

**A Rope Made of Sand:**

**Understanding Mechanisms of Control over the Global Oil Industry**

by

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## **ABSTRACT**

The focus of my research is to examine the power paradigms that control the price of oil. In most analyses of oil, the point source of power is a given in order to focus analysis on particular aspects of the immensely complicated regulatory structure of the physical oil industry. These studies tend to neglect the nexus at which all of these perspectives meet. My research suggests that the source of power in oil rests in its price.

The research I present shows that the modern system of financialization has removed power over the oil price from the stakeholders that once held control. Still, despite the flaws of the historical paradigms, and notwithstanding the fact that financialization has in some ways removed the power of corrupt actors of the past, this is not an ideal solution to the problems of history. I show in my research that the modern paradigm of financialized oil has evolved into an abstract system subject to investor speculation driven price fluctuations. The effects of integrating oil into the financial sector has opened up venues for speculators to gamble with one of the world economy's most essential commodities, responding to the hype around power centers, new technology, corporate portfolios and performance. My research shows that the implication of the contemporary paradigm has been the shift of physical market stakeholders from their historical role as price setters, to a more defensive position, reacting to the price set by immense flows of financial capital.

## **DEDICATION**

This thesis is dedicated to my late grandfather, Edmond Boer. A wise and principled inspiration in my life, my grandfather has been a constant source of inspiration in my life. It is also dedicated to my grandmothers, Wilhelmina Boer and Phyllis Moore, both of whom have passed, but have taught me to keep an open mind and an open heart. This thesis is dedicated to my deceased father, Carey Moore, who, as an intelligent and eccentric entrepreneur ventured into the oil industry in his own way, sparking my interest in the subject of this thesis. This is dedicated to my brother, Robert Moore, who has always had an incredible natural intelligence, which has always greatly surpassed my own. This thesis is dedicated to my step-father, Dan Price, and my best friend, Scott Maskell, who kept me grounded with the fundamentals, and helped me unwind when I hit my many road-blocks while writing. I have been so fortunate to be surrounded by a number of absolutely incredible individuals, so many who I have not mentioned in this list, but who are truly important to me. In totality, this thesis is for my mother, Mary Ann Moore. There has never been a stronger woman, or a more dignified and powerful example in my life to keep me both grounded and inspired to achieve my goals. My mother has always been, and always will be my best friend and my reason for pursuing my interests.

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## Chapter 1 : Introduction

Oil is the DNA of our global economy, and movements in the price of the stuff have all kinds of consequences that are all but impossible to predict (Rubin, 2012, 2).

Oil power is a rope made of sand. The phrase, used by the first oil monopolist, J.D. Rockefeller, embodies both the desire of key stakeholders to “grasp” the rope of control, and the futility of doing so. The systemic effects of an oil price shock, be it rising or falling prices, affects virtually all areas of the global economy and stirs the pursuit of power and control over the commodity itself. From the earliest days of Rockefeller’s monopoly through the corporate cartel of the Seven Sisters, the rise of OPEC and the current integration of oil pricing within modern financial markets, there have been many attempts to control the price of the commodity to the exclusion of others. But each of these power structures has resulted in unequal distribution of the benefits and costs of these systems, and as a result, none of them has been sustainable.

The focus of my research is to examine the power paradigms that control the price of oil. In most analyses of oil, the source of power is expressed as a given in order to focus on particular aspects of the immensely complicated regulatory structure of the physical oil industry.<sup>1</sup> Credit may be given to policy makers, powerful states, nefarious

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<sup>1</sup> The physical global oil industry itself is made up by complex web of regulations and standards governed bi-laterally or in some cases multi-laterally as well as regulatory cross-overs from other industries that have



corporations or economic structures themselves, however, these studies tend to neglect the nexus of these perspectives. Why would policy makers seek to exploit profitable oil or transition to a cheaper supply? Why would a powerful state consider hard power options against or in support of states that can aid or impinge upon access to global oil supplies? Why would corporations take upon themselves the extremely high costs, both capital and goodwill, to exploit oil in the world's most vulnerable regions? And why would the economists care about the integration of oil into portfolios of common investors as another hedging tool? The answer to these questions provides the basis for my investigation. The source of power in oil rests in its price.

The fundamentals of liberal economics tell us that a commodity is only worth exploiting when it can be marketed for a profit. The price of oil, monitored by the free hand of the market, will settle at a stable level that ensures all the product sent to the market will be sold (supply and demand in balance). This will ensure that the right amount of resources is exploited to the maximum level of efficiency technologically available. My research challenges the claim that the free market operates as predicted by

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bearing on liquid hydrocarbons, for instance, international shipping. This isn't to say that the liquid hydrocarbon industry is lacking any regulatory governance, however the lack of an enforceable global standard relating to ethical practices of the liquid hydrocarbon industry has created an opening for varying practices across the globe, and particularly in the upstream (extraction) and midstream (refining and transportation) sectors of industry. Although dependence on certain technologies has made the industry increasingly standardized in terms of labor directly employed, and increasingly indirectly employed, requiring a highly skilled work-force, the diverse socio-economic climates under which the international liquid hydrocarbon firms operate make a standardization of corporate social responsibility and social license practices a challenge for governance. In recent years, the international majors have enforced their own codes of practice, which have had an impact on the safety of labor and have improved the efficiency of their overall operations.

liberal economic theory, instead uncovering a history of periodic paradigms of centralized oil power, which still holds under the current system of modern commodity financialization, albeit in a new form. The argument I present shows that the modern system of financialization has removed power over the oil price from the stakeholders that once held control, but has not turned them over to ‘free market’ forces as conventionally understood. Despite the flaws of the historical paradigms I will discuss, and notwithstanding the fact that financialization has in some ways removed the power of corrupt actors of the past, contemporary oil financialization is not an ideal solution to the regulation of oil prices. As I discuss in my research, the modern paradigm of financialized oil has evolved to an abstract system subject to speculation-driven price fluctuations.

Oil financialization, put simply, is the broadening of the oil market to a large number of participants, many of whom have no direct interest in buying or selling physical oil. These participants partake in the market by speculating on the future price of oil. Because of the linkage of oil pricing with oil benchmarks (WTI and Brent), and the participation of these benchmarks within the financialized paradigm, this latter category of actors in particular has created an influx of capital into the financial market product of oil. This added investment has made the financial market more dominant than the physical market, in the sense that price has become the result of the supply and demand fundamentals of the financial oil product, and no longer reflects the equilibrium of the physical market. This has made the struggle for control more complicated and the price of oil more volatile, a reality that contributed to the 2008 financial crisis. The effects of

integrating oil into the financial sector have opened up venues for speculators to gamble with one of the world economy's most essential commodities. My research will delve into this complicated new reality of power relations in our world's oil markets: what history teaches the world about oil power, how the system of regulation relates to the physical market, and the complex realities of the financial market will be explored throughout. My purpose is to explain how the financialized system of today came to be, and what the implications of this power paradigm are on essential stakeholders.<sup>2</sup> I will also introduce, in brief, some of the alternatives that may provide the basis for potential future paradigms for oil pricing. These are admittedly narrowly presented, yet their existence is worth mentioning because they show where future research could continue this project.

In order to do justice to the complex modern financialized oil paradigm, it is essential to understand the attempts made in the past to control the pricing of oil. The lessons that are drawn from these historical roots provide the foundation for the current paradigm. It was the failures of these previous systems that created the need for a transition to the contemporary paradigm, and it was the recreation of those failed systems

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<sup>2</sup> As a technical note on the terminology of my research, a few fundamentals and distinctions must be established. The first distinction that needs to be made is between the financial market and the physical market. The physical market refers to the market participation that requires physical possession of the commodity in question, a physical market transaction would therefore require physical delivery of oil. This can mean governments (who keep physical storage of oil in the form of strategic reserves), oil production companies, oil refining and marketing companies, large secondary consumers (such as airlines), and other participants who are dependent on the real possession of the commodity. The financial market, sometimes called the paper market, refers to transactions where no physical delivery takes place. These trades occur within the formal futures and forward markets and can be resold or traded by purchasers prior to the end date of the contracts involved.

that this system was designed to prevent. In order to explain this process coherently, I have chosen the historical narrative as my main methodology for this research. The historical narrative is done using a story-like chronological ordering of historical oil pricing power paradigms, which allows my research to illustrate the key trends and causation that led up to the modern financialized oil paradigm. My research uses this approach to attempt to unpack a complex topic in a way that is more digestible to the reader.

Smelser and Baltes (2001) attribute the use of economic history as a tool for analysis to Adam Smith (1723-1790). They argue that Smith preferred to use economic history as a tool through which he could test his theories, and distinguish Smith's approach from that of other thinkers, such as David Ricardo (1772-1823), James Mill (1773-1836), and William Stanley Jevons (1835-1882), who all sought to ground their economic analysis in mathematical abstraction (Smelser and Baltes, 2001, 4102). The subsequent rise of the German School was characterized by its adoption of economic history as its core methodology (rejecting the mathematical abstraction approach), citing notable practitioners such as Max Weber (1864-1920). They distinguish authors like Karl Marx (1818-1883), who, they argue, combined the German School approach with classical economic tools in the application of his theories to new areas of research (namely the transitional periods of economic advancements along the development of society towards socialism-communism) (Smelser and Baltes, 2001, 4102-4103).

Smelser and Baltes note that the 1950s-1980s were the high point of the approach, and that this had been largely attributable to its popularity within the Marxist school (Smelser and Baltes, 2001, 4107). In more recent years, the strength of economic history has become its ability to extend beyond purely economic themes in order to consider the human dimension often neglected in mathematical abstraction (Godden, 2015, 51). Regardless of this inherent virtue in economic history, Godden argues that Cliometrics (new economic history) increasingly appears to draw on the formality of the scientific method and the systematic application of economic models, removing the human aspects from the study (Godden, 2015, 52). For Godden, this symbolizes a rejection of Marxist analysis, diminishing the richness of economic history as an approach (Godden, 2015, 53).

My approach to economic history steers away from mathematical modeling entirely, and at least for the chapters regarding Rockefeller, the Seven Sisters, and OPEC, attempts to maintain the connection to the human experience and capacity for influence that is so essential to these time periods. This becomes a challenge to maintain, however, when discussing the system of modern financialization. Although my research seeks to consider the stakeholders, it is apparent that regardless of the motives that led to financialization, it has become self-perpetuating through those mathematical models, systems of trade, and the technology that pursues the fastest profit. As my research discusses, the capacity for action by stakeholders and the connection to the physical market has been rendered virtually irrelevant under this paradigm.

The main findings of my research reveal that the contemporary financialized oil pricing paradigm has experienced only limited success, trading off the negatives of the previous systems for ones specific to the current paradigm. The historical paradigms reveal an apprehension about the boom and bust cycles that early on appeared as a permanent facet of the oil industry. These past systems also reveal a tendency towards a centralization of power within the industry and the eventual exploitation of that power by those wielding it in pursuit of their own interests, be they political or financial. The financialized oil paradigm rejects the manipulation of oil pricing by a centralized power, creating a system that is virtually invulnerable to such manipulation. Born out of the global neoliberal expansion launched in the 1970s and 1980s, the financialized oil paradigm has restricted the ability of powerful stakeholders to centralize control and manipulate oil pricing as had been achieved in the past by powers such as Standard Oil, the Seven Sisters, and OPEC.

The new system has integrated oil pricing within the financial centers, where futures markets allow the hedging of prices by both suppliers and purchasers to protect themselves against anticipated price increases (or decreases), thus stabilizing the boom and bust cycles perceived as a central feature of the industry. This system has resulted, however, in a vulnerability of the oil price to speculation by investors without a stake in the physical oil product. Substantial flows of capital, much of which takes place at the highest levels of fund trading and investing, now manipulate the price of oil on mass

scale.<sup>3</sup> Oil has become a financial commodity traded for the purpose of making profit through arbitrage (the purchase and sale of assets in different markets or forms to take advantage of pricing differentials) and not from the exchange of physical barrels.

The implications have been vast. Because oil pricing has become detached from the physical market, physical market stakeholders have had to adjust their policies to react to the financial market price of the commodity. This has been occurring even though that price is rooted in speculation and investor hype rather than industry fundamentals. This was seen most drastically in the run-up of oil pricing before the 2008 financial crisis. As my research will go on to discuss more in detail later, the physical market realities could not account for the dramatic increase that the oil price took. This increase was largely speculation driven, yet regardless, physical oil market stakeholders, in particular governments and corporations, were forced to adjust their policies and investment practices around the inflated market.

Corporations took for granted that new and higher risk capital projects would be viable under a high price regime, while governments of exporting nations used their high price oil rents as reason to inflate their budgets and increase spending dramatically.

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<sup>3</sup> The forward market differs from the futures market because it does not utilize formal clearing houses. The list of derivatives traded on the forward market also varies, including options and swaps. These are known as Over-The-Counter (OTC) trades. Because these trades are customized to the purchaser's/seller's needs, they are subject to different protections than the trades made on the NYMEX, which makes them incredibly difficult to track and ultimately to regulate. Information that tracks the financial markets for oil reflects the more transparent formal futures markets, regardless of the amount of trading that actually takes place in the financial market via OTC trades.

Governments of oil importing nations suffered the burden of high oil pricing, inflating the costs of goods across the board. My research will show that the most serious of the implications resulting from the financialized oil pricing paradigm has been the shift of physical oil market stakeholders from their historical role as price setters, to a more defensive position, reacting to the price set by immense flows of financial capital. The logical conclusion to this reality is that power over the oil price rests in the opaque and complex system of market confidence, rather than the more transparent bodies of governments and, to a lesser extent, corporations, or even the abstract interplay of supply and demand.

Although financialization literature is extensive, gaps mean this literature fails to provide adequate consideration to the unique conditions that surround globally benchmarked commodities, and in particular, the unique case of oil. My research attempts to tackle the gap surrounding oil as a globally benchmarked commodity, recognizing that it is distinctly immune to standard market complexities (such as direct competition from other commodities, and the capacity for action by the stakeholders) that exist in other, more well researched areas of financialization. In the literature review that follows it is apparent that I pulled from numerous disciplines and backgrounds for the purposes of my research. Utilizing sources from the backgrounds of journalists, industry personnel, political scientists, economists, and historians has provided the groundwork for my empirical analysis. For this reason, it is worth noting that although the specificity of the financialization process surrounding oil will make up the bulk of later chapters, my



analysis does not focus on the application of pre-existing theory, but rather, I seek elaboration of these ideas through my investigation.

Many of the sources of information on oil pricing, and particularly the oldest ones, are contextual and informative in the sense that they provide elements for building an understanding of the power paradigms surrounding oil throughout history. The earliest sources of literature used in the basis of my research dates back to the first part of the 20<sup>th</sup> century. Ida Tarbell (1969) first published her work *The History of the Standard Oil Company* in a two-part series of articles in 1902. Her work was born out of the progressive era of the United States, and was groundbreaking for being one of the first in-depth profiles, not just of a corporation, but of the corporate magnate behind the scenes. Tarbell's work is useful as a contextual piece on the history of J.D. Rockefeller's Standard Oil monopoly, however, because of the dramatically different power structures that follow Rockefeller's monopoly, its observations had less applicability once the monopoly was broken up under Sherman Act in 1911.

One of the most frequently used sources in my research is also one of the most frequently cited works on the history of the oil industry. P.H. Frankel's *Essentials of Petroleum: A Key to Oil Economics* (1969) provides an analysis of industry dynamics that persist within the physical market of the oil industry that remains applicable today. Originally published in 1946, in the immediate aftermath of the Second World War, this piece pays tribute to the early industry innovators, whose major advancements the modern industry only attempts to improve upon, rather than alter. As a liberal economist,

and specifically, one of the earliest self-proclaimed ‘oil economists’, Frankel explains the specific characteristics of petroleum (such as its liquid form) that have directly impacted the way the global industry’s infrastructure has been constructed to ensure its economic mechanisms can function. Frankel’s work takes a commodity-first look at the oil industry and provides a map of the physical dynamics while attributing the creation of those dynamics to industry innovators. Ultimately, his work provides both a historical narrative of the powerful stakeholders of the industry’s past and insight into the power relations that shaped the commodity into the one the world runs on today.

Another useful work, *Oil and World Power: A Geographical Interpretation*, was written by geographer Peter Odell (1970). Odell provides a spatial analysis of the oil industry during the Cold War era, when the industry was essentially broken up into three spheres of influence, which I will discuss in more detail during my analysis of the historical paradigms of power in the industry. This work is illustrative of the power dynamics of the oil industry as it became embroiled within the Cold War political tensions that once dominated the globe, and is invaluable to my research for that reason. As I show, following the break-up of the Rockefeller monopoly and the growth of political interest in oil arose the seven major international oil juggernauts, the so-called the Seven Sisters of oil. One of the most cited works about the Seven Sisters, and the one I use extensively, is Anthony Sampson’s *The Seven Sisters: The Great Oil Companies and the World They Made* (1975). A journalist, Sampson’s writing provides an in-depth examination of the inner workings of the most important oil firms (the majors) as they once dominated the global oil industry. Although less politically focused than Odell’s

work, Sampson notes the connection between politics and oil in the context of global tensions and an emerging apprehension over access to supplies.

From late 1970s to the 1990s, we saw the expansion of a number of canons of literature connected to or inspired by the oil industry and its growing political importance. The development of International Political Economy (IPE), Resource Curse, and Peak Oil literatures at this time is particularly important to my research. Although IPE literature sought to understand a number of changes occurring in the 1970s, it was at least partially inspired by the politicization of oil after the first round of OPEC price manipulations. I have drawn on IPE scholars Robert Cox (1987) and Susan Strange (1988; 1998) in this thesis, as they examine the politicization of economics. In particular, Cox examines the process of neo-liberalization and the transformation of regulatory systems following the economic crisis of the 1970s from a critical economic history perspective, and Strange describes the transition of the global capitalist system into one dominated by high finance. Both authors are useful in contextualizing the transition that occurs in the oil industry's power dynamics between the OPEC era and the financialized period. Notably, Strange's work *States and Markets* (1988) identifies three phases within the oil industry as defined by their power players, recognizing Rockefeller, the Seven Sisters, and OPEC as the essential shapers of the oil industry (Strange, 1988, 198-199). My study adopts the same periodization. In *Mad Money* (1998), she examines the system of high finance more broadly, noting the growth of speculation in causing market price volatility. Although she does not focus on oil in her study, her concept of casino capital

(speculation driven, short-term profit seeking investment strategies) is certainly reflected in the paradigm examined in my research.

A second body of literature that emerged in this time period is the resource curse literature. The literature examines spaces of governance, usually at the level of the nation-state, although in countries such as Canada the resource curse is sometimes examined at the provincial or municipal levels. Put simply, the central premise of the resource curse is the suggestion that economic dependence on natural resource exploitation can lead to a lack of diversity within that economy, creating a vulnerability to market volatility particular to that resource. The more specific concept of the oil curse has emerged from resource curse literature, focusing on the impact of oil market volatility on oil producing economies, and to a lesser extent, on oil consuming economies. My thesis draws on Max Corden's works on the topic (1985; 1992), as he was the first economist to receive global recognition for his research and analysis. Because much of the resource curse literature tends to support government action to limit the risks associated with this curse, such as the influx of foreign currency driving up the value of the national currency and therefore the price of national exports, resulting in a loss of competitiveness and economic diversity, it tends to fit well with heterodox liberal literature. This paper will also utilize Ross (2012), who delves specifically into the topic of the oil curse.

Attempts to understand the modern paradigm of oil power have been made extensively under the peak oil literature. Peak oil theories were prevalent in oil literature

and discourse in the 1970's, gaining more traction in the 1990's and retaining momentum even today. Labban described the peak oil or peakist belief as being predicated on the belief that oil is an exhaustible resource and that the world is essentially dooming itself by shortsightedly allowing demand to grow despite an ever-depleting supply (Labban, 2010, 542). Peak oil scholars, including Foster (2007; 2008; 2009), Klare (2001; 2004), Peters (2004), and Renner (2006), are able to demonstrate that oil is an exhaustible resource, and humans clearly depend on the stuff from our global transportation-dependent supply chains to our daily reliance on plastics. Labban goes on to suggest that the prevalence of peak oil assumptions in the early 2000's actually contributed to the run up in prices that will be discussed in a later chapter. Although it is outside of the scope of my research to examine the impact of peak oil on the post-2000 speculative price bubble, it is interesting to note that Labban had drawn a connection between these writers and the Resource War literature that was particularly prevalent during the post 9/11 and second Iraq War theorists. The rhetoric that dominated the oil literature at this time was certainly influenced by the wars in oil-bearing regions during this period, spurring on fears that an oil grab signaled concern over access to future supplies.

Labban also suggests that peak oil literature has become less relevant in the 2000s (Labban, 2010, 541-542). Now that oil financialization has taken over the determination of pricing, high prices have led to rapid advancements in oil production technology, alternate energy production and conservation movements. In particular, Labban notes the relationship between oil pricing and the amounts of global reserves, noting that high pricing spurs investment into more costly areas of exploration and development. A

similar trend was noted by early peak oil critic Daniel Yergin (1991). At the heart of the criticisms of peak oil rests the problem of the current paradigm. High prices under the financialized oil platform have led to economic viability of secondary extraction from already depleted wells as well as the development of more expensive, previously untouched basins, such as those located in ultra-deep offshore and Arctic regions. Furthermore, high prices have caused consumers to seek alternative sources for energy, reviving electric cars, spurring the development of hybrids, diversifying electricity grids and vastly improving the size and efficiency of internal combustion engines. For developing nations, once a predicted source of booming oil demand, expensive oil has made sustainable energy development more economically viable, lowering projected demand increases as well.

In the light of these realities, peak oil has been replaced by another approach, that of peak price. The discourse on peak pricing remains in its infancy. Authors such as Labban (2010), Carollo (2012) and Economides and Oligney (2000), and publications such as *The Oil and Gas Journal* (2012), have noted trends that indicate that the height of oil pricing could create room for substantial changes to the character of the industry. The emergence of the term peak pricing in popular discourse came from a 2013 article in *The Economist*, called *Yesterday's Fuel*, which suggested that high prices will lead customers to either substitute other products or develop new technologies to reduce their use (*The Economist*, 3 August 2013). Thus, high oil prices can lead to a transition to alternatives that can ultimately lead to a decline of both oil consumption and production.

The oil literature since 2000 that I have drawn from represents a complex mix of past canons of literature and the emergence of new thinking resulting largely from the trend towards financialization, encouraged further by the dramatic run-up of oil pricing that occurred in 2007 followed by the economic crash of 2008. Of relevance to my research, the contemporary writings can be filtered into three streams. The first stream, the critical theory of financialization, is a broad body of literature that provides a foundational understanding of the processes and trends of financialization. The second group, the stakeholder-focused oil literature, draws from an extremely large body of literature, mostly emerging from the canons of IPE and geopolitics, that focuses on the physical industry at the level of regulation or within a particular geographic space. The last contemporary body of literature my thesis examines is that of financialized oil. This body of literature is based largely on works written by either industry practitioners or journalists, often lacking critical analysis, let alone a theoretical base.

Although this thesis examines financialization through an historical rather than theoretical framework, it is prudent to acknowledge that a substantial amount of the literature on financialization has undertaken extensive theorization and contributed to theoretical debates. Authors such as Foster (2007; 2008; 2009) and Fine (2014) have written extensively on the topic of financialization, seeking to define the financialization of modern economies drawing from predominantly Marxist theoretical understandings.

Foster (2007; 2008; 2009) defines financialization as “the shift in gravity of economic activity from production (and even from much of the growing service sector) to

finance” (Foster, 2007, 1). He argues that although financialization of capitalism has resulted in a more uncontrollable system, it is not in itself indicative of a new stage of capitalism. Foster (2009) also argues that financialization, which he sees as an irrational economic condition, perpetuates its own survival: “its long-term significance cannot be explained by standard economic models, but only in terms of its historic evolution” (Foster, 2009, 3). I agree with Foster on this point and my thesis utilizes the approach of economic history to draw out more meaningful understanding of long-term trends of power paradigms controlling the oil price. Foster’s extensive writing on financialization challenges the conventional, more mathematically driven, approaches to financialization literature. By applying his approach to areas impacted by this paradigm, such as ecology (which Foster takes a keen interest in), he is able to portray the way in which differentials in logic exist in between conventional economic structures and those of the systems that embody financialization.

Fine tells us that there is debate about whether a single definition of financialization can be mainstreamed. He articulates financialization as “the increasing presence of interest bearing capital, as distinct from credit as such, the role this plays in real as opposed to fictitious accumulation of capital, and how this has underpinned the period of neoliberalism, including the global crisis.” (Fine, 2014, 47). Fine continues by applying the Marxist understanding of accumulation theory and interest bearing capital to the concept of financialization. In particular, he distinguishes his work from that of Lapavistas (2011), who I address below. What emerges from his research is that there is some debate as to how to best apply Marxist theory to spaces of financialization, and that



this lack of consensus leaves significant room for further elaboration on the subject (Fine, 2014, 62-66).

Despite the extensive work of individuals like Foster (2007; 2008; 2009) and Fine (2014), room for further research surrounding financialization exists. These opportunities for further research are well noted by the special analysis undertaken by critical theoretical literature from the geographical perspective. French, Leyshon and Wainwright (2011) note that the limitation of spaces of financialization, which they argue can be categorized into the household (via equity effects), corporate (through capital markets) and regulatory (by the roles of nation states confronting increased instability), has contributed to the slow emergence of popular understanding of the term financialization, as compared to a term such as neoliberalism. As a result, they conclude that analysis conducted in the gaps between the aforementioned spaces could contribute to an overall improved understanding of financialization as a distinct area of focus (French, Leyshon and Wainwright, 2011, 798).

While the geographic perspective uses these spaces as a way of framing the financialization literature that allows for systematic unpacking of complex financial ecologies, the political economic perspective focuses more specifically on the process of financialization. The spatial framework laid out by French, Leyshon and Wainwright is reflected in the works of Lapavistas (2011), and Engelen and Konings (2010), who use these spatial understandings to organize their analysis. While my research in later chapters falls short of addressing the theoretical gaps created by the categorization of

financial spaces into these three categories, it does attempt to address the specific complexity of the process of financialization as it pertains to the space of the unique commodity that is oil. Critical literature is useful for the broader understanding and definition of the transition of the neoliberal flows of capital into the highly speculative financialized system. However, the implications of the distinct features of oil financialization for critical political economy theory is a discussion for a later date that could fill a gap in current critical financialization literature.

The second stream of contemporary literature provides informative insights into the actions of stakeholders in the contemporary industry. Whether examining regulatory and policy decisions at the level of the nation state, as the works of Goldthau and Witte (2010), Hughes (2014), and Sarbu (2014), or examining a mixture of political economic and geopolitical understandings of oil industry trends as do Bridge and Le Billion (2013), these works provide detailed studies of specific areas of a complex global industry, providing insights into the realities of stakeholder decision making within the context of their real spheres of influence. Despite their merits, these works have little acknowledgement of oil financialization. As a result, in some cases, works in this stream over-assume the power of stakeholders to influence global industry dynamics, as if they are acting within a vacuum that permits them significant regulatory power. This vacuum, I argue, cannot exist by virtue of the integration of oil as a commodity within the financial markets.

The last body of contemporary literature is that which focuses on the financialization of oil. Key sources include O’Sullivan (2014) and Carollo (2012). These resources are invaluable for their informative aspects, but also their understanding of the complexity of oil’s integration into the financial markets. Like Yergin (1991) and Sampson (1975) before him, O’Sullivan’s work *Petromania: Black Gold, Paper Barrels and Oil Price Bubbles* (2014) is a reflection of his background in journalism covering the oil industry. O’Sullivan argues that influx of capital into the financial products surrounding oil has contributed to oil price bubbles, like the one that happened in 2007. Carollo (2012) presents a more technical analysis that is reflective of his experience with Italian oil-company ENI. Both O’Sullivan and Carollo reach similar conclusions regarding the financialization of oil, essentially finding that the physical market and the financial market have diverged to such an extent that the common understanding of today’s oil price (which assumes the price is driven by physical market factors) is no longer relevant. Their research confirms my own conclusions that oil financialization characterizes the current oil price paradigm. Despite their importance to the latter part of my research, these sources do not accomplish the same goal as my thesis. My thesis attempts to draw out not only the complexity and flaws of financialized oil, but to recognize financialized oil as the source of oil power today, within the context of past power paradigms.

In the first section, my research investigates the historical frameworks of power structures through three of the major players and three eras of control. The first player, J.D. Rockefeller, and his Standard Oil empire, provides an example of the monopolized

structure that was forged under his influence. The second player, the so-called Seven Sisters (a consortium of the seven largest transnational oil companies), is investigated in relation to the free market experiment that emerged after the break-up of the Rockefeller monopoly following the introduction of the US Sherman Anti-Trust Act. The third player investigated in this section is OPEC, which emerged largely as a response to the geopolitical situation of the time that the Seven Sisters capitalized on for their expansion, namely the growth of Western corporate influence and the emergence of the Cold War. This historical analysis reveals both the apprehension of industry stakeholders about the boom and bust cycles of the industry, and the historical tendency towards industry centralization. It also reveals the vulnerability of centralized power to manipulation by those in control, and the eagerness of new power players to propose and implement alternatives.

My research then goes on to examine the transition to the financialized paradigm, portrayed largely as a continuation of the historical section that defines the contemporary period (which my research defines as the post-1970 era). This section follows the neoliberal policy revolution and corresponding expansion of financial markets, including their influence and control of commodity pricing, while tracking the lessening influence of OPEC. My research examines the realities of the new paradigm, and the complex ways in which investors have acted within its design. Lastly, my research focuses on the implications of this system on the major players today, including corporate and nation state stakeholders, as well as a very brief analysis of alternative paradigms that have been suggested (including a Central Bank for Oil, a fully unleashed market, and a greater

regionalization of markets). This last component is necessarily brief, as substantive research has yet to be done on what these alternatives to the current paradigm would actually look like, but nonetheless important. Throughout the reading of this work, the reader should remember that nothing is permanent. Oil power is a rope made of sand, and the inequity and failures of this system may well already be leading to a transition to a new power paradigm.

## **Chapter 2 : J.D. Rockefeller**

The following chapter will address the historical power paradigms that dictated oil pricing in the past. It follows a temporal analysis, beginning with the Monopolistic Era. This chapter will examine the paradigm of monopolistic price controls from one of the oil industry's most important historical figures, J.D. Rockefeller, before moving into the end of that paradigm and the transition to the second one, the endorsed free market. The endorsed free market focuses on the period of growth that established the so-called Seven Sisters of oil. This period also helped spur the third paradigm, the cartel period during the nationalist movements. This last period will focus on the significant and complicated rise of the Organization of Petroleum Exporting Countries (OPEC) paradigm, while its collapse and transition into the current system, based on a financialized system for determining oil pricing, will be addressed in later chapters. The brief stories of J.D. Rockefeller, the Seven Sisters, and OPEC show that these parties have all wielded a disproportionate amount of control over the global petroleum industry in their time. Their stories remind us that the petroleum industry is too important to be left to an unaccountable power, as all attempted to develop a paradigm that led to the system that best benefitted their interests. All of these systems have produced winners and losers, and no matter the intent behind their design, each paradigm has been proven to be vulnerable to abuses of power by the beneficiaries to such an extent that a change in paradigm is required to regain some semblance of balance. As my research will show, the current paradigm is no different, in fact, it replicates many of the features of the past problematic power relationships. This chapter will introduce the historical paradigms aforementioned

in order to extrapolate the essential factors that have become relevant to industry power relations even today. Three main trends are revealed in the historical study:

1. Petroleum control paradigms seek to stabilize oil pricing and protect stakeholders (historically either corporate or governmental) against unfavorable volatility (or boom and bust cycles);
2. They do so by attempting to consolidate and centralize control (centralization);
3. Control paradigms are likely to fracture when the existing paradigm fails to stabilize pricing.

Ultimately, these three factors provide a framework with which I examine the current paradigm. My research finds that it is true that throughout these paradigms and the current system, that petroleum power rests in the capacity to influence the price of the product within whatever system is in place.

It would be a failure of any study on the subject of oil power to neglect John D. Rockefeller's contribution. His Standard Oil monopoly not only led to the establishment of the modern oil industry and the fully integrated firm, but also the first U.S. legislation on competition, known as the Sherman Antitrust Act of 1890. P.H. Frankel (1969), one of the earliest 'oil economists,' analyzed Rockefeller's monopoly and the factors that make the oil industry perhaps uniquely susceptible to the pursuit of centralized control by stakeholders. His analysis, which finds the importance of oil to be both from its timing as a replacement for contemporary fuel sources, and its unique qualities that allowed for the

rapid multiplication of its number of uses, also grants the reader a clear introduction into the culture and logic surrounding the pursuit of centralized control over the petroleum industry.

Underpinning Frankel's argument is the idea that the oil industry has a natural tendency towards frequent cycles of booms and busts that perpetuate an atmosphere of instability that only the largest stakeholders can survive. He argues that because of this tendency towards highly volatile production, and thus continuously fluctuating pricing, the industry naturally desires greater co-ordination to stabilize pricing (Frankel, 1969, 144). This volatility is what Rockefeller would eventually come to recognize as proof that the petroleum industry must be controlled. Frankel's analysis is easily seen in the periodically romanticized early era of wildcat drilling,<sup>4</sup> where the boom and bust cycle was seen most dramatically. In the latter half of the 1800's and the first decade of the 1900's, the rush of interest in the potential wealth that could come from oil led to systemic over-production, followed by a collapse in pricing, and the bankruptcy of those individuals and enterprises that could not sustain themselves through periods of low pricing. The number of surviving oil companies shrunk, and only the larger companies were able to offset periods of price declines with profits made during periods of high

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<sup>4</sup>Wildcat drilling refers to exploratory drilling, which took place *en masse* by individuals and small start-ups during the early part of the U.S. oil industry. When successful wells were found, entire towns, such as Titusville, became known as oil-towns, where labor and services were based around the oil industry and the labor that flocked to the regions. A risky venture during the late 1800's, the chances of wildcatters coming up with a dry hole was around 95%, leaving many to face bankruptcy (Frankel, 1969, 17). The successful wildcatters become the stuff of legends, while those many who failed are long forgotten.



pricing.<sup>5</sup> Recovery inevitably followed, as the development of new uses for the product proceeded at an incredible rate, spurred on by low pricing, which would create new and greater demand.

The trend of extreme boom and busts became the common narrative for the earliest of oil towns, such as Titusville and Oil City, Pennsylvania. In the case of Titusville in particular, the city was no stranger to difficult economic climates. A former logging town, by November 1860, just 15 months after the initial discovery of oil by the loquacious jack-of-all-trades Edwin L. Drake, the number of producing wells in the area had increased to 75, breathing new life into Titusville (Yergin, 1991, 29). With the discovery of oil, the population rapidly multiplied due to a rush of people looking to benefit from the promise of oil wealth and the services supporting the oil workers, and land value increased dramatically (Yergin, 1991, 28). The influx of new wells quickly increased the supply of oil, with production increasing by around sevenfold in two years.<sup>6</sup> This increase in supply occurred far faster than the market demand, and just as quickly as the boom began, the price fell, leaving the entire town in dire financial straits. Prices fell from \$10/barrel to just \$0.10/barrel in a year (Yergin, 1991, 30).<sup>7</sup> The lessons of

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<sup>5</sup> Other tactics for survival during price wars included storing oil underground during periods of low pricing, although companies that did this required enough integration to refine low cost crude from other sources or risk losing market share. This strategy becomes more complicated in other countries where governments receive revenue from the sale of crude, and might prevent corporations from unilaterally engaging in the strategic holdings of reserves.

<sup>6</sup> Production in Pennsylvania rose from about 450,000 barrels in 1860 to 3 million in 1862 (Yergin, 1991, 31).

<sup>7</sup> In many ways the boom bust cycle was unavoidable without some sort of organized authority. As an industry with a heavy instrument and technology cost (fixed costs), and low variable cost oil production is

Titusville made apparent the vulnerability of resource economies and producing companies to commodity price fluctuations. Although a negative for the many producing stakeholders, the price collapse allowed oil to rapidly gain market share and encourage investments into other products, contributing to the industry's long-term growth. By the end of 1860, coal-oil refiners had either adapted to crude oil or were put out of business (Yergin, 1991, 30). Prior to oil's common use, the need for a new source of lantern fuel and lubricants for high-friction machines was becoming dire, because the traditional sources were inefficient (like 'town gas' derived from coal), dangerous (such as camphene, a derivative of turpentine with a tendency to explode and set homes on fire) or increasingly costly (such as sperm whale oil, which, due to over-poaching populations of whales, was increasingly becoming a luxury for only the wealthy) (Yergin, 1991, 22-23).

Rockefeller recognized that the volatility in pricing was caused by the lack of centralization around supply, however, the exploration and production side of the industry (upstream) carried risks that were too high in its early years for his immediate interest. He wanted to control the market, either by centralizing industry power or through some form of co-operation with competitors (Frankel, 1969, 32). Rockefeller saw an abundance of crude oil and a narrower market, and thought that supply would look after itself if he could control the marketing end. He also believed that the oil markets

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less flexible to market conditions than areas where variable costs are higher. In many cases as well, the high fixed cost makes it imperative that wells operate at the max levels of production, because cost per barrel decreased as output increased and in the case of many small companies in the early part of the industry, paying back the initial capital investment was a matter of preventing bankruptcy.

could not correct themselves without destroying many multitudes (Frankel, 1969, 80). Thus, from Rockefeller's perspective, centralization was the self-starter's solution to protect the predilection of the industrialist that sought out stability in the face of the volatile boom and bust cycles of the oil industry. For instance, if Rockefeller could control enough of the refining capacity in America, then he would be protected from competitors who tried to outbid him on crude oil purchases during periods of oil gluts, and those who would undercut him on refined product sales to the downstream consumers. Rockefeller saw the market's boom and bust cycles as fundamental problems, and the idea of a combine to be in the best interest of producers and consumers in the long run, reducing the speculative nature of the industry and promoting stability in commodity prices. Frankel suggests the same possibility exists under cartels in his work, and that they would not restrict access to oil to the rare or luxurious (through increasingly high prices), but rather, would show an interest in market stability. In particular, he recognized that oil cartels were more interested in levelling the discrepancies of supply rather than controlling demand (Frankel, 1969, 82-83).

Rockefeller concentrated on the industry around the downstream sectors, focusing on controlling the bottlenecks in refining, transportation and marketing. His empire began with horizontal integration around his Cleveland refineries, but he would later develop Standard Oil Company into one of the first vertically integrated, multinational corporations in the world. While establishing himself in refining in Cleveland with a particular mind for logistics and numbers, Rockefeller sought to take advantage of the fierce competition of growing railroad companies that were fiercely fighting amongst

themselves for market share.<sup>8</sup> On 2 January 1872, led by the president of the Pennsylvania Railroad (Thomas A. Scott) and a few other shareholders, the South Improvement Company (SIC) was established as a holding company designed to allow for the coordination among members of transportation rates and cargo traffic, while also providing substantial profits that would be channeled into offsetting transportation costs for the member refiners and allowing them to build up a fund large enough to protect the members from future price wars. After appearing at first reluctant, Rockefeller's Standard Oil Company (SOC), established just two years earlier, would soon join in as a major shareholder in the SIC. Rockefeller had already been making plans to turn Standard Oil into a trust, but recognizing the organization's strategic value for his long term goal of a consolidated oil industry, he leveraged his role as an influential refiner to shape the SIC in favour of Standard Oil. As Albert J. Churella explains in his history of the Pennsylvania Railroad, when it came to joining the SIC, "By the end of 1871 ... Rockefeller had agreed to join the cartel, if for no other reason than to use its anticipated failure as an excuse to bully his fellow oilmen into accepting his consolidation plan. Rockefeller in turn persuaded or pressured many of the other major Cleveland refineries to participate" (Churella, 2013, 364).

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<sup>8</sup> Pipeline transportation was another area of particular focus for Rockefeller, although his involvement in this area was significantly less controversial. Rockefeller recognized the significant inefficiencies that exist in global oil transportation. Because of the product's nature, oil needs to be transported twice (from the ground to the refinery, and from the refinery to the consumer), but traditional methods of transport meant that oil transport always has to return with empties (i.e. a tanker leaving full from an oil rich area returns from the delivery empty). Therefore, there is an added cost of return on oil barrels, drums, road and rail tanks, river barges, deep sea tankers, as well as incredible environmental inefficiencies. Pipelines do not have this problem, as they operate not in spite of oil's liquid nature, but because of its liquid properties. Pipelines require a stable concentration of population (demand) and a concentrated supply to be worth the investment.

While the SIC was sold to the railroads as being a mutually beneficial way to protect the joined companies from the fierce competition they felt was unsustainable, the benefits for the SOC were even greater. Rockefeller and the other refiners' role was as a mediator between the railroads, allocating cargo (in this case crude oil and refined petroleum products) in accordance with the distribution percentages agreed by the member railroads. "Rockefeller would later emphasize his role as a mediator of the cartel, asserting that his preferential rates constituted 'a proper consideration to the Standard Oil Company for the service which it rendered to all the interests'" (Churella, 2013, 364). These proper considerations included a rebate of almost 50% of the posted rail rates, and another drawback of 50% of the paid rate by non-cartel members (Churella, 2013, 366). This drastically reduced Rockefeller's costs, and allowed the Cleveland refineries to compete with the New York and Pennsylvania oil interests.

Of the competing regions, New York offered the greatest access to consumer markets. In 1862, the U.S. Congress passed a gasoline tax on kerosene as a way to generate wartime revenue, making it more profitable to ship the untaxed oil abroad to the markets in Europe. This led to an increase in the European refining capacity with a greater amount of crude attempting to bypass American refineries (Churella, 2013, 362). The rebates helped Rockefeller expand his market share, and more importantly to tell the American public that the SIC rebate structure was for the greater good of the country, protecting American refining over European interests.

When word of the SIC was made public less than a year after its establishment, the oil community was outraged. Most of the enmity was focused on Rockefeller, whose growing power and market share was now linked to rumors and private investigations of his unfair business practices and bribery. By the time the SIC was broken up (within the same year of its creation), Rockefeller had secured his place as the dominant refiner in Cleveland with a growing empire of his own. His influence having been cemented with his notoriety in the SIC, Rockefeller was able to create his Standard Oil Company Trust based in New Jersey that would lead him to a dominant position in the American oil market, mobilizing the interests of Rockefeller's various corporate arms nation-wide and coordinating them by using the SOC dominance, diversity and parts to leverage the industry in favour of the SOC. At the height of his empire, Rockefeller controlled 95% of the oil refined in the U.S., saying famously of the Standard Oil Trust, "The day of the combination is here to stay. Individualism has gone, never to return." (in Frankel, 1969, 133). This statement would rapidly be disproven, particularly for Rockefeller's Standard Oil Trust.

Shortly after Rockefeller's influence over the oil industry peaked, the US government began a concerted effort to rebalance the power of the private sector. Frankel described the growing concern around the power of monopolies during Rockefeller's time, which was not their ability to force consumers into paying high prices for an essential product, but the ability of monopolies to manipulate the industry's structure, particularly in favour of that monopoly's long term interests, and against those of its competitors (Frankel, 1969, 84). For US lawmakers this meant that regardless of the

impact of monopolistic pricing controls, the concern was that power over a vital industry had been stripped from the public's interests, which, according to the belief system of the US at the time, could only be protected by a capitalist system where competition could thrive. The Sherman Act of 1890 reflected the public's growing animosity towards what they saw as unfair business practices by increasingly large and powerful corporations. Rockefeller's name attracted much attention amongst public in this regard, especially due to the bad publicity received after the breakup of the South Improvement Company. To make Rockefeller's case worse, the public opinion of "Trust Capitalism" at the time was that it tended to take rather than give (Frankel, 1969, 92). The Sherman Act was designed to protect American markets from manipulation and ensure fair competition and business practices.

By the 1880's Rockefeller had integrated both into the upstream and downstream sectors of the oil business and controlled most of the refining in the country. When the Standard Oil Trust was found in 1911 to violate the Sherman Act (being determined by the courts to be a monopoly), the trust was forced to dissolve, leaving the SOC pieces to operate without coordination. Of the 34 subsidiaries that were cut loose by the decision against the SOC trust, some were able to take advantage of the rapidly developing consumer uses for oil (including the internal combustion engine) and would grow into the some of the major international oil firms we recognize today, including SOCONY (Mobil), SOCAL (Chevron), and SOCO (Esso). Because of the layout of Rockefeller's trust, many of these companies had a narrow scope and sought to diversify rapidly. They were forced to compete against each other for their own survival, some expanding

internationally in pursuit of new resources and markets. Critics have said the Sherman Act has too lightly punished its worst offenders (Sruder, 1987, 49). Although the Sherman Act was powerful enough to break up the Standard Oil Trust, Rockefeller was not charged with anything personally, allowing him to keep his financial position intact.



### **Chapter 3 : International Oil and the Rise of the Seven Sisters**

J. D. Rockefeller's ambitions were not for instant profit, but rather, to profit through monopoly to a much greater extent in the long run (Frankel, 1969, 75). The vision of a long-term power play was not unique to Rockefeller, although he was the first to achieve power in the industry to the magnitude that required U.S. Federal intervention. In Europe the still empire-minded powers had companies of their own fighting to break the region's hold on Rockefeller's oil with supply of their own. While as a continent the Europeans had little in the way of domestic reserves, many of the nations possessed a far bigger global reach in the form of their colonial power. Thus the first European majors were heavily invested in supply from abroad. Royal Dutch, run by Henri Deterding and Shell, run by Sir Marcus Samuel, were dependent on the influence of their governments in the colonies where they accessed their supplies and were able to grow with the diplomatic support of their home powers (the Netherlands and Great Britain respectively). Deterding would receive diplomatic, financial, and moral backing from the Netherlands as Royal Dutch was invested largely within the Dutch colonies, in particular, the Dutch East Indies (now Indonesia), where the wildcatting culture was frowned upon.<sup>9</sup> For the companies invested internationally, gaining access to resources required money, promises, and sometimes bribes in order to gain concessions. Deterding and Samuel

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<sup>9</sup> Wildcatting is an American term regarding the phenomenon of individuals (wildcatters) who would drill in areas not known to be oil-producing areas. Modern technology that allows for seismic testing and geological studies to predict oil reservoirs did not exist in the first part of the industry's history. Wildcatters were the frontier's people of the oil industry.

embraced some of Rockefeller's corporate innovations, especially the strength of vertical integration, merging their firms 1907 in a 60:40 split in favour of Royal Dutch. By joining their companies Royal Dutch Shell effectively had the strength of Royal Dutch's growing oil development and Shell's massive fleet as a global shipping giant. Where Rockefeller had always been skeptical of the upstream side of the business, and did not want to expose Standard Oil to a disproportionate amount of risk in that area, Royal Dutch Shell was integrated from the oilfield to the consumer (Frankel, 1969, 90).

Just a year later, in 1908, after almost going bankrupt, a man named William Knox D'Arcy, working with a growing oil company called Burma Oil (chaired by Lord Strathcona, the same man who financed the Canadian Pacific Railway), struck oil in Persian territory (now Iran) after receiving an oil concession from the Grand Vizier of Teheran to explore and develop over 480,000 square miles for just 20,000 British pounds, 20,000 one-pound shares and 16% of the net profits (Sampson, 1975, 53). One year after that, the Anglo-Persian Oil Company (AP) was formed. Right from its inception, AP was linked to the titled aristocracy of Great Britain and enjoyed a certain degree of diplomatic protection. With Royal Dutch Shell and Anglo-Persian, the Europeans, particularly the British, began to make their own mark on the industry. A result of the colonial power structure, close ties with an aristocracy amidst growing international tensions, growing domestic dependence on petroleum products, and the lack of domestic reserves, the European companies have been more internationally minded than the other international majors, including the remnants of Standard Oil. In the case of Royal Dutch Shell in particular, the influence of Marcus Samuel's roots in shipping made this particularly

clear: “The fleet of ships that he built up - before long a larger fleet than the Royal Navy - could serve as a symbol of the next phase of the industry, which was to have no geographical center or base, with its heart on the high seas, between a temporary source of and a changeable destination, owing allegiance to no single country” (Sampson, 1975, 52).

Perhaps more important than the international mindedness of the European corporate character, the merger of the two imperially minded firms and the success of Anglo-Persian marked a change in the character of oil companies and their structures of power. The rapid development of the consumer markets in the West, largely spurred on by the development of the internal combustion engine and advantages petroleum had over prevailing fuels at the time (namely coal) as well as the fast growth in the number of uses for refined petroleum products, made oil increasingly indispensable to national economic growth and led to a boom in the number of producers, but also a massive surge in demand. With market potential seemingly increasingly endless, the European majors began to fight for global market shares with the remnants of the Standard Oil Company, whose now independent subsidiaries were searching the globe to secure supplies outside of the saturated and highly competitive US market. As my research will examine next, the large companies operating at this time developed an incredible amount of power, with increasing diplomatic backing.

The ability of oil to squeeze out competing commodities (such as coal and natural gas at the time), by virtue of its efficiency, abundance and simple means of refining, kept

the demand for refined oil products high and demand growing. The importance of the product led to an increase in producers around the globe and a return to the boom and bust cycles that Rockefeller had attempted to prevent. Companies would engage in “price wars”, where they would flood markets with supply in attempt to squeeze out smaller competition. The biggest corporations were able to fend off the most drastic price wars due to their size, while many smaller companies were forced out of the business entirely (Frankel, 1969, 97). The seven biggest of these companies were:

1. Standard Oil of New Jersey (Esso, and later Exxon);
2. Standard Oil of New York (SOCONY, or Mobil);
3. Standard Oil of California (SOCAL, Chevron);
4. Texaco;
5. Gulf;
6. Anglo-Persian (rebranded to the British Petroleum Company in 1954), and;
7. Royal Dutch Shell (now commonly just Shell)

The companies that came out on top rapidly realized they had a lot in common with one another. Each company was a significant industry major before the 1920s, and they were all vertically integrated, attempting to be self-sufficient in their upstream and downstream operations (Frankel, 1969, 96). Of the seven, three were former members of the Standard Oil trust (Exxon, Mobil, and Chevron), two were European born (BP and Shell) and two were characterized by their Texas births and near immediate expansions abroad (Texaco and Gulf). Five of the seven had originated in America (Chevron, Exxon,

Mobil, Gulf and Texaco), and they began promoting the American ideologies surrounding labour and work to the global industry along with the rise of American influence globally, and the increasing power of the American consumer.

Thus of the seven ‘international majors’ no fewer than five have their headquarters and the overwhelming majority of their shareholders in the U.S.A., which also provides all the top management and a high proportion of the lower echelons as well ... Although many of their subsidiaries have a management consisting mainly of nationals of the country concerned it is seldom necessary to dig very deeply to find the key U.S. personnel whose job it is to ensure that American professionalism and expertise in oil reaches into the furthest parts of the company’s empire and who at the same time will be responsible for ensuring that the policy of the subsidiary is in line with the authorized interpretation of centrally taken decisions (Odell, 1970, 13-14).

The similarities in character and operating practices of the Seven Sisters were exacerbated by their similar products. Refining and drilling technologies were not proprietary; in some cases, the companies even worked together to share patents, and the refined products, particularly gasoline (Frankel, 1969, 96-97).<sup>10</sup> Clusterings of gas stations were often the visible battleground of the ferocious price wars between majors. In periods of drastic competition, the majors were willing to take a loss in order to protect their market share, but eventually the tough competition was unsustainable even for the majors.<sup>11</sup> Frankel recognized the futility of the price wars, and the inevitability of the companies’ coming together for a common goal: “they are not fighting for their share in a

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<sup>10</sup> As in the case of thermal cracking in the early twenties, companies found that attempts to distinguish patents would be a painstaking and painful process and instead decided to pool them together to exploit jointly. (Frankel, 1969, 96-97)

<sup>11</sup> Despite the large margin between production cost and the cost of refined goods to the consumers, the price of the final products is often made up by advertising, high commissions for distributors, and even bribery. Frankel argues that this reality breaks the competitive character of the product, seeing price wars therefore as self-defeating and supporting monopolistic pricing (Frankel, 1969, 54).

free market, but for their quota in the combine which is to be formed eventually.”  
(Frankel, 1969, 97).

With competition becoming incredibly fierce, governments, particularly in Western Europe and the United States, began to passively endorse their domestic oil corporations’ interests abroad, by using diplomatic influence, while promoting government backed conversions to oil to promote demand domestically, for instance the British Naval Fleet. Western governments began to use their control to divide up territories in the Middle East and hand out access of oil resources to friendly corporations. Krapels (1993) explained the growing importance of the Middle Eastern region after WWI: “...it is unlikely that Middle Eastern countries will be allowed to sort out their own rivalries (or, as was sometimes heard after the Iraqi invasion, that the Arabs will be allowed to ‘have their own civil war’) ... The oil stakes are simply too high” (Krapels, 1993, 75). The main beneficiaries of this region’s resources were Anglo-Persian (in Iran) and Gulf (which took a chance on exploration in Saudi Arabia). Elsewhere, the Seven Sisters perpetuated their cycle of bitterly fighting with each other followed by periods of temporary cooperation, while increasingly developing a trend towards “closing ranks” by forming consortiums against outside pressures, particularly when they ventured abroad to higher risk areas where their domestic governments carried less influence, in order to share risk. Frankel notes that the independents increasingly preferred to work in a ‘combine’ internationally, under a certain standardization or observation of certain rules to which the combine parties agreed (Frankel, 1969, 85). Even in America, there was some attempt to work in a coordinated fashion for the better interest of the group, in

particular, to protect themselves against the damaging boom and bust cycles in the upstream sector and later in the downstream. At this point, the endorsement of government powers over the free market system began to falter, while the power of the Seven Sisters to act together, without need of their government bases, began to grow.

It was in 1928 that the Seven Sisters cartel was quietly formalized in an agreement at Achnarry castle in Scotland. The Seven Sisters began to collude to keep the price of oil adjusted to suit their interests. They respected each other's market share to a degree, preventing competition from getting out of hand and harming their long-term strategic interests. In the 1930s, governments began gearing up for another conflict (in particular, Russia, Germany, the United States, Japan, and Great Britain), expanding military production and building enormous infrastructure projects (both as a display of wealth (i.e. US) and to pull the struggling economies out of recession (ie. Soviet Union and Germany)). Oil was vital to this period as the growth of military technologies, in particular plastics, chemicals, automotive and aeronautic technology, increased the demand for oil products substantially. Furthermore, access to cheap oil was becoming a part of the Western mindset, particularly in the United States. "The right to travel cheaply, to have cheap electricity and cheap heating, became regarded as part of American democracy and the whole landscape was already being transformed by the product" (Sampson, 1975, 60). At this time the major companies, which included the Seven Sisters, gained massive amounts of capital, while continuing to prove adept at navigating the world market without the need to make drastic concessions to influential political powers. For about 20 years, the companies in essence created a system that in

many ways paralleled the one Rockefeller had developed for the United States on his own. As large firms often do, each of the Seven Sisters began to take on the look of a government department, with the executives engaging in diplomatic discussions with foreign governments as equals, if not superiors to the governments in these states. Their increasingly coordinated movement abroad and their vast resources, which surpassed those of smaller governments, allowed the Seven Sisters to act as what increasingly appeared to the developing world as an extension of the imperialist influences of the industrialized West. At their peak, these companies were responsible for about 80% of global production, 70% of total refining capacity, and over 50% of the tonnage of internationally operating tankers (Odell, 1970, 13). The likening of the Seven Sisters to Western imperialism is what initiated their downfall.



## **Chapter 4 : The Rise of OPEC**

The increased demand for oil within developing nations after WWII coincided with anti-imperialist sentiments against the dominance of Western governments and Western corporations (in particular the Seven Sisters). Both Western governments and corporations became the victims of their own practices. Many exploited nations began to express their desire to break out of the oil pricing paradigm and reclaim control by nationalizing the industry. Of the wide variety of formulations and successes of nationalization throughout this period, there are a few generalizations regarding the context and background of decisions to nationalize oil corporates that must be noted. First, the wave of nationalizations was the manifestation of a recognition of the contemporary and future importance of oil to the economic survival of a nation, particularly for those that wished to industrialize. Alternatives, such as nuclear and solar, were still early in their inception, and the technology was far more expensive than most developing nations could reasonably afford. For both oil producing and oil consuming nations, oil seemed to be too important a commodity to leave to the control of any other body.

The second factor that should be noted is that the discussion of nationalization fit within the context of the cold war tensions. This meant that even talk of nationalization could create a panic amongst Western states based on fears of communist uprisings, and often meant that states considering nationalization risked alienating the world's largest consumer markets and banks. This possibility of antagonism also applied to the

communist powers, albeit to a lesser extent. Lastly, nationalization was increasingly considered as a mechanism, with or without other policy tools, to pursue a variety of objectives, subject to the interests of the state in question. Ultimately, for many nations at this time, the decision to nationalize had to balance the degree of exploitation a nation felt they were subjected to, the degree of dependence and exposure a nation felt towards the powerful West (or the communist powers as mentioned previously), and the benefits that could be redeemed from this process.

It is beyond the scope of my research to analyze the various nationalizations that took place in response to the exploitation of domestic oil industries by the Seven Sisters.<sup>12</sup> For the purposes of my research, the focus will rest on the creation of OPEC, as a cartel of states with nationalized firms that sought to directly challenge the Seven Sisters' oil industry dominance. OPEC was formed in 1960 by nations particularly vulnerable to oil industry exploitation, in particular the manipulation of posted oil prices after the 1928 Achnarry Agreement. The original members, Venezuela, Iran, Iraq, Kuwait and Saudi Arabia, were all located within America's direct sphere of influence, and had been angered by a Seven Sisters decision in 1959 to reduce the posted prices for their crude. The interest of the Western powers in the Middle East in particular centered on its vast oil resources and its proximity to the Soviet Union, whereas Venezuela was within America's Latin American purview, and under increasing pressure from communist

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<sup>12</sup> Sampson's *The Seven Sisters* (1975), and Odell's *Oil and World Power* (1970) provide comprehensive introductions to the subject.

movements throughout the region. Although America considered itself to have a significant amount of soft-power influence over these OPEC states initially, the corporations that made up the Seven Sisters could not say the same, as over the next two decades their power waned significantly.

OPEC nations sought to break the paradigm by seizing their own sovereignty and using the leverage they possessed as allies of Western nations, in essence by taking advantage of the dependence of Western states on both Middle Eastern and Venezuelan oil reserves and their strategic locations within the Cold War. OPEC states were able to stage a poker game that challenged the West to risk antagonizing what had been fairly complacent allies in order to protect corporations that had shown increasingly little need of government protection to access new markets. The Middle East, in particular, was a region that was considered too important to risk alienating: “[d]uring the Cold War, ‘free world’ access to oil supplies, especially those of the Middle East, was one of the premier foreign policy interests of the United States and its allies, particularly the United Kingdom, which maintained a sizeable military presence in the region until the 1960s” (Krapels, 1993, 73). The West instead allowed diplomatic relations between with the OPEC nations to continue for the most part despite the obvious affront to the Seven Sisters. OPEC was now granted license to consolidate their influence on world oil pricing, largely by focusing on controlling the means and amounts of their own national production and controlling the exposure of their reserves to foreign interests and firms. The result was a consolation of OPEC influence over their own massive and seemingly

inexhaustible reserves, while the Seven Sisters became increasingly aware of the exhaustibility of their own wells.

Carollo argues that the power of the Seven Sisters over the oil price from the time of OPEC's creation in 1960 to 1973 rested on a price set unilaterally by these companies. He said: “[t]he experts in the energy sectors in charge of forecasting the price of crude oil for the current year used to describe the model employed for the forecast with the following, colourful but effective, phrase: ‘take the price used by Exxon, add it to that used by Shell and divide the sum by two’”(Carollo,2012, 30).<sup>13</sup> The Middle East and Venezuela, with their vast oil reserves, had been particularly affected by foreign price setting. In hindsight, the rise to OPEC seems an inevitable response under these exploitive conditions. The ability of OPEC to directly influence pricing will be discussed in the next chapter, however it is critical to note that the cartel’s rise, in particular, OPEC’s intention to prevent further manipulation by external forces, would not prevent the cartel from manipulating the market itself.

Chassez le naturel il revient au gallop - whatever we may do, the fundamental factors come to the surface: the oil industry, to exist at all, calls for concerted effort and, however often a co-operative structure may have been disturbed or broken up, it will soon begin to form again (Frankel, 1969, 97).

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<sup>13</sup> Carollo goes on to summarize the crude oil pricing paradigm under the Seven Sisters as an equation: Crude Oil Price = Benchmark Price +/- Differential (Carollo, 2012, 30-31). This pricing mechanism was easy to forecast, however it remained dictated by the corporate interests of the powerful companies, and was not necessarily reflective of industry fundamentals if these were overridden by the interests of corporate interests.

Frankel believed the oil industry was predestined for centralized control, particularly around pricing, and history seems to have confirmed his prediction. Frankel's perspective rested on the premise that oil had to meet four conditions:

1. Steady demand;
2. A standardized and easily definable product;
3. Heavy transportation, fixed or overhead costs; and,
4. A propensity by actors for collective agreement and actions (Frankel, 1969, 82).

Oil meets these four requirements, and the history of Rockefeller, the Seven Sisters, and OPEC seemingly prove Frankel's argument correct, but my research will go on to distinguish the current paradigm from these historical trends. As I turn to the contemporary industry, I will reflect on the failure of pricing paradigms past. Centralized control has never established a stable regime that has any longevity. Inevitably the victims of power plays by the dominant power controlling industry pricing (historically through market manipulation) will begin to revolt and overturn the established authority. Centralized control, however inevitable, appears not to work.

The creation of OPEC was more than a refusal to allow western oil companies to control domestic natural resources; it was also a rejection of the Cold War geopolitics,

and particularly the capitalist “first world” strategies that affected the international (the so-called “third world”)<sup>14</sup> oil industry. The shift of pricing power and supply control from the capitalist sphere to the international sphere under OPEC gave this cartel immense clout politically, particularly in the Middle East, where most of the members were located. In 1973, OPEC, led by Saudi Arabia, showed its discontent with the Western defense of Israel during the Yom Kippur war by initiating an oil embargo directed particularly against the United States and the Netherlands (which allowed use of Dutch airfields to the Americans). Under the leadership of Saudi Arabia, OPEC started to publish a price list for oil, always based on Arabian Light as the benchmark. It was at this point when Saudi Arabia adopted the role of a swing producer, altering its production levels to control the supply of oil to the global markets, citing a rapid increase in the cost of crude prices posted by OPEC from \$2 to \$12-\$15 per barrel. At the time, the price of other crudes were set by referring to the cost of Arabian Light and establishing a price differential that accounted for market factors pertaining to other crudes (Carollo, 2012, 31). Just as one would expect of a centrally coordinated industry, at the time of the embargo in 1973, OPEC exhibited perfect control of the supply. Nineteen seventy-three became known as the first oil shock, but in reality, the shortage of supply faced by the

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<sup>14</sup> At this point, and for this time period, it is useful for illustrative purposes to return to the Cold War three-world system for describing regional interests, however in the terms of the oil industry at the time, the terms utilized will be the capitalist sphere (known as the first world, referring to America and the United Kingdom as well as their immediate neighbours and secured spheres of influence), the communist sphere (the Soviet Union and China predominantly, however also including their other dependents who benefitted from oil subsidies), and the international (the third-world, or the rest of the world where the capitalist and communist powers attempted to vie for control and influence).

West during the embargo was exacerbated by a number of factors the United States had initiated just years earlier.

Carollo argues that the price of oil under OPEC prior to the embargo was stable, “since the producers were able to regulate supply according to any fluctuation in demand” (Carollo, 2012, 31). But this ignored the rapid changes in the economic landscape of the global exchange system just two years earlier. After years of problems managing the US dollar’s fixed link to gold, and in particular honouring its commitment to exchange dollars for gold at a fixed rate (leading to rehypothecation, simplified as asset flipping), President Richard Nixon issued an executive order to end the Gold Exchange Standard and allow for the US dollar to float freely.<sup>15</sup> This sent signals to the industrialized nations to increase their currency reserves in case of short-term fluctuations in currency valuations, which meant increasing their money supplies, and ultimately appreciating their currencies relative to the US dollar. Since at this time oil was purchased with US dollars, oil producing nations received less revenue, so OPEC desired an end to the oil price connection to the dollar. As the Kuwaiti oil minister commented at the time: “What is the point of producing more oil and selling it for an unguaranteed paper currency?” Seeking to stabilize the price of oil, OPEC sought to link it with gold

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<sup>15</sup> The US pulled out of Bretton Woods in 1971 signaling an end of the Gold Exchange Standard, whereby the US dollar had been fixed to the price of gold, and other national currencies were fixed to the US dollar. The US dollar could then float with market demand.

(Hammes & Wills, 2005, 507).<sup>16</sup> Hammes and Wills further illustrate the implications of floating currencies:

As OPEC quickly learned, the currency or commodity in which the price of oil was quoted did matter now. If contracts had been stipulated in pounds sterling, then in October 1973 OPEC would have received from U.S. consumers \$4.32 per barrel (versus \$4.31, the quoted price at the time). The prices are virtually identical because the U.S./U.K. exchange rate had not changed. However, if contracts had been stipulated in Yen, OPEC would have received from U.S. customers \$5.82 per barrel (versus \$4.31). And if contracts had been stipulated in gold, by October 1973 OPEC would have received \$11.83 per barrel from U.S. buyers (2005, 503).

The United States' balance of payments deficit was exaggerated by the shortage of oil supplies and the increased price of oil while the OPEC nations rapidly benefitted from the higher posted prices. This created another phenomenon, the recycling of petrodollars,<sup>17</sup> which had the effect of further exacerbating the US balance of payment problems. The first oil shock brought to an end the period of relative stability in oil pricing that was the result of three generations of centralized control over the oil commodity (Rockefeller, the Seven Sisters, and OPEC's early years). From 1874 to 1974, the price of oil (converted to 2007 US dollars) fluctuated between \$10 and \$20/bbl

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<sup>16</sup> Where the valuation of gold to the US dollar increased from \$38/ounce at the time of the US departure from the Gold Exchange Standard to \$455/ounce by the end of the 1970s, the price of gold increased 1,200% in a single decade, while by the middle of 1973 the US dollar had fallen on average by 25% relative to other major Western currencies (Hammes & Wills, 2005, 504).

<sup>17</sup> Petrodollar recycling refers to the point when OPEC's net US dollar revenue exceeded the amount the nations could spend domestically. Instead, the nations invested in a number of other areas, including aid and the international oil industry, but importantly, investing in US and European banks. The countries, like other importing nations struggling through the 1973 oil shock, were in essence loaning money to buy oil from the nations they received the loan from. This rapidly increased the debts of these nations, while partly minimizing the effects of the embargo the OPEC nations themselves implemented. OPEC's benefits were great from this era, benefitting from the influx of wealth from the higher oil pricing, earning interest on their investments abroad, and maintaining the mission intended with the embargo by forcing oil importers to take out loans for the oil they could no longer afford.



(Baylis and Smith, 2006, 145), and between 1947 and 1967, the price of oil rose more slowly than US inflation (increasing by less than 2% per year) (Hammes & Wills, 2005, 505), but after the end of the Gold Exchange Standard and the supply shortage of the 1973 oil embargo, price stability would become harder to achieve. As my research has already shown, the fact that OPEC could dictate oil pricing during the height of its power in the early seventies is not in question, they could and they did, whether by seeking stability after the devaluation of the US dollar (by separating the benchmark price from the dollar), or by exercising their control over supply in the embargo. However, OPEC's power was now tainted in Western public opinion, and the governments of the West responded by shaping their international and oil policies around regaining control over the oil industry and market.

## **Chapter 5 : The Contemporary Pricing Paradigm for Oil**

### **The Decline of OPEC and the Second Oil Shock**

The oil shocks of the 1970s spurred on a great interest by the West, in particular, the United States and the United Kingdom, to protect their domestic economies from oil price manipulations. By the time of the second price shock in 1979, the oil industry had become deeply linked to political discourse, and the prevailing policy discussions became both reactionary and proactive. The reactionary developments recognized the particular dependence on Middle Eastern oil, pressing the belief that "... oil policy in the United States and all other importing countries should be based on the expectation of occasional disruptions to the oil supply from Saudi Arabia, Kuwait and the Emirates" (Krapels, 1993, 77), whereas the proactive policy developments sought ways to break the influence of OPEC, and in particular, its Middle Eastern members on the Western oil market altogether. At this time a complex and interwoven series of changes to the global economy, geopolitical structure, oil industry and oil market would begin to dismantle OPEC's control over the oil price and supply.

The immediate reaction to the high pricing in 1973 was to initiate a discussion around diversification of energy sources. Western governments began to invest heavily in nuclear and mixed-fuel (operating on both oil and gas) stations to attempt to lessen the dependence on oil. This had some success, particularly in Europe, where a structural crisis occurred in the refining system as a result of the progressive reduction in oil consumption (Carollo, 2012, 32 & 34). In 1974, just a year after the embargo began, the

International Energy Agency (IEA) was created under the banner of the Organization Economic Co-operation and Development (OECD), with two major purposes in mind: the first, to encourage mutual assistance amongst members in the event of another massive disruption to the supply of oil (a direct reference to the embargo and OPEC), and secondly, to facilitate the sharing of national oil data (i.e. supply and demand, stocks etc.) and energy policy information (Carollo, 2012, 32). With its headquarters based in Paris (on the same continent as the OPEC research bureau in Vienna), the IEA also attempted to directly undermine OPEC's power by encouraging its member states to develop strategic reserves with the purpose of preventing future supply disruptions.

In addition to OPEC quickly facing challenges to its power over oil by governments of importing nations, it also faced threats from the former Seven Sisters as well as emerging nationalized oil companies (NOCs). The last wave of nationalizations removed many of the remaining super-majors' (especially the former Seven Sisters') upstream assets,<sup>18</sup> and these companies took advantage of high oil pricing to attempt to reposition themselves by investing in reserve acquisitions and exploring and producing new areas (Al-Moneef, 1998, 205 & 207). As more oil deposits were found all over the non-OPEC world, including Canada, the Gulf of Mexico and the North Sea, this trend marked a key turning point in the Western efforts to break OPEC's power. Even new

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<sup>18</sup> The physical oil industry is often broken up into three sectors, the upstream, midstream, and downstream sectors. Upstream refers to the exploration and production of crude oil, while midstream refers to the transportation, sale and marketing of crude oil. The downstream sector, sometimes also called the production phase, includes the refining process, along with refined product transportation and marketing.

finds in the Arctic inside the Soviet Union (bringing the USSR's potentially recoverable petroleum reserves to 60 billion barrels) challenged OPEC's dominance over the international oil market (Krapels, 1993, 81).

On 11 November 1976, the Brent field in the North Sea (operated by Shell UK Exploration, a partnership of Royal Dutch Shell and ExxonMobil) started production. In the following December, the first oil tanker left the terminal with a cargo of crude, Carollo recalls this as a moment "which would soon upset the balance of the world oil market" (Carollo, 2012, 32). From the perspective of the West, the discovery of these new supplies shifted the balance of supply back onto a more equal footing. In line with the increasingly liberal policies of the Western leaders at the time, oil pricing control, and ultimately oil industry control, could be redirected to the free market utilizing the new abundance of non-OPEC supplies. Carollo suggests that it was this rebalancing of power through the finding of non-OPEC supplies that made non-OPEC states relevant to the oil industry again (Carollo, 2012, 34). As the end of the seventies approached, the implications of the process of nationalization also impacted OPEC's ability to find a common interest in high prices among other corporate producers. The process of de-verticalization that took place after the international majors lost much of their upstream influence meant they were no longer willing to take losses in their refining and marketing sectors to grant relief to the consumer and maximize profits on crude. In light of the success of post-1973 initiatives promoting alternate fuels, and finding new sources of supplies, this inability to promote cooperation with companies external to OPEC limited its scope for action and resulted in further volatility in pricing. By revealing flaws in

OPEC's reach over the entire industry, the Western mission to break up the control of oil pricing was emboldened.

A second oil price shock in 1979 occurred in the wake of the Iranian Revolution that saw the overthrow of the American-backed Shah and the installation of the Ayatollah Khomeini. The upset caused a drastic reduction in Iranian production, which would be coupled with a further reduction in Iraqi production following Saddam Hussein's seizure of power in Iraq and the outbreak of the Iran-Iraq war just a year later. The 1979 invasion of Afghanistan by the Soviet Union contributed yet another pressure to the oil industry, at least from the perspective of the largest consumers in the West, who regarded Afghanistan as being close to America's remaining stable oil interests in the Middle East. Ultimately, this evoked a fierce determination by UK Prime Minister Margaret Thatcher to further break dependence on what she saw as unreliable OPEC nations,<sup>19</sup> and initiated a response by US President Jimmy Carter, who issued the so-called "Carter Doctrine" during his State of the Union Address on 23 January 1980. The doctrine stated that "any attempt by an outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interest of the United States of America and such an assault will be repelled by any means necessary, including military force" (Krapels, 1993, 73). Although the balancing act between the two superpowers and the ongoing turmoil in the Middle East was important to the security concerns of Cold War era-politics, the oil interests of

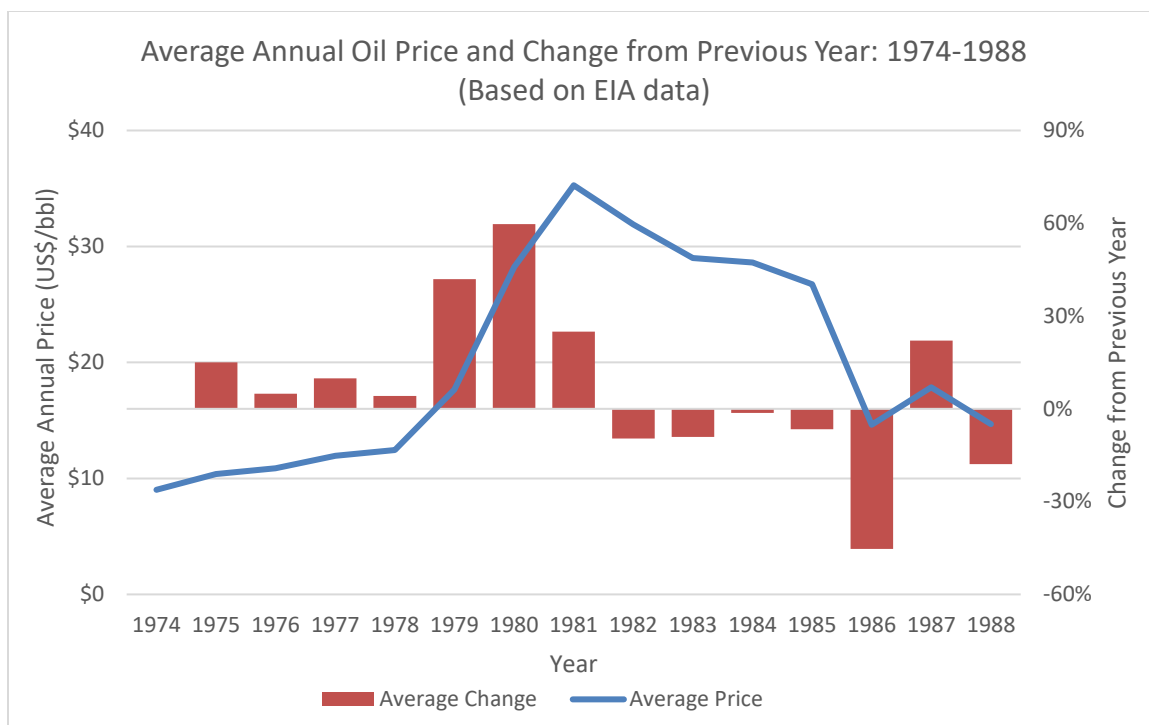
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<sup>19</sup> Carollo summarizes this as a part of the years when UK Prime Minister, Margaret Thatcher, wanted to "deal a powerful blow on the excessive power of the OPEC countries" (Carollo, 2012, 35).

the United States had by this time become implicitly linked with any policies directed in and around the OPEC states, and predominantly the Middle East. For Krapels, “the fact remains that during this period the role of Middle Eastern oil in world affairs was defined largely in the context of superpower relations. The Soviet Union’s influence was to be minimized, and to that end aid was given, troops dispatched, corporations created, diplomacy crafted and oil production encouraged” (Krapels, 1993, 73).

Although the actual impact on reducing global production was mitigated by the growing production from non-OPEC nations, panic in consuming nations (who remembered the price hikes of the 1973 oil shock) contributed to the purchasing and stockpiling refined oil products. Among other market factors partly attributed to the anticipation of a price spike, the hype around the oil price became a self-fulfilling prophecy. It resulted in inflating demand and driving up the cost of oil (still priced based on the Arabian Light benchmark). The Federal Reserve in the United States decided that rather than allowing the increase in the price of oil to move through the US via inflation (as they had done in 1973), they would increase interest rates in an attempt to restrict access to credit, ultimately leading to a recession. At the same time, US President Jimmy Carter began to scale back price controls on oil (completed by Reagan a few years later), boosting more expensive domestic production further. The elections of Prime Minister Margaret Thatcher (UK, elected in 1979) and President Ronald Reagan (US, elected in 1981) ushered in a period of liberalization across the West.

OPEC countries faced the dramatic rise in oil stocks (both in ground and in the form of strategic reserves) and internal problems, and as a result struggled to find customers for their oil and could no longer find a common strategy to adjust production to meet the new demand. OPEC attempted to force customers (mostly other nations) to purchase the same quantities of oil they had in previous years at the official sale price OPEC set, in order to maintain maximum levels of production. OPEC would sell the remaining oil these customers didn't purchase to independent traders at discounted rates (Carollo, 2012, 34). Carollo notes that within a few months, "two parallel markets were actually created, one based on official prices and the other on spot prices... Thus, for the same type of crude there could be two prices, differing by as much as \$10 per barrel" (Carollo, 2012, 34). In an attempt to fix this problem, OPEC met and lowered the official sale price of Arabian Light (from \$34/bbl to \$29/bbl), further in tandem with the results of the reduction of price controls in the US, and attempted to re-establish lower production quotas (Carollo, 2012, 34). By 1982 these factors caused the price of oil to fall drastically (See Figure 5-1). The figure below, based on data collected by the US Energy Information Administration (EIA), shows the fall in oil pricing from a high annual average price of \$35.28/bbl in 1981 to a low annual price of just \$14.64/bbl just five years later in 1986. The implications for the Third World were dire. Oil importers faced massive bills to cover their debts from the period of high pricing, and oil exporters were hurting after initiating costly industrialization programs just to have the oil price collapse.



**Figure 5-1: Annual Oil Price (1974 - 1988)**

As the low price of oil continued into the early eighties, OPEC's flaws were revealed. While purchases of OPEC crude declined sharply in 1982, the cartel continued to attempt to post aggressive pricing (Carollo, 2012, 33). Saudi Arabia took on the primary responsibility of maintaining OPEC's relevance, cutting their production rate from 11 million barrels per day in 1981, to around 2.5 million per day by 1985 (Carollo, 2012, 35). This forced Saudi Arabia to become a swing producer for the cartel, meaning the nation would adjust production rapidly to account for fluctuations in the market fundamentals in order to stabilize the oil market. This position has been to the detriment of Saudi Arabian national interests, but even today the nation has not been able to abandon this swing producer role. One of Saudi Arabia's ministers voiced the frustration at feeling taken advantage of in August 1985 (Carollo, 2012, 35).



This period of external challenges to OPEC was made worse by growing internal turmoil. OPEC's meetings to set production quotas would generally conclude with agreement amongst members, regardless of their inclination to specific pricing (hawks, moderates and doves). In practice, however, these production targets were rarely followed, often with individual members producing as much oil as they could, creating an air of competition and mistrust among OPEC members. The OPEC NOCs would routinely make commitments with companies in importing nations regarding marketing and refining, particularly the largest three (Saudi Aramco, Kuwait Petroleum Company, and Petroleos de Venezuela), but they would not make these commitments with one another, regarding each other as prime competitors (Krapels, 1993, 78). Hamilton describes the OPEC production setting meetings as more of a political show than a forum to set a binding agenda:

It is hard to find any clear monitoring or enforcement mechanism for implementing OPEC's announcements, which instead seem to have more of the character of each country deciding what it wants to do anyway and the organization then making an announcement of the collection of those individual decisions. Under such a view, the announcements of the group then serve mainly political interests, giving countries like Iran and Venezuela an opportunity to appear to their domestic constituencies to be fighting for higher oil prices, and giving countries like Saudi Arabia an ability to spread the blame for its decisions over a broader group (2008, 23).

Without a limit to the scope for independent action by the members of OPEC, including contractual mechanisms, the cartel struggled under growing global competition and regional instability in the Middle East to promote the type of cooperation the Seven Sisters had been able to manage. By the mid-eighties, OPEC's inability to stick to production quotas meant it was no longer an effective cartel. The differences in the

agendas of the member nations continued to hamper the group's initiatives. "OPEC's weakness has always been the diversity of its members and the absence of a true cartel leader, a De Beers, so to speak, of the oil world" (Krapels, 1993, 78).

Beginning in 1985, Saudi Arabia, tired of playing the role of swing producer, decided to renounce the official price system OPEC used and attempted a new way of setting prices called a netback value system. The netback value system, by which the price of crude was established at the end of the downstream phase after the refined products had been sold, guaranteed a fixed margin on every barrel of crude throughout the downstream phase. The price was determined by subtracting the production costs from the average price realized per barrel, leaving an amount that reflects the net profit per barrel. The average cost of production was based on factors that add costs to getting that oil to market (for instance, royalties, transportation costs, refining and upgrading costs, marketing and import fees).<sup>20</sup> The incentive of expected profits led to a rush of corporate participation, especially by those with an integrated downstream sector like the former Seven Sisters, and resulted in fierce competition even among other OPEC nations, which began to adopt this system for themselves. As a result, the market was unleashed from the OPEC controls and another price war ensued, similar to that seen during the

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<sup>20</sup> Carollo (2012, 36) describes the netback value system as such:

a. Revenue obtained from sale of finished products	100
b. Costs incurred for transport of crude	5
c. Costs incurred for refining crude	5
d. Finance and other charges	4
e. Guaranteed margin for customer	10
Price to pay for crude ( $P = a - b - c - d - e$ ).	

periods of transition before Rockefeller's monopoly, the rise of the Seven Sisters, and the rise of OPEC. This competition led to a flood of crude and finished products as producing countries and refiners fought over market share. The OPEC price doves (led by Saudi Arabia and Kuwait), using the netback value system, allowed oil prices to plummet from \$30 to \$15/bbl. The Kuwaitis in particular disregarded the old OPEC quotas, encouraging the price to fall to the detriment of the price hawks and moderates (Krapels, 1993, 79). Members began to question each other's motives, particularly the hawks and doves, with the hawks suggesting the doves might be taking pricing cues from the West. By 1985, OPEC was increasingly ineffective, and while still in control of a large percentage of total global oil reserves (Yergin, 1991, 748), the inability of OPEC to encourage cooperation among members in the face of growing external opposition meant that the cartel was no longer able to dictate the global oil pricing alone.

### **Establishing a New (anti-OPEC) Paradigm of Pricing**

The decline in OPEC influence ushered in a new era in pricing control for the global oil market. Once again, in absence of a clear leader or mechanism for pricing, the cost of oil per barrel became volatile, revealing the failure of the netback value system to stabilize pricing. Figure 5-2 (below) shows the percent change in oil pricing from the previous year for the ten-year period from 1985 to 1995. It illustrates the implications of the netback system and the end of OPEC's clear leadership over the industry, which led to fierce competition and a flood of crude and refined products into the market that coincided with the drastic downward move in pricing between 1985 and the

implementation of the new paradigm in 1986. Ultimately, with OPEC increasingly unable to dictate global pricing by controlling supply, and in absence of another clear stakeholder (governmental or corporate) in a position to take on control, the increased volatility in pricing created a need amongst oil buyers and sellers to hedge<sup>21</sup> future price fluctuations. In light of this, oil became linked to the emerging commodity markets in New York and London, creating a new pricing paradigm, financialization. Financialization,<sup>22</sup> which leaves the pricing of oil to the confidence of investors, is a paradigm that favours Western wealth in particular, and increasingly, outsiders to the oil market itself (this will be explained in detail below). This was also the era that saw the meteoric flow of funding into oil commodity markets and oil derivative products. While supply and demand have not become obsolete, they have been forced to interact through an intermediary financial market.

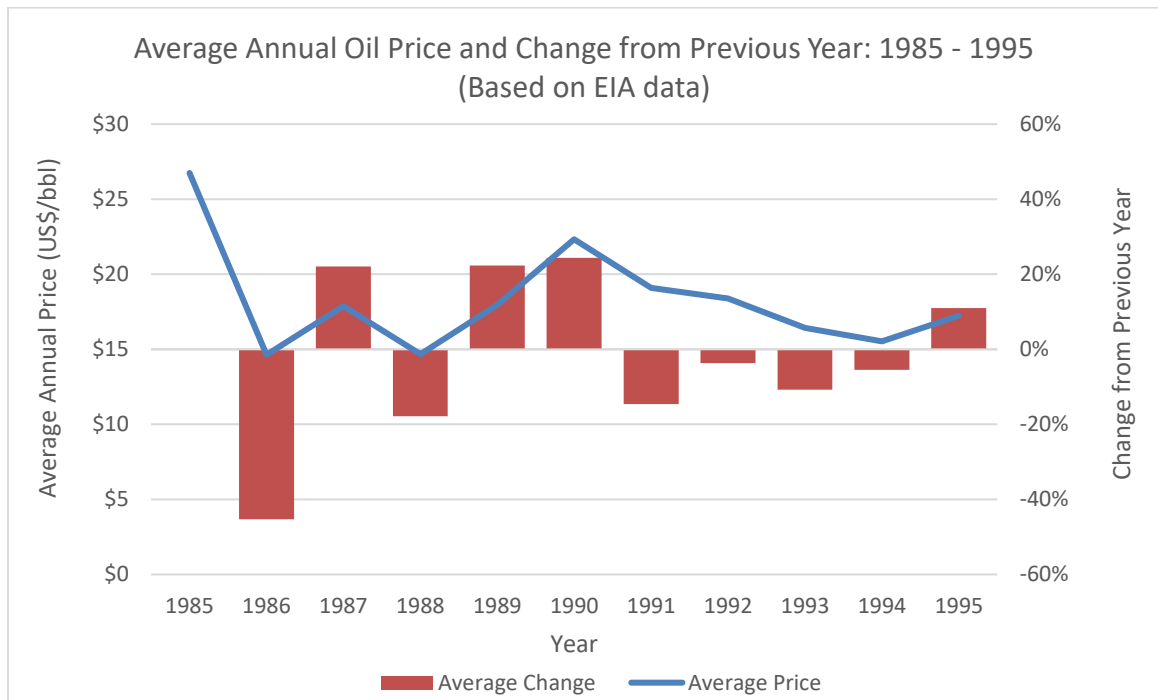
My research will also make it apparent that the incredible linkages in finance, at least in terms of the economic capacity for meaningful action, have caused us to need to redefine our notions of state sovereignty. From the pursuit of other benchmarks that would detach the world oil market from OPEC control, to the integration of these markets within a complex finance industry, this section will demonstrate that the complex

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<sup>21</sup> Hedging is the term used to describe the action of making investments with the purpose of mitigating risks associated with negative effects of price fluctuations in the market.

<sup>22</sup> Financialization is a term increasingly used to describe this period in oil pricing, essentially meaning the point when oil became a financial commodity. Fattouh, Killan and Mahadeva recognize this term is still developing, “While the definition of the term financialization remains vague, it captures the increasing acceptance of oil derivatives as financial assets by a wide range of market participants including hedge funds, pension funds, insurance companies, and retail investors” (2013, 12).

integration of market factors complicates the dynamics of the supply and demand fundamentals of the industry, eroding the power of stake-holding countries and companies. It will show that vesting oil power in the hands of financial market investors, whose pursuit of profit does not necessarily reflect the interests of direct stakeholders of the physical market, is a natural and yet dangerous result of the integration of such a vital commodity within the global financial framework.



**Figure 5-2: Annual Oil Price (1985 - 1995)**

The era of Margaret Thatcher and Ronald Reagan was a period of great change in the global financial industry, and eventually the global oil industry as well. As free market fundamentalists, both leaders, but particularly Thatcher, who had refused dialogue and cooperation with OPEC, sought to establish a mechanism whereby the price of crude

oil would be separated from OPEC control and be put in the hands of free market transactions. In 1983 this came to pass when the first oil futures contracts<sup>23</sup> were traded with the Chicago Board of Trade (CBOT) and the New York Mercantile Exchange (NYMEX) using an American grade of crude called West Texas Intermediate (WTI, also known as Texas Light Sweet). Both clearing houses were attempting to take advantage of the deregulation of price controls surrounding oil in the US and the desire by stakeholding companies (those that were directly impacted by the price of oil, including airlines, shipping companies, refiners, *et al*) to hedge against future fluctuations in pricing. Futures contracts allow a purchaser to agree to buy a specific product at a predetermined price at a certain point in the future. In the case of oil, futures contracts trade in units of 1,000 barrels of oil, which greatly limits the number of participants in this market, as significant capital is required in order to invest. The earliest participants in futures contracts were those with direct stakes in the physical<sup>24</sup> oil industry and market (I will show how this has changed in the next chapter). In the case of NYMEX contracts, the delivery point is an oil storage and transit facility in Cushing, Oklahoma (where

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<sup>23</sup> A brief but good introduction to futures and spot contracts for oil is offered by Austin: “The Brent Crude and WTI indices both display the average price for oil reported by the big buyers and sellers of crude oil. This is the “spot” price, which means the cash price for a barrel of oil where the transfer of ownership occurs now. The futures market deals with a forward price. When a buyer strikes a futures contract for crude oil with a producer, the contract contains an agreement that the sale will occur at a specified point in the future and at a specified price. The buyer does not pay then and there — that would be the spot price reported by Brent or the WTI. Instead, the contract is meant to be paid in 3 months’ time, or 6 months’ time, or one year ahead, for example” (Austin, 2015, 2015-0331).

<sup>24</sup> From this point on, my research will refer often to the physical and financial markets for oil. Although this will become more important later during the implications section, this terminology is intentional. The physical market and physical participants are referring to those market participants who seek physical delivery or sale of oil versus the financial market or financial participants who participate in the market without seeking physical delivery of the commodity.

delivery can be made on spot market oil as well). Although the futures contracts on CBOT were abandoned after problems on delivery, the success of NYMEX futures contracts entrenched market pricing as the new paradigm for oil pricing, becoming a common practice by 1986. Meanwhile, with the drastic changes to the oil market and industry, the accidental establishment of the dual market system via OPEC's surplus oil in 1981, the failure of cooperation amongst OPEC members, and the failure to force the consumers to demand the same amount of OPEC oil, rapidly caused OPEC's decline in relevance. OPEC was caught off-guard by their loss of power and influence (Carollo, 2012, 35). OPEC would continue to play a role in the global oil industry, in recognition of their vast resources and the strength of their national oil companies, but by the mid-1980s, no longer could OPEC be considered the dominant power in the oil industry.

The financialization of Brent oil (based on oil produced in the North Sea and delivered initially through the introduction of Brent futures contracts on the International Petroleum Exchange in London and currently on the Intercontinental Exchange (ICE)) was particularly important in cementing the new oil pricing paradigm. Physical WTI crude was a high quality crude, domestically produced by the world's largest oil consumer at the time (the United States), so it was a natural choice for a benchmark in the American clearing houses, but not a good benchmark for the global industry to price their non-benchmark crude. Since Brent crude had to be shipped to market, Brent contracts made a better reference point for oil that had to be shipped overseas, making it a natural

benchmark for the global industry.<sup>25</sup> In recent years, Brent has been used to assess up to 70% of global crude (Buyuksahin, Lee, Moser & Robe, 2012, 1). The immediate popularity of Brent as a reference ended the netback value experiment started by Saudi Arabia and adopted by other OPEC members. As with the increasing acceptance of the market-linked pricing mechanism, in 1988 OPEC made a monumental change by moving oil pricing to the global oil market, foregoing the Arabian Light benchmark and adopting the Brent benchmark as their reference for oil pricing. For Carollo, “This was an almost unnoticed change of a geo-political nature that transferred control and management of the international oil market out of the OPEC countries into those of the city of London and, slightly less so, Wall Street” (Carollo, 2012, 12). He further argues that the Brent reference adopted by OPEC had little to do with the physical crude but was an embrace of the financial market product (Carollo, 2012, 11). This move by the cartel would continue to link its production with a relevant benchmark, the implications of which will be discussed later.

The new financialization paradigm implied oil was just another commodity within the exponential expansion of financial markets. Although the next section of my research will examine the implications of this integration for the global oil market and industry, this section will conclude by explaining what this transition meant immediately to the former oil powers. The new paradigm offered a way for key physical oil market players

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<sup>25</sup> The global benchmarks would later change to include WTI, Brent and Dubai/Omani crude, however this is a fairly recent development and will be discussed in detail later in the thesis.



to hedge their interests in oil pricing through free-market exchange, and for a while that is what occurred. The first participants in the market were the oil producers and refiners, as well as those companies with a direct stake in the pricing of oil (i.e. manufacturers and airlines). The involvement of outside participants was limited and regulated, as concerns about the impact of financial participants was heatedly debated. Until further liberalizations took place (discussed in the next chapter), financialization was actually successful in stabilizing the price of oil to some extent. As Figure 5-2 (above) shows, the fluctuations in pricing during the ten-year period between 1985 to 1995 greatly diminished after the wider adoption of financial market pricing, which really established itself in 1986, and even more so after OPEC's transition to Brent pricing in 1988. But this would not last. Already the industry was increasingly dependent on market sentiment to sway demand, in essence limiting the ability of suppliers to influence pricing without dissuading the investors. OPEC and producing nations were now in essence contributing to a global pool of oil purchased through a small network of clearing houses and over-the-counter markets, and although they could still encourage patterns of investment through changes in supply, the diversity of sources and creation of strategic reserves protected the real market from shortages. This meant their capacity for impact was diminished, based on a normal investment climate. The new paradigm therefore set limits on the physical actors in the supply side of the oil industry, and as my research will go on to discuss in the next section, by allowing the entry of non-physical participants into the oil market it would also limit the capacity to directly control demand, to the detriment of other powerful and formally influential industry stakeholders.

## **Chapter 6 : The New Paradigm in Practice**

Early on in the financialization of oil, as the previous chapter discussed, the market provided a way of spreading risk for companies with a vulnerability to variations in oil pricing. Because oil purchasers could hedge pricing, it also helped accurately find the price of oil without fear of changes to supply and demand affecting the physical industry to the same extent as had been seen in 1973. For the first years of oil's financialization, this proved to be effective: "the volumes of crude traded on the futures market never exceeded the physical quantities sold... This can only mean that the oil companies operated on the paper market to stabilize the price of their crude with hedging operations" (Carollo, 2012, 15-16). But this period of harmonious physical market-based pricing was short lived. Carollo argues that it was when Brent became the pricing standard for OPEC at the end of 1988 that the paper market oil benchmark lost its connection with the physical market price (Carollo, 2012, 13). Post-1988 financialized oil pricing, which this section focuses on, reveals the implications of deregulation and the incredible power of the financial market's capital flows. It was a period of rapid and important change in oil pricing, and ultimately for the oil powered world. Importantly, this is the era when oil commodity financial derivatives, as with those of most other commodities, became essential parts of the investment portfolios of the wealthy, as exhibited by the spectacular flow of funds into these derivative products. In this era, supply and demand were forced to interact through an intermediary financial market.

This chapter will demonstrate that the complex integration of market factors complicates the dynamics of supply and demand in the industry, eroding the power of stake-holding governments and companies. I will argue the new paradigm ultimately vests oil power in the hands of financial market investors, whose pursuit of profit does not necessarily reflect the interests of direct stakeholders in the physical market. Is this paradigm here to stay? Or, is it merely another experimentation in the free market before moving to another paradigm of centralized control? This chapter speculates as to the true nature of the paradigm, drawing on historical lessons and key theoretical understandings to do so. My research recognizes that the financialization of oil has resulted in an invitation to new actors to impact oil pricing, not necessarily negating the old fundamentals of the physical market, but complicating them. In order to investigate the full implications of the financialization of oil pricing, my research analyzes the deviation of the financial market from the original intent of market integration, which was to promote more accurate pricing, encourage stability, and offer hedging options for oil industry stakeholders.

Strange provides a framework to investigate financialization (1998). In an extreme simplification of her work, she argues that the highly complex, often poorly understood system of global finance is the equivalent of gambling.<sup>26</sup> Strange, among

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<sup>26</sup> Hers is an argument that has been heard since the early foundations of the industry, long before today's high frequency trading, hedge fund investors and other key players drove high finance to its current incarnation. When the Chicago Board of Trade discussed the creation of commodity futures on agricultural

others, identified the trend that began in the 1980s and continued into the 1990s regarding structural power, or the ability to shape the rules of the financial markets and the pricing paradigms based on them (O'Brien & Williams, 2007, 27). Structural power refers to the growing capacity of multinational corporations to undermine the authority of states, particularly through the creation and control of credit and credit mechanisms. Ultimately, high finance takes the form of a casino.

Between the end of the 1980's and through the early 2000's, the oil market became dramatically more volatile. According to Carollo's data, the historic price of oil fluctuated between \$1 and \$2 dollars a barrel (US Dollars) until the end of the 1990s, while the early 2000's saw an increase in volatility again, showing frequent fluctuations of over \$10/bbl in the market (Carollo, 2012, 27). The early 2000s was another period of significant change in the market pricing paradigm; it marked the large-scale entry of non-physical participants into the oil futures market, including exchange-traded funds (ETFs) and investment banks. As my research will show, the entry of these players would coincide with a significant change to the price of oil, and eventually, the dramatic run-up in prices leading up to 2008. This is what made me question oil power, and ultimately the effectiveness of the market paradigm at all.

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products in the 1920's, opposition immediately linked the speculation required to make derivatives contracts around commodities with gambling (Pashigian, 1986, S56).

Changes in the oil pricing paradigm in the 1990s and the early part of the 2000s still had much to do with the political climate in the United States, as not only was the US still the world's largest oil consumer and (after the dismantling of the Soviet Union) the undisputed superpower of the world, it was also the major source of capital invested in the New York and London exchanges. The neo-liberal policies of Presidents George Bush Sr. and Bill Clinton ushered in a period of deregulation in the financial markets that allowed the entry of non-physical market participants into the oil industry. Financial participants hoped to utilize the oil markets as a tool for greater wealth generation and/or hedging other investments, since oil was seen as a vital and therefore stable commodity in which to invest. Still, because of the cost of such transactions (having to purchase 1,000 barrels minimum), investing in oil was extremely costly and out of reach for anyone except the wealthiest investors or pooled fund sources.

In essence, what was created by their entry was two separate markets: one where physical participants hedged their business plans against a physical oil market, and a second where financial investors used physical industry data to make what Strange would consider "bets" on future oil pricing in hopes of increasing their wealth or diversifying their portfolios by investing in oil without ever taking delivery of a physical barrel of oil. As the two markets grew and established distinct patterns of investment, they began to take account of each other's strategies more and more, feeding off investment patterns and investor confidence in pricing day to day. The results have altered the relationships among market stakeholders from the physical to the financial market and shifted the power centre. Fattouh, Kilian and Mahadeva summarize the argument:

The financialization of oil futures markets has been held responsible for a variety of phenomena including changes in price volatility, increased co-movement between oil futures prices and other financial asset and commodity prices, a breakdown of the statistical relationship between oil inventories and the price of oil, and an increased influence of the decisions of financial investors such as swap dealers, hedge funds and commodity index traders on the oil futures price (2013, 8).

While it is debated whether financialization is the sole cause of the increase in oil pricing between 2000 and 2008, the entry of financial participants certainly increased demand for oil futures and their investment patterns influenced the actions of physical participants (particularly those that could choose to keep the oil in the ground or hold onto it in storage facilities). Oil pricing trends can become a self-fulfilling prophecy in this way. To provide a simplified example, an anticipated increase in the future price of oil encourages investors to buy oil now in order to sell later, while physical participants will want to hold their oil inventories (in ground or in storage) to sell in a future market where they can get more for it. This causes a real decrease to supply, which drives up the current price (called the spot market) to match the anticipated future price (in the futures market). The relationship between the futures price and spot price becomes indicative of the abilities of the physical and financial markets to reflect the fundamentals of supply and demand, eventually evening out short-term discrepancies between the two.

The problem, often addressed improperly in studies supportive of the market pricing mechanism, is that changes in supply and demand in the market are based on the pursuit of wealth in the financial markets, not the need for the product in the physical market. This works against the justification for utilizing the market mechanism in the first

place, as a way to accurately find the appropriate price of oil without risk of political or corporate manipulation, and to provide a way for physical participants (both buyers and sellers of physical oil) to hedge against fluctuations in the oil market. In essence, speculative activity creates fluctuations in pricing, rather than merely being a mechanism for responding to, and insulating stakeholders from fluctuations. This means the current paradigm in operation since the late part of the 1990's has failed to serve the purpose for which it was created. The number of financial participants has continued to grow, particularly in 2003 when there was an influx of index funds that began to invest in oil, all while the world began to witness a surge in both futures and spot oil pricing (Fattouh, Kilian & Mahadeva, 2013, 11). The immediate reaction by some was to say that the financialization of oil was at the root of the rapid increase in oil pricing. Pushed by George Soros, who testified in front of Congress, this argument suggested it was the speculative positions in the financial oil market, pointing at index funds in particular, that caused the increase first in the futures market, and then impacting spot pricing (Fattouh, Kilian & Mahadeva, 2013, 11).

### **A Strange Casino: Volatility and Speculation**

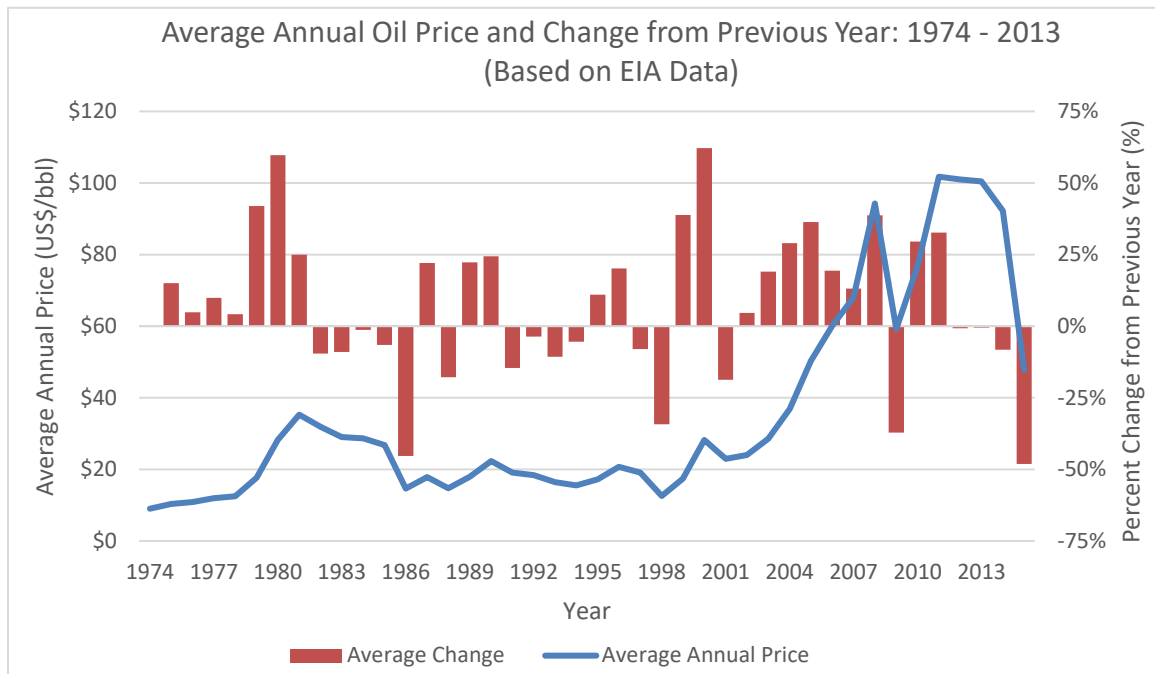
Speculation is the starting point for the implications section of my research as it most fundamentally contravenes the logic of market integration. As Strange would point out, most active gambling that takes place in the casino is in the financial market. A functioning free market must assume the ability for perfect knowledge in order to run properly, resulting in predictability and sound investment decisions without panicked

overreaction. Financial institutions are therefore constantly in search of greater and more accurate knowledge to guide their investment decisions. As a result, according to Carollo:

The financial institutions in the last few years have invested in hiring experts and traders from the physical oil markets. They normally don't move a drop of oil, but they plan their financial operations following closely the evolution of the fundamentals and every single rumor about the life of the oil industry. They move their money based on these elements of information. We have already seen the dimension of the impact of the movement of this amount of money, which is so massive to overcome the 'natural' dynamics of the physical market (2012, 20).

At this point it is prudent to discuss, in a broad overview, the importance of speculation to price volatility in the financialized oil market. Ever since vast funds have flowed into the oil commodity markets, there has been a marked increase in the degree of volatility of the oil price. Although fluctuations in the oil price has always been frequent, as Figure 6-1 shows, it is since the entry of financial players that the market fluctuations have been dramatic enough to be reminiscent of the era when OPEC was at the height of power and intentionally manipulated the market. This would mean that speculation makes the financial paradigm no more stable than its flawed predecessor paradigms. By speculation, I mean the preemptive flows of investment in or out of the oil commodity market, based on predictions about the future trends anticipated in the market.





**Figure 6-1: Annual Oil Price (1974 - 2013)**

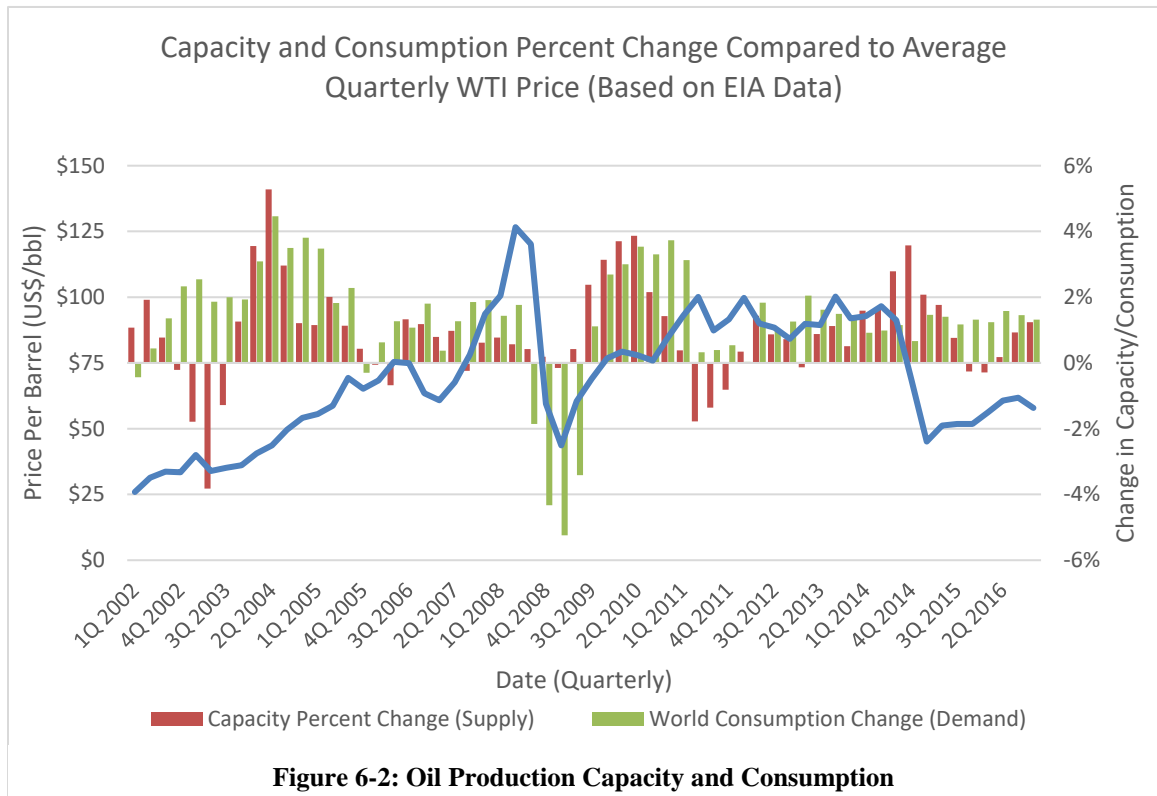
Another trend characteristic of the financialized oil paradigm is the impact of speculative demand shocks on commodity price. Brides-Strom and Pescatori (2014, 6) suggest speculative overreaction compounded by the long-term trend of falling demand in the West (which they call the flow oil demand shocks) ultimately worsened the run-up in pricing from 2003-08 and again in 2011-12. Importantly, they show that speculative demand shocks affected pricing without connection to physical market factors. Speculative demand shocks showed how investor confidence in oil could drastically affect pricing without the need for changes to the physical market, particularly in the short term, as was seen by the events of 31 August 2015. On this date, after much resistance to combating the lower oil price of 2014-2015, Saudi Arabia announced it would be open to meeting with other oil producing nations to discuss a strategy to once again raise the oil price (Chmaytelli, 31 August 2015). This was merely a display of

willingness to discuss action, and reflected no commitment or even promise of real changes in the market to come, yet it encouraged speculators to invest again, increasing the price of WTI oil by over 5%/bbl in one day, before falling again and closing around \$45/bbl a day later. Just as was the case in the drastic fall in oil prices in 2008, nothing dramatic changed in the physical oil market, and there was no commitment for any future change. This confirmed that the influence in pricing, and ultimately power, rests in the ability to impact market confidence, despite having no tangible links to the physical market.

### **2008 Price Fall Out (And Recovery)**

The incredible and unprecedented peak and collapse in oil price that took place in July 2008 when Brent oil reached around \$145/bbl (with WTI trailing close behind) and then fell to around \$32/bbl at the end of December the same year, signified its complete detachment from the physical oil market fundamentals. As Figure 6-2 (below) shows, trends in the fundamentals showed healthy growth in both supply and demand for a few years prior, with the first major change being a slump in demand in 2008 after peak pricing had been reached and oil prices began to fall. The physical market trends leading up to the great collapse in pricing were not significant enough to cause any great destabilization of the market price, but were enough to signal that oil was a sound investment for non-physical entrants to the market who wished to hedge, profit, or diversify their assets. In other words, the market perceived the rise in prices as normal and positive, at least from an investment standpoint, while the implications of rising oil

prices, however gradual, had a different and negative connotation to most physical consumers (i.e. people at the pumps). The logic was consistent with sound investment practices that predicted gradual healthy growth in the market, but as Carollo (2012, 7) explains, nothing had changed in the physical market to justify that growth.



**Figure 6-2: Oil Production Capacity and Consumption**

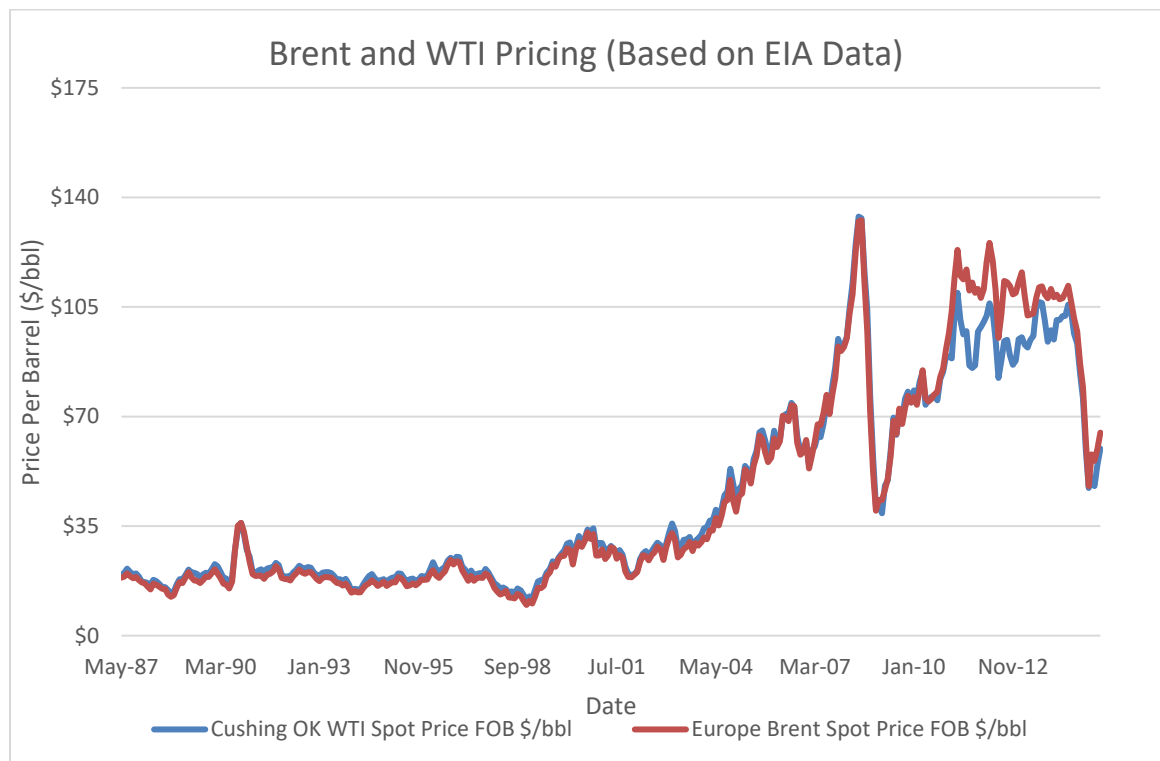
Carollo further demonstrates the influence of financial market players over oil pricing during this time by analyzing the quantities of oil traded on each market. He makes the distinction between physical and paper barrels of oil, the latter representing trades in the financial market without physical delivery. He distinguished the 20 million barrels per day not automatically absorbed by the producing countries from 85 million total barrels per day, as being the total barrels of oil posted on the physical market

(Carollo, 2012, 14). Assuming that those purchasing the posted 20 million barrels per day of oil would be those with a direct physical stake in the market and not the financial participants, one could assume the price would be set largely by expected changes in fundamentals of the physical market, so as to hedge against future fluctuations in access and pricing. However, with the entry of financial participants, and therefore the addition of supply and demand fundamentals of the paper market to the price equilibrium (i.e. referencing the demand and supply of paper barrels as well as the demand and supply of physical barrels pricing), the formation of oil pricing became complicated, and subject to influence by those with the greatest access to capital. If banks with seemingly endless assets were willing to pay top dollar for oil as a financial asset, then the physical participants would have to pay that price as well. Along with their other investments, this made physical actors guilty of engaging in the oil futures markets for immediate profit as well as for longer term hedging, cementing the paradigm further, and increasing the number of stakeholders invested in high oil pricing. To illustrate this phenomenon, Carollo shows that during the period from 2008 to 2010, undeliverable financial contracts outnumbered contracts for physical delivery 27:1 (Carollo, 2012, 15). Theoretically, this meant that every barrel put on the market was traded 27 times before delivery took place. The amount of money that exchanged hands as a result was equally staggering. Carollo states that the financial market trades amounted to \$51 000 billion, which was worth more than 6 times the value of the global production of physical crude for the same period (Carollo, 2012, 15).

## **The Power of the Paradigm: Changes to Oil Pricing Since 2008**

It makes sense, given Carollo's data, that with the reduced liquidity that many financial institutions faced following the financial crisis, the investments in the paper market also dropped, causing the drastic fall in prices seen in 2008. Once they had been bailed out, the banks recognized oil as being both more affordable than it had been previously and still likely to return to its status as a healthy investment (as its role as the world's most important energy source had not changed) and began to invest in the market again, causing the bullwhip effect seen in Figure 6-3's consumption and capacity changes immediately following the price decline in 2008. At this time, the panic in the financial markets completely overshadowed physical market changes. OPEC was quick to announce production cuts during the price free-fall, and despite a reduction in capacity, prices continued to fall. This further reduced OPEC's ability to manipulate oil pricing to their advantage, illustrating OPEC's ineffectiveness at influencing investor confidence in the financial market (which at the time was perpetuating panic in many markets). During the brief slow-down in the fall of the price during the last half of 2008, and before the rebound in pricing in 2009, the oil market was once again dominated by the collective actions of physical market players. The price of crude hovered temporarily around \$40-50/bbl, which reflected a reasonable price of operation for most operational fields (Carollo, 2012, 17). For some of the newer, more marginal fields, however, this price rendered them unviable. The recovery of prices following the bank bailouts renewed the viability of these costly developments in the upstream, especially with the revival of Energy Security rhetoric surrounding the success with fracking in North America (discussed in more detail later).

Following the financialization of oil, and even more rapidly in the seven years since the recession, a number of shifts have taken place in oil economics that fundamentally alter the way the commodity is priced. One of the most important is the reweighing of the price spread between WTI and Brent in favour of Brent. Partly because it is a higher grade crude, and also because of its proximity to the world's largest consumer of oil, WTI had historically traded at a higher price than Brent. The chart below (Figure 6-3) shows the pricing of Brent and WTI over time. Although WTI was valued higher, the two types of crude traded within narrow margins for the 1990s and into the first part of the 2000s. After the recession, however, the value of Brent became higher than WTI, with the spread between the two increasing as well.



### Figure 6-3: Brent and WTI Price

A number of factors can explain the reweighing of pricing, most of which have to do with the speculative nature of the financialized pricing paradigm. The potential for a shale boom led speculators to fear a glut of WTI crude, while Brent speculators struggled with the potential exhaustibility of North Sea oil, the relationship between WTI and Brent prices was poised to invert. To exacerbate this, because Brent had been established as the benchmark for seaborne crude, speculation on Brent is indicative of investor confidence over global oil production. This means a number of factors can and have altered investment interest in ICE traded Brent oil. When the Tunisian Revolution began in 2010, growing into the Arab Spring, the market panicked regarding the security of Middle Eastern crude supplies. Just a year later, a tsunami increased Japanese oil demand while they struggled with their nuclear facility in Fukushima, and simultaneously increased apprehensions regarding nuclear energy around the world (leading speculators to assume that seaborne oil demand would increase globally). The effects on the market pricing were significant enough to see Brent pricing pushed upwards. Buyuksahin, Lee, Moser & Robe describe the mood in the financial markets:

On the financial side, Standard and Poor's increased the 2011 weight of Brent crude oil in its S&P GSCI commodity index while lowering the weight given to WTI crude oil. In January 2012, the GSCI WTI weight was further reduced, while Brent was included for the first time in the Dow-Jones UBS commodity price index. Because these two indices provide the most widely used benchmarks for hundreds of billions of dollars invested in commodity index funds, those portfolio-weight reallocations caused large index money flows into Brent futures and away from WTI futures (2012, 6-7).

Creative investors (“gamblers”) were ready to exploit this price differential as a source for potential arbitrage, and recognized, even at a time when WTI crude oil was being stored at record levels at the Cushing storage facility, and NYMEX was trading WTI at \$115/bbl, the increased ranking of Brent crude over WTI had no foreseeable end (Zero Hedge, 23 August 2011). When compounded by existing problems in the WTI and Brent markets, this further exacerbated the high pricing dynamics that plagued the post-2008 pricing.

The explanation is found in part in the Middle East. The Arab Spring had a substantial impact on oil pricing because investors felt there would be restrictions on sea-bound crude supplies, particularly in light of the crisis that escalated in Libya. The price of Brent certainly reflected this expectation. Although the shortfall in Libyan production was compensated for by a matching increase in Saudi Production, the Brent Futures contract fluctuated between \$127 and \$97/bbl throughout this period (Zero Hedge, 23 August 2011). The WTI market also made it desirable for speculators to perpetuate the Brent-WTI price difference. In the United States, there is a serious bottleneck surrounding the ability to transfer WTI from the Cushing storage facility over land to the highest demand centers of the United States, including the East Coast. The majority of pipelines move from South to North, while the most viable means to transport oil from East to West has been by rail. As a result, investors began to sell WTI in New York and purchase Brent in London, exaggerating the spread further. Carollo discusses one ambitious investor who “hired all the railway capacity from Cushing to the Atlantic coast, in advance and started to transport some WTI, making a lot of profit on the spread



artificially created. Just to prove that the event was planned in the financial environment many months in advance.” (Carollo, 2012, 27).

Carollo’s analysis provides a more significant insight into what this change in pricing meant for the current paradigm. The movement to a financialized system of pricing appeared to reveal the structural problems in the physical industry, while cementing the culture of high margins and fast arbitrage. Due to existing pipeline infrastructure, WTI suffers from severe bottlenecks travelling east and west, often being dependent on rail. With the major population centers and ports being on the west and east coast of the United States, the cost of transporting WTI to these regions made Brent, which could be imported through ports, appear more affordable. Since these transportation costs make Brent more appealing, the only logical option for these purchasers was Brent. As Carollo summarized, “In other words, we are in the situation where the market is unable to guarantee any feedback to create the condition for the re-adjustment of the previous equilibrium. It has become impossible to limit the action of the financial speculation.” (Carollo, 2012, 26). Where free market proponents would suggest investment should be allowed to flow into building the infrastructure (i.e. via pipeline approvals) to correct this bottleneck, the struggle between energy security and environmentalism at the policy level in North America has limited and slowed any meaningful developments in this regard.

## **Chapter 7 : Beyond Financialization**

### **The 2014 Price Slump: Cementing the Paradigm**

The global economy continues to be shaped by financialization of oil pricing. In 2014, the price of oil began to decline rapidly, falling to its lowest levels since 2009. This decline was initiated by the belief that the market was facing a chronic pattern of oversupply. The culprits of the oversupply, according to the popular headlines, were largely geopolitical, with America's pursuit of energy security making headlines alongside Saudi Arabia's refusal to remain as swing producer by cutting production to accommodate the new supply. Still, the reality is more complicated than the geopolitical battle over production quotas. Once again, as in 2008, very little had changed in 2014 in terms of the physical market, and certainly nothing that could account for the rapid decline in pricing that persists at the time of writing. Looking back to Figure 6-2, even though there was a surge in production capacity and a slump in demand in the first half of 2014, by the 4th quarter demand recovered to levels stronger than in 2013, while supply grew at a much slower pace, eventually shrinking amidst a number of oil well closures in 2015. Thus, what we saw once again was a market overreaction that initiated a rapid fluctuation in the prices the world pays for oil. To exacerbate the speculation, in November 2014, Saudi Oil Minister Ali al-Naimi made a compelling move to block the appeals by poorer OPEC states (i.e. Venezuela, Iran, and Algeria) to make cuts to production. Although al-Naimi suggested the market would correct itself, it was clearly implied that it wouldn't be on the back of Saudi production cuts. Saudi Arabia and OPEC states have since changed their hardline stance, and yet the oil price has not rebounded to

its previous artificial high, suggesting OPEC's direct influence on the market remains low.

In order to continue this discussion further, it is important to take a step back from the temporal analysis and address another trend taking place throughout the 2000s that has particular relevance in the 2014 price slump. The financialized oil pricing system's vulnerability to speculation-based fluctuations led to a larger, more important implication, the longer term trend of market contango. Under conditions of contango, the futures price is higher than the spot price. There may be normal market reasons for contango: it can occur, for instance, when a market predicts that a commodity could become more difficult to source in the future, and "...the buyer is prepared to pay a little more in order to secure future supplies" (Austin, 2015, 2015-0331). Contango in the oil market, nonetheless, should not be a common occurrence, it should be reserved only for times when shortages exist in the market.

For the purposes of my research, contango is relevant because not only does it describe the current price situation, but it shows that the financial market itself is insisting that price volatility, speculative shocks, and market integration will be the normal state in the future. Thus, it illustrates the degree to which the financial market paradigm has entrenched itself in the fundamental integrity of the physical oil industry. Establishing that the financial market for oil is in a state of contango is not particularly difficult. In fact, industry insiders have been declaring contango in oil pricing since 2005, and some have even attempted to link this to the price spike in 2008. As suggested earlier,

speculative demand shocks joined with flow oil demand shocks after 2005 to contribute to the peak in oil pricing in 2008 (Beidas-Strom & Pescatori, 2014, 6). To put this in context with contango, starting in 2003 (around news of the Iraq war and then continued by ongoing political and economic speculation) oil market investors expressed significant anxiety about a possible shortage in the oil supply. In 2005, speculators created contango in the financial markets, adding incredible flows of money into oil futures contracts. The price of oil rose from that point until its 2008 collapse. Even though, as already argued above, the market fundamentals did not reflect any real need for the price to increase to the heights achieved that year, the trend of perpetual and steep increases in oil pricing created a novel way to profit from the state of contango, drawing in more money from sources unrelated to the physical market.

In the 1990s, Scandinavian Tank Storage AB and its founder introduced the idea of purchasing oil tankers for the sole purpose of using them as storage facilities with the intent to take advantage of contango. This plan expanded drastically between 2007 and 2009, throughout the peak and slump of the financial crisis. Austin records notable Wall Street participants such as Morgan Stanley, Goldman Sachs, and Citicorp all “turning sizable profits simply by sitting on tanks of oil.” (2015, 2015-0331). For the purposes of the physical industry, storage in tankers allowed rapid movement of the oil once selling became profitable, while creating a market for oil to be stored, adding to physical demand. Furthermore, both storage and transportation were taken care of with one facility, making it a profitable way to benefit from the panic in the market. Austin notes similar trends occurring at the start of 2014, although with one large difference, as

contango is no longer only profitable for a handful of savvy investors. The entrance of ever more money into this system has had the inevitable impact of delaying the payback period for all participants. “Brokers like a rising market and may be attempting to recreate the conditions of 2005 by encouraging speculators to soak up the excess oil on the market and store it for a while. Once the upward momentum in the market begins, everyone will profit by selling off their stored oil. However, as the future market will still be oversupplied, spectators will still have to keep buying and storing vast quantities of oil in order to create a shortage” (Austin, 2015, 2015-0331). This has been further confirmed by the financial market’s ability to find new sources of profit.

### **Storage Futures (LOOP)**

The creation of storage futures contracts cements the current financialized oil pricing paradigm at least for the foreseeable future. Importantly, the contango trend in the market has made it advantageous for oil purchasers to buy oil and store it for a later date. This trend reflects confusion about what dictates the market. In a sense, the overwhelming participation by physical and financial market participants in the storage trend is indicative of attempts to manipulate the market by removing surplus oil from it. Friedman reports that, “From June 2014 to January 2015, as the price of oil dropped 60 percent and the supply of oil remained high, the world’s largest traders in crude oil purchased at least 25 million barrels to store in supertankers to make a profit in the future when prices rise. Trafigura, Vitol, Gunvor, Koch, Shell and other major energy companies began to book oil storage supertankers for up to 12 months” (Friedman, 5

March 2015). Traditionally, oil storage has been reserved for those with direct connection to the industry, or those with vast resources and a direct stake in the price and availability of oil, such as governments. This is largely due to the technical challenges of moving and storing crude oil, which usually restricts access to those with the biggest resources. Despite the restrictions surrounding entry to oil storage, by March 2015, the discrepancies in the market and ongoing contango led storage capacity to dwindle and costs to rise (Beidas-Strom & Pescatori, 2014, 3-4).

The contango trend leading to the pursuit of new oil storage solutions led the financial market to respond with the launch of a new financial commodity, the oil storage futures contract. Those investing in oil storage futures are essentially betting on the perpetual failure of the oil market. In advance of shortages, stockpiling oil makes sense from an emergency preparedness standpoint, but under conditions of contango, investors gamble on the potential for arbitrage and profit, not for security of supply. This may seem like a subtle change in the rhetoric surrounding investment purpose, but it supports the argument that financialization has become the dominant fixture of determining oil pricing (Beidas-Strom & Pescatori, 2014, 4). The storage contracts created through CME Group (who operate NYMEX) grant the purchaser the right to store 1,000 barrels per contract in crude oil caverns or above ground tanks in Louisiana, giving purchasers access to short-term storage in the Gulf without requiring long-term contractual commitments to storage operators.

Although it is likely that most of the first entries into storage futures contracts will be physical market stakeholders, once the market becomes more active and profitable, then it will only be a matter of time before speculators join the market. Of course, this also means storage can be purchased with the intent to own the rights to storage, even if the purchaser has no intention to actually use the space. The market implications of this product have the potential to be worthy of a thesis in their own, however what is important from the perspective of my research is that the creation of the storage futures contract fundamentally cements the narrative that oil and the financial market are so intricately linked, that the narrative of a perpetual growth in storage costs has become strong within the financial market, and there continues to be new avenues for financial speculation in the industry.

## **Chapter 8 : Implications to Government Stakeholders**

Government stakeholders have struggled with their loss of control over direct pricing mechanisms amidst growing geo-political tensions in oil producing regions and conflicting policy goals domestically. This chapter will examine issues regarding regulator control of the financial markets, balancing competing policy goals and the opportunities for government to respond with policies intended to address price fluctuations, in that order. During the discussion of policy goals, my research will take some time to examine the theory presented in the resource curse literature, which addresses the way a nation handles problems associated with relying heavily on natural resource exports by implementing taxation, wealth distribution and other policies. Some points, such as the creation of sovereign wealth funds, which can deal with the issue of the resource curse, are dealt with during the discussion of government responses. I will largely draw on examples from the United States, which is both a major consumer and producer, however, other nations will be brought in to explain certain areas and their applicability to oil financialization.

In addressing the first option for exercising controls over a financialized oil paradigm, regulators have struggled to keep up with the fast-paced trade environment for decades. As an example, in the United States in 1974, the Commodity Futures Trading Commission (CFTC) was created in anticipation of a rapid expansion in both the size of the financial markets and the number of instruments traded within it. The purpose of the CFTC was to regulate the option and futures markets in such a way that would prevent



trade fraud and ultimately shield the market from practitioners who would create systemic risk. The CFTC, therefore, is a body designed to protect and entrench the financial market, and particularly its role in hedging, so that the market philosophy of open, transparent, and therefore knowledgeable capital flows could transfer with ease, as much as it is for protecting weaker investors from being exploited. The rationale for this regulatory body dates back to the Grain Futures Act, 1922, which possessed a similar purpose. As Pashigian states, “[t]he primary purpose of the 1921-22 legislation was to establish a federal monitoring mechanism with the goal of eliminating the alleged manipulation of traders. It appears the thrust of this legislation was to make futures markets work better rather than to eliminate these markets” (1986, S57). However, Pashigian goes on to note the effectiveness of the modern incarnation has been doubtful. The CFTC appears to be a less well funded and smaller sibling to the Securities and Exchange Commission (SEC). The jurisdictional boundaries between the two have become increasingly blurry, however, as new trade instruments have become seemingly convoluted mixtures of various products, such as treasury bonds, broad indices, and the creation of future-based options. As such, the CFTC often struggles for legitimacy, as the more powerful SEC has extensive resources and can implement more demanding disclosure requirements (Pashigian, 1986, S64). The CFTC has struggled not only to maintain its legitimacy amidst the scheme of governmental regulatory bodies, but also to keep pace in an industry that often develops products and methodologies with the sole purpose of skirting the regulators.

The failures of the regulatory bodies to maintain meaningful control are seen clearly in reference to the oil paradigm. There is little if any effective regulation of oil futures and related products. Furthermore, within the formal markets, the inclusion of oil futures as a part of a diverse portfolio by a wide variety of financial investors (such as those investing in ETFs and Indices) means the product falls in an area of blurred jurisdiction. The CTFC was created when futures contracts were largely limited to agriculture products, at a time when a stakeholder was betting against crop yields, and not market confidence. The modern incarnations of both the products traded and the financial tools used to trade them are so complex that regulators struggle to maintain their legitimacy, often underpaid compared to their private sector equivalents. As Strange (1998, 9) noted about the financial markets in general, governments have struggled to keep pace with the continued development of new forms of investment, new product innovation, and the technological advancements that have allowed for speed-of-light trading across the globe.

A second option for governmental controls when dealing with the modern realities of oil integrated within the financial markets lies in the proper balancing of conflicting domestic and international policy considerations. Here, the link with financialized oil is indirect, however policy and public sentiment have important ramifications for investor confidence, and so, a powerful enough message in a powerful enough country (i.e. the United States, Russia, China, Saudi Arabia, the United Kingdom) can carry meaningful leverage over the oil price in favour of or against the interests of a nation. The reasons this option can be limited to certain nations is easy to explain.

Nations with either large capital engagement with the financial markets, or that seemingly (regardless of actual impact) have direct power as either a producer or consumer of the commodity carry weight over the perceptions of the industry's leading investors, whereas a country not deemed to be a significant stakeholder will have little to no impact. Essentially, therefore, this is an area governed not necessarily by actual impact on the physical market, but the implications of policy rhetoric on investor confidence.

In recent years, the United States demonstrated the power of policy rhetoric over the oil price as two philosophies, in particular, battled in the public discourse: promoting energy security and environmentalism. The first, energy security, is a belief that dependence on foreign resources is a precarious way of organizing supply of a commodity as vital to national security as oil is. It seeks to promote domestic production, and to a lesser extent domestic consumption, and often highlights economic benefits such as job creation as resulting from the implementation of the policy.

In the history of the public discourse of the United States, energy security has been broadened not just to include oil within its territorial boundaries, but also amongst its allies within its immediate sphere of influence. For instance, promoting closer links with the Canadian and Mexican oil industries has been regarded as a way of promoting energy security within the US. The boundaries of the US sphere of influence have also extended to Venezuela, although the nature of the bilateral relationship between the two states fluctuates, as does the justification for building a strong, oil based relationship. The US has been pursuing energy security actively under President Obama's administration,

increasing domestic oil production and furthering the conversion to natural gas since the discovery of vast amounts of oil and natural gas in shale formations, and the increasing use of fracking technology to access it.<sup>27</sup> Rising US production in response to these energy security policies has sent a powerful message to investors, who immediately began to move their funds into natural gas. The rapid expansion into shale bed regions has been largely unaffected by the 2014 price slump. While rig counts have declined, the natural gas and oil resources found in these beds remain viable, even at prices ranging between \$40-\$50 a barrel.<sup>28</sup> Combined with the limited demand growth, the added production has decreased hydrocarbon imports in the United States, and in combination with America's strong refining base, has made the nation a net exporter of refined products (Xu and Bell, 1 May 2015). While the market implications of this expansion of US reserves is indirect and therefore difficult to quantify through its contribution to WTI price fluctuations, the revival of cheap domestic fuel in the largest oil consuming nation has had the effect of reviving interest in specific corporate stocks.

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<sup>27</sup> The relationship between oil and natural gas is complicated. For years the pursuit of alternates to oil has been prominent in popular discourse, however for a variety of reasons to do with the inability of other commodities to supply the existing infrastructure of the oil economy, little diversification has taken place in areas other than electricity generation. Oil still has a near monopoly on transportation, for instance. Natural gas, another hydrocarbon, has been the closest to a viable alternative, as it is able to act in many ways like oil, except more efficiently and as a cleaner alternative. The possible implications of this on oil are discussed later in the thesis, but of relevance to this section is the fact that natural gas and oil often are found within close or immediate proximity of one another, and often share common investors and industry stakeholders.

<sup>28</sup> Referring largely to the Bakken, Eagle Ford, Niobrara, and Permian basin fields, which provide the majority of the US's production growth.

The second element I will examine regarding the influence of policy rhetoric has surrounded environmental policy. This element has been particularly influential under periods of high oil pricing, when alternatives, which generally have large fixed startup costs, have seemed more appealing. For this reason, it is important to analyze the implications of the environmental movement momentum prior to 2014, when confidence in a high oil price was still present. Carollo analyzes the complexity of state level gasoline specifications in the United States, noting that their deviation from national standards amounts to around 40 different blends of gasoline being required to meet these various standards. These standards complicate the system of gasoline production, which, based on a relatively standardized distillation procedure (the essence of refining), creates a standardized spectrum of products. Rather than spurring investment into areas of technological advancement, developing higher efficiency engines and standardizing cleaner burning products, the specific content requirements of each of these blends has forced marketers to swap and import products from refiners in neighboring areas in order to obtain the components required to formulate these blends, often leaving a surplus of lower-grade products. This has called on the (emissions-heavy) global logistics network to transport high and low quality refined products around the world (Carollo, 2012, 23). Using steaks as a metaphor, Carollo explains that just as a rule allowing only the sale of top cuts of meat would limit supply and increase the cost of the cow, so have complex emission requirements limited the supply of high quality products and therefore increased the price of oil. The winners of this type of policy are the wealthy states (or economies). Poorer nations have been willing to sacrifice emissions standards in order to pay less for

surplus “dirtier” products, while being deprived of the higher quality products that wealthier states are willing to pay top-dollar for (Carollo, 2012, 9).

The movement for more stringent environmental standards and the pursuit of the policy of energy security had been seen previously, in the aftermath of the 1973 OPEC oil price spike. The economic summit in 1979 saw an international commitment to conserve oil, which aided both policy agendas. The target was largely the use of heavy fuel in electricity generation for industry and utilities, but the price collapse in 1986 made oil sufficiently cheap to reinvigorate demand, particularly for developing nations. The lasting impact was the ability to implement standards for reduced sulphur content in fuel oil and lead in gasoline (Krapels, 1993, 83-84), however these improvements were largely confined to the industrialized nations until the 2000s. What this means for the longevity of current investments is mixed. Since 2014 the movements for environmental policy have continued to see some success in North America, most notably in regards to the largely “not in my back yard” protests leading to the blocking of the Keystone XL pipeline. Reducing reliance on oil consumption by limiting market access (as blocking pipeline development does, particularly for Canadian producers) can be effective at a time when there is interest in reducing dependence on oil overall, however the current lower prices may not have this effect. In fact, what is likely is akin to those seen when

limiting nuclear production.<sup>29</sup> Domestic production presents fewer environmental risks than shipping oil across the world's vulnerable oceans and by rail and truck. Pipeline owners also bear the burden of any clean-up for leaks. If blocking pipelines coincides with an overall reduction in use, not simply a potential cap in future demand, then this type of policy could make a real difference. Until then, it is likely that the campaigns will serve to keep oil prices propped up, but as the persistence of the 2014 slump shows, not propped up enough to meaningfully reduce dependence.

At this point, before discussing more detailed policy considerations, I will present a quick introduction to the theory behind the resource curse literature. Resource curse theory attempted to explain the economic implications for some nations resulting from the growth of dependence on resource industries. These nations have been particularly vulnerable to boom-and-bust cycles, resulting from the enormous price swings of the commodities on which they depend. Although this theory applies to other commodities as well, oil has had a wider impact on national economies than other commodities. Corden's work will be drawn from to help lay the theoretical foundation, as well as potential policy intervention.

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<sup>29</sup> Limiting the production of nuclear energy, particularly in the wake of the Fukushima disaster, has given us dubious environmental results. Although the potential for catastrophic fallout from a problem with nuclear production is minimal, the implications are scary to say the least. The fear of nuclear has led to the further entrenchment of dirty fuels amidst voracious energy demands, however, particularly in Europe. Where the US has been able to diversify by using natural gas to offset nuclear (resulting in lower emission than oil, but still more than nuclear), countries like Germany have had to offset both base and peak load use by reverting to coal, a significantly more carbon intensive product (The Economist, 17 November 2012).

The largest implication of a booming resource industry is the rapid appreciation of domestic currency. This appreciation is caused by capital inflows from foreign sources into the capital-intensive resource sector, and also shifts in domestic spending from domestic to foreign-produced goods with significant employment effects (Corden, 1985, 228). This trend is bolstered by the speculative actions of investors who seek financial gain from predicting growth in the value of the currency in question. When discussing the appreciation of the British pound following North Sea oil development, “[t]his speculative effect was predominant in 1980 and brought about appreciation in anticipation of the fundamental underlying forces” (Corden, 1992, 418). Corden goes on to explain how this speculative activity is particularly prevalent in the bond markets of oil producing nations (Corden, 1992, 419). The industries losing employment (such as manufacturing) must increase salaries or benefits in order to retain workers, at the same time they face rising prices for their capital purchases, and the appreciated currency threatens their competitive advantage in domestic and export markets. This will lead to a shift to outsourced manufacturing, causing an increase in international trade, largely powered by oil (through bunker fuel powered ships, jet fuels and diesel engines). The increased dependence on oil perpetuates the global supply chain networks and contributes to further entrenching that industry.

As mentioned previously, states suffering the resource curse struggle as a result of commodity price volatility, which directly affects the revenue not only of the resource producing companies, but the tax revenue of states (Corden, 1985, 239). Because budgets are often expanded in boom times, a subsequent slump in pricing can lead unprepared



nations into dramatic deficits. But it is politically difficult to contain spending in boom periods. Mahmud and Basner (2014) have looked at the implications of spending resource-sector revenues by governments, showing that during high commodity prices, governments need to transfer as much wealth as possible in order to prevent political instability. This is particularly true for undemocratic nations, which have a greater potential for instability.

Their research has been applied to democratization in Latin America and more recently, the Arab Spring. Mahmud and Basner (2014, 276) note that governments have caught on to this reality, and by the time of the 2011 Arab Spring movement, the Gulf Arab monarchies responded by increasing their spending on salaries, public services and housing in an attempt to prevent the spread of unrest. To apply their research more broadly, a lesson can be drawn for all resource producing governments. If governments wish to placate their populations, they must transfer resource revenues to the public, limiting the options available to governments that wish to adjust their spending in a countercyclical fashion to avoid the negatives of the resource curse. Corden further explains that spending on services during boom times causes a real appreciation of their pricing (1985, 228). In essence, governments must collect rents and distribute them to the affected sectors if they wish to promote political stability, yet they cause the appreciation of costs that must be countered by further redistribution of rents.

Thus, governments are left with few meaningful options for correcting the resource curse once it has taken hold. Since injecting funds directly into the economy

further inflation, one option is to create reserve funds (such as sovereign wealth funds), to be used in a counter-cyclical fashion, building the fund during a boom to avoid inflation and currency appreciation effects while spending during a bust to avoid recession and budget deficits (Norland, 9 March 2015). This option will be discussed later. The second option, and the one discussed in more detail at this point, is to provide subsidies, sometimes in the form of taxation, either for the lagging industry, or to insulate the domestic economy from commodity price fluctuations. Corden (1992) suggests falling employment in one sector should be offset by a rise in another, including a similar offsetting process for pre-tax wages. To help facilitate this process, the government can subsidize training opportunities to help shifts in labour, or more directly step in to offer tax rebates and credits for those who now receive lower pre-tax wages. Subsidies can also be directed at the corporations and sectors directly affected by the resource curse: “If it is nevertheless desired to protect the lagging sector to some extent, the first-best method would be to subsidize output of the sector directly, perhaps financing the subsidy from the taxes levied on the specific factor in the booming sector” (Corden, 1992, 405). In practice, subsidies, particularly in industrialized nations, are typically of brief duration. If not designed in such a way to as to be applied to modernization in manufacturing, moreover, the shift in economic resources ends up subsidizing ever more lagging industries.

It should be noted as an aside that there still remains significant ambiguity in the realm of tax exposure. This is an area where independent transnational oil companies and nationalized firms often have separate tax and funding rules, even when operating in the

same nation on the same projects (Wolf, 2009, 2645). It is possible this could become even more convoluted once the implications of Section 1504 of the Dodd-Frank Wall Street Reform and Consumer Protection Act are applied. The section mandates that companies disclose all payments to foreign governments. It would include royalty and tax payments abroad, but also regularly paid under-the-table bonuses and other entitlement payments that nationalized oil companies are shielded from disclosing (*Oil and Gas Journal*, 2 June 2014, 8 & 12). Whether this will have a material impact on the competitive advantage of nationalized firms in relation to independent super-majors has yet to be seen, however it is worth noting that these disclosures certainly could taint the public perception of the industry, an effect that may well shape the confidence of oil market investors. Thus, the resource curse handcuffs government action in many ways, forcing governments to respond rather than seeking to change the paradigm that exposes them to risk in the first place, the system of financialized commodity pricing.

The final option my research will discuss in regards to governmental ability to act under a financialized oil scheme, is the creation of tools that can be used to help relieve an economy during periods of oil price fluctuations. Governments have made particular use of two major tools within the last two decades, Sovereign Wealth Funds (SWFs) and strategic reserves. The first, SWFs, are usually invested diversely and abroad, often within seemingly stable bond markets, but sometimes also in broader securities. SWFs are designed to serve multiple purposes related to insulating an economy from boom and bust extremes, and in the recent 2014 oil price slump, they have been used to help governments cover budget deficits and help production regions diversify when resource

production is in decline. Factors relevant to determining the best use of a SWF include the overall budgetary deficit as a result of lost or reduced oil revenues, the length of a particular downward trend in oil pricing, the price at which the lower pricing ceases to decline and begins to hold stable, and the viability of making targeted investments to bridge employment losses or aid in promoting economic diversity.

Although many oil producing nations possess SWFs, including Angola, Azerbaijan, Columbia, Kazakhstan, Russia, Norway and Nigeria, their size varies greatly in relation to their national natural resource outputs. As a result, the nations with smaller SWFs relative to their economic output are the most at risk when there is an ongoing price slump. If the lower oil price persists, these SWFs diminish in size, and countries have had to investigate other sources of revenue. Norland has predicted that oil producing nations could make adjustments that could lead to further price instabilities as was seen in Libya in 2011 (Norland, 9 March 2015). As a result, SWFs may provide governments of oil producing nations room to maneuver in times of oil price highs and lows, but they only offer a reactionary and relatively short term solution to revenue problems.

Another option that governments have made use of for the purposes of handling a pricing paradigm out of their control has been strategic oil reserves. Strategic oil reserves are stockpiles of physical oil, held by a governmental body for the purpose of promoting supply stability. The use of strategic reserves became more prevalent, particularly for the Western world, after the OPEC oil embargo of 1973. The intent was to prevent a repeat of the price hikes and resulting vulnerability of the West to what they saw as volatile

external price control. Despite the intention to purchase surplus oil to provide relief in the form of real resources during periods of physical market supply shortages, strategic reserves have increasingly been used preemptively, and in some cases, in order to avert market panic before it can impact investor confidence and thus oil pricing. An example of this was clearly seen at the time of the eruption of violence in Libya following the Arab Spring. The IEA, which has a massive strategic oil reserve, said it would release 60 million barrels of oil into the market over a one-month period to ensure a “soft landing for the world economy” in anticipation of the growing concern amongst oil market investors that a conflict in Libya could remove as much as 1.4 million barrels a day from the market (*The Economist*, 23 June 2011). The physical market had already planned an adjustment. Confusingly, however, the decision was made under the increasing speculation that demand both in Asian and the wealthy Western states was about to subside, and Saudi Arabia had already stated it would increase its own production to make up the losses from the Libyan fields. This suggests that the target of this decision was not the physical market at all, but investors from the financialized oil market who might panic. In response to the announcement, oil prices tumbled, with Brent sliding from \$115 to \$108 per barrel, suggesting once again that investor confidence, not physical market dynamics, increasingly determine the price of oil. *The Economist* recognized this use of the strategic reserve, stating, “[t]his sets an unfortunate precedent that the stockpiles are there to smooth the ups and downs of the oil price rather than to guard against genuine emergencies” (*The Economist*, 23 June 2011).

What is increasingly apparent from the way that governments and their agencies have chosen to address the financialization of oil is troubling in two ways. Government actions across the globe have been attempting to find the best way of managing their policies under the financialized oil pricing paradigm rather than changing it, perhaps seen most actively in their participation in the financial markets themselves with SWFs. In essence, their hedge against the market paradigm is to play the market. Strange's Casino is alive and well in the global capitalist system. The second realization is perhaps even more troubling. It suggests that governments are realizing that there are times when the physical market activities can be ignored when attempting to address concerns around pricing. Along with this is the necessary realization that controlling the confidence of investors is the most powerful way to influence pricing today. Investors are ultimately human, even if shielded by layers of brokers and investment tools and mechanisms. This means that the same "buzzword" that draws people to watch a catchy TV series, to stand by a particular cause, or to vote for a specific candidate, can be dictating the price fluctuations of one of the world's most important commodities.

## **Chapter 9 : Implications to Corporate Stakeholders**

The recent (post-2000) trends in market linked pricing have had direct implications for corporate stakeholders involved in the oil industry. Oil companies have long been the focus of political analysis of the oil industry, and the implications of the current paradigm on oil companies cannot be ignored. Although my research focuses on the implications of the financialization of oil pricing for oil companies on the level of corporate-market engagement, it is important to note that these implications affect a wide variety of oil consumers as well, particularly in manufacturing and transportation. In this chapter it will be important to note that this discussion ignores the implications of corporate actions on their own stock prices, which are outside of the scope of my research. This section is largely focused on the efforts of stakeholders to insulate themselves from price fluctuations out of their control. This seems to be the new norm of corporate behavior in relation to the pricing mechanism. Their power has been limited such that they now often appear to be followers of the market price rather than the agenda-setters of the past (remembering Rockefeller and the Seven Sisters).

Three trends are important when analyzing corporate behavior during this time period. First, despite the growing number of NOCs in the era of OPEC expansion, these companies began to act like the international majors. Secondly, the dramatic rise in oil pricing, competition for reservoirs, and the inflation of costs associated with the exploration and production phases of the industry led to a dramatic increase in the cost of marginal production (a traditional base line for pricing). Lastly, the organizational

structure began to change to reflect confidence in the pricing mechanism, with some companies choosing to divest downstream (or upstream) assets in order to make themselves more nimble in a more competitive environment, although the current low pricing has afforded companies that remained integrated the opportunity to recover lost upstream revenue by controlling the markup in their refining. Just as was seen in the examination of implications on national governance, and insofar as these corporations have come to understand the highly competitive nature of the modern oil industry, as well as the dual oil market (physical and financial), risk has been redefined. The result has been a reassessment of risk management strategies, and the avoidance of risk has led to significant changes.

Nationalized oil companies are increasingly part of the discussion about oil power. Insofar as the largest of them are incredibly powerful, it is true that they are important corporate actors in today's oil industry. As *The Economist* said in 2011, "Exxon may be the world's biggest listed company by market capitalization, but it is a tiddler beside the National Iranian Oil Company or Saudi Aramco" (Economist, 29 October 2011). Studies show that NOCs hold anywhere from 70-90% of global reserves, and control as much as 60% of global production (Thurber, 2012, 4). A majority of the largest NOCs (such as Saudi Aramco, NIOC, and CNOOC) have privileged access to their home nation's vast reserves, controlling substantial amounts of undiscovered crude supplies, while NOCs from nations without substantial domestic supplies have used their favorable access to government capital to outbid and outspend on underdeveloped fields in other parts of the world.



Despite the size of the largest of these firms and their government backing, the move to financialization in oil pricing forced them to act differently. Once criticized as powerful arms of the foreign policy of their home governments, or as tools to manage domestic political interests,<sup>30</sup> NOCs have evolved into companies that utilize many of the same principles as the IOCs (Karev, Pattanik, Ashish, 1 October 2007). This change is significant because of the close relationship between NOCs and their governments. It has meant that governments also have had to integrate their goals with the market success of their firms. This process sped up with the merger of many of the former Seven Sisters in the 1990s; NOCs also had to compete with these new Western-backed super-majors.<sup>31</sup> Where NOCs had appeared inefficient compared to the IOCs in the past, market financialization has forced NOCs to act more like private transnational corporations, though some of them maintain the ability to seek government intervention to protect against negative market shocks while in some cases also drawing money from the private sector by putting a minority percentage of stocks up for public sale (i.e. 40% of Norway's Statoil is publicly traded stock). This has led national oil companies to operate much as the independents always have, measuring their success by their ability to provide good

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<sup>30</sup> Examples of this could be controlling margins on downstream products if integrated into the domestic downstream, or altering employment policies for political interests (for instance the hiring of employees from the national labor pool over expatriate workers). Although this can be seen in some countries that are not dominated by NOCs (such as Canada, where some provinces promote the hiring of contracting firms that indigenous peoples control or operate), it is more prevalent in nations with NOCs.

<sup>31</sup> Esso and Mobil merged to form ExxonMobil, while SoCal, Gulf and Texaco became Chevron. What has emerged since is a group of six international supermajors with Royal Dutch Shell, BP, Chevron, and ExxonMobil becoming joined by ConocoPhillips and Total SA. On the side of National Oil Companies, seven of the largest firms are Saudi Aramco, National Iranian Oil Company, CNPC/Petro China, Gazprom, Petrobras, Petronas, PDVSA.

dividends to the investors, and foregoing the national interest in favour of the pursuit of profit.

For IOCs, especially the new super-majors, the struggle in the world of financialized oil has been exacerbated by the new role of NOCs as market competitors. Globalized pricing through the central clearing houses (i.e. NYMEX, ICE, the DME, and even the OTC market) has made it difficult to wield much influence over the upstream sector of the industry. Instead, the upstream side of the industry has become a source of increased risk, because the super-majors are now competing against more technically savvy and well-funded NOCs. The NOCs, particularly those without domestic resources (such as China), have become increasingly willing to take on projects outside their national borders, often exploring more marginal fields and taking on risk-sharing partnerships with oil-service (technical support firms) firms, which have been widening their services (*The Economist*, 3 August 2013). This has the result of reducing potential new fields available to the IOCs, which must continue to work with NOCs, or explore ever more marginal resources, such as deep water offshore, Arctic, or technologically challenging resource plays.

Within the financialized oil paradigm, the area where the IOCs have maintained their strength is their hold over refining. As mentioned previously in the environmental policy discussion, at least in the West, oil markets are dependent on quality as much as quantity in order to meet consumer demand. This has placed a large burden on refining and a strong reliance on export markets for surplus by-products. The persistence of higher

prices leading up to 2008 increasingly forced the vertically integrated majors to accept smaller profits in their refining operations, largely bearing the burden of the higher fuel costs. Refining is often the industry’s equalizer. Oil refining is a process of crude oil distillation that breaks apart the crude, producing the same standardized products, differentiated by their various chemical factors and efficiency standards. After the fall in pricing in 2014, the profit margins in refineries increased across the board. Since this area had been running at lower margins for so long, these savings have not been passed to consumers. According to the *Oil and Gas Journal* (2015) and authors Xu and Bell (1 May 2015), profits from refining in the four major refining regions of the US increased by \$2.63 a barrel on average at the start of 2014 (see Table 9-1), coinciding with an increase in utilization of refining capacity in attempt to capitalize on this better pricing. In 2015, utilization of refining capacity was set to increase to 90.3% of the total, up 2% from 2013. In order to maximize profits during periods of high pricing, refineries ran at high utilization rates.

**Table 9-1: Refining Profit on Average 2013 to 2014**

Year	Mid-West (\$/bbl)	West Coast (\$/bbl)	Gulf Coast (\$/bbl)	East Coast (\$/bbl)	Average (\$/bbl)
2014	\$19.23	\$16.65	\$8.94	\$5.68	\$12.63
2013	\$17.67	\$13.87	\$6.55	\$1.89	\$10.00
Difference	\$1.56	\$2.78	\$2.39	\$3.79	\$2.63

What this discussion has drawn out is that there has been some degree of levelling of the corporate standards of operation. The largest impact of the pricing mechanism on

the corporate stakeholders has been the changes to the corporate framework that began under the paradigm of higher pricing. The higher price provided a boon to the environmental debate, spurring on automotive developments into more efficient fuel consumption and other changes to consumption efficiency of oil products. Along with the increasing developments in natural gas technology, making natural gas more easily available as a direct competitor for virtually all of oil's uses (petrochemicals, electricity generation, heating, and increasingly and most importantly, transportation), the oil industry has seen the growing popularity of alternative energy programs, a rise in the use of hybrid vehicles, those powered by hydrogen fuel cells, electric cars and an expedient and notable improvement on the efficiency of the internal-combustion engine. The fact that the lower pricing since 2014 has done little to change the pace of these technological changes, suggests that a peak in oil demand is approaching (*The Economist*, 3 August 2013). The potential for a peak in demand has done little to encourage flows of money back into an industry increasingly regarded as facing slow growth potential, and directly threatens the financial viability of firms that struggle to access cheaper resources. Ultimately, the financialized oil pricing paradigm has removed the direct control of pricing by singular corporate actors. In keeping with the intent of the financialization paradigm, this has meant that the corporate stakeholders have been forced to react to pricing conservatively, creating a further dependence on their ability to hedge market trends in the financial clearing houses and diversify their risk management strategies in the physical industry.

## **Chapter 10 : Alternative Paradigms**

The last chapter examines, in extreme brevity, alternative paradigms. Although many are critical of the financial sector, particularly in light of the widespread fallout of 2008, there has been little put forward in terms of a solution. My research will address two proposals that have emerged, first, the proposal for a Central Bank for oil, and secondly, a fully unleashed, and largely unregulated market.

The first alternative, a Global Central Bank for oil, governed by a transnational power, has been proposed by heterodox liberals. A central bank for oil would be an institution that would regulate the oil industry through centralized control in a manner comparable to the monetary policies implemented by central banks around the world. This is seen as plausible because oil often acts as an anchor for capital markets, by virtue of its inverse relationship to the US dollar, even though the financialized oil price paradigm has made the commodity less important than it once was (Aurthers, 28 November 2014). Any justification for valuing oil as a currency would depend on the continuation of a global reserve currency, or at least clear regional trends that would give a central bank for oil a benchmark against which to gauge policies. Since countries are increasingly victimized by a volatile global financial system, the movement out of the dollar as a reserve currency has been a regular occurrence. Because creating a central bank for oil would require an incredible amount of power for implementation and enforcement, a regionalized approach would be subject to a high degree of political control, with influential nations able to steer policy in favour of their interests,

particularly where geopolitics are concerned. A central bank for oil seems then to be a system that would have its legitimacy largely undermined because of its inability to counteract geopolitical power.

The second option, to fully unleash the market and forego corrective measures, would have implications so vast that my research does not have the time to fully examine them. On a very superficial level, an unleashed financial market would lead to a greater degree of diversification of energy resources. The most important of these would be the shift to natural gas. This does little to quell the environmentalist criticisms, as while natural gas does produce lower emissions upon combustion, extraction is often just as environmentally problematic as oil. The real importance of increasing natural gas production is economic. P.H. Frankel once compared oil to cotton. When cotton is cheap and abundant it is used everywhere, but when silk, a much more comfortable product, becomes abundant and affordable, it readily replaces cotton in all of its applications. For the better part of a century oil has been immune to this type of competition, as there has been no commodity that could be used for the various specific purposes of oil (particularly plastics and transportation, which makes up the bulk of oil's utilization). With the expansion of Liquefied Natural Gas (LNG), and impressive natural gas processing technologies, this could change.

Natural gas has been held back by one issue, transportation. Transportation of gas is restricted largely to pipelines and expensive liquefaction processes. Thus, natural gas is still largely traded through regional markets, giving rise to many global pricing

mechanisms. The rise of Liquefied Natural Gas (LNG) as a viable technology has been of growing interest to the global community, with many of the same major oil players and producing regions involved. The advancement of LNG technology has made it seem possible that the world could develop a similar global commodity pricing system for LNG one day as financialized oil. Still, LNG presently is expensive, and it will impact regional markets if LNG encourages a global pricing mechanism. Having a rival to oil would surely benefit global energy consumers and the lessening of dependence on oil would mean oil prices couldn't move independently from natural gas. This would create a peak price for oil, which, if surpassed, would shift consumption of oil directly to natural gas. In order to sustain the oil industry this would mean trying to preserve the oil that is already economically viable, while preventing the inaccessible oil in high-risk areas like the Arctic from becoming viable in the near future.

The problem with an unleashed market has little to do with the greater competitiveness, it comes from what was already discussed under the resource curse implications above, a further entrenchment of that system. The insistence by governments and corporate stakeholders on policies that implicitly accept and react to financialization reveals an expectation that perpetual market volatility will continue, and this would only be exacerbated with a fully unleashed financialized paradigm. Theoretically, a greater diversification of users could give less power to speculators, but already we have seen the increase of price volatility in the financial markets, both in frequency and degree, since the integration of oil, and the ways large capital investors find of circumventing common investment practices and exploiting new areas, such as the process of re-hypothecation

and the creation of the oil storages futures commodity. My research has already addressed the inability of regulators to keep pace with the development of new modes of investment and so it is reasonable to assume that restraints on the current system are not effective enough to “leash” the market. A fully unleashed market would exacerbate the negative trends, stripping more power from the hands of physical market stakeholders and granting it to the financial market investors with the highest capital.

A globalized oil market is essential to keeping the global economy running effectively and for protecting vulnerable import-dependent states from exploitation from regional powers. However, the financialization of oil has led to a complicated shift in power dynamics, away from directly accountable governments and, to a lesser extent, corporate stakeholders, and into the hands of the unpredictable financial investor. The financial markets are instruments designed to funnel power within its ranks to the market money-movers, the brokers, the advisors, directors of pooled funds, and clearing houses themselves, while the actual title holding investor may never have enough knowledge or resources to direct their investments independently, much less in a way that would have meaningful impacts. Thus the physical market stakeholders, those that live with the day-to-day implications of a pricing mechanism they struggle to have any influence over, are forced to find ways to respond to the implications of this mechanism on their interests. A change in paradigm may be possible, but it cannot replicate the failed methods of the past (monopolies, absolute freedom, and cartels), nor can it follow their structure in restricting (as with a central bank) or unleashing control (in the case of an unregulated financial market) to the absolute rigid authority of a few powers.



## **Chapter 11 : Conclusion**

I stated at the outset of this thesis that oil control is a rope made of sand; oil control rests on the power of controlling the price. History has taught us that the largest oil industry stakeholders have always sought predictability in the price of oil, and finding the best way to ensure predictability has been to control the industry. Rockefeller's monopoly sought to control strategic bottlenecks, in particular, refining and transport, in order to control flows of the product to market. This kept the price at a level that both would benefit the SOC and create barriers to entry and challenges to the survival of industry rivals. The Seven Sisters coordinated oil pricing at a time when the world was increasingly dependent on oil. Their ability to work together to keep competitors from entering and surviving the oil market was matched by their ability to work together to form consortiums that would spread the risk as the oil industry was moving into new frontiers. Lastly, OPEC manipulated their benchmark price by adjusting production quotas. As a political cartel made up of government ministers, OPEC also utilized embargos and engaged in price manipulation in a way that would attempt to achieve political goals.

My historical analysis of these parties revealed a pattern in the pursuit of oil power. I have reproduced this pattern here:

1. Petroleum control paradigms seek to stabilize oil pricing and protect stakeholders (historically either corporate or governmental) against unfavorable volatility (boom and bust cycles);
2. They do so by attempting to consolidate and centralize control (cartelization);
3. Control paradigms are likely to fracture when the existing paradigm fails to stabilize pricing.

The current paradigm has modeled physical market volatility as a predictable variable, utilizing a methodology of financial investing in oil futures contracts (hedging) as a financial tool to allow stakeholders to better insulate themselves against price fluctuations. However, the rapid expansion of paper investments and the relatively slower growth of the physical market has linked the price of oil to the greatest flows of capital, that is financial market activities. Despite the pursuit of predictability in oil pricing by stakeholders, patterns of profitable investment throughout the 2008 collapse show us that paper investors benefit from constant variations in the market price, be it high or low, as opportunities for arbitrage. Under a financialized oil pricing paradigm, it is not the physical market that is manipulated to adjust the price of oil. The essence of oil power today rests in investor confidence and the signals sent to those investors (whether or not they are reflected in equal measure by the physical industry). Although the physical market is required in order to sustain a financial system based on its existence, I have shown that the financial market is more than capable of creating new degrees of volatility, far exceeding, and in some cases independent of, physical market fluctuations.

The financial market, therefore, repeats the historical pattern of oil price control used by physical players. The first factor, regarding the desire to promote stability in pricing and protect stakeholders, is seen simply in the investment product (the futures contract) and the process of hedging. As discussed earlier, the process of investing in these contracts theoretically provides predictable pricing for oil stakeholders, and allows a softer landing in response to physical market fluctuations. Likewise, the second factor is reflected in the current pricing paradigm. The desire to centralize and consolidate oil pricing power is reflected within the popularization of patterns of investing. Although the number of independent actors in a particular investment trend can be diverse (as in the run up of pricing before 2008), the collective act of investing massive flows of capital in one direction has the effect of consolidating capital. As seen in the price run-up, and again in the contango market, collective action has signaled an investment trend that fluctuates the valuation of paper barrels above and beyond physical market indicators.

The last factor in my pattern of control, the reality that control paradigms are likely to fracture when they fail to stabilize pricing, is only now emerging as these instabilities inherent in the financialized paradigm emerge. The lessons learned in hindsight from analysis of the 2008 crises show that volatility driven by market speculation and the participation within the market by overwhelming amounts of financial capital (with no intent of ever receiving delivery of a barrel) has certainly caused a divergence between the financial market value for a barrel of oil and that which would be established by physical market fundamentals of supply and demand. Increasingly, physical oil market stakeholders take their pricing cues from the valuation

of the product within the financial markets. This inverse relationship has led both governmental and corporate stakeholders to invest within the financial markets through mechanisms like SWFs (in the case of some governments) and corporate funds, hedging investments not just for the purpose of potential fluctuations in the price of oil, but in preparation for the day when oil ceases to be viable. At that time, these funds will be invaluable to help diversify the economies of oil dependent states, and to bridge the gap as corporate oil stakeholders seek new avenues for profit. The other role the stakeholders have taken on has been reactionary. Although the US and UK governments have attempted to regulate the financial market, largely unsuccessfully, the majority of governmental and corporate stakeholders attempt to implement policies and regulations in reaction to their physical engagement within the industry (such as exploring alternatives and improving industry efficiency).

Clearly a return to physical market centralization is not sustainable, at least not for long, but the paradigm that exists today is not a complete solution either. As my research has shown, the market is not immune from manipulation, although that manipulation now emerges from money flows that have nothing to do with the physical stakes in the industry. Essentially, the financialization of oil has led pricing to be determined by the economic fundamentals of the financial (paper) oil product and not the physical barrel. The recent slump in oil prices has tested the effectiveness of the financialization control mechanism, especially in regards to this vulnerability to manipulation and inability to promote stability amongst the most vulnerable to oil price shocks. However the trend leading to the creation of the DME (referenced earlier), LOOP oil storage futures, and

even the possibility of a global LNG market suggest that this paradigm is here to stay for the foreseeable future.

Historical players still exist, including the international super-majors (the remaining Seven Sisters) and OPEC, but their capacity for influence is greatly reduced. For instance, according to Carollo, OPEC today “represents 30% of a segment of 4% of the business that we call the oil market” (Carollo, 2012, 17). The days of a centralized authority in a market with so many diverse sources of influence may well be permanently in the past. This is increasingly true of nation-states that once had the ability to lord access to oil over others in attempts to exercise power. The shift has been bittersweet for nations. After the fall of the Soviet empire, nations that were once connected through Moscow’s centralized distribution of oil subsidies suffered shocks as they were required to pay market price for Russian oil. These nations have also increasingly diversified, especially since Russia’s attempt to restrict Ukraine’s energy supplies in the wake of the Orange Revolution (Klare, 2006, 18).

In relation to the current lower oil price, the capacity of traditionally powerful physical stakeholders to exercise influence over oil pricing is even more diminished. The artificially high pricing in the run up to 2008 signaled to stakeholders to invest in developing ever more expensive reserves. The marginal fields required enormous capital and carried with them high risks that can only be justified under inflated prices. The current lower pricing reflects the costs of the majority marginal fields currently in operation, however it does not support further development into new fields. As Rubin

puts it, “[t]here may be oil out there under the ground, but no one is going to sign up to lose money pumping it” (2012, 43). This could be a good thing for environmentalists and resource conservationists, however it does not aid the movement for energy security, at least in North America and the off-shore dependent European Union. Companies are having to make do with the oil reserves they currently hold, with few plans for substantial expansion into areas other than secondary recovery of existing wells. For oil exporting countries, the current oil price, as already discussed in the implications section, has had a direct impact on the health of their budgets, leading to falling currency values compared to the US dollar in virtually every exporting nation. Furthermore, the move to more efficient technologies and alternatives has prevented a surge in demand from importing nations despite the lower price. For however long this lower oil price lasts, the surplus in storage will slowly seep back into the market while the physical market stakeholders will likely wait and endure the brunt of the fallout from the super contango trend discussed in the implications section.

The actions of stakeholders have two implications. The first implication is that physical oil stakeholder reactions will perpetuate the financialized oil paradigm. The increased engagement by physical oil industry stakeholders, not as physical participants alone, but as financial participants, ensures that the continued dominance of the paper market over the physical. These participants cause massive fluctuations of capital to financial markets and although these funds tend to be diversified, they necessarily will have similar impacts (by virtue of pursuing profitable investment opportunities) on the valuation of other commodities and areas of investment. The second implication appears

contradictory in a sense. It suggests that stakeholders are seeking a paradigm change. Their frustration with the financialization of oil is apparent by their pursuit of more predictably priced alternatives, among other things. Although stakeholders appear to be committed to engaging within the current paradigm as long as it seems viable to do so, it is clear that their patience is running out.

Frankel believed the oil industry would always gravitate to some form of centralized control (Frankel, 1969, 82). While today, power is certainly centralized within the markets themselves, it would seem that it remains diffuse as in Strange's theoretical casino. We see the willingness of some to speculate on an industry they may or may not have any physical stake in, and others to take diverse financial risks that may or may not pay off, while others still control the messaging surrounding the industry and send messages that signal flows of investment that may or may not be rooted in the fundamentals of the physical industry. Within its current manifestation in the financialized commodity markets, it seems that oil pricing remains a rope made of sand. While historically, pricing paradigms passed this "rope" from Rockefeller to the Seven Sisters, and then to OPEC, it appeared that this "rope" was more challenging to hold on to than to grasp. Under the current paradigm, where key stakeholders struggle to maintain their relevance this "rope" seems increasingly impossible to grasp at all.

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### Universities attended:

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University of New Brunswick; Fredericton, NB — BA, Political Science (HONS), 2010

Queen's University International Study Centre; Herstmonceux, UK —Certificate of  
Completion, 2006-2007

### Conferences:

Politics at the Tipping Point – Atlantic Provinces Political Science Association  
Conference

– Saint John, NB – 2016 (Presenter)

Spaces and Places: Geopolitics in an Era of Globalization – International Studies  
Association – Toronto, ON – 2014

GSA Graduate Research Conference – UNB GSA – Fredericton, NB – 2015, 2014

2013 Arctic Summit – The Economist – Oslo, Norway - 2013

Mapping Global Policy – McMaster University – Hamilton, ON - 2013

### Affiliations:

International Association for Energy Economics – Member

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