Topic Model Interpretation

Topics inferred via the LDA method are not always straightforward. In the case of the Cullen Commission hearing transcripts, the genre and context of the text data are highly specialized and require an informed human-in-the-loop strategy to interpret. This method was enhanced with topic model visualization systems to identify related topics and subtopics. It unveiled relationships that do not necessarily agree with the standard quantitative measures of fit. The first visualization in Figure 5.2 presents the occurrence and relevance of the top 10 terms by topic across all topics. For example, Topic 12 `[commission, document, exhibit]` and Topic 14 `[commission, hear, question]` are semantically related by qualitative analysis. However, when evaluating their relative intertopic distance, such as in Figure 5.3, they are present in the same quadrant but do not overlap. However, visualizing the co-occurrence of their most relevant terms can unveil the impact that the multi-context terms have on the discrimination process.

Figure 5.2 Relevance Score Heatmap of Top Terms by Topic

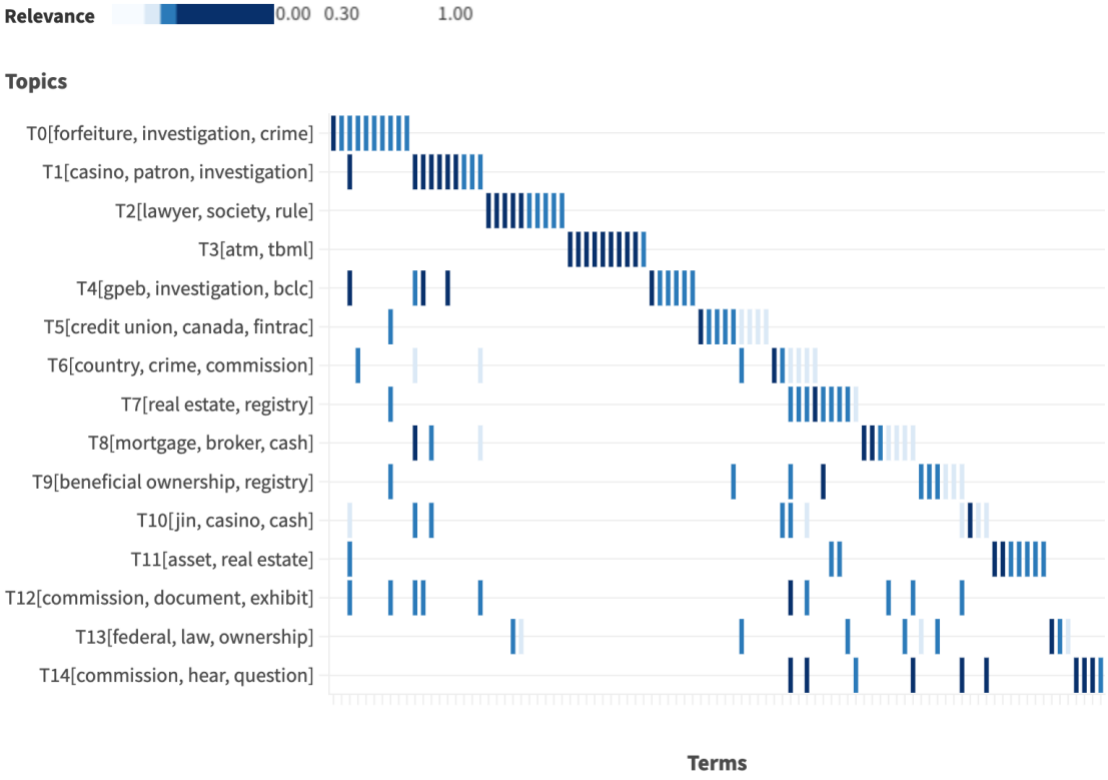
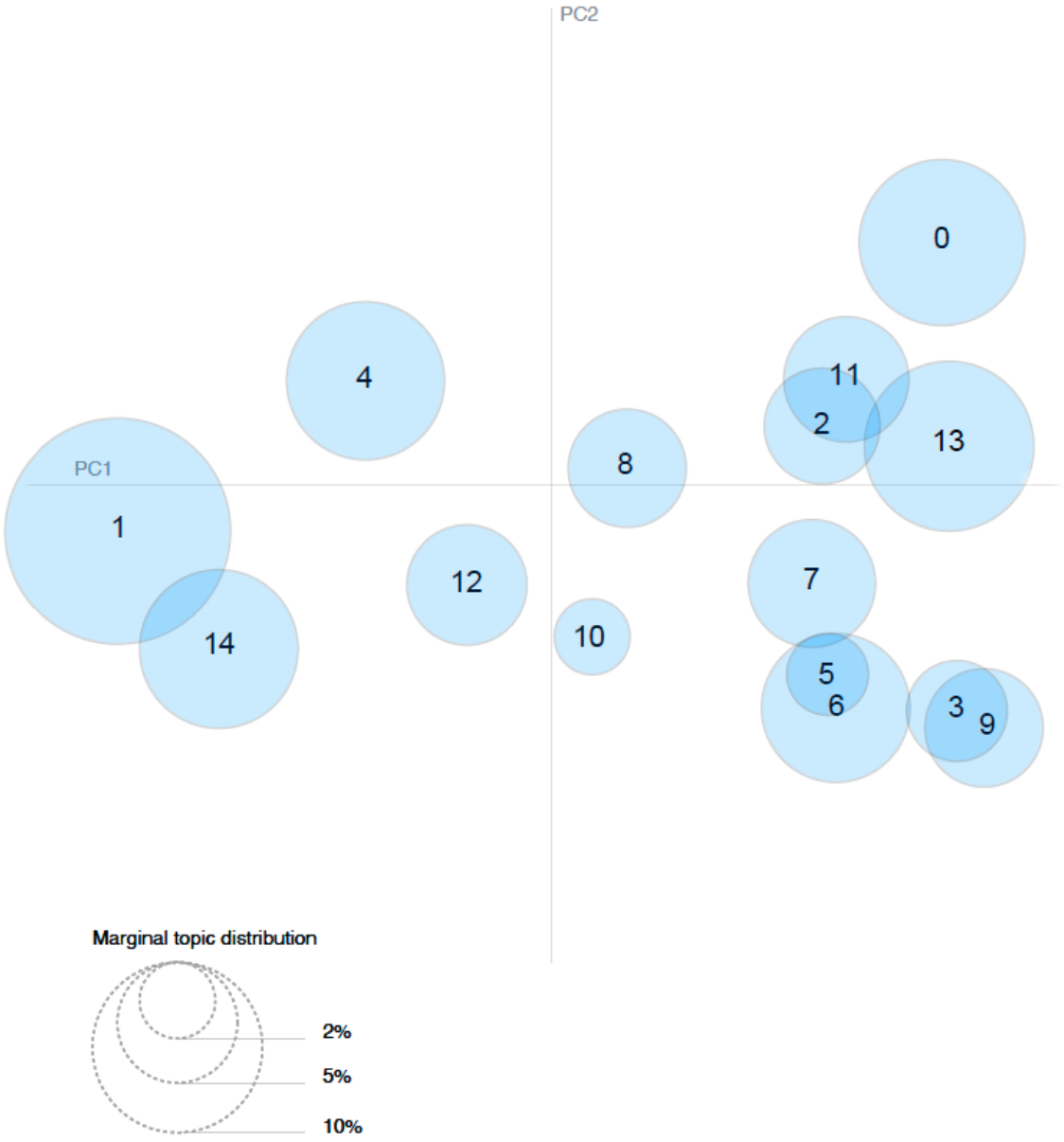


Figure 5.3 visualizes topic coherence via an intertopic distance map. The multidimensional scaling was performed using Jensen-Shannon Divergence and Principal Components Analysis for dimension reduction, with principal components represented on the x, y axes as $PC1$ and $PC2$. Each numbered topic is represented by a statistically weighted circle, where area size indicates the proportional topic weight of $circle_k$ relative to the topic distributions across total observations in the sample ($N_{page} = 17{,}431$). Distance indicates statistical nearness or farness between topics relative to each other. For example, Topic 5 `[credit union, canada, fintrac]` could be interpreted as a subtopic of Topic 6 `[country, crime, commission]`, or like Topic 3 `[atm, tbml]` and Topic 9 `[beneficial ownership, registry]` that indicate key word in context (KWIC) concordance.

Figure 5.3 LDA Model Intertopic Distance Map via Multidimensional Scaling



5.1.2. Anchor Parameter Optimization

Of the 15 topics observed from the LDA model, 13 were related to money laundering and two – Topics 12 and 14 -- were administrative concerning the public inquiry. Before anchoring, the CorEx model was deployed unanchored with the number of topics reset at $k = 50$. The results of the unanchored model are detailed in Appendix B.

Overall topic coherence was calculated based on the metric proposed by Mimno et al. (2011), resulting in a baseline total coherence score of $tcs_{unanchored} = 0.475$. Several variations and iterations of topics were employed as anchors for the tuned CorEx model. Unlike the LDA model, the CorEx model was embedded with unigrams and bigrams. However, the same dictionary generated from TF-IDF vectorization was deployed to link the two topic models. The model that resulted in the most significant improvement in total coherence score utilized 15 anchor sets, detailed in Table 5.2. The selected optimized CorEx model resulted in a total coherence score of 0.526, a 10.7% improvement over the unanchored baseline.

Table 5.2 Anchor Sets of Optimized CorEx Model (*k* = 50)

Anchor Set	Terms
Gambling	jin, cash, casino, player, gambler
Regulation and enforcement of gambling	casino, gaming, cash, bclc, gpeb
Law enforcement	law enforcement, investig, investigation
Civil forfeiture	civil forfeiture, unexplained wealth, wealth order
Real estate	real, estate, real estate
Organized crime	organized crime, cartel, triad, criminal groups
Legal profession	lawyer, law society, trust, trust account
Chinese diaspora	chinese, china, asia, diaspora
Credit union sector	credit, union, credit union
Mortgage brokerage	mortgage, broker, mortgage broker
Beneficial ownership registry	beneficial, ownership, beneficial ownership
Investment migration	investment, investor, migrant, migration, immigration, absentee, capital flight
IVTS	hawala, fei chien, money service, money services, service business, ivts, msb
International trade	trade, port, international trade, ship, freight, maritime, shipping

5.1.3. CorEx Topic Model Interpretation

The CorEx model is designed with the assumption that there is no optimal number of topics. Following the methodology of Gallagher, Reing, Kale, and Ver Steeg (2017), the number of topics was set at $k = 50$ to account for non-salient and conceptually spurious topics. By design, human-in-the-loop curation of creating anchor sets that result in the most interpretable topics was necessary. The prevalence of person names in the unigram and bigram results was traced back to the source hearing transcripts to interpret if there was a latent topic. For example, Topic 12 – Money service

businesses and FINTRAC was determined through the relationship of the hearing witnesses to a given topic or organization, in this case, FINTRAC. This vetting process was a final step before deeming a topic uninterpretable, conceptually spurious, or administrative. After several iterations, 22 interpretable topics are detailed in Table 5.3.

The CorEx model results enhance topic separability over the LDA model, as the former encourages the singular membership of words assigned to topics. While that parameter was selectively deprioritized by using multiple terms within each anchor set, the final model discovered additional and refined latent factors when paired with unigrams and bigrams of the sample data.

Table 5.3 Anchored CorEx Topic Model Results (k = 50, k' = 22)

Topic	Interpretation	Anchored CorEx Unigrams and Bigrams
1	Casino transactions	cash, casino, player, river rock, river, rock, large cash, jin, cash transactions, buyins
2	Casino regulatory bodies	bclc, gpeb, cash, casino, casinos, gaming, vander, martland, graaf, vander graaf
3	Real estate transactions	real, real estate, estate, david, unger, brigitte, brigitte unger, unger martland, ellis, stephen ellis
5	Trusts and lawyers	trust, lawyer, jeffrey simser, jeffrey, simser, mcphee, gurprit, jeanette, jeanette mcphee, bains
6	China Policy and the Five Eyes	china, countries, united, levi, michael levi, united states, world, country, uk, states
7	Financial institutions and terrorism financing	credit, financial, union, institutions, financial institutions, financing, terrorist, terrorist financing, laundering terrorist, institution
8	Mortgage brokers	broker, mortgage, brokers, rose, patel, mortgage brokers, jesse, jesse spiro, spiro, chaudhary
9	Beneficial ownership registry	ownership, beneficial, beneficial ownership, registry, transparency, dawkins, christina dawkins, peter dent, dent
10	Unexplained wealth and housing market	data, prices, jonathan, market, unexplained, housing, unexplained wealth, tax, price, bouchard
11	Money laundering and organized crime	money laundering, launder, money, crime, drugs, proceeds, proceeds crime, organized crime, organized, fentanyl
12	Money service businesses and FINTRAC	ryan, msb, achimov, donna, annette ryan, annette, mackillop, donna achimov, achimov barry, barry mackillop
13	Trade-based money laundering	trade, tradebased, tradebased money, bryanna gateley, bryanna, gateley, joel gibbons, gibbons, sharma, sushile
14	Information sharing and privacy	Information, sharing, information sharing, privacy, provide information, personal information, share information, sharing information, information provided, get information

Topic	Interpretation	Anchored CorEx Unigrams and Bigrams
17	Lottery corporation	fair, kroeker, fair say, robert kroeker, lottery corporation, corporation, lottery, Robert, agree, bank drafts
18	AML recommendations and due diligence	risk, aml, recommendations, diligence, due diligence, recommendation, compliance, due, measures, riskbased
19	Government working groups	federal, group, working group, working, government, finance, provincial, work, ministry, ministry finance
27	Vancouver model activity	rcmp, unit, policing, chrustie, calvin chrustie, calvin, chrustie examination, team, baxter, barry baxter
28	Criminal financial investigations	enforcement, law enforcement, law, suspicious transaction, fintrac, suspicious, reporting, transaction reports, reports, agencies
29	RCMP and BC politics	wayne, pinnock, tom, fred, fred pinnock, tom steenvoorden, farahbakhchian, bedford, iiget, kurt bedford
35	Civil forfeiture	legislation, forfeiture, act, civil, civil forfeiture, regulatory, court, regime, provisions, public
37	Suspicious transactions and activity	transaction, activity, reasons, suspicion, fact, circumstances, instance, party, suspicious activity, unusual
48	Bank accounts and financial institutions	account, bank, example, use, property, accounts, cases, used, bank account, purchase

5.2. Part 2: Bilateral Money Laundering Flow Estimation

5.2.1. Bivariate Analyses

Bivariate analyses of the predictor variables were conducted as a preliminary test for statistical significance and data reduction strategy. The nature of the measures, such as a correlation between related variables, can explain some significant relationships. Dummy and natural log variables that remained constant over time were excluded from bivariate analysis.

The results are generally consistent with the final research question of the current study and its associated alternative hypotheses that, at the basic level, there are some effects on the flow of money laundering by latent factors linked to Canada's Pacific Rim strategy and the Vancouver model. The complete bivariate associations are detailed in Table 5.4.

The cohort year of the sample data had several significant relationships with the enrichment and base variables. The overall positive correlations could be attributed to the increased rise and volume of money laundering activities within BC and Canada.

Any changes in the strength of correlation or rate of activities factored into the Vancouver model might be attributed to the increased general public's awareness and the BC and Canadian governments' increased accountability in addressing money laundering concerns.

For the proportion of money laundering flow between the Pacific Rim country participants and BC or Canada, the relationship between Pacific Rim strategy factors within the Vancouver model is well supported by the sample data. There are strong correlations between the cultural distance characteristics of the Chinese diaspora, Vancouver model and TOC activity, common language, and shared colonial history. The measures of the value of non-PCMLFTA seizures, commercial gambling net revenue, LCTRs from casinos, number of registered MSBs, number of cross border LCTRs, UN diplomatic disagreement score, ratio of bank deposits to GDP per capita, trade balance, and physical distance between countries also indicate statistical significance.

The value of non-PCMLFTA seizures strongly correlates with the dummy variable for the Vancouver model and TOC activity. This could be attributed to a latent factor of low criminal law enforcement and effective prosecution of these types of criminal activity. According to the research, when there has been inadequate resourcing or appetite to prosecute money laundering as a criminal offence, these cases are often then pursued by other means with a lower threshold for evidence, such as civil asset forfeiture. Civil asset forfeiture also indicates statistically significant correlations with commercial gambling net revenue, LCTRs at casinos, number of registered MSBs, real estate investment, volume of cross border LCTRs, and ratio of bank deposits to GDP per capita.

It can be inferred that with the introduction of beneficial ownership registries in BC, there is a positive correlation with several cultural distance factors. This pattern suggests that this change in provincial legislative powers has affected the relative impact of common latent factors of the Pacific Rim strategy and the Vancouver model. Attractiveness index factors of commercial gambling net revenue, outcomes of criminal financial investigations, conventional mortgage lending rate, and TI corruption perceptions index indicate a slight yet statistically significant positive relationship. Unsurprisingly, a small inverse relationship exists between beneficial ownership registries and real estate investment in building construction.

Table 5.4 Bivariate Associations for Estimating the Gravity Model

	Year	f	AF	BO	CB	CT	FI	LC	MLC	MSB	MB	TI	RE	ST	CD	FC	DD	VT	GDPpc:j	BD	comm lang	colony	trade	distance	migrants
Year	-																								
f	.16[b]	-																							
AF	.00[b***]	.58[c**]	-																						
BO	.90[b]	1.99[a]	.14[c]	-																					
CB	.62[b]	.59[c**]	.97[c**]	.19[c*]	-																				
CT	.38[b]	.59[c**]	.98[c**]	.18[c]	1.00[c**]	-																			
FI	.00[b***]	.00[c]	.00[c]	.21[c*]	.12[c]	.09[c]	-																		
LC	73.23[b***]	-.09[c]	-.32[c**]	.15[c]	-.08[c]	-.13[c]	.43[c**]	-																	
MLC	7.64[b***]	-.08[c]	-.17[c]	-.09[c]	-.18[c]	-.18c	-.28[c**]	-.03	-																
MSB	3.41[b***]	.51[c**]	.86[c**]	.01[c]	.78[c**]	.80[c**]	-.50[c**]	-.47[c**]	.01[c]	-															
MB	.00[b***]	.04[c]	.00[c]	.20[c*]	.16[c]	.13[c]	.63[c**]	.56[c**]	-.12[c]	-.31[c**]	-														
TI	.00[b***]	.03[c]	.00[c]	.21[c*]	.15[c]	.12[c]	.89[c**]	.57[c**]	-.23[c*]	-.45[c**]	.63[c**]	-													
RE	43.48[b***]	-.16[c]	.27[c**]	-.24[c*]	-.38[c**]	-.36[c**]	-.89[c**]	-.38[c**]	-.39[c**]	.23[c*]	-.55[c**]	-.79[c**]	-												
ST	5.54[b***]	.52[c**]	.79[c**]	.26[c**]	.86[c**]	.85[c**]	.13[c]	.08[c]	-.10[c]	.63[c**]	.14[c]	.23[c*]	-.32[c**]	-											
CD	.00[d]	14.58[a***]	.00[a]	5.75[a*]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	-										
FC	.00[d]	.05[a]	.00[a]	13.61[a***]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	345.60[c***]	-									
DD	.00[b***]	.73[c**]	.00[c]	37.80[a***]	.00[c]	.00[c]	.00[c]	.00[c]	.00[c]	.00[c]	.00[c]	.00[c]	.00[c]	.00[c]	345.60[a***]	.	-								
VT	.00[d]	12.11[a***]	864.00[a***]	.93[a]	98.57[a***]	154.44[a***]	.00[a]	.46[a]	3.47[a]	9.46[a**]	.00[a]	.00[a]	4.29[a*]	3.80[a*]	54.00[a***]	18.33[d***]	86.40[a***]	-							
GDPpc:j	5.66[b***]	-.04[c]	.01[c]	-.07[c]	-.17[c]	-.05[c]	-.04[c]	-.48[c**]	.20[c*]	.05[c]	.05[c]	-.19[c*]	.31[c**]	-.11[c]	.00[a]	.00[a]	.00[c]	5.09[a*]	-						
BD	4.51[b***]	.48[c**]	.81[c**]	.00[c]	.81[c**]	.75[c**]	-.55[c**]	-.42[c**]	-.02[c]	.97[c**]	-.37[c**]	-.45[c**]	.22[c*]	.58[c**]	.00[a]	.00[a]	.00[c]	1.86[a]	-.17[c]	-					
commlang	.00[d]	14.58[a***]	.00[a]	5.75[a*]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	345.60[a***]	54.00[a***]	.00[a]	.00[a]	-				
colony	.00[d]	14.58[a***]	.00[a]	5.75[a*]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	.00[a]	345.60[a***]	54.00[a***]	.00[a]	.00[a]	110.00[d***]	-			
trade	.02[b]	.50[c**]	-.08[c]	.08[c]	-.08[c]	-.08[c]	-.03[c]	.02[c]	.01[c]	-.06[c]	-.03[c]	-.03[c]	.03[c]	-.07[c]	61.17[a***]	859.14[a***]	.920[c**]	40.31[a***]	-.05[c]	-.04[c]	61.17[a***]	61.17[a***]	-		
distance	9.54[b***]	.75[c**]	.01[c]	.27[c**]	.01[c]	.01[c]	.00[c]	.00[c]	.00[c]	.01[c]	.00[c]	.00[c]	.00[c]	.01[c]	308.17[a***]	187,761.63[a***]	.68[c**]	6.86a**	.00[c]	.01[c]	308.17[a***]	308.17[a***]	.36[c**]	-	
migrants	.00[b***]	.00[c]	.00[c]	.21[c*]	.12[c]	.09[c]	1.00[c**]	.43[c**]	-.28[c**]	-.50[c**]	.63[c**]	.89[c**]	-.89[c**]	.14[c]	.00[a]	.00[a]	.00[c]	.00[a]	-.04[c]	-.55[c**]	.00[a]	.00a	-.03[c]	.00[c]	-

Statistical results for estimating Eq. (8). DV = $\ln(f_{i,j,t})$. All variables are in logs.

a. Independent samples t-test. b. One-way ANOVA. c. Pearson correlation. d. $\chi 2$ test.

***p<0.001, **p<0.01, *p<0.05

The most robust relationship between Canadian commercial gambling net revenue is with the dichotomous variable flagging Vancouver model and TOC activity. There are also positive correlations between the number of registered MSBs, cross border LCTRs, and the ratio of bank deposits to GDP per capita, all of which are primary money laundering typology indicators of the Vancouver model. There is a slight inverse correlation with the amount of real estate investment in building construction. Lastly, there is a correlation between commercial gambling net revenue and LCTRs at casinos, which could be attributed to the inherent relationship of cash flows into casinos and its impact on the revenue of these businesses. Similarly, LCTRs at casinos strongly correlate with the Vancouver model and TOC activity indicator. It also bears a significant positive correlation with the number of MSBs, cross-border LCTRs, and the ratio of bank deposits to GDP per capita and an inverse relationship with real estate investment in building construction.

The sample data indicate that criminal financial investigations measured by the outcomes of prosecuted PCMLFTA charges positively correlate with the attractiveness indicators of ticket lottery net revenue, the conventional mortgage lending rate, TI corruption perceptions index, and migrant stock. This factor exhibits an inverse relationship with money laundering-as-a-crime non-conviction rates, the number of registered MSBs, real estate investment in building construction, and the ratio of bank deposits to GDP per capita.

Ticket lottery net revenue at face value bears statistically significant relationships with several attractiveness index measures. A slight positive relationship exists between the conventional mortgage lending rate, TI corruption perceptions index, and relative migrant stock. There are also slight inverse relationships with the number of registered MSBs, real estate investment in building construction, GDP per capita, and the ratio of bank deposits to GDP per capita. While the reason for these correlations is not apparent based on the study thus far, they behave similarly to the latent factor for criminal financial investigations. Further, there might be a sociodemographic explanation underlying the nuanced connection between participating in ticket lotteries and the attractiveness indicators representing an economy's general health.

Money laundering as a crime has exhibited statistically significant inverse correlations with several parameters. The factors represented by the TI corruption

perceptions index, real estate investment, and relative migrant stock also bear this relationship. This factor was measured by the non-conviction rate of money laundering-related charges, which is also captured by its inverse relationship with the factor for criminal financial investigations due to the low rate of convictions or "positive" enforcement outcomes stemming from these types of criminal charges from the PCMLFTA and Criminal Code.

Registered MSBs and IVTS are primary facilitators of the Vancouver model and inherently capture the significant effect of international financial flows on a local economy. The Vancouver model and TOC activity indicator is the strongest correlating measure that supports this. There are also positive correlations, albeit by a smaller factor, between real estate investment, cross-border LCTRs, and the ratio of bank deposits to GDP per capita that support this observation. Conversely, there is an inverse relationship between the number of registered MSBs and the conventional mortgage lending rate, TI corruption perceptions index, and relative migrant stock. While speculative, the underlying cause might be that if the rate of outbound international financial flows is high, that constrains the capability for local investment.

The conventional mortgage lending rate was selected as a measurable proxy variable to represent the overall health of the real estate sector and, by extension, for regions that heavily rely on that sector, the greater the stability of a country's economy. As discussed with several of the previously examined bivariate associations, mortgage brokerages as a latent factor also exhibits statistically significant relationships with the general public's perception of the police and public officials through the TI corruption perceptions index and relative migrant stock between two countries. The conventional mortgage rate also has an inverse relationship with real estate investment, which is a natural correlation, as investors are less incentivized to purchase real estate when higher lending rates negatively impact their returns on investment. Similarly, there might be an inverse relationship to the estimated size of the financial banking sector when its customers might have less financial stability.

There have been several statistically significant relationships between the latent factor of trust in the RCMP (or, more generally, the police) and government, represented by the TI corruption perceptions index, which is an aggregated risk factor to estimate the trustworthiness of public officials. Some associations might appear paradoxical at first

evaluation but rather might support the news media reports, anecdotal observations, and witness testimony from the Cullen Commission attributing the greater problem of money laundering as inextricably tied to the professional enablers, facilitators, and government officials that economically and socially benefit from money laundering as a hybrid threat to the economy security of Canada.

Real estate was one of the first sectors of the economy investigated by the BC government with the launch of their public inquiry into money laundering. This supports the strong statistical correlation with the Vancouver model and TOC activity dummy variable. The measures of an economy's health, such as the GDP per capita and the ratio of bank deposits to GDP per capita, are naturally correlated with the real estate sector, especially in the case of BC, where real estate is one of its highest performing economic sectors. There is a slight inverse relationship between cross-border LCTRs, which might appear paradoxical but could also support the use of IVTS as a leading typology indicator of the Vancouver model. As such, the lower rate of cross-border LCTRs could be due to large volumes of cash not being utilized as the primary method of international financial flows. Similarly, the inverse relationship between real estate investment and relative migrant stock is initially not apparent. However, it might indicate the overall increased unaffordability of real estate to the average local population residing in the destination region.

Lastly, some bivariate associations can be attributed to the natural relationship between variables, particularly in the cultural distance characteristics representing the sociodemographic dynamics of the Pacific Rim strategy and the Chinese diaspora.

5.2.2. Principal Component Analysis

A series of factor analyses were conducted in furtherance of the data reduction strategy with the proportion of bilateral money laundering flow and the attractiveness and cultural distance variables of interest. The focus was to identify how measures grouped and to maximize parsimony. Initially, the gravity estimation model had 33 input variables. After bivariate analyses, 23 variables were selected as inputs into the reported principal components model. For attractiveness index parameters, the following variables were included: GDP per capita, the ratio of bank drafts to GDP per capita, civil asset forfeiture, beneficial ownership registry, casino regulatory bodies, casino transactions, criminal

financial investigations, information sharing and privacy, lottery corporation, money laundering as a crime, money services business, mortgage brokers, RCMP and politics, real estate, suspicious transactions and activity, trusts and lawyers, and unexplained wealth and housing market. For cultural distance characteristics, the following variables were included: Chinese diaspora, common language, colony, fei ch'ien networks, China policy and Five Eyes, and Vancouver model and TOC activity.

A six-component solution was first determined using an eigenvalue greater than 1. The Kaiser-Meyer-Olkin measure of sampling adequacy equates .61, and Bartlett's test of sphericity violated the null hypothesis, $\chi^2 = 5303.93$ ($p<.001$). Observing the component matrix rotated by Direct Oblimin with Kaiser normalization, measures with factor loadings of less than .50 and within components containing less than two measures were subsequently excluded. This decision was based on the rotated component matrix detailed in Table 5.5. 17 variables were grouped into four components, while GDP per capita, beneficial ownership registry, money laundering as a crime, real estate, common language, and colony were excluded from the factor reanalysis.

The results of the PCA can be interpreted as follows: Component 1 thematically relates to the financial aspects of money laundering. Component 2 centres around law enforcement and investigative factors. Component 3 relates to international policy and diplomatic factors. Lastly, Component 4 groups the environmental factors of the Vancouver model.

Table 5.5 Rotated Component Matrix of PCA, Oblimin with Kaiser Normalization

	Component			
	1	**2**	**3**	**4**
Enrichment variables				
Civil asset forfeiture	**.98**	.01	.00	-.05
Casino regulatory bodies	**.98**	.17	.00	-.04
Casino transactions	**.98**	.13	.00	-.04
Criminal financial investigations	-.05	**.97**	.00	.00
Lottery corporation	-.19	**.54**	.00	.04
Money services business	**.87**	-.47	.00	-.04
Mortgage brokers	.03	**.77**	.00	.02
RCMP and politics	.00	**.92**	.00	.00
Suspicious transactions and activity	**.97**	.21	-.01	.26
Chinese diaspora	.01	.01	**.96**	.03
Fei ch'ien networks	.02	.01	**.88**	.54
China policy and Five Eyes	.02	.01	**.88**	.54
Vancouver model and TOC activity	-.33	-.02	.17	**.74**
Base variables				
Ratio of bank drafts to GDP per capita	**.83**	-.53	.00	-.04
Trade	-.07	-.05	**.79**	.26
Distance	.05	.00	.38	**.84**
Migrants	-.05	**.97**	.00	.00

a. Rotation converged in 5 iterations.

5.2.3. Multiple Regression Analysis

As the final step, multiple regression was calculated to predict the proportion of bilateral money laundering flow between country *i* and country *j*. With each model, the input variables were evaluated for their contribution to the outcome variable. Therefore, with each model iteration, a variable will not be guaranteed to remain in the model as it progresses to the next step. However, excluded variables from a previous step could be added back depending on the best combination of their individual contributions to the significant variance of the dependent variable. Because of the underlying issues of multicollinearity, a stepwise approach was taken to determine the best version of the final regression model. This procedure was used as the threshold to reduce, but not eliminate, structural multicollinearity. The results are detailed in Table 5.6.

Table 5.6 Multiple Regression Model of the Sample

	Proportion of bilateral money laundering flow				
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
	β (SE)	**β (SE)**	**β (SE)**	**β (SE)**	**β (SE)**
Casino regulatory bodies[a]	4.58 (.60)***	4.58 (.26)***	4.06 (.12)***	4.06 (.11)***	4.62 (.08) ***
Fei ch'ien networks[a]		13.10 (.61)***	26.68 (.68)***	27.40 (.69)***	4.57 (1.78)*
Trade[b]			-4.74 (.22)***	-4.74 (.21)***	.91 (.45)*
Chinese diaspora[a]				-1.09 (.34)**	-1.00 (.21) ***
Distance[b]					1.04 (.08) ***
Constant	15.18 (4.14)***	7.32 (1.83)***	-4.27 (.96)***	-4.27 (.92)	14.63 (1.54)***
Adjusted R^2	.34	.88	.98	.98	.99

a. Enrichment variable. b. Base variable from Maloney, Somerville, and Unger (2019).
***p < .001, **p < .01, *p < .05

The overall model indicated noteworthy results, taking a conservative and aggressive approach to reporting the most influential and independent parameters that affect the outcome variable. As such, the 17 input variables across four components were reduced to five variables in the final model, representing Components 1, 3, and 4 from the PCA procedure. A significant regression was demonstrated in Model 1, F = 57.50 (p < .001), with an adjusted R^2 of .34. However, the most impact on the overall model came from the addition of fei ch'ien networks in Model 2, significantly improving the explained variable from .34 to .88 adjusted R^2 (ΔR^2 = .54) of the dependent variable, F = 386.01 (p < .001). By Model 3, F = 1,524.85 (p <.001), the adjusted R^2 increased to .98 with the addition of trade as a predictor variable. Model 4, F = 1,247.27 (p < .001), and Model 5, F = 2,684.82 (p < .001), indicated statistically significant additions of Chinese diaspora and distance as predictor variables, albeit minor effects on the adjusted R^2 as .98 and .99, respectively.

The Durbin-Watson statistic was .43, which indicated positive autocorrelation and that previous years positively correlated with the following years. Due to the nature of the time series data, this is anticipated and, therefore, not concerning because the time dimension was intentionally excluded from the research questions and hypotheses. This supports a pattern of money laundering behaviours that progress every year without the addition of meaningful adaptive controls. Because of the nature of the research questions and quasi-econometric procedure, efforts to reduce the influence of multicollinearity were made, but they did not completely resolve it. For example,

implementing a stepwise regression assisted in optimizing the final model and reduced Variance Inflation Factors of the independent variables in a block if entered in a single step. Results from the Breusch-Pagan test rejected the null hypothesis of homoscedasticity for Model 1 at $F = 47.34$ ($p < .001$), Model 2 at $F = 32.68$ ($p < .001$), Model 3 at $F = 41.63$ ($p < .001$), Model 4 at $F = 43.90$ ($p < .001$), and Model 5 at $F = 43.90$ ($p < .001$). Therefore, heteroscedasticity was present in the overall model at all steps.

Chapter 6.

Discussion

The final chapter provides a comprehensive assessment of the current study with respect to its research questions and hypotheses. Additionally, this thesis contributes to the evolving practice of crime science and pre-emptive analytical interventions to make informed, proactive, and nimble uses of human, technological, and financial resources that face real-world constraints. For example, the considerable challenge of interpreting a large volume of unstructured data, such as the Cullen Commission hearing transcripts, is a too common resourcing issue that continues to burden Canadian law enforcement, regulators, and policy researchers and practitioners. While the mixed methods computational linguistics and econometric approaches to threat and risk assessment were not the focus of this thesis, exploration of this analytic strategy was a proof of concept that distilled over 17,000 pages of unstructured data thematically as 22 latent factors represented by publicly available proxy variables within a singular structured sample dataset. By creating a neural network base for future research, more evolutionary learning could be discovered over time as the model ingests more data. This methodological framework could, therefore, improve the accessibility to knowledge discovery that might otherwise be dependent on the "wet finger estimates" by experts, negotiation of access to privileged data sources, or budget allocation of a government department's next fiscal year.

This chapter begins by discussing the main findings of the two-part study, evaluating the research questions and hypotheses by conducting a threat and risk assessment of the identified latent factors as they pertain to hybrid threats of money laundering activities in BC and Canada. It then presents a general discussion of the overall contributions of this thesis, which unravels the complexities of Canada's Pacific Rim strategy and its impact on security and socioeconomic dynamics that underpin the Vancouver model. Next, the limitations of the study are briefly discussed, including the challenges faced with data quality and limited country scope to provide a balanced assessment. This chapter also explores the broader implications and theoretical significance of the findings. It suggests avenues for future advancements in

understanding and addressing the multifaceted challenges presented by these research questions.

6.1. The Role of Canada's Pacific Rim Strategy in the Rise of the Vancouver Model

This study evaluated the Pacific Rim strategy's enduring influence on the Vancouver model of money laundering. The findings from the thematic content analysis of the Cullen Commission hearing transcripts and the enriched Walker-Unger gravity model tailored to the latent factors of the Vancouver model broadly support this relationship. This section contextualizes some of these factors of the Vancouver model within the policy framework of the Pacific Rim strategy, as previously described in section 2.3. The PCA grouped 17 variables: 13 enrichment variables and four base variables (including trade and geographic distance) from the Maloney, Somerville, and Unger (2019) model. The final regression model narrowed these down to five critical socioeconomic, cultural, and structural economic factors, which can be linked to economic prosperity policies of the Pacific Rim strategy such as:

1. **Economic integration** emerges as a crucial factor, with the sample data pointing to potential correlations between economic integration and trade relationships within the Pacific Rim region. This connection supports the study's findings that suggest that money laundering activities in Vancouver may be linked to IVTS operations, cross-border financial transactions, trade-based money laundering, and the globalization of local markets, underscoring the intricate economic dynamics at play.

2. **Cultural dynamics and immigration patterns** also come to the forefront, as insights gleaned from the transcripts may correlate with the influence of diaspora communities from across the Pacific Rim migrating to Canada through BC. The potential exploitation of the social ties and guanxi fostered within these communities for money laundering activities adds a layer of complexity to understanding the socio-cultural aspects contributing to the Vancouver model while simultaneously cementing the vital role these factors play in fostering and protecting integrated communities.

3. **Security and defence cooperation**, as discussed in the transcripts, may correlate with national security vulnerabilities that facilitate money laundering and IFFs.

4. **Infrastructure development** emerges as a noteworthy factor, with discussions on projects and investments within the Pacific Rim region

potentially correlating with exploiting Vancouver's real estate and construction sectors for money laundering and capital flight.

5. **Environmental and resource management** discussed in the transcripts may correlate with exploiting natural resources and environmental regulations for illicit financial activities, leading to questions about global competitive advantage and how trade has impacted the flow and volume of money laundering through these mechanisms.

These correlations provide valuable insights into the intricate interplay between the core policies of the Pacific Rim strategy and the most salient factors contributing to the money laundering problem in BC and Canada, offering a nuanced understanding of this complex issue.

6.2. Threat and Risk Assessment

This threat and risk assessment evaluates the results from the two-part study detailed in Chapter 4 and Chapter 5. This section explains how the objectives were fulfilled and the key conclusions and contributions that emerged from the policy and data analyses.

Overall, the three research questions are broadly supported by the results of the thematic content analysis and bilateral money laundering flow estimations using the gravity model. The public narrative is that the Vancouver model, first characterized by Langdale (2017), has demonstrably integrated and adapted to the cultural, geopolitical, legislative, and economic changes within the socioecological landscape of Metro Vancouver, BC, and Canada as a whole. The sophistication and evolution at the macroeconomic level are supported by social disorganization theory as, despite the several AML/CFT controls in place, social convention through law enforcement's inability to successfully disrupt, prosecute, and convict criminal money laundering activity has weakened the credibility of and public trust in the BC and Canadian criminal justice systems. Specific to BC, the rising inequality and erosion of the middle class create a vacuum to exploit established illicit drug trafficking networks, tourism, and an international, absentee class. Despite rather sophisticated AML/CFT controls in place, government and a culture of compliance are not nurtured to cooperate when the economic prosperity and national security risk changemakers and policy leaders are not seated at the same table.

6.2.1. Assessing How Canada's Pacific Rim Strategy Has Weakened BC's Capability to Combat Money Laundering

The first research question sought to identify the elements of Canada's collective policies and legislation of its post-WWII Pacific Rim strategy that rendered BC increasingly vulnerable to money laundering. Since China's industrial revolution in the late 1980s to 1990s, while in several ways benefitting from the internationalization of a provincial economy as Canada's Gateway to the Pacific, the economic and social impacts are not experienced equally by all participants in the local population. The first research question was stated as follows:

1. What factors of Canada's Pacific Rim strategy have weakened British Columbia's ability to counteract the threat of money laundering?

Many of these factors, such as the exponential growth in size and valuation of the real estate sector, have become double-edged swords in creating new economic opportunities for some and decreasing accessibility to an affordable cost of living for others. According to Part 1 of the current study, 22 topics relevant to or affected by Canada's Pacific Rim strategy were also demonstrably discussed throughout the Cullen Commission hearing transcripts distributed across three main themes:

Table 6.1 Topics from the Cullen Commission Hearing Transcripts

Theme	Topic
Financial transactions and money laundering	Casino transactions Real estate transactions Financial institutions and terrorist financing Mortgage brokers Unexplained wealth and the housing market Money laundering and organized crime Money services businesses and FINTRAC Trade-based money laundering Lottery corporations Anti-money laundering recommendations Suspicious transactions and activity Bank accounts and financial institutions Financial transactions and money laundering

Theme	Topic
International relations and policy	China policy and the Five Eyes Information sharing and privacy Vancouver model activity RCMP and BC politics
Legislative and regulatory framework	Casino regulatory bodies Trusts and lawyers Beneficial ownership registry Government working groups Criminal financial investigations Civil forfeiture

At the same time, discretization of several variables from the empirical study in Part 2 was impossible due to the natural covariance of several contributing factors of economic prosperity agendas and enforcement efforts to combat money laundering. It is not only an empirical problem but also represents the complexity and difficulty in counteracting the threat of money laundering without weakening some key contributors to Canada's prosperity agenda.

6.2.2. Mitigating BC and Canada's Existing Vulnerabilities to Hybrid Threats Leveraging Money Laundering

As foundational components of the Vancouver model emerged as early as the 1990s, the second research question aimed to assess BC's situation specifically:

2. What factors remain vulnerable despite the countermeasures implemented to strengthen strategies against hybrid threats via money laundering?

In evaluating BC's current capability to combat money laundering, many of the 101 recommendations set forth by the Cullen Commission have been set in motion or implemented. At the time of publication of this thesis, 18 months have passed since the publication of the Cullen Commission's final report. However, most of its recommendations require several years of consultation, resourcing, coordination, and implementation. Most factors of Canada's Pacific Rim strategy will leave BC exposed to hybrid threats via money laundering or weakened as long as inter-governmental,

regulator, and business sector information-sharing practices lack a unified and collaborative compliance framework.

BC is in the early stages of the post-Cullen Commission era. With that, several legislative and policy amendments are underway. At a high level, public-private partnerships like CIFA-BC have been formed to better share information across law enforcement partners and regulated sectors with an anti-money laundering mandate.

However, the traditional path to prosecution does not work, and their deterrence effects are moot. For law enforcement, there is a risk aversion at several levels to target this illicit activity. For Crown at the PPSC, the findings suggest hesitation to pursue charges because there is a lack of precedent and less than prescriptive language in parts of the current laws such as the Criminal Code, PCMLTFA, and Bank Act at the federal level, and provincial legislation like the BC Securities Act and Financial Services Authority Act (Bank Act, 1991; Securities Act, 1996; Financial Services Authority Act, 2019).

The Vancouver model will continue to quickly adapt to support unlawful and criminal activity as long as the predicate crimes are successful and illicit proceeds in need of cleansing are generated. The hybrid threats will continue to get more diverse, and the clientele and predicate crimes will lead these changes. With rapid innovation and globalization, there is increasingly less reliance on fiat currency due to a more significant technological shift to cyber, artificial intelligence, and blockchain to facilitate monetary flow.

For some factors, particularly cultural distance characteristics, there needs to be more societal appetite to strengthen its compliance measures, such as a more risk-based regulatory approach to the entities within IVTS networks operating in BC as MSBs. Other cultural distance characteristics, such as shared language or colonial history, are conceptually impossible or unreasonable to deter. These are, therefore, suitable areas for prevention and knowledge mobilization programs. Overall, the current study has broadly proven the hypothesis that attractiveness and cultural distance factors demonstrated in the Vancouver model are also factors in Canada's Pacific Rim strategy. While several mitigation strategies can be implemented, many of these attractiveness and cultural distance factors are woven into the social fabric of Canadian society. They

should be approached as opportunities to foster resilience and awareness in those communities.

6.2.3. Identifying Typologies of the Vancouver Model that Impact the Proportion of Money Laundering Flow

The third and final research question adopts target prioritization and resource management strategies. Given the known resource constraints and multiple covariances of factors in the Vancouver model, public awareness, prevention, and enforcement efforts must be strategically prioritized by return on investment, identifiable cause and effect, and feasibility. The question was stated as follows:

3. What factors indicative of the Vancouver model affect the estimated proportion of money laundering flow between Canada and China?

In the calculation of the enriched gravity model of money laundering, the multiple linear regression model started with 33 predictor variables, with 19 of those variables representing the latent factors discovered from Part 1 of the study in addition to the 14 base variables from the Maloney, Somerville, and Unger (2019) version of the gravity model. The bivariate analyses indicated that 23 out of the 33 independent variables were statistically significant at some level. In consideration of the proportionality of the number of parameters within the model and the number of observations included in the sample data (n = 110), PCA as a dimension reduction strategy was employed to conservatively identify the factors that demonstrated the highest and most salient impact on the dependent variable, the proportion of money laundering flow. From 17 predictor variables (13 enrichment variables and four base variables), the final regression model was able to isolate the five predictor variables with the most significant and independent effects on the dependent variable.

The most impactful factors of the Vancouver model in ranked order are summarized in Table 6.2. All three enrichment factors are unique to the Vancouver model describing socioeconomic cultural factors and outrank the structural economic factors in terms of relative impact on money laundering activity.

Table 6.2 Most Vulnerable Factors of the Vancouver Model of Money Laundering

Source	Category	Factor
Enrichment variables	Socioeconomic cultural	1. IVTS, e.g. fei ch'ien 2. Casino regulatory bodies 3. Chinese diaspora
Base variables[2]	Structural economic	4. Trade 5. Geographic distance

The structural economic factors of trade and geographic distance support previous research validating the gravity model as an economic tool to estimate flow (Ferwerda, et al., 2011; Ferwerda, van Saase, Unger, & Getzner, 2020; Pfaffermayr, 2020; Maloney, Somerville, & Unger, 2019). What are of particular interest are the measurable variables from the Maloney, Somerville, and Unger (2019) gravity model that exhibited the most impact on the dependent variable: The measures of trade and distance as salient indicators affecting the proportion of money laundering flow are noteworthy, as they are also the standard measures for any economic gravity model, such as for the calculations of international trade and trade-based money laundering flows (Ferwerda, et al., 2011; Ferwerda, van Saase, Unger, & Getzner, 2020). Therefore, the findings validate the basic notion that the foundation of any economic gravity model comprises these two factors.

At the same time, the results of this study call into question the suitability of the attractiveness and cultural distance index factors selected by Maloney, Somerville, and Unger (2019) in their estimation of money laundering impacting BC and Canada. While two base variables – the ratio of bank drafts to GDP per capita and migrants – emerged from the four-component PCA, neither had statistically significant effects to be retained in the final multiple regression model. This might be a supplementary explanation for the potential underestimation of money laundering in BC, according to the Maloney, Somerville, and Unger (2019) study, and merits a deeper investigation for future research.

It is a fact that the most challenging money laundering activities to detect, deter, and disrupt are primary contributors to what makes the Vancouver model of money

[2] Maloney, Somerville, and Unger (2019).

laundering unique: A robust luxury real estate market, attractive casinos and gaming entertainment, and a well-positioned international port city. At the same time, these factors also entice organized crime and nation-state threat actors to exploit the same networks as the globally dispersed Chinese diaspora and high-roller gamblers. Meanwhile, professional enablers benefiting from the increased local investment encourage these vulnerabilities and cultures of complicity in the affected regulated business sectors to manage and move wealth, including those stemming from illicit finance and unexplained origins.

Finally, the findings suggest three focus areas for implementing education, regulation, enforcement, or outreach strategies as part of the government response to money laundering: Fei ch'ien networks, casino regulatory bodies, and the Chinese diaspora communities. According to the study results, these focus areas have the highest chance of return on investment for future efforts to combat money laundering in BC and Canada across the relevant stakeholders that bear that operational mandate.

6.3. General Discussion

This thesis aims to contribute to the growing body of knowledge and field of practice of anti-money laundering efforts from a Canadian perspective. Together, the chapters illustrate the complexity and entanglement of the problem of money laundering in BC and Canada from the perspectives of law enforcement, regulators, and policymakers. By leveraging quantitative and machine learning frameworks, this study has demonstrated which areas of computational design and human-in-the-loop process automation can be leveraged to accelerate and inform the regulatory and criminal justice systems at a strategic scale.

Chapter 1 provided a comprehensive overview of the money laundering process and cycle by reviewing the previous literature and synthesizing its definition for the Canadian context. Overall, this thesis is one of the first research efforts to evaluate the Vancouver model academically and empirically with whole-of-government law enforcement and regulatory considerations.

Chapter 2 contextualized the public and expert narrative of the Vancouver model of money laundering from a national security lens. It highlighted the separation of

discourse between the economic prosperity and national security risk agendas that the Canadian government has persisted. These have aggravated the extent and maturation of money laundering as a feasible criminal pursuit due to its low disruption rate, lower prosecution rate, and even lower conviction rate, particularly in BC and Canada compared to its strategic partners across the FVEY and worldwide. Also akin to its strategic partners, the ongoing geopolitical tensions that have arisen in recent years due to the increasing domination of China as a competing global superpower have positioned Canada to expose its softened underbelly as a middle power. However, this chapter also highlighted that from a policy and legislative perspective, Canada and BC have demonstrated considerable changes to strengthen and adapt existing controls, such as through beneficial ownership registries and the creation of CIFA-BC. Nonetheless, the current state of these powers supports this thesis' assessment that cultural and organizational adoption of compliance as a Canadian society is still in its infancy.

Chapter 3 summarized existing criminology and economic theories at the micro and macro levels. While this thesis falls short of proposing a unified theory of money laundering as Unger (2007) invites, it takes a considered approach to identify areas of novel application of established theories that portray the push and pull tension brought forth by several theories: An economic prosperity agenda fostered by Canada's Pacific Rim strategy, microeconomic incentivization towards criminal money laundering behaviour explained by rational choice and utility theories, macroeconomic attractiveness and cultural distance indices represented by a dynamic gravity model, and socioecological and criminogenic contributors that permit and cultivate social disorganization.

Chapter 4 outlined a novel and adaptive methodological framework that works with the often imperfect and overwhelming data representative of complex, multi-year money laundering investigations. By employing quantitative and scalable analytical techniques, the current study demonstrated areas of possible concession when operating in applied research and law enforcement environments and when otherwise unable to control for several constraining externalities and confounders.

Chapter 5 described how latent factors of Canada's Pacific Rim strategy were exhibited in the evidence presented on the Vancouver model based on a thematic

content analysis of the Cullen Commission hearing transcripts. It demonstrated the praxis of distilling qualitative trajectories and observations to be measured and fed into econometric estimation procedures to validate the theories and policies discussed in the previous chapters. Combining several computational linguistics and econometric approaches, this chapter illustrated a feature generation and evidence-tracing framework to prove the current study's research questions.

6.4. Limitations

The thesis is not without its limitations in terms of research design and access to data. However, access to the more appropriate country statistics, financial intelligence, and incident-based crime reporting data is a difficult challenge to overcome not only in BC and Canada, but particularly for cross-country empirical evaluation. The current study's research design treated this limitation as a known externality. However, by doing so, it intentionally demonstrated a theoretical and analytical framework that could have immediate benefit as a whole or in selected components in practitioner applications such as law enforcement and regulator investigations, business process transformation, and proof of concept innovations.

The core of this study centred on employing and validating the gravity model methodology for estimating money laundering flows. This thesis research introduced a systematic framework for empirically evaluating the impact of each factor outlined by Maloney, Somerville, and Unger (2019) in their application of the Walker-Unger gravity model. The outcomes from Part 1 of the research study were then applied to enrich the economic gravity model indices related to attractiveness and cultural distance with additional proxy measures. Despite achieving improved specificity by tailoring the gravity model to the unique typologies, indicators, and socioecological conditions of the Vancouver model, the research did not allow for a direct comparison of the money laundering estimation results between the enriched gravity model and the version presented in Maloney, Somerville, and Unger (2019). While the study empirically evaluated the importance of individual factors, a fundamental discrepancy emerged in the bilateral proportion of money laundering flow, preventing a direct comparison with the "base" model from Maloney, Somerville, and Unger (2019). The current study deliberately focused on the bilateral flow between British Columbia and Canada from subnational China. The aim was to assess the significance of these factors within the

framework of the Vancouver model of money laundering and contrast their importance with additional metrics tailored to capture the unique typologies and indicators inherent to this specific model. However, the mismatch of bilateral country relations between both studies would render any comparison in money laundering estimations inaccurate.

The sample data also has its limitations regarding the generalizability of the results. The hearing transcripts of the Cullen Commission served as the sample data for Part 1 of the thesis study (Cullen Commission, 2019). While legal hearing transcripts can be a valuable source of data for this type of research, their utility must be weighed against their limitations with respect to the research objectives. These transcripts may offer a selective representation of witnesses, potentially introducing bias into the research due to the restrictions on the availability and accessibility of the participants selected to appear before the public inquiry. The specialized and complex nature of legal language poses a challenge for researchers as it requires knowledge and skills to accurately interpret the legal interview process.

Furthermore, hearing transcripts may lack essential contextual information, such as non-verbal cues or the overall atmosphere in the public hearings. Despite these limitations, for the research questions posed by the current study, the Cullen Commission hearing transcripts provided a fulsome and homogenous dataset that facilitated the data collection and cleaning processes. The comprehensive coverage of topics concerning a central theme of money laundering in BC also made it the most suitable single-source dataset.

In comparison, Part 2 of the research study compiled a customized dataset of country summary statistics from several sources. The main limitation of this approach was selecting measures that could be reasonably gathered across multiple sources. There is some inherent risk because the methods behind how these data were collected initially are often unknown. For some country data, such as census data, some collection protocols are published alongside those reports (Statistics Canada, 2022). When it came to incident reporting data from federal police and other crime statistics, the limitations concerning the sample data quality, completeness, and accuracy were most prevalent (Statistics Canada, 2022; The Government of the Kong Kong Special Administrative Region, 2021; Macao Special Administrative Region, 2022; Human Rights Watch, 2019).

6.5. Implications

Throughout this chapter, several important broad and theoretical implications have been discussed. The implications assessed in this section focus on the top three salient enrichment variables of the gravity model estimation: Fei ch'ien networks, casino regulatory bodies, and the Chinese diaspora. The proxy variables utilized to represent these latent factors indicated a significant impact on the dependent variable measuring the proportion of money laundering flow between two countries within the Pacific Rim. The hypotheses were tested with country and subnational data from Canada and China.

The results indicate that these three specific factors of the Vancouver model could be permissive and receptive to adaptive compliance measures and cooperation. Reiterating the discussion from section 6.2.3, the current study would recommend these areas of prioritization in law enforcement efforts and legislative reforms by the government, regulators, and intelligence-sharing PPAP programs like CIFA-BC. From an international partnership perspective, New South Wales's and Australia's current struggle with a similar model of money laundering might be able to learn from Canada's response to combat the hybrid threat as that scandal unfolds concurrently with the post-Cullen Commission fallout that is underway in BC (Davies, 2023).

For proactive law enforcement and regulatory policy, there are individual teams and task forces within the government that embrace this approach within the intelligence-led and evidence-based policing models. Investigative techniques that embrace prevention strategies like nudging, community-building, knowledge mobilization and awareness, in concert with continuous compliance monitoring and early disruption, can be especially effective when traditional enforcement methods within a punitive deterrence framework are ineffective or difficult to justify for the public interest. Once these investigative methods have been proven effective, these tradecrafts and techniques must be codified into standard operating procedures on an incremental and iterative basis to facilitate organizational adoption and transformative change management.

Canada is said to have a tradition of jurisprudence, but recent legal opinions from some public officials challenge this ideology (Cullen, 2022; Mitchell, 2004; McLaughlin, Eby, & Considine, 2023). The current study recommends cultivating jurisprudence and

cultural competence in all public service areas in BC, particularly within the Ministries of Finance, Attorney General; Jobs, Economic Development and Innovation; and Public Safety and Solicitor General, for effective prevention and early detection. Similar to Canada's current anti-corruption framework, more must be done so that the people and organizations that combat money laundering and the trusted gatekeepers of regulated sectors are not exempt from this fiduciary duty (Transparency International Canada, 2023). Given the current hybrid threat landscape in the post-Cullen Commission era, frontline communities of practice need to be more empowered to lead competencies in public criminology, compassion-based and trauma-informed practices, as well as inclusion, diversity, equity, and accessibility (IDEA) frameworks (Women and Gender Equality Canada, 2022; CCDI, 2023). Consideration of this diversity of perspectives have not explicitly been included in the discourse of combatting money laundering and illicit finance. Until then, the AML/CFT regimes of BC and Canada remain at risk of maintaining their willful blindness to and complicity in the problem.

6.6. Future Research

In the conceptualization of the theoretical and analytical frameworks of the current study, four areas of future directions were identified. The first is an extension of the current study for all East Asia and Pacific Rim region countries, as listed in Table 2.2. As summarized below, the three future research directions are methodological innovations. With the popularization of machine learning methods, a future study could build on the existing model's neural network base by taking advantage of the recent research practices with self-supervised language models. An integrated approach such as this would allow for systematic experimentation better to understand the process variables and secondary and tertiary effects. Whereas the current study employed unsupervised and semi-supervised topic models, the next step to create economies of scale for this analytical framework could be to leverage self-supervised language models as the volume, heterogeneity, complexity, and scope of the sample data increases. The second methodological innovation would be to develop an ecological framework to analyze the Vancouver model by examining the reciprocal relationships within and between its system levels. The final would be a comparative evaluation of the current study's enriched gravity model of money laundering against its base model derived from

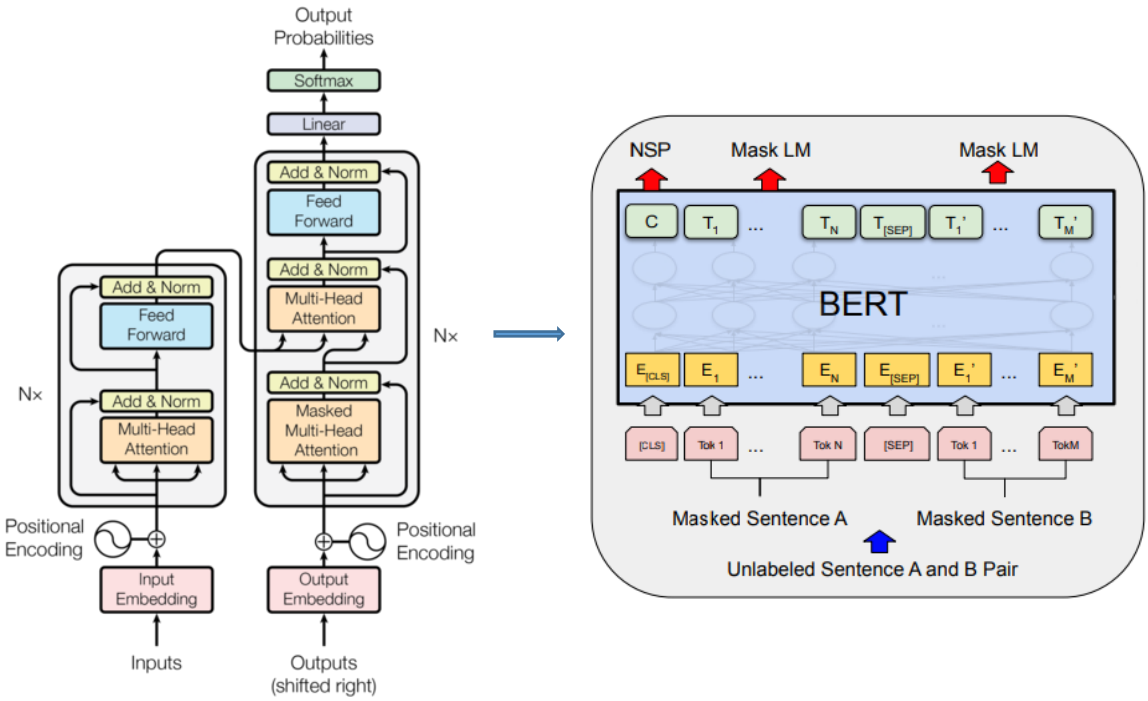
Maloney, Somerville, and Unger (2019) in the estimation of money laundering across regional Canada.

6.6.1. Self-Supervised BERT Topic Model

Future applications of machine learning-assisted qualitative analysis for criminological research show promise based on the topic modelling methodologies employed in the current study. Bidirectional Encoder Representations from Transformers (BERT) is a transformer language model developed by researchers at Google AI Language (Devlin, Chang, Lee, & Toutanova, 2019). It was designed as an all-in-one machine learning model for several common language tasks, such as the following detailed by Muller (2022): Topic modelling, sentiment analysis, question answering, text prediction, text generation, summarization, and polysemy resolution.

The transformer model is based on the implementation originated by Vaswani et al. (2018) and is illustrated below in Figure 6.1:

Figure 6.1 Transformer Model and BERT Pre-Training Procedure



Adapted from Vaswani et al. (2018) and Devlin et al. (2019).

BERT models are pre-trained on a large dataset of words and enforce bidirectional learning from a text by masking a word and forcing the model to use the adjacent words

on either side to predict the masked word. This strategy helps gain a statistical understanding of the language data injected into the model. While LDA and CorEx need a dictionary customized to inform the algorithms, BERT language models pre-trained on existing datasets are far more robust than could be equipped with standard topic models. For example, Figure 6.2 illustrates a mask BERT computation using an excerpt from German (2018, p.12):

Figure 6.2 Example of a BERT Masked Language Model Inference

Text: It was a failed strategy for one simple reason. Organized **<mask>** are not looking for cash alternatives. They want to launder cash and we now know that they continued to do precisely that, and with vigour.

Mask: **<criminals>**

Result:

	P(mask)
criminals	0.512
thieves	0.092
gangs	0.075
groups	0.042
corporations	0.033

There are several pre-trained BERT models to convert a document-level dataset into numerical data. The BERT model of interest for future directions was developed by Chalkidis, Fergadiotis, Malakasiotis, Aletras, and Androutsopoulos (2020). LEGAL-BERT was specified on 12 gigabytes of domain-specific English document data such as legislation, court cases, and contracts from the European Union (EU), UK, and US legal systems. It was created by the Athens University of Economics and Business's Natural Language Processing Group. This adapted BERT model is of particular interest as the research group has specializations on algorithms for the legal and finance topic domains, as detailed in Table 6.3.

Table 6.3 LEGAL-BERT Training Datasets

Training Dataset	Documents N (%)	Source
EU Legislation	61,826 (16.5)	EURLEX[3]
UK Legislation	19,867 (12.2)	LEGISLATION.GOV.UK[4]
European Court of Justice Cases	19,867 (5.2)	EURLEX[3]
European Court of Human Rights Cases	12,554 (4.3)	HUDOC[5]
US Court Cases	164,141 (27.8)	Case Law Access Project[6]
US Contracts	76,366 (34.0)	SEC-EDGAR[7]

Source: Chalkidis, Fergadiotis, Malakasiotis, Aletras, & Androutsopoulos (2020).

6.6.2. Ecological Framework for the Vancouver Model

To contribute towards a criminology theory of money laundering, a future research direction will be to develop an ecological framework of the Vancouver model. Because of the latent factors and covariance of measurable proxy variables, developing an ecological framework might mitigate the limitations of the current study's methodology to account for multicollinearity and endogeneity of variables within the econometric estimation of the gravity model. An ecological framework, by design, captures the proximal-distal paradigm of the individual and overlapping sociodemographic and ecological factors that coexist simultaneously. This could prove beneficial in understanding the puzzle pieces of the Vancouver model as a concept and a hybrid threat to Canada's national security.

6.6.3. Money Laundering Estimates for BC and Canada

Part 2 of the current study sought to tailor, extend, and validate the gravity model of money laundering from Maloney, Somerville, and Unger (2019). However, the focus on bilateral money laundering flows between Canada and China as the dependent variable made it not possible to thoroughly compare and critique the version from the aforementioned study and the current one. A future study will make this the central

[3] eur-lex.europa.eu

[4] http://www.legislation.gov.uk

[5] http://hudoc.echr.coe.int

[6] https://case.law

[7] https://www.sec.gov/edgar.shtml

research focus and comprehensively evaluate the money laundering estimation method and predictor variables selected to inform those conclusions.

6.7. Conclusion

In summary, the current study provided compelling empirical and theoretical evidence that established a causal link between Canada's Pacific Rim strategy and the Vancouver model of money laundering. The findings underscore the significant influence of hybrid threats on wealthy transnational migrant communities from the Chinese diaspora to proliferate IFFs within diverse sensitive business sectors in BC and Canada, such as casino gaming, real estate, finance, luxury goods, and tourism. Consequently, the thesis presents critical recommendations to fortify AML compliance and controls in three crucial domains. Firstly, it underscores the necessity of addressing informal value transfer systems, such as the fei ch'ien networks, as a strategic approach to disrupting IFFs. Secondly, it emphasizes the imperative of implementing robust regulation and responsive oversight within the casino industry to mitigate the risks associated with money laundering. Thirdly, it underscores the significance of proactive outreach to vulnerable demographics to bolster awareness, resilience, and resistance against hybrid threats, organized crime, and nation-state threat actors. By prioritizing prevention, law enforcement, and community outreach efforts in these areas, BC and Canada could enhance their AML/CFT regimes, safeguard the financial system and sensitive business sectors, and uphold the integrity and stability that fit their existing legislative and regulatory frameworks.

Statutes

Bank Act, SC 1991, c 46

Criminal Code, RSC 1985, c C-46, ss 462.31, 467.1

Canadian Security Intelligence Service Act, RSC 1985, c C-23

Elections Modernization Act, SC 2018, c 31

Financial Services Authority Act, SBC 2019, c 14

Securities Act, RSBC 1996, c 418

Jurisprudence

R v Jordan, 2016 SCC 27, [2016] 1 SCR 631

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Appendix A.

Implementation of the LDA Topic Model

TF-IDF Vectorized Corpus

The TF-IDF corpus served in both the LDA and CorEx topic models.

```
from gensim import corporal, models

tfidf = models.TfidModel(bow_corpus)
corpus_tfidf = tfidf[bow_corpus]

from pprint import pprint

for doc in corpus_tfidf:
       pprint(doc)
       break
```

Hyperparameter Tuning of LDA with TF-IDF

As the Coherence Score for the LDA with TF-IDF was higher than the LDA with BoW, hyperparameter tuning was continued with the TF-IDF version of the LDA model only, where

- *k* is the number of optimal topics
- *a* is the Dirichlet hyperparameter alpha for document-topic density
- *b* is the Dirichlet hyperparameter beta for word-topic density

```
# Define compute coherence value function
def compute_coherence_values(corpus, dictionary, k, a, b):

       lda_model_tfidf = genism.models.LdaMulticore(corpus=corpus_tfidf,
                                                    id2word=dictionary,
                                                    num_topics=k,
                                                    random_state=100,
                                                    chunksize=100,
                                                    passes=10,
```

```
                                                    alpha=a,
                                                    eta=b)

        coherence_model_lda_tfidf = CoherenceModel(model=lda_model_tfidf,
                                                   texts=processed_df,
                                                   dictionary=dictionary,
                                                   coherence='c_v')

        return coherence_model_lda_tfidf.get_coherence()

import numpy as np
import tqdm

grid = {}
grid['Validation_Set'] = {}

# Topics range
min_topics = 2
max_topics = 20
step_size = 1
topics_range = range(min_topics, max_topics, step_size)

# Alpha parameter
alpha = list(np.arange(0.01, 1, 0.3))
alpha.append('symmetric')
alpha.append('asymmetric')

# Beta parameter
beta = list(np.arange(0.1, 1, 0.3))
beta.append('symmetric')

# Validation sets
num_of_docs = len(corpus_tfidf)
corpus_sets = [gensim.utils.ClippedCorpus(corpus_tfidf,
               int(num_of_docs*0.75)), corpus_tfidf]

corpus_title = ['75% Corpus', '100% Corpus']

model_results = {'Validation_Set': [],
                 'Topics': []
```

```
                'Alpha': [],
                'Beta': [],
                'Coherence': []}

# Calculate coherence values of corpora
if 1 == 1:
      pbar = tqdm.tqdm(total=(len(beta)*len(alpha)*len(topics_range)*
                                                len(corpus_title)))

      # Loop through the validation corpora
      for i in range(len(corpus_sets)):
            # Loop through the number of topics
            for k in topics_range:
                  # Loop through alpha values
                  for a in alpha:
                        # Loop through beta values
                        for b in beta:
                              # Calculate the coherence score
                              cv = compute_coherence_values(
                                          corpus=corpus_sets[i],
                                          dictionary=dictionary,
                                          k=k,
                                          a=a,
                                          b=b)
                              # Save model results
                              model_results['Validation_Set'].append(
                                    corpus_title[i])
                              model_results['Topics'].append(k)
                              model_results['Alpha'].append(a)
                              model_results['Beta'].append(b)
                              model_results['Coherence'].append(cv)

                              pbar.update(1)
      pd.Dataframe(model_results).to_csv('./lda_tfidf_tuning_results.csv',
                                          index=False)
      pbar.close()
```

Appendix B.

CorEx Topic Model Estimation

Unanchored Model Results ($k = 50$)

Topic	Terms
1	bclc, gpeb, cash, casino, casinos, gaming, river rock, martland, rock, river
2	registrar, madam registrar, madam, please, exhibit, registrar could, document, registrar exhibit, thank madam, next exhibit
3	commissioner, commissioner thank, thank, thank commissioner, witness, commissioner right, commissioner commissioner, minutes, questions, allocated
4	examination, hearing, proceedings, adjourned, proceedings adjourned, registrar hearing, hearing resumed, resumed, resumed commissioner, hearing adjourned
5	peter dent, dent, achimov, annette, annette ryan, donna, donna achimov, mackillop, achimov barry, mackillop annette
6	jeanette, jeanette mcphee, mcphee, gurprit, bains, gurprit bains, mcphee gurprit, craig ferris, ferris, avison
7	jeffrey simser, jeffrey, simser, counsel, mcgowan counsel, colin king, kevin mcmeel, barry butler, mcmeel, butler colin
8	beneficial, ownership, beneficial ownership, registry, transparency, chris, land, register, joseph primeau, nicholas maxwell
9	money laundering, laundering, money, crime, proceeds, proceeds crime, organized crime, organized, criminal, drug
10	countries, united, canada, tradebased, levi, international, tradebased money, michael levi, country, united states
11	police, rcmp, investigations, unit, investigation, policing, wayne, iiget, tom, ipoc
12	reuter, peter reuter, peter, dixon, ryan mueller, cieslik, giles dixon, giles, warrack, charlene cieslik
13	page, paragraph, bottom, says, see, go page, page document, page please, next page, page report
14	real estate, estate, real, rose, michele woodtweel, hernandez, josé, josé hernandez, woodtweel, hernandez michele
15	columbia, british columbia, british, dawkins, christina dawkins, christina, opening statement, columbia lottery, opening, tom steenvoorden
16	forfeiture, civil, civil forfeiture, court, legal, legislation, act, lawyers, unexplained wealth, unexplained
17	minister, dated, email, briefing, deputy, letter, deputy minister, enforcement branch, gaming policy
18	market, prices, percent, housing, price, vancouver, estimate, markets, economy, drugs
19	financial, financial institutions, institutions, financing, terrorist, terrorist financing, laundering terrorist, mcguire, matthew, matthew mcguire
20	information, data, sharing, information sharing, privacy, access, provide information, personal information, available, sharing information
21	suspicious, transactions, funds, transaction, source funds, source, cash transactions, large cash, suspicious cash, large
22	correct, thats correct, correct thats, thats, correct correct, correct okay, right correct, right thats, correct yeah, correct im
23	id like, id, melanie paddon, paddon, melanie, like, ben robinson, robinson, ben, paddon ben

Topic	Terms
24	antimoney, antimoney laundering, aml, working group, regime, group, working, regulatory, program, measures
25	mortgage, mortgage brokers, brokers, patel, chaudhary, mortgage broker, jay, jay chaudhary, chaudhary patel, broker
26	law enforcement, enforcement, law, cetera, et cetera, et, agencies, intelligence, predicate, task force
27	know, dont know, dont, sure, im, im sure, youre, say, yeah, cant
28	recall, lottery, lottery corporation, corporation, dont recall, remember, drafts, recollection, bank drafts, jin
29	think, dont think, think thats, well think, think theres, yeah think, think know, think one, think well, think need
30	national, work, across, research, study, sectors, also, expert, economic, expertise
31	people, lot, get, mean, amount, theres lot, many, stuff, amount money, pay
32	different, really, important, example, kind, system, one, ways, something, okay
33	bit, little, little bit, tell us, ahead, go ahead, us, slide, help us, tell
34	meeting, meetings, senior, team, athena, project athena, division, safety, project, role
35	didnt, douglas, wasnt, douglas scott, bud, bud smith, smith, scott, came, didnt know
36	fintrac, reporting, reports, suspicious transaction, transaction reports, compliance, strs, transaction report, transaction reporting, reported
37	ask, ill, could ask, ill ask, going ask, ask questions, let, im going, ask please, id ask
38	things, thing, ago, things like, one things, way, difficult, years ago, long, one thing
39	german, peter german, concerns, dr german, issue, recommendations, concern, dr, dirty, dirty money
40	year, mainland, million, got, lower, youve got, lower mainland, total, last year, table
41	question, answer, wondering, answer question, im wondering, last question, question whether, next question, first question, asking
42	back, go back, going back, amounts, legitimate, large amounts, come back, amounts cash, dollars, back forth
43	time, fair, fair say, period, period time, point time, thats fair, time time, time period, fair enough
44	aware, report, im aware, steps, germans, youre aware, recommendation, dr germans, review, became aware
45	forward, better, terms, effective, view, level, process, certainly, approach, point view
46	weve, able, theyre, seen, money service, weve got, weve seen, weve heard, ive seen, service businesses
47	cases, companies, private, case, company, fraud, services, private sector, business, search
48	place, diligence, due diligence, due, taking place, took place, put place, source wealth, take place, customer
49	make, want, make sure, dont want, riskbased, clear, want make, riskbased approach, third party, want go
50	sort, mentioned, mentioned earlier, share information, share, generally, banks, earlier, actually, generally speaking