

FEDERAL UNIVERSITY OF RIO DE JANEIRO
FERNANDO BARCELLOS DE ANDRADE ALENCAR

DERIVATIVES AND GLOBAL FINANCIAL GOVERNANCE BEFORE 2008: The
role of the American state

Rio de Janeiro
2019

FERNANDO BARCELLOS DE ANDRADE ALENCAR

DERIVATIVES AND GLOBAL FINANCIAL GOVERNANCE BEFORE 2008: The
role of the American state

Master's degree thesis presented to the
Graduate Program in International
Political Economy of the Institute of
Economics of the Federal University of
Rio de Janeiro, in partial fulfillment of the
requirements for the degree of Master of
Arts in International Political Economy.

Supervisor: Prof. Dr. Ernani Teixeira Torres Filho

Co-supervisor: Prof. Dr. Randall Germain

Rio de Janeiro

2019

FICHA CATALOGRÁFICA

A368 Alencar, Fernando Barcellos de Andrade
Derivatives and global financial governance before 2008: the role of the American state / Fernando Barcellos de Andrade Alencar. – 2019.
145 p.; 31 cm.

Orientador: Ernani Teixeira Torres Filho
Coorientador: Randall Douglas Germain
Dissertação (mestrado) – Universidade Federal do Rio de Janeiro, Instituto de Economia, Programa de Pós-Graduação em Economia Política Internacional, 2019.
Bibliografia: f. 138-145.

1. Derivativos (finanças). 2. Governança financeira global. 3. Poder estrutural financeiro. I. Torres Filho, Ernani Teixeira, orient. II. Germain, Randall Douglas, coorient. III. Universidade Federal do Rio de Janeiro. Instituto de Economia. IV. Título.

CDD 339.52

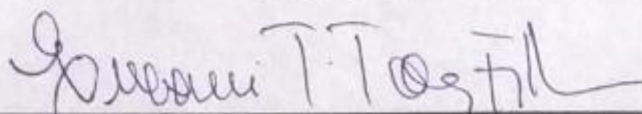
Ficha catalográfica elaborada pelo bibliotecário: Lucas Augusto Alves
Figueiredo CRB 7 – 6851 Biblioteca Eugênio Gudín/CCJE/UFRJ

FERNANDO BARCELLOS DE ANDRADE ALENCAR

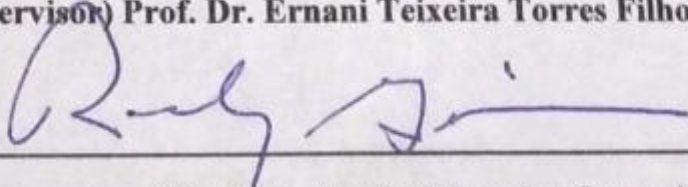
DERIVATIVES AND GLOBAL FINANCIAL GOVERNANCE BEFORE 2008: The
role of the American state

Master's degree thesis presented to the
Graduate Program in International
Political Economy of the Institute of
Economics of the Federal University of
Rio de Janeiro, in partial fulfillment of the
requirements for the degree of Master of
Arts in International Political Economy.

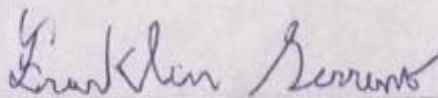
Defense Committee



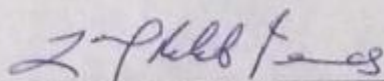
(Supervisor) Prof. Dr. Ernani Teixeira Torres Filho



(Co-supervisor) Prof. Dr. Randall Douglas Germain



Prof. Dr. Franklin Leon Peres Serrano



Prof. Dr. Luis Manuel Rebelo Fernandes

Rio de Janeiro

2019

To Mr. Samuel Van Oort, for putting this work in its best readable form, for the continuous comradery established in Ottawa and to stimulate your global finance curiosity such as mine.

Acknowledgments

Many people deserve many thanks for helping me accomplish the task of making this research, be they directly related to it or not. Starting with my parents, who were always supportive, even if not fully aware of my studies. They were always there backing me up, listening to me and helping me move forward. My special thanks to my aunts Inez, Kátia and Lívia and to my uncle Marcus Vínicius for taking care of my mother when she most needed it when I had to come to Canada to finish this research. Enormous thanks must be made to Global Affairs Canada (GAC), which through the Emerging Leaders of America scholarship provided me generous funding for this research to be accomplished. This Canadian government support must be stressed: many of the results achieved were only possible because of the access to sources and the contact I had with Canadian scholars, who were always interested in and attentive to my research. In a time where the Brazilian government decided to cut funds substantially for research, this GAC scholarship was the only source of funding I had and what really allowed this research to become actualized. So again, thank you so much to the Canadian government, to the Canadian scholars and to the Canadian people as whole.

Special thanks to Gabriela Moreno and Yvone Clevers from Carleton International who gently took care of everything I needed for my arrival and my stay during this research exchange at Carleton University in Ottawa, where I came to spend the last six months of my M.A. and where I finished writing this dissertation. Another special thanks to Carleton's librarian Aleksandra Blake – who was fundamental in getting me the American congressional hearings I badly needed to prove one of my hypotheses. Thanks for your patient, diligent and ready support. None of this would be possible without the support of three outstanding scholars. First and foremost, my always-enduring gratitude to my home supervisor Professor Ernani Torres Filho. You patiently accepted that I changed my topics of studies three times... Until I've reached something as "concrete" as I wanted: you couldn't have made me a better suggestion than to study financial derivatives – it was really hard work at first to try to understand them and then to research the topic, but you believed in me, always being there to guide my progress. Thank you so much for that. You had to teach me a lot in one by one lessons: on finance, on macroeconomics, etc., but you taught me not only about theories; with you I learnt about life: how to get-up-and-go, how to raise my head and move forward, how to behave, how to talk. You backed up all my ideas and projects: to write any and all of my work in the English language, to apply to internships and career programs, to make network with key people. I was really blessed to meet you in the Institute of Economics of our University. You were fundamental in all of the great achievements and personal progress I had in the last two years. That is why I call you Master – in spite of the fact that I know you think that is too much deference – and I will always brag about having the former chief Economist of Brazilian National Development Bank as my supervisor. Come on, let me do so!

I have never learnt so much with someone as I learnt with you, Ernani: during your course on financial globalization – in which I had the honor to be a tutor, in the conversations at your home, in exchanging e-mails with ideas, articles and books. When I finished my eight-page long bibliography references, I recalled how much I studied: from macroeconomics to financial regulation; from theory of finance to political theory. Hard work, good work! One to be proud about. A four-hand work, as you call it and one that would have been impossible without your attentive supervision. This dissertation is ours! And I am sure much more is to come in our intellectual partnership!

Ernani introduced me to Professor Eric Helleiner, with who this Canada-project started to take its first steps. I must thank you so much for your support, Eric: from the first full list of articles and books on pre-crisis regulation of OTC derivatives which was seminal for this research to be accomplished, to the comments on my research proposal, to receiving me in Waterloo University and gifting me with a hardcopy of your *Governing the World's Biggest Market* book, and to put me in contact with Professor Randall Germain. From my first e-mail to him, he readily accepted to support my coming to Carleton University where he is based and to co-supervise me. I could not have had better a host supervisor than you, Randall. What a fabulous stay at Carleton I am having! From getting me a huge, awesome office, making elemental comments on the first draft of my research, putting me in contact with Aleksandra Blake, receiving me in your own family for a delicious Canadian thanksgiving meal, gifting me with a warm parca and listening to my personal challenges here... I have no words but to say thank you so much. I much appreciate everything you've done for me and I will never forget it. Along with you, Randall, I had the opportunity to have a full immersion in IPE, by allowing me to audit three courses of yours: Global Governance, The Political Economy of Global Finance and Theories of IPE. In them I received first-world quality training in my field. I will never forget both the profoundness of the intriguing readings and of the exciting debates of seminar classes, specially in the Theories of IPE class. This is something I will never be able to pay you back for: thank you so much, Randall. And thank you all three: Ernani, Eric and Randall for teaching me this amazing field of study called International Political Economy, which is my greatest study passion and is the field in which, with this dissertation, I will become a Master in.

I also want to give a special thanks to Norberto Martins, PhD Candidate in Economics at my home University. How could I have happened to study and understand financial derivatives – a little bit – without the utmost attention you have given me? We had many and many Whatsapp chats, with you clarifying me doubts on the technicalities of derivatives in particular and economics and finance in general throughout these two years of my M.A.; the most important texts on the financial regulation and monetary policy derivatives you sent me; the most important data you showed me. You are a really generous person, Norberto, I am really glad to have the opportunity to be introduced to you by Ernani and to have studied derivatives along with you. I also now want to thank Dr. Stefano Pagliari for his key comments on my research proposal and for sending seminal texts for my research. As well, I want to thank Professors Louis Pauly, Rachael Epstein and Tony Porter for their comments on my research results. I much appreciate your attention.

Of those people that were not directly related to the writing of this dissertation, I want to start my thank you to Gem McCreary, founder and CEO of TalentoTotal, who made me a fellow of this important organization whose mission is to support afro-descendants and indigenous people in Latin America to overcome the long-standing barriers these people face in labor markets and career paths. Throughout my M.A., Gem, you were always conceding me new opportunities, helping me to look forward to a better future and encouraging me to get-up-and-go and prepare myself for the challenges of a post-M.A. life and career.

I want to also thanks Patrícia Menandro and Marcus Macahyba for their attention in the beginning of my M.A. when I was trying to figure out what kind of financial instruments I could study with a global financial governance perspective. I will always remember my talks with them, which were my very first introduction to the world of financial contracts and financial regulation. Their help in trying to make me select the key spots of study was fundamental. Thank you so much to both of you.

“Ideally, monetary relations should be inconspicuous, part of the background in a well-functioning system, taken for granted. Once they become visible and uncertain, something is wrong” (COOPER, 1975, p. 63).

Abstract

The objective of this work is to study financial derivatives and OTC derivatives markets regulatory exemptions as a means of enabling the United States financial structural power, which is the power one agent holds in determining the options available to other agents' decision-making in the financial system. Two hypotheses are tested. First that derivatives have become fundamental instruments for the governance of the post-Bretton Woods financial system. The second hypothesis claims that American high officials had a strategic view on how financial derivatives were elemental instruments of governance for the international financial system. To test these perspectives, a connection is established between Strange's theory of structural power and Black and Mehrling's theory of finance on derivatives, showing how these instruments can be seen as instruments of financial governance and thus instruments of American state power, represented by the standardization of risk expressed in U.S. Treasury Bills. By mitigating the three fundamental macroeconomic risks: exchange rate, interest rate and credit default risks, derivatives have rendered any asset in the global financial system as risk-free as U.S. Treasury Bills, making it the standard asset in the same way the U.S. dollar is the standard unit of account for the system. This allowed global financial integration to increase through the ready comparison and pricing among assets of different risk natures. Secondly, an historical analysis is made about the regulatory conflicts in the American over-the-counter (OTC) derivatives markets between the 1970's and the 1990's. Results show that high American officials, from monetary policy and financial regulation, supported OTC derivatives markets regulatory exemptions for strategic considerations in terms of global financial governance. Those regulatory exemptions, in their view, allowed U.S. banks to monopolize and expand OTC derivatives dealing, making them dominants in global risk management and thus central keys to the operation of the post-Bretton Woods system. The exercise of structural financial power appears as a unilateral American imposition of the norms of operation of the global financial system, both through financial derivatives contracts and their regulation. After unilaterally putting an end to the stability-inducing mechanisms of Bretton Woods, U.S. public and private agents, by using financial innovations and regulatory exemptions, re-wrote and imposed new rules of operation for the global financial system.

Key-words: financial derivatives; global financial governance; financial structural power; OTC derivatives markets; regulatory exemptions.

Resumo

O objetivo deste trabalho é estudar derivativos financeiros e a regulação do mercado de derivativos de balcão americano como uma maneira de conceder aos Estados Unidos poder financeiro estrutural que é o poder de determinar as opções disponíveis à tomada de decisão de outros agentes quanto ao sistema financeiro. Duas hipóteses são testadas. Primeiro, derivativos se tornaram instrumentos fundamentais para a governança do sistema financeiro pós-Bretton Woods. A segunda hipótese reivindica que altos oficiais americanos tinham uma visão estratégica de como derivativos eram instrumentos fundamentais para a governança do sistema financeiro internacional. Para testar essas perspectivas uma conexão é estabelecida entre a teoria do poder estrutural de Strange e a teoria financeira sobre derivativos de Black e Mehrling, mostrando como esses contratos financeiros podem ser vistos como instrumentos de governança financeira e, portanto, como instrumentos do poder estatal americano, representados pela padronização de risco expressa nos títulos de curto prazo da dívida americana (U.S. Treasury Bills). Ao mitigar os três riscos macroeconômicos fundamentais: risco de câmbio, de juros e de crédito, derivativos tornaram quaisquer ativos no sistema financeiro global tão livres de risco quanto os títulos de curto prazo da dívida americana (U.S. Treasury Bills), tornando-o o ativo padrão do sistema da mesma maneira em que o dólar americano o é. Isso permitiu a emergência da integração financeira global através da comparação e precificação imediata entre ativos com natureza de risco diferentes. Em segundo lugar, uma análise histórica é feita dos conflitos regulatórios no mercado americano de derivativos de balcão entre os anos 1970 e 1990. Resultados mostram que altos oficiais americanos de política monetária e regulação financeira apoiaram isenções regulatórias para os mercados de derivativos de balcão por considerações estratégicas em termos governança financeira global. Na visão deles, essas isenções regulatórias permitiram aos bancos americanos monopolizar e expandir o negócio de derivativos de balcão, tornando-os dominantes no gerenciamento global de risco e, portanto, peças-chave para a operação do sistema financeiro pós-Bretton Woods. O exercício do poder financeiro estrutural aparece como uma imposição unilateral americana das normas de operação do sistema financeiro global, ambos através dos contratos de derivativos financeiros e sua regulação. Depois de pôr fim aos mecanismos indutores de estabilidade de Bretton Woods, agentes públicos e privados americanos, através da utilização de inovações financeiras e isenções regulatórias, reescreveram e impuseram novas regras de operação ao sistema financeiro global.

Palavras-chave: derivativos financeiros; governança financeira global; poder financeiro estrutural; mercado de derivativos de balcão e isenções regulatórias.

List of figures

Figure 1: S&P500 variation from the 1860's to 2000's

Figure 2: Japanese Yen to US dollar exchange rate variation from 1950 to 2010

Figure 3: Price of crude oil per barrel variation from 1974 to 2001

Figure 4: Gains or losses for a call option according to spot and strike prices

Figure 5: Gains or losses for a put option according to spot and strike prices

Figure 6: Derivatives market growth measured in notional amounts

Figure 7: Derivatives market growth measured in percentage of total market size

Figure 8: OTC derivatives markets by underlying assets. All figures in notional amounts denominated in trillions of U.S. dollars

Figure 9: Exchange rate derivatives by underlying assets

Figure 10: Size of OTC derivatives contracts. Figures in notional amounts of billions of U.S. dollars

Figure 11: Change of contract size of exchange traded derivatives during the last 19 years

Figure 12: Size of American bond markets

Figure 13: Currency denomination of OTC foreign exchange derivatives

Figure 14: Global stock of debt and equity as ratio of GDP

List of tables

Table 1: Daily market-to-market mechanism operation

Table 2: Price of call options on a stock of Google corporation

Table 3: Price of put options on a stock of Google corporation

Table 4: derivatives mitigation of Vale corporation bond's risks

Table 5: International liquidity expansion from 1969 to 1978

Table 6: World's major interest-rate-swap firms

Table 7: Growth of OTC derivatives markets in the 1980's for foreign exchange derivatives and IRS outstanding

Diagram 1: Interest rate cashflow payments between a company and a bank as part a plain vanilla swap

Diagram 2: Cashflows between a company and a bank as part of a fixed-for-fixed currency swap

Diagram 3: Cashflows between buyer and seller of protection in a CDS contract

Abbreviations

BCBS – Basel Committee on Banking Supervision

BIS – Bank for International Settlements

CDS – Credit Default Swaps

CEA – Commodity Exchanges Authority or Commodity Exchanges Act

CME – Chicago Mercantile Exchange

CBOE – Chicago Board Options Exchange

CBOT – Chicago Board of Trade

CFMA – Commodity Futures Modernization Act

CFTC – Commodities and Futures Trading Commission

FCM – Future Commission Merchants

FED – Federal Reserve System

FRA – Forward Rate Agreement

FXS – Foreign Exchange Swap

GAO – Government Accountability Office

GDP – Gross Domestic Product

IMF – International Monetary Fund

IPE – International Political Economy

IPO – Initial Public Offering

IRS – Interest Rate Swap

ISDA – International Swaps and Derivatives Association

LIBOR – London Interbank Offered rate

LTCM – Long Term Capital Management

NGO – Non-Governmental Organization

NYSE – New York Stock Exchange

OCC – Office of the Comptroller of the Currency

OTC – Over-the-counter

OTS – Office of Thrift Supervision

SEC – Securities and Exchange Commission

SIB – Securities and Investment Board

T-bond – Treasury Bond

T-bill – Treasury Bill

U.K. – United Kingdom

U.S. – United States

U.S.A – United States of America

U.S.D. – United States Dollar

Table of contents

Introduction.....	17
Chapter 1. Understanding derivatives.....	23
1.1 Defining derivatives.....	23
1.2 Derivatives markets.....	28
1.2.1 Exchange traded derivatives.....	29
1.2.2 The over-the-counter (OTC) derivatives market.....	32
1.3 Types of derivatives.....	34
1.3.1 Forwards.....	34
1.3.2 Futures.....	36
1.3.3 Options.....	38
1.3.4 Swaps.....	41
1.4 Size of derivatives markets.....	45
1.5. Types of derivatives traders.....	50
1.6. International regulation of derivatives.....	52
Chapter 2. Derivatives as instruments of global financial governance.....	57
2.1. Strange’s concept of structural power.....	57
2.2. the U.S. dollar hegemony and structural financial power.....	61
2.3. Financial derivatives as the pillar of U.S. dollar hegemony.....	67
Chapter 3. Derivatives in the post-Bretton Woods global financial system.....	78
3.1 The operation of the Bretton Woods system.....	78
3.2. The post-Bretton Woods system: the floating dollar standard.....	84
3.3. Derivatives in the floating dollar standard.....	91
Chapter 4. The OTC derivatives regulation and the American financial power..	100
4.1. The grantors of market liquidity for financial risk: derivatives dealer banks.....	100
4.2. States and markets in the build-up of a governance for financial risk.....	103
4.3. The struggles within the American regulation of OTC derivatives markets.....	112
4.4. American officials’ strategic rationality on OTC derivatives regulation: the 1998 case study.....	126

4.5. Structural power and financial regulation.....	131
Final remarks.....	134
References.....	138

Introduction

The Bretton Woods agreement framed an international system of fixed exchange rates for short and long terms, assured by the convertibility of dollar to gold on a fixed parity and the peg of national currencies to dollar. Along with states' cooperation in international capital flows, this system reduced exchange rate risk and interest rate volatility, granting confidence to investments. However, during the 1960's the soaring American deficit made it increasingly difficult for the U.S. to sustain the fixed parity. In order to keep its macroeconomic autonomy, the U.S. government unilaterally suspended dollar-gold convertibility in 1971. That decision released the U.S. of an international commitment that constrained its monetary and fiscal policy autonomy. Since then, the international monetary and financial system started to operate on the basis of a floating exchange regime denominated "the floating dollar standard" by Serrano (SERRANO, 2003).

The end of the Bretton Woods agreement dramatically increased exchange rate volatility, which was intensified by the large flows of speculative capital that followed the end of the American capital controls in 1974 and the subsequent international cooperation in capital controls (HELLEINER, 1994). Interest rate volatility followed exchange rate volatility because those are directly related on economies that have opened their capital accounts. According to the Mundell-Fleming impossible trinity, once capital accounts are liberalized, monetary policy loses its independence and interest rate setting by the central bank becomes a function of exchange rate levels. Moreover, the Latin American and East Europe debt crisis in the 1980's brought to the international financial system a high level of credit risk – leading some analysts to demarcate the period between the 1970's and the 1980's as a "non-system" (McKINNON, 1993; TAVARES, 1997).

As the floating rate system was deeply characterized by high volatility, financial institutions developed new hedging instruments to address the exacerbated financial risks: financial derivatives. These are contracts, signed among economic agents, created to hedge an ever-increasing number of asset classes, rates, indexes, and commodities. In accordance with Belluzzo, derivatives became an integral pillar to the operation of the global financial system after the break of the Bretton Woods' fixed exchange rate and capital controls regime (BELLUZZO, 1997).

The technical definition for financial derivatives are financial instruments whose value derivates from other assets, called underlying assets (HULL, 2018). At the same

time, derivatives are financial contracts binding rights and duties between the parties. At the moment they agree to trade the underlying asset on a future date for a determined price, one party hedges itself by transferring the risk of market-value fluctuation of the underlying asset to a counterparty that is willing to take on this risk for hedging or speculative purposes.

Derivatives contracts appeared in the United States in 1850 in order to reduce volatility in agricultural prices between harvest and off season. Originally, those contracts specified a determined quantity of an agricultural commodity to be delivered in a future date for a determined price, those being called forward contracts or simply forwards. Gradually, those contracts began to be traded in institutionalized environments – presently called mercantile and futures exchanges – that acted as a hub for the organization of agricultural commodities forwards. The exchanges framed standards for forwards in regards to maturity terms and quality of grains, calling them futures. Moreover, it is important to mention the creation of options in the same period, which are derivatives contracts that give one of the parties the right, but not the obligation to buy or sell futures (SANTOS, 2008).

Since 1970's there has been a change in the underlying assets of derivatives. Due to high volatility in the 1970's and 1980's, in addition to commodities, exchange and interest rates, as well as bonds became new kinds of underlying assets covered by derivatives contracts. These new derivatives were called financial derivatives. In 1972 the Chicago Mercantile Exchange created its first exchange rate futures and in 1975 its first interest rate and U.S. Treasury Bill futures (LUBOCHINKSY, 1993).

However, the major driver of innovation in financial derivatives were not exchanges, but over-the-counter (OTC) markets. In these markets financial contracts are traded according to the clients' needs, in a customized fashion, not following public standards as in exchanges. This allows for greater flexibility in the creation of new derivatives contracts. In the mid-1980's OTC derivatives markets boomed, especially through the trade of swaps that are contracts in which parties agree to exchange flows of payment. The main ones were: swaps that exchanged flows of payments in different currencies for a determined exchange rate (foreign exchange swap); swaps that exchanged flows of payment in different interest rates, mainly floating for fixed rates (interest rate swaps) and swaps that exchanged between parties the risk of credit of assets in exchange for a premium (credit default swaps). According to Schinasi *et al*, between the 1980's and the 1990's OTC foreign exchange and interest rate swap markets grew 8

times more than exchange-traded derivatives of foreign exchange, interest rate and share indexes (CARRUTHERS, 2013; SCHINASI *et al.*, 2000).

Financial derivatives were responsible for promoting a new kind of risk management to the international financial system post-Bretton Woods, since the system of fixed rates was replaced by a system of floating rates, in which the risk of floating was managed, largely, by the market¹. So, in a microeconomic sense, OTC swap markets were fundamental in managing the exchange and interest rate risks intensified from the 1970's and since the 1980's, credit default risk. Nevertheless, in a larger macroeconomic sense, the OTC derivatives markets were a fundamental pillar in the reassembling and further expansion of the global financial system.

The growing creation of new financial derivatives contracts, its usage boom and the vertiginous growth in OTC derivatives market's volume of operations triggered a heated debate among financial industry practitioners, academics and regulatory agencies about the risks, the importance and the transparency of that market. The diverging analysis, worries, and interests among agents led to a political struggle surrounding that market regulation (TSINGOU, 2003; PAGLIARI, 2013).

First attempts to regulate OTC derivatives markets occurred in 1987, when the Commodity and Futures Trading Commission (CFTC), the American regulatory agency for derivatives markets, scrutinized Chase Manhattan's commodities swap and proposed to regulate them. The action infuriated American banking community, since OTC swaps are one of the most profitable segments of big banks. Those in the banking lobby revolt included: Nicholas Brady, US Treasury Secretary; Richard Breeden, chairman of Securities and Exchange Commission (SEC), American regulatory agency for capital markets and Alan Greenspan, chairman of the Federal Reserve (FED), US monetary authority. This powerful interest group lobbied the American Congress to stop the CFTC to achieve its aim. The banking lobby was successful during the 1992 CFCT's reauthorization process, when Congress urged the CFTC to exempt OTC swaps markets from regulation (ROMANO, 1997).

In 1998 Brooksley Born, the new CFTC's chairperson, declared her intention to revise CFTC's regulatory exemption for OTC derivatives markets due to the strong

¹ This work is aware of the literature that studies the role of financial derivatives in either prompting or worsening systemic crisis (KREGEL, 2001) and in contributing for systemic volatility (CLAPP; HELLEINER, 2012). However, the focus of the work, without denying the possible adverse effects these instruments may provoke to the global financial system, is to understand how financial derivatives have enhanced the post-Bretton Woods system's operability.

upsurge of the market throughout the 1990's. Her declaration was immediately repelled by the President's Working Group, formed by Robert Rubin, the US Treasury Secretary at the time, SEC's chairman Arthur Levitt and the FED's Alan Greenspan considered any attempt to regulate OTC derivatives market by CFTC a misconception. Besides, the President's Working Group announced they would call upon the Congress to approve a legislation to prevent CFTC to regulate that market. After a series of congressional hearings, with testimonies both from CFTC's chairperson and President's Working Group members, Congress voted a bill effectively blocking CFTC to regulate OTC derivatives markets (THE WARNING, 2009).

The commitment of high U.S. officials in making use of Congress' prerogatives to stop attempts to regulate OTC derivatives markets, raises questions about how those agents evaluated the importance of those markets. This is the aspect upon which the research question underlies: Did top American officials have any power considerations over the role of financial derivatives and the regulation of the financial derivative markets?

From that question, two hypotheses are raised in this dissertation. Firstly, an explanation of the political importance of financial derivatives is put forth: those instruments have allowed any asset in the global financial system to be comparable to the global standard asset, U.S. Treasury Bills. Secondly, I put forth an explanation regarding the relation between the political importance of financial derivatives and OTC derivatives markets' regulatory exemptions. Given the fact that high U.S. officials had fought hard to maintain the regulatory status of the market, top American officials must have had in mind the fundamental role financial derivatives and OTC derivatives markets' regulatory exemptions had in structuring the operation of the post-Bretton Woods system. Therefore, they struggled to influence the status of those markets' regulatory landscape.

The objective of this work is, then, to understand how financial contracts and financial regulation can be instruments for the reinforcement of currency hegemony and state power. In this case, how financial derivatives have reinforced U.S. dollar hegemony and by extension the American state power. The work is organized as follows: Chapter 1 is conceptual and presents statistical data. It aims to give the reader a general overview of what financial derivatives are, what they do, how the market infrastructure for their trading is organized, what the specific types derivatives are, how those contracts can be measured, how large the market size for them is, who are the agents engaged in its trading

activity and what are the international political economy aspects of its international regulation.

Chapter 2 is theoretical. It develops a discussion on how financial derivatives are instruments for the exercise of structural financial power and by extension instruments for the global financial governance. This view is advanced by drawing a connection between Susan Strange's theory of structural power and the specific financial structural power (1988) of financial derivatives, seeking to explore how the latter could be seen as an instrument for the American state power, due to its relationship with the U.S. dollar. The work claims that this specific theory is able to throw light on the power effects of derivatives, by addressing how state and market interactions may result in a power structure acting over the global political economy. To show the specific financial linkage between derivatives and the U.S. dollar the chapter finishes by introducing the reader to a qualitative formula built from Fischer Black and Mehrling financial theory's approach to derivatives. The formula highlights how derivatives by rendering assets in the global financial system as free of risk as American governments bonds and bills have actually recentralized and reinforced the hegemony of the superpower currency.

Chapter 3 is historical. It contrasts the operation of the Bretton Woods system with that of post-Bretton Woods system. It addresses how derivatives became new guarantees for risk management in the post-Bretton Woods global financial system, replacing the American government and its allies' policy framework that sustained the Bretton Woods system. The chapter especially focus on American state autonomy and its capability to exercise the governance over the global financial system with the emergence of financial derivatives as of the 1970's.

Finally, chapter 4 is empirical. First it investigates the centrality of big American derivatives dealer banks for risk management operation of the post-Bretton Woods global financial system and their creation of global OTC derivatives markets. Then, the work focuses on a historical perspective of the development of OTC derivatives regulation from the 1970's to 1990's with particular focus on a case study in 1998 of a regulatory contention between agencies, private agents and legislators seeking to understand the strain of thoughts, motives and interest of American officials in defending OTC derivatives markets' regulatory exemptions. This case study examines via a process tracing method U.S. congressional hearings on the regulatory aspects of American OTC derivatives markets and whether they needed changes. The method used searches for the

causal chains on the reasons why American officials defended regulatory exemptions the way they did, investigating their underlying assumptions on that market regulation.

Chapter 1. Understanding derivatives

This chapter will drill into the concept of derivatives, explaining what this financial contract is, what it does, how the market infrastructure for its trading is oriented, what the specific types derivatives are, how those contracts can be measured, how large the market size is, who the main agents engaged in its trading activity are, and the international political economy aspects of its regulation. Rather than being a full assessment on this financial instrument, the chapter only intends to give the reader a general overview in order to understand the international political economy debates linked to derivatives that will take place in the subsequent chapters.

1.1. Defining derivatives

Drawing on Pistor (2013), financial relations, in addition to accountable relations, are also legal relations, in which the creditor-debtor nexus takes the form of a contract binding legal rights and obligations between parties. The financial asset is the general form of the financial contract, but this can be split into many different forms. The most important are bonds and shares. In the former the creditor has the right to receive and the debtor the obligation to pay. In the latter it takes the form of the right to receive payments and dividends over a company's profit and the obligation to pay these contracts' owners their due capital. Shares can also take the form of creditor-debtor relations if the share-owner is understood as a creditor and the company is a debtor that must pay him back in the form of profits and dividends (PISTOR, 2013).

According to Cobbaut, financial markets are the complex – and even abstract – structures where financial assets trading operations take place. However, today's financial markets do not trade only financial contracts between debtors and creditors, like bonds (public or private) and shares. These markets also trade commodities, currencies, share indexes and even interest and exchange rates, where trade takes the legal form of financial assets – that is rights to pay and obligations to be paid, or rights to purchase and obligations to be delivered, or even the right to have ownership over profits and dividends and obligations to pay them. Beyond accountable and legal relations, financial assets² also express economic relations as far as these are holders of value and, by extension, holders of wealth. It is the trading of assets, rates and commodities in the financial market that gives them their value. As Bouchaud and Potters state: “the very essence of financial

² From now onwards this work will treat financial assets as the whole range of products traded in financial markets beyond shares or bonds, but also as currencies, commodities, share indexes and even interest and exchange rates.

markets is to fix thousands of prices [through the trading among financial agents] all day long” (BOUCHAUD; POTTERS, 2000, p. 91; COBBAUT, 1994).

As any product traded in a market economy, financial assets are also subjected to the laws of supply and demand. That means the price of financial products may vary according to how market agents intend to buy or sell them. This has serious implications for the economy, because in accordance with Gourinchas: “Financial assets are nothing but vehicles that allow transferring wealth along time” (GOURINCHAS, 2011, p. 82, our translation). It means if the price of financial assets changes along time it affects agent’s wealth. The range within a financial asset’s price might vary is called *volatility*. This concept is in fact about risk because it expresses the financial risk which is inherent in financial assets, given that currency, interest rates and commodities’ prices are all subjected to unexpected changes that may affect individual and institutional investment strategies (BROOKS; CHANCE, 2008).

It is important to explain that volatility does not affect all financial asset classes the same way. Some price volatility in financial markets, such those of shares and share indexes are expected to be more volatile, reducing or increasing the wealth of investor, who are more or less apt to deal with it. Nevertheless, some financial prices, such as commodities, post-fixed interest rates and currency exchange rate’s fluctuations adversely affect companies, households, and governments since they are fundamental macroeconomic variables, generalizing risk to the whole financial system.

The volatility of stock markets is generally seen from the microeconomics point of view and is connected, as Belluzo states, “to the frequent changes in agents’ expectation towards the evolution of prices quoted in different currencies” (BELLUZZO, 1997, p. 176, our translation). As Shiller’s figure below shows, stock markets are inherently volatile. The author measures the price variation of the S&P500 index, the index that reflects the earnings and dividends paid by the 500 biggest American companies’ shares listed in the New York Stock Exchange (NYSE). He uses a long-time series – one and half century of data (!) – that shows prices varying in a wide range within all of that period. This is shown in Figure 1.



Figure 1: S&P500 variation from the 1860's to 2000's. Adapted from Shiller, 2003.

On the other hand, the volatility of fundamental financial prices such as interest rates, foreign exchange rates and commodities is a macroeconomic phenomenon and, as will be shown and argued in chapter two, is directly connected to the way the global financial system is governed and as such it has direct power implications. Differently from stock market volatility, which can be seen as a historically persistent phenomenon falling back on shares and share indexes trading, foreign exchange rates and commodities prices' volatility is historically dated after the II World War. Take, for example, the foreign exchange rate, interest rate and commodities prices, represented by the U.S. dollar to Japanese yen exchange rate; the effective federal funds rate, which expresses overnight federal funds transactions, and the price of crude oil per barrel, respectively on a time series, as can be seen in figures 2 and 3.

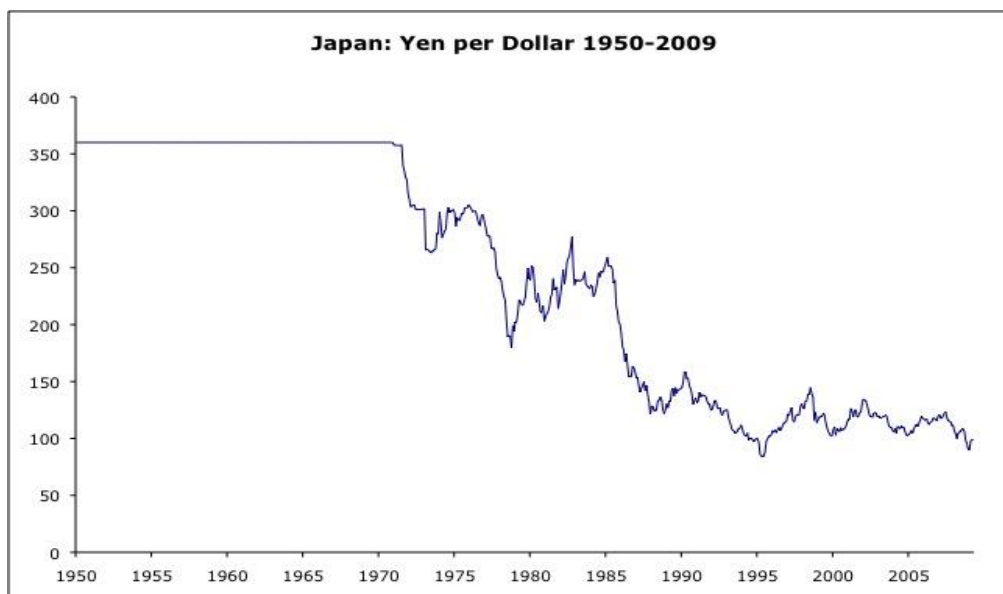


Figure 2: Japanese Yen to US dollar exchange rate variation from 1950 to 2010. Source: tradingeconomics.com, 2018.

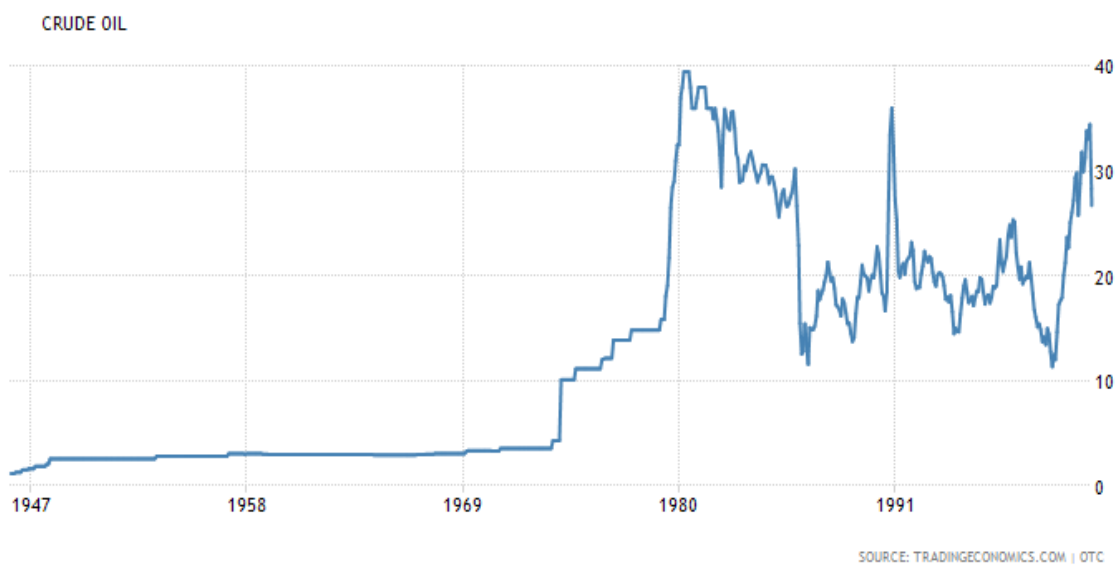


Figure 3: Price of crude oil per barrel variation from 1974 to 2001. Source: tradingeconomics.com, 2018.

As can be seen, this macroeconomic – or systemic – phenomenon of greater volatility dates from the beginning of 1970's for the exchange rate of the U.S. dollar against national currencies, from mid-1970's for commodities prices and from the 1980's for interest rates. That means that there was a beginning for this phenomenon to happen, a start that marked a disruption on how the financial system functioned before the 1970's. Since between 1945 and 1971 those financial prices were stable as the figures show.

These elemental changes in the global financial system will be the theme of the next chapter.

To deal with the inherent problem of risk that financial assets face, financial markets created special instruments to manage it, called *derivatives*. At this point it is important to explain that financial markets, as any other market, seeks to meet human or social needs in exchange for payments. In this respect, derivatives were created and launched in the market by financial institutions with the purpose to meet the needs of managing the inherent volatility of financial prices, or in other words they were designed to reduce the exposure to risk to which agents were submitted. On the other hand, as Bryan and Rafferty state: “[agents] want to take on some risk, for without risk there will be no profit. But they want to avoid other risks especially those that relate to unwanted and unanticipated price movements (exchange rates, share prices, etc.). *Derivatives permit a separation of the asset itself from volatility in that asset’s price*” (BRYAN; RAFFERTY, 2006, p. 11, our emphasis). The unbundling of the asset from its inherent volatility is called risk externalization and takes place because agents are afraid that future price variation of shares, bonds, post-fixed interest rates, exchange rates, commodities, etc, will not be the same as spot prices. Hence, agents fear that their asset will lose value.

Derivatives are contracts in which the parties do not trade shares, currencies, loans, commodities, bonds by its present market value, but by sale and purchase prices agreed between the parties regarding future dates. For example: At present date t , the Brazilian Real to the U.S. dollar exchange rate is BRL 3.00 to US\$ 1.00. If a given agent believes that in three months the Brazilian Real to U.S. dollar exchange rate will drop down to 2.55 BRL/USD and he holds US\$ 1,000.00, it means he will lose 15% of the present value when he exchanges money three months from now. Therefore, he has two alternatives stemming from this situation: he either exchanges money at present, accepting the present value or he tries to find someone who would agree to buy a thousand Brazilian Real to U.S. dollars for a defined exchange rate in future. In the second situation, both agents – buyer and seller – must envision a future exchange rate price that is satisfactory for the two. This means if agent A believes the Brazilian Real will drop down against the U.S. dollar, agent B – who is agent’s A three-months buyer – must have the same view, but different interests, seeing that depreciation as positive (in that case, for instance, agent A is an importer whose depreciation of Brazilian Real is malefic and agent B is an exporter whose depreciation of Brazilian Real is a benefit). Or, they may have different views over the future value of exchange rates – agent A should believe that the

exchange rate will drop down while agent B should foresee that it will rise. In any case, despite opposing views or not, in the two cases both agents are trying to forecast the future and when they settle a contract in which one will buy from the other a thousand US dollars for – let's say – 2,75 BRL/USD exchange rate, agent A believes he is hedging³ himself from a possible higher loss and agent B, or believes the same way, or believes the exchange rate will be higher in the contract expiring date, what will make him have a monetary gain.

We used exchange rates to exemplify the settling of a derivative contract. But we could use any variable (share, share index, currency, interest rate, commodities) that has its market price subject to sudden and frequent change over a certain period of time. It is for this particular feature of being a contract based upon the values of other variables that leads Hull to define derivatives as: “a financial instrument whose value depends on (or derives from) the values of other, more basic underlying variables” (HULL, 2002, p. 1). Derivatives settle prices for any variable as a means to reduce exposure to future variation in the variable price. As it could be seen in the example above: settling an agreement to trade an asset whose value may change unexpectedly in the time being hedges traders from uncertainty.

1.2. Derivatives markets

Historians trace back to antiquity the existence of contracts that traded products or services for future delivery for a specified price, thus contracts with derivatives-like characteristics have existed for some time (WEBER, 2009; KUMMER, PAULETTO, 2012). But we are here interested in the modern framework of derivatives contracts. In the beginning of the 19th century with the foundation of the city of Chicago, with its strategic position amid the Great Lakes, it soon became a hub for the trading of grains whose crops flourished in the United States Mid-West region due to the rich soil. Farmers grew their harvests in different areas of the region and then sold their production to dealers who transported it along the rivers until reaching downtown Chicago, where it was haggled over in the streets (LAMBERT, 2011).

In 1848, a group of men came together to establish the Chicago Board of Trade (CBOT) with the aim to serve as a hub for grain trading in the city. There, “farmers and dealers could meet to deal in ‘spot’ grain – that is, to exchange cash for immediate delivery of wheat” (IBID. p. 13). Giving birth to the spot market of grains, which would

³ To hedge in financial terms is to use financial instruments protect from financial losses.

be responsible for trading grains daily through bid and offer prices⁴ that would form an average price of grains negotiated in one day. Nevertheless, despite the readiness of grain trading that the foundation of spot markets brought about, grain dealers still faced another problem: In the winter the rivers froze and dealers could not get the grains to Chicago. This, in the spring when the rivers thawed, “sellers converged on Chicago and drove prices down to the point that it wasn’t always worth making the trip” (IBIDEM).

The solution the dealers figured out to solve this halt in trading and subsequent price fall was to arrange grain sale contracts in advance of spring season within the CBOT. The parties started to agree how much grain would be sold for a certain price in a future date. Those contracts were named forward contracts or simply forwards. The first contract of this nature was signed in 1851, three years after the establishment of the CBOT as a spot market. For both the seller and the purchaser it was good, because they would escape from daily price variations of spot markets, driving off uncertainties and being able to arrange contracts out of periods of great hike or sharp fall in prices. Gradually, the CBOT framed standards for forwards in regards to maturity terms and quality of grains, calling them futures. In the next section, however, we will specify the different classes of derivatives. For now, let’s see how derivatives markets, understood here as the trading of derivatives contracts among agents, is structured and organized. There are two kinds of derivatives markets: the derivatives exchanges, whose CBOT is a classic example, and the over-the-counter derivatives markets.

1.2.1. Exchange traded derivatives

Forwards transformation into standardized futures contracts in the CBOT meant their development and trading did not take place in exchange markets, but in the over-the-counter markets. The difference between these two markets is *fundamental* for derivatives trading. Derivatives exchanges are also called futures exchanges due to their specialization in trading this kind of derivative contract. Dodd defines an exchange as “a central market in which all participants can observe the bids, offers and execution prices of all other participants”, the execution prices being the “prices in which trade occurs” (DODD, 2002, p. 3). The derivatives exchange performs three fundamental functions: i) it organizes and self-regulates the trade of derivatives; ii) it manages parties’ credit risk and iii) it creates and standardizes new derivatives contracts.

⁴ According to Hull, bid price is a price at which agents are prepared to buy and an offer price is a price at which agents are prepared to sell (HULL, 2002, p. 2).

The inherent feature of an exchange is that it performs a public trade in which what is being traded is the derivative whose underlying values are commodities, shares, share indexes, currencies, energy, weather, etc. As well as the derivatives' date of delivery, as for example the three months derivatives contract for sacks of soy. What makes the public character of exchange markets is that all transactions are made in the same environment. As Santos and Silva explain, agents' asset trading is an auction where agents' bids and offers for determined assets are publicly listed in a place called the trading floor. There, brokers⁵ execute matched bid and offer orders "when an agent's bid price equals another agent's offer price" (SANTOS; SILVA, 2015, p. 5, our translation). Brokers may be physically in trading floors executing clients' order through vocally shouting, or the trading floor may execute orders electronically through a broker's computer commands. It is important to recall that bid and offer prices are not stable – they fluctuate throughout the trading session according to economic events and market activity – and that is the set of negotiations which forms the average price in which sacks of soy are being traded in a determined period (normally expressed daily).

Exchange markets are organized by a nongovernmental entity (responsive to regulatory governmental authorities) that sets up rules (in line with regulatory agencies) "that govern the submission of orders or execution of transactions on the trading facility; and include disciplinary sanctions other than the exclusion of participants from trading" (DODD, 2002, p. 4). This means all trading among parties, or on behalf of parties carried out by brokers, is overseen by a private self-regulatory board in the first instance and by a governmental regulatory board in the second.

The reason for one single market for derivatives trading is not only getting together all traders in one place for reducing trading costs, but also eliminating counterparty credit risk, or the risk that one of the parties in the contract defaults. Exchange markets have organized payment systems called central clearing houses. In fact, all agents trade with the exchange, which means the exchange is responsible to make the underlying assets to be delivered to agents that are long and to grant that payment will be done to agents that are short⁶. In case of default of one of the parties, the exchange assumes the settlement of obligations. This means it assumes the counterparty credit risk.

⁵ Agents do not have access to trading floors in exchanges. All trading is made by brokers working for broking houses on behalf of their clients.

⁶ An agent who is *long* owes an asset and sells it, while an agent who is *short* does not own the asset and is buying it.

Daily trading on derivatives exchanges form prices for future delivery of underlying assets. The same underlying assets are also being traded daily in the spot markets. So, in the date of delivery of the underlying asset, the agents might have an incentive to default on the derivatives contract if, for instance, he is short in a derivative contract whose price is cheaper in the spot market than in the derivatives market. To avoid the counterparty credit risk there are two fundamental mechanisms the derivatives exchange uses: daily mark-to-market and margin requirements.

The former consists in transferring gains and losses between the parties according to daily variations in derivatives market prices. For example, consider that in day 1, long and short agents agree to trade 100 sacks of soy per US \$43 each to be delivered in day 5. So, US \$4300 equaling 100 sacks of soy should be delivered on day 5. But on day 2 the price of the sack of soy in the exchange daily trade fell to US\$ 41, daily mark-to-market will then discount US\$ 200 from the short agent and credit US\$ 200 to the long agent. Why US\$ 200? Because it is the price difference in the value of the contract from day 1 (US\$ 4300, 00) to day 2 (US\$ 4100, 00). The same mechanism is repeated in all days till the date of the delivery in day 5 as table 1 shows.

Date	Daily mark-to-market	Gains or losses for short agent	Gains or losses for long agent
1	41	- 200	200
2	43	200	- 200
3	45	200	- 200
4	42	- 300	300
5	39	- 300	300
	Total of five days	- 400	400

Table 1: Daily market-to-market mechanism operation. Source: Adapted from Santos and Silva (2015).

On the next day after the delivery date the short agent pays the agreed price from day 1: US\$ 3900 for 100 sacks of soy plus the total of the daily market-to-market which is US\$ 400. Then, the short agent pays, and the long agent receives the exactly US\$ 4300, the agreed price. The exchange assumes the daily mark-to-market counterparty risk if one of the party defaults. As a guarantee for itself, the exchange demands deposits to be made at its central clearing house. It is a proof of good faith that agents will honor their obligations. This is referred to as a margin requirement.

The value of the margin requirement varies from derivatives contract to contract, and it can be deposited in public or private debts, cash and even in a surety letter. The two mechanisms – market-to-market adjustment and margin requirements – grant that the transaction will be settled in accordance with the agreed delivery price, inclusively taking account of its daily variations. It is important to notice that a derivative contract can be sold before its delivery date, so the agent can skip its obligations. Also, in the delivery date the short agent can choose to receive the physical settlement or the financial settlement of the contract, in the case of commodity (SANTOS; SILVA, 2015).

Derivatives exchanges are responsible for labeling new derivatives contracts and submitting them to regulatory agencies for evaluation, approval, or rejection. In this process, derivatives exchanges are responsible for setting a series of contract specifications that are standardized. The standardization of contract models and trading procedures as well as its management and supervision are a means of getting derivatives trading more transparent and thus more secure. The standardization and specifications cover: a) *contract size*, or how many units per contract can be made and the standard size per unit in monetary terms or in other terms as well, i.e., one future of soy may be US\$ 100 per 40 kg a sack, one S&P500 index can be 60.000 points, in which each point values one dollar; b) *delivery terms*: the delivery dates of the underlying asset or the date of the settlement in cash of the contract, as well as the delivery procedure; c) *price quotation* and trading limits according to the contract and its upper and lower price of negotiation; d) *position limits* “which (...) restrict the number of contracts an individual trader can hold” and e) *trade halts*: if unusual events happens or trade goes beyond upper or lower trading price limits (BROOKS; CHANCE, pp. 259-260).

1.2.2. The over-the-counter (OTC) derivatives market

Firstly, it is important to note that what will be presented here are the main characteristics of over-the-counter derivatives markets infrastructure before the post-2008 crisis regulation that restructured them. The reason for restricting this section in this way is due to the focus of the work in the pre-2008 development of this market in U.S. and the power relations stemming from it. For post-2008 rearrangements in over-the-counter (OTC) derivatives markets refer to Hull (2018).

The main characteristics of over-the-counter derivatives markets is that trading operations are decentralized. Different financial institutions perform trade by phone or other means of communication. Differently from exchanges, there is no centralizing mechanisms for organizing bids and offers. In the OTC derivatives markets whereas

different institutions are trading, different bilateral negotiations might be trading the same derivative for different prices, “often in ignorance of the prices currently available from other potential counterparties and with limited knowledge of trades recently negotiated elsewhere in the market”, which is why this market is considered to be opaque. Put another way, agents do not have the knowledge of all bilateral trading, thus price information results in being non-transparent. (DUFFIE, 2012, p. 1; SANTOS; SILVA, 2015).

In OTC markets, derivatives cannot be simply submitted to standardization because of a client’s specific needs and “the complex contractual features which can be only analyzed and traded by a narrow range of specialized investors” (DUFFIE, 2015, p. 6). End-users of this markets look for it because their needs are not fulfilled in exchanges, i.e. they need contracts above the position limits or in rare specific underlying assets that the exchange does not trade. In addition, end-users undertake structured operations in which a large amount of derivatives types are used to manage risks (BROOKS; CHANCE, 2005, p. 257). This kind of customization leads contract size in OTC markets to be much larger than in exchanges, which makes turnover in the former excessively higher than in the latter. As it will be seen in section 1.5 when market sizes will be presented.

In these markets trading is carried mainly by dealers who differently from brokers do not trade on behalf of their clients. They i) take long and short positions on the derivatives as part of their own business, ii) quote bid and offer prices to market participants, serving as counterparty to a large bunch of operations and iii) thus ensure sufficient market liquidity. In other words, dealers provide that market agents can easily take in and out positions, that is why Dodd affirms dealers’ function is to “make a market” (DUFFIE, 2011; DODD, 2005; MARTINS, 2019).

Trade in this market takes place when investors (which are large financial institutions, corporation treasurers, fund managers and governments) contact dealers and ask for bid and offer prices, which the investor decide to accept or not through bargaining. This bilateral trade is not only between investors (or end-users of derivatives) and dealers but also amongst dealers themselves (DUFFIE, 2012). The Deutsche Börse report explains that dealers in OTC derivatives markets are big global banks that operate “with almost a complete disregard of national borders (...). Already in 1996, more than half of the trades were cross-border, emphasizing ‘the global nature of the market’ (BIS 1996, p. 2 *apud* DEUSTCHE BÖRSE, 2008)”.

It is important to notice that before the 2008 when there were no central counterparties in OTC derivatives markets – as central clearing house from exchanges, for instance – credit risk was handled by dealers or other bilateral trading agents. The most common way to manage risk of default in bilateral trade is through the International Swaps and Derivatives Association (ISDA) Master Agreement. In this agreement parties must provide collateral⁷ for each other according to daily price changes. As Hull explains, if from one day to the other price value increases to a portion X to A and decreases in the same portion X to B, B must provide A with a collateral worth X. Initial margin, differently from exchanges, is not required (HULL, 2018, p. 34).

Big banks have sectors specialized in derivatives trading, since it composes a large part of their earnings, making them also called *Derivatives dealer banks*. This kind of trading result in profit due to derivatives price fluctuations and long and short strategies. Often, banks take on risk positions in search of speculative profits and take offsetting positions in other derivatives contracts to manage risks.

As it happens in a chain that connects all dealers in the market, the master agreement considers all positions and risk expositions from parties and counterparties before asking for collateral obligations. It serves to settle positions as a kind of a central clearing, since it does not exist in OTC derivatives, making counterparty credit risk higher, which is also affected by lack of transparency in trading because the volume of positions taken by some agents is not available to others (DUFFIE, 2011; LUBOCHINSKY, 1993).

1.3. Types of derivatives

Although Hull (2018) states a broad definition of derivatives, we need to distinguish them by specific types according to their juridical form, the level standardization or customization, and the financial functions they perform. In the next sections the four general types of derivatives will be presented, those are: forwards, futures, options, and swaps.

1.3.1. Forwards

The origin of modern forwards is connected to contracts for future delivery (also called *to-arrive* contract) made in the CBOT in the 19th century, as was shown above. Hull defines forwards in the following way:

⁷ Collateral are asset or cash equivalents that are provided by one of the parties as a good faith guarantee that they will not default the settlement of obligations.

“It is an agreement to buy or sell an asset at certain future time⁸ for a certain price. It can be contrasted with a *spot contract*, which is an agreement to buy or sell an asset today. (...) One of the parties to a forward contract assumes a *long position* and agrees to buy the underlying asset on a certain specified future date for a certain specified price. The other party assumes a *short position* and agrees to sell the asset on the same date for the same price” (HULL, 2002, p.1).

The contract specifications are known in the date of agreement (quality, quantity, price, place of delivery). Only the delivery of the asset and its payment will occur in the future determined date (SANTOS; SILVA, p. 11, our translation). Buyer and seller are obligated until the date of settlement in forwards contracts (MARTINS, 2019).

Forwards have been most actively traded in the interbank market. Banks use forwards contracts to trade on future foreign exchange rates, always in correspondence with spot price. Those are also called *outright forwards*. Brooks and Chance explain their dynamics:

“This market grew tremendously in response to the floating of currencies in the 1970’s (...). It consists of hundreds of banks worldwide who make forward and spot commitments with each other, representing either themselves or their clients. The market is quite large, though the exact size is difficult to estimate, since the transactions are essentially private and unregulated. The transaction sizes are quite large as well and it would be unusual for individual investors to be able to participate in that market” (BROOKS; CHANCE, 2005, p. 256).

Another type of forward contract largely traded is the *forward rate agreement* (FRA), a contract in which “one party pays a certain fixed amount of cash while the other party pays an amount of cash determined by the interest rate in a predetermined future date” (IBID.). Forwards are traded over-the-counter on a flexible, bilateral, and customized fashion for which contracts are made according to the clients’ needs and bid and asks are made bilaterally.

As an example of an outright forward contract, let’s suppose that a bank is prepared to buy sterling for US\$ 1,2 in three months, for US\$ 1,3 in six month and for US\$ 1,4 in a year. This is the bid price the bank is offering other parties (mostly also banks) in foreign exchange forwards markets, which are generally interbank markets. In opposition, the bank would stand ready to sell sterling for dollars at the price of US\$ 1,5 in three months, at the price of US\$ 1,6 in four months and at the price of 1,7 US\$ in a

⁸ Called maturity by Shultz (2005).

year. Once quote prices are available to other traders, a bilateral process of negotiation occurs until both short and long agents reach an agreeing price (HULL, 2018).

Now let's go further in understanding forward rate agreements (FRA). In those contracts, parties agree to settle future profits or losses on a certain future date. The profit or loss is based on the difference between the agreed settlement price and the spot price on the settlement date. The only amount exchanged between parties is this difference. Let's see this through an example: ABC company needs a six month 1-million-dollar loan at a 6% interest rate, but the company only needs it in six months in the future and is worried that interest rates will rise. So, ABC company buys an FRA from a bank. The agreement states that in six months, if interest rates rise, the bank will pay the difference to ABC company, whereas if interest rates lower, ABC will pay the difference to the bank. Therefore, ABC has the guarantee that in six months it will pay only 6% on its loan (MURHPY, 2019).

1.3.2. Futures

Just like forwards, futures are also contracts “to buy or sell an asset at a certain time in future for a certain price” (HULL, 2018, p. 8). However, futures are forwards which main elements were standardized by exchanges (quality, quantity, contract size, currency of payment denomination, maturity, delivery terms and place of delivery), as seen in section 1.2.1. The way a futures contract works is just as Silva and Santos (2015) describe in section 1.2.1: Brokers or even individual investors on trading platforms input bid and ask prices and wait for a match made by the exchange trading system. Once the match is done traders have already chosen the amount of the contract, the underlying asset which it refers to and the delivery date. This is when traders are asked by the exchanges to place their collaterals as margin requirements. It is important to recall that the date of delivery is an actual delivery for commodities, but not for financial contracts. For the latter the delivery date is the day of cash settlement⁹. Some commodities in some exchanges do not actually require a physical delivery to one of the parties in storehouse. The short agent in that case can make the settlement in cash. Recall that according to the daily market-to-market adjustment¹⁰ the short agent will have the agreed price granted even that future and spot prices of the underlying asset vary up to maturity.

⁹ The day in which short agents pay long agents.

¹⁰ See section 1.2.1

Also, it is important to highlight that exchanges – as secondary markets – have granted liquidity for futures, allowing holders to short their positions before maturity. Given this, futures traders can get rid of expositions easier than forward traders. As Lambert points, by the 1920's the process of futures standardization was complete in the main American futures exchanges when contracts started to be federally regulated¹¹. By that time a wide range of grains and other commodities (like butter, cotton, and egg, to cite a few) were already traded as futures in different futures exchanges all over the United States (LAMBERT, 2011).

By the 1970's and 1980's, futures exchanges saw a market opportunity facing the generalized volatility in the international financial system that was affecting not only assets, but foreign exchange rates and interest rates as well. In response, they revolutionized the modern financial system by launching financial futures. Thus, in 1972 the Chicago Mercantile Exchange (CME)¹² created its first exchange rate futures and in 1975 its first interest rate and U.S. Treasury Bill futures. Commodities traded globally also started to be affected by inflation and volatility, leading futures exchanges to launch futures on minerals and on oil as well. By the 1980's the exchange was launching its first futures on stock indices (LUBOCHINSKY, 1993).

The development of new futures contracts skyrocketed from the 1970's on due to systemic volatility, leading the exchanges to launch new contracts every year. Some of them had success and still remain very popular, such as futures on stock indices. Others did not find as much success, such as futures on inflation rates. Carruthers gives an idea of the enormous growth in the design of new futures:

“(…) futures exchanges averaged around 5 new contracts per year in the 1970s, 20 per year in the 1980s, and 48 per year in the 1990s. In 1955, 61 different futures contracts were traded on U.S. exchanges, and by 2007 there were 842 such contracts. This growth in numbers was accompanied by a shift away from commodities and towards financial instruments as the ‘underlying’” (GORHAM; SINGH, 2009, p. 186 and pp. 157-158 *apud* CARRUTHERS, 2013, p. 389).

¹¹ For a view on why and how futures started to be regulated in the United States refer to Romano (1997), though chapter 3 will slightly touch on that issue.

¹² One of the largest American futures exchanges established in 1898. In 2007 it merged with the CBOT to form the CME group.

1.3.3. Options

Options are traded on exchanges, which is more common, but also traded over-the-counter. The first organized market for options in U.S. emerged in 1968 established as the Chicago Board Options Exchange (CBOE), a spin-off entity from the CBOT. Options are derivatives contracts where there is an asymmetry of rights and obligations. As Hull explains:

“There are two types of option. A *call option* gives the holder the right [but not the obligation] to buy the underlying asset by a certain date for a certain price. A *put option* gives the holder the right [but not the obligation] to sell the underlying asset by a certain date for a certain price (...). It should be emphasized that an option gives the holder the right to do something. The holder does not have to exercise this right. This is what distinguishes options from forwards and futures, where the holder is obligated to buy or sell the underlying asset (HULL, 2018, pp. 8-9).

This difference between options, forwards and futures is more detailed by Hull and Brooks and Chance: “Whereas it costs nothing to enter into a forward or futures contract, except for margin requirements (...), there is a cost to acquiring an option HULL, 2018, p. 9”. “[In the call option], the option buyer pays the seller a sum of money called price or premium. The option seller stands ready to sell or buy according to the contract terms and if so the buyer desires” (BROOKS; CHANCE, 2005, p. 3). Otherwise, in the put option, the option seller pays the buyer a sum of money to grant its right to sell it. So, the buyer stands ready to buy in the due date, if the seller desires. In the due date, which is called expiration date or maturity, if the option is exercised the price to be paid is the price agreed in the beginning of the contract: the strike price. For each strike price there are different bids and offer for the premium in call and put options. As tables 2 and 3 show.

Prices of call options on Alphabet Inc. (Google), May 3, 2016; stock price: bid \$695.86, offer \$696.25 (Source: CBOE).						
Strike price (\$)	June 2016		September 2016		December 2016	
	Bid	Offer	Bid	Offer	Bid	Offer
660	43.40	45.10	60.80	62.70	72.70	76.70
680	29.20	30.60	47.70	50.70	60.90	64.70
700	18.30	18.90	37.00	39.20	49.70	52.50
720	9.90	10.50	27.50	29.50	40.10	42.80
740	4.70	5.20	19.80	21.60	31.40	34.40

Table 2: Price of call options on a stock of Google corporation. Source: Hull (2018).

Observe that for different strike prices and different maturities there are different bid and offer prices as premiums for a call option. That is why the call option has a cost. If the buyer does not exercise the call option at maturity it is a loss. However, it is a tradeoff between the possibility of a gain if the price of the underlying asset in the spot market goes up than the strike price – in that the call option is exercised. The alternative is losing just a small amount of money in relation to the total price of the underlying asset, if its price goes down in the spot market and it is not worth it anymore to exercise the option (FACCINI, 2018). The following figure 4 describes the call option dynamics.

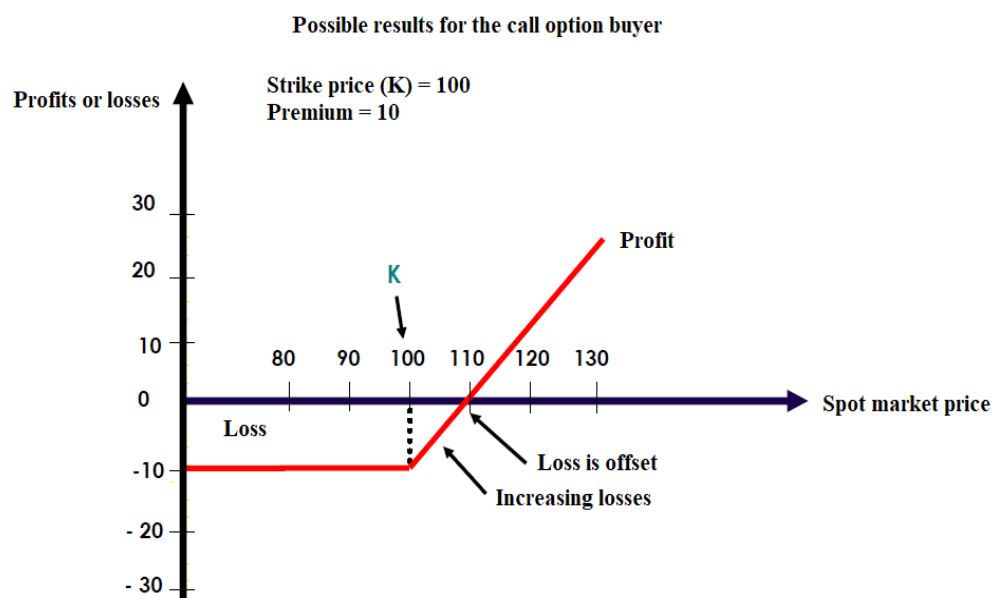


Figure 4: Gains or losses for a call option according to spot and strike prices. Adapted from Faccini, 2018.

Supposing that a call option costed its buyer US\$ 10,00 which is the premium and its strike price, or the price the buyer has the right to effectively buy the underlying asset at a price of US\$100,00. If the spot market price of the underlying asset rises more than 100 up to 110, so there is an offset: the buyer will have a profit of 10 that will offset the amount he paid for the premium. Any rise further than US\$ 110 in terms of spot market price of the underlying asset will mean a profit for the buyer; whereas any decrease of the underlying asset spot price at maturity lower US\$ 110 will mean a loss.

Now let's explore the dynamics of put options in Table 3.

Prices of put options on Alphabet Inc. (Google), May 3, 2016; stock price: bid \$695.86, offer \$696.25 (Source: CBOE).

Strike price (\$)	June 2016		September 2016		December 2016	
	Bid	Offer	Bid	Offer	Bid	Offer
660	7.50	8.20	24.20	26.20	35.60	38.10
680	13.30	14.00	31.90	33.80	43.40	46.00
700	21.70	23.00	40.80	42.70	52.40	55.20
720	33.10	34.80	51.10	53.20	62.60	65.20
740	47.70	49.60	63.10	65.20	74.10	76.70

Table 3: Price of put options on a stock of Google corporation. Source: Hull, 2018.

In the chart above, the same pattern of call options in regards to strike prices, maturity, and bid and offer premium prices, is verified. Nevertheless, put options are less expensive. Put options will also have a trade-off cost. It is expressed in two alternatives. The first is losing money and not exercising the option if the price of the underlying asset goes up than the strike price. In that case, the loss on put call could be offset by selling the underlying asset into the spot market rather than by its strike price. The second alternative, on the other hand, makes sense if the spot market price decreases more than the strike price. Thus, it is worth it for the put option holder to sell the option and then buy the underlying asset in the spot market, profiting from the difference between the two. This process is illustrated in the following figure 5.

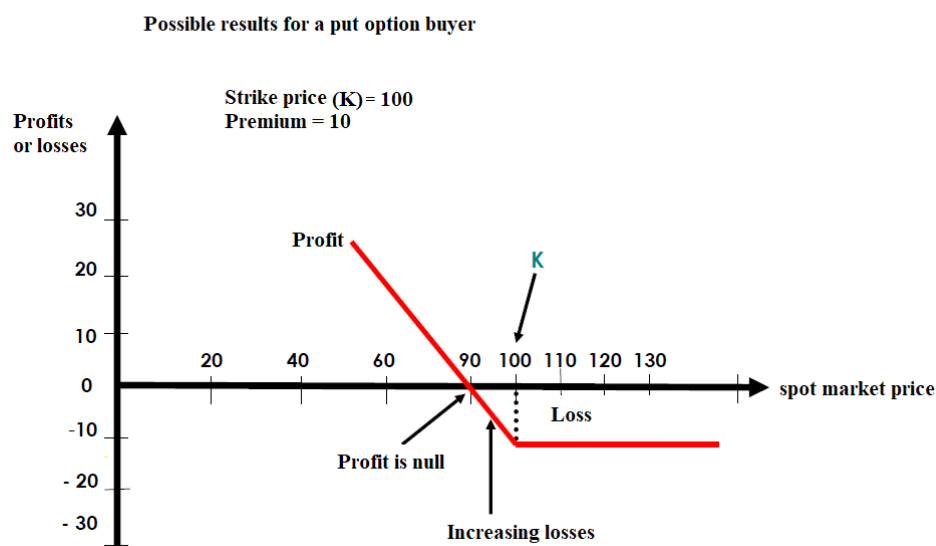


Figure 5: Gains or losses for a put option according to spot and strike prices.
Adapted from Faccini, 2018.

Supposing that a put option costs the buyer a premium of US\$ 10,00 and its strike price is US\$ 100,00 whenever the spot price of the underlying asset is US\$ 90,00 profit is null, since it cost US\$ 10,00 for the put option buyer to take on the position and it may have to sell the underlying asset for the strike price of US\$ 100,00. If the spot market price of the underlying asset increases more than US\$ 90,00, the put option buyer is incurring losses. Otherwise, if the spot market price of the underlying decreases to less than US\$ 90,00 the put option buyer has profit, since he can now sell the underlying asset for the strike price and buy it for a smaller price in the spot market. It is important to observe that just like futures, options also have liquid secondary markets¹³ that allow agents to get rid of exposures before maturity.

1.3.4. Swaps

Hull's definition of swaps is the follow:

“A swap is an over-the-counter derivatives agreement between two companies to exchange cash flows in the future. The agreement defines the dates when the cash flows are to be paid and the way in which they are to be calculated. Usually the calculation of the cash flows involves the future value of an interest rate, an exchange rate, or other market variable. (...) A forward contract can be viewed as a simple example of a swap, (...) [w]hereas a forward contract is equivalent to the exchange of cash flows on just one future date, swaps typically lead to cash-flow exchanges taking place on several future dates” (HULL, 2018, p. 155).

The most traded swaps are interest rate swaps, which are mostly fixed-for-floating interest rate swaps (plain vanilla); currency swaps, which are mostly fixed-for-fixed currency swaps and credit default swaps. Interest rate swaps happen to be the most traded derivatives in global financial markets as section 1.4 will show. The interest rate used most as a reference for the floating rate in the interest rate swap calculation is the LIBOR, the London Interbank Offered rate. The LIBOR is the rate by which high credit-ranked banks are willing to lend to each other the international financial markets. It is published every day in different currencies and several borrowing periods are considered for it (HULL, 2018).

Consider a plain vanilla swap in which a company agrees to pay a bank at an interest rate of 3% per year for three years on a notional principal¹⁴ of US\$ 100 million.

¹³ Special option exchange or futures exchanges that also trade options.

¹⁴ The face value of a swap contract. This means the notional amount never changes hands in a transaction. It is just an amount to which payments are based, not really paid over.

In return the bank agrees to pay the company six-month LIBOR (or LIBOR for a borrowing period of six-months) plus 0,5% per year¹⁵ on the same notional principal. In this case, the company is the fixed-rate payer and the bank is the floating rate payer. It is assumed that payments should be exchanged every six months and that the 3% interest rate the company shall pay is quoted with semiannual compounding. The following diagram illustrates this process (HULL, 2018, p. 156):

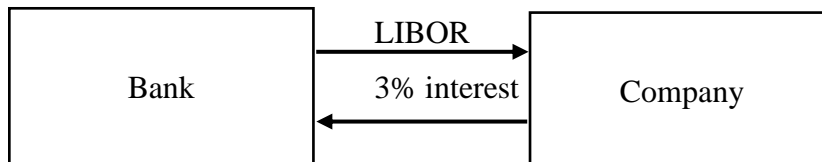


Diagram 1: Interest rate cashflow payments between a company and a bank as part a plain vanilla swap. Adapted from Hull, 2018.

The first payment is six months after the agreement of the contract. If the contract was made on January 2nd, 2018, the first payment would be due on June 2nd, 2018. The company would pay the bank US\$ 1,5 million, which is 3% (compounded semiannually or 1,5%) over the total notional principal of US\$ 100 million. The bank would pay the company the LIBOR the day before the due date of payment. In this case the June 1st, 2018 six-month LIBOR that would be, let's say 2,2%. So, 2,2 % times the 0,5% arbitrary rate (for our purposes), times the total notional principal of US\$ 100 million, which equal US\$ 1,1 million would be the amount paid by the bank to the company. Payments would be repeat every six-months until the completion of the contract which is 3 years. Hull makes an important observation: “Note that the \$100 million principal is used only for the calculation of interest payments. The principal itself is not exchanged. This is why it is termed the notional principal” (HULL, 2018, p. 157).

The fixed-for-fixed currency swap “involves exchanging principal and interest payments at a fixed rate in one currency for principal and interest payments at a fixed rate in another currency” (HULL, 2018, p. 169). As an example, consider that a company agreed to pay a 3% interest rate over US\$ 15 million to a bank and receive a 4% interest rate over £ 10 million from the bank for a period over 5 years. This a fixed-to-fixed

¹⁵ Loans use a reference rate plus an additional percentage that varies according to the credit risk. 0,5% was picked arbitrarily by Hull (2018) just for illustrative purposes.

currency swap because interest rates are fixed. Each year the company pays the bank US\$ 450.000 (3% of US\$ 15 million) and receives £ 400.000 (4% of 10 million). The following diagram illustrates this process:

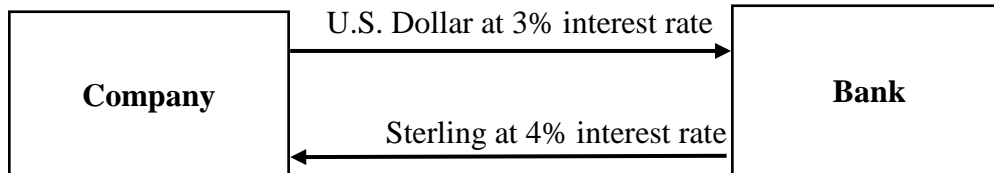


Diagram 2: Cashflows between a company and a bank as part of a fixed-for-fixed currency swap. Adapted from Hull, 2018.

Hull defines Credit Default Swaps (CDS) as an insurance contract in which the buyer acquires the right to sell to the seller of the CDS the underlying asset for a specified notional principal in the case that the underlying asset, which is a bond of a company or country, defaults.

“The company or country is known as the reference entity. The buyer of credit protection pays an insurance premium, known as the CDS spread, to the seller of protection for the life of the contract or until the reference entity defaults (...) A default by the company is known as a credit event. The buyer of the insurance obtains the right to sell bonds issued by the company for their face value when a credit event occurs and the seller of the insurance agrees to buy the bonds for their face value when a credit event occurs. The total face value of the bonds that can be sold is known as the credit default swap’s notional principal. The buyer of the CDS makes periodic payments to the seller until the end of the life of the CDS or until a credit event occurs. In a standard contract, payments are made in arrears¹⁶ every quarter” (HULL, 2018, pp. 176 and 570).

Hull illustrates this process with an example. A protection buyer agrees to pay 90 basis point per year for protection against default by the reference entity, with payments to be made quarterly. The notional principal is US\$ 100 million and the CDS is due for 5 years. If a credit event does not occur the buyer receives no payment and pays 22,5 basis point (a quarter of 90 points) to the protection seller in three months after the agreement of contract. As payment is over the notional principal, the amount due to the buyer is $0,0225^{17}$ (basis points) \times 100.000.000 (notional principal) = US\$ 225.000,00 and he has to pay the seller this amount every three years up to the end of the contract. In the case of

¹⁶ Arrears are payments that have to be made at the end of a period (CAGAN, 2019).

¹⁷ Basis point is a common unit for interest rates and other percentages in finance. As one basis point is equal to 1/100. 22,5 basis point equals 22,5/100 or 0,0225 in our example (CHEN, 2017).

a credit event the buyer must notify the seller when the contract is due. Now he has the right to sell the underlying asset (the bond) for the face value of US\$ 100 million in the case of physical delivery. In the case of cash settlement, the payment is based on the coupon rate¹⁸ over the bond. Diagram 3 illustrates the CDS payment procedures:

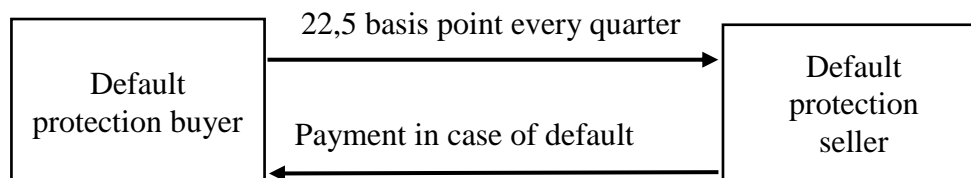


Diagram 3: Cashflows between buyer and seller of protection in a CDS contract. Adpated from Hull, 2018.

The emergence of swaps is connected to regulatory arbitrage due to currency and capital controls of the Bretton Woods era. In the 1960's and 1970's in face of capital controls multinational corporations could not benefit from interest rate arbitrage in international loans. Additionally, due to exchange controls, sending capital abroad or borrowing in the parent corporation had high costs. As a result, when an American multinational, for instance, needed to expand its activities in the United Kingdom and a British multinational wanted to invest in its U.S. branch, as both corporations could not freely exchange and lend to their branches, the American company lent in dollars to the British company branch in the U.S. and the British parent corporation lent in pounds to the American company branch in the U.K. In this way, legislation was not violated and interests were satisfied. This kind of loan was initially called *back to back loan* or parallel loan (MEHRLING, 2011).

It was in this period that banks began to partake in these activities. In the beginning they acted as brokers, charging fees for the search of clients that would have opposing cash flow needs to be matched and exchanged between one another. However, in the 1980's, banks created a new financial innovation from the parallel loan experience: swaps that had the same essence of those exchanging cash flow contracts, but much more flexible and have a reduced cost of operation. With this innovation banks became the

¹⁸ A coupon is the annual interest rate paid on a bond, expressed as a percentage of the face value (CHEN, 2018).

counterparty of their clients, effectively assuming cash flow payments according to their needs. In effect, swap dealer banks started to act as market makers, providing the necessary liquidity to the enormous turnover increase experienced in the over-the-counter derivatives market as of the 1980's (SCHINASI *et al*, 2000).

The rapid growth in OTC swap markets started in the second half of the 1980's, mainly due to the innovations in cash flow exchanging prompted by this instrument, which allowed for the cash flow exchange between parties to make payments in one currency and receive payments in another currency based on fixed exchange rates (foreign exchange swap); the cash flow exchange between parties to make payments in pre-fixed interest rate and receive payments in post-fixed interest rates (interest rate swap) and the cash flow exchange of a possible asset's default¹⁹ to the receipt of the yields as long as a premium is paid to a party taking on risk (credit default swap). Such flexibility for investors made the OTC interest rate and foreign exchange swap market grow 8 times more than exchange-traded derivatives (CARRUTHERS, 2013; SCHINASI *et al*, 2000).

1.4. Size of derivatives markets

Generally, derivatives markets are measured in terms of notional amounts, which according to Spagna (2018) are “the total asset value of the underlying positions” (SPAGNA, 2018, p. 30). Hull notes that:

“(…) One should bear in mind that the principal underlying in a (...) [derivatives] transaction is not the same as its value. An example of a (...) [derivatives] transaction is an agreement to buy 100 million U.S. dollars with British pounds at a predetermined exchange rate in 1 year. The total principal amount underlying this transaction is \$100 million. However, the value of the transaction might be only \$1 million” (HULL, 2018, p. 6).

Actual cash flows, as well as settlements of derivatives contracts, are just a percentage of their total notional amount. For futures and options, due to the margin requirement mechanisms as seen above, agents deposit small amounts of the total value just as a collateral against default. They then pay the difference between the agreed price and the spot market price on maturity, as shown in the market-to-market mechanism. Notional amounts for futures and options are, thus, the face value of the contracts, but in fact the settlement between parties considers the difference between agreed price and spot price as the only cashflow exchanged. In swap contracts the absence of margins is common and notional amounts also only represent the face value of contracts. Actual

¹⁹ Without the need to possess the underlying asset.

cashflows will be, as seen above, the interest or exchange rates that are calculated as a percent of notional amount. Those small percentages over the notional amounts are actually the only cashflows exchanged. For CDS cashflows are, for the buyer, the payment of the basis point over the notional amount and, for the seller, the interest rate on bonds protected. Again, those cashflows are just small percentages of the total notional amount of the contract.

Therefore, the notional principal, which is the face value of derivatives contracts, is not exchanged as cashflows. Because of that, in fact, notional amounts tend to “overestimate the actual exposure” of agents. Nevertheless, “notional value²⁰ provides a good estimate of turnover and market expansion” (SPAGNA, 2018, p. 30). First observe the market growth of derivatives measured in notional amounts in figure 6:

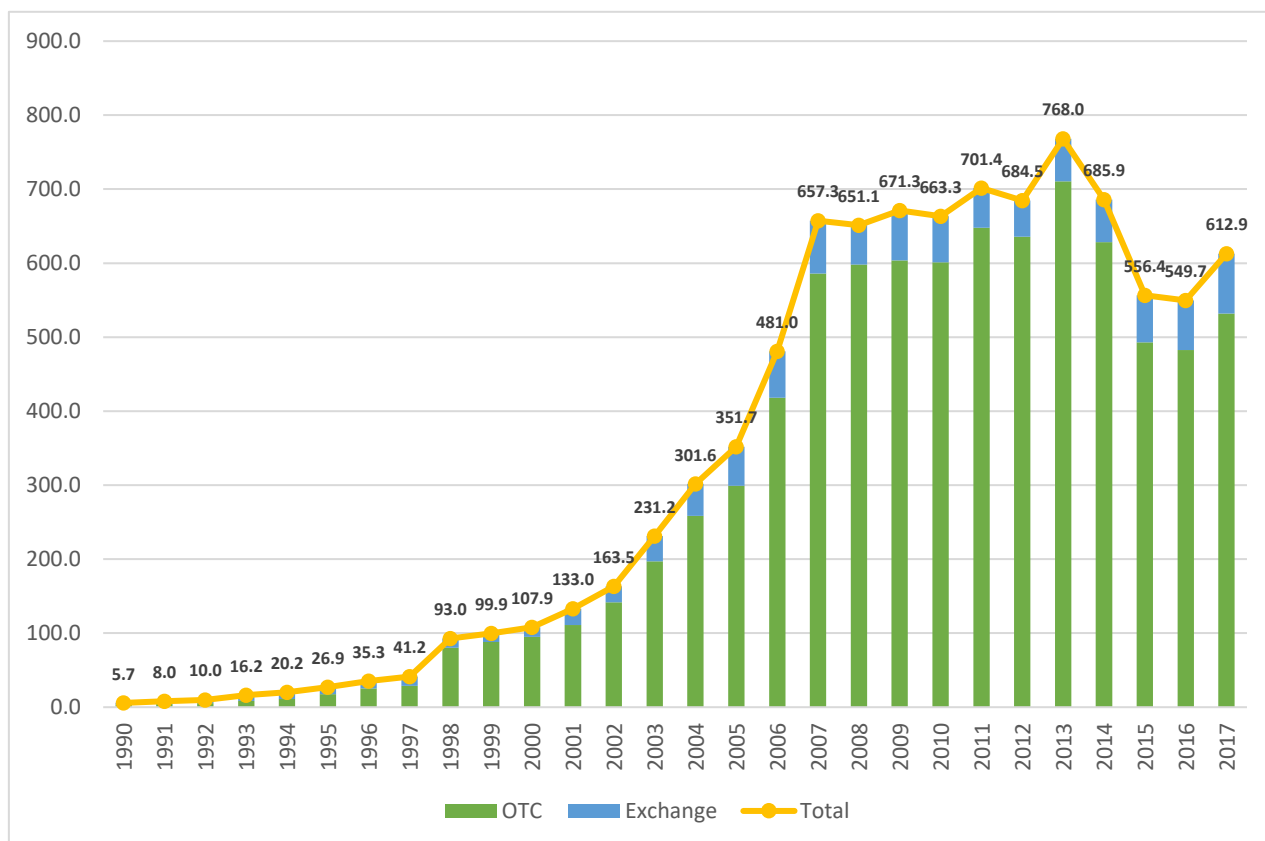


Figure 6: Derivatives market growth measured in notional amounts. Numbers are denominated in billions of U.S. dollars. Sources: For data between 1986 and 1989: BIS (1992). For data between 1990 and 1997: BIS (1996; 1998). For data from 1998 onwards: BIS (2018a, 2018b, 2018c).

²⁰ Observe that notional principal, notional amount and notional value are all interchangeable denominations for face value of derivatives contracts.

What the graphic shows is the size of OTC derivatives and exchange derivatives markets in regards to the total transactions made in the global financial system measured in notional amounts. Figure 7 highlights the size of OTC derivatives markets when compared with the sum between OTC and exchange derivatives markets.

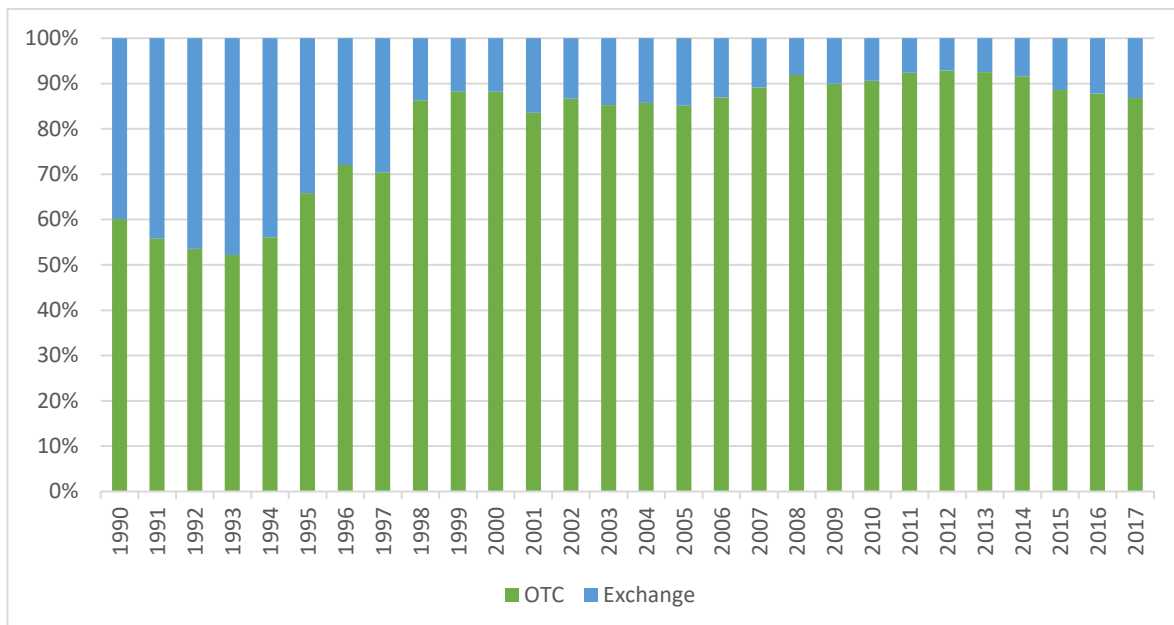


Figure 7: Derivatives market growth measured in percentage of total market size. BIS (1992, 1996, 1998, 2018a, 2018b, 2018c).

As one can observe, when OTC derivatives markets are compared with the total sum of OTC plus exchanges markets, OTC markets have soared from 60% of the total global derivatives markets in the 1990's to almost 90% in the latest years before the 2008 crisis. Ever since then have kept the hegemonic position in these markets.

Derivatives markets can be understood not only in terms of size, but also in terms of structure. There are different breakdowns one can make to visualize its trends. Figure 8 shows the notional amounts in trillions of U.S. dollars of different types of underlying assets traded in over-the-counter derivatives markets:

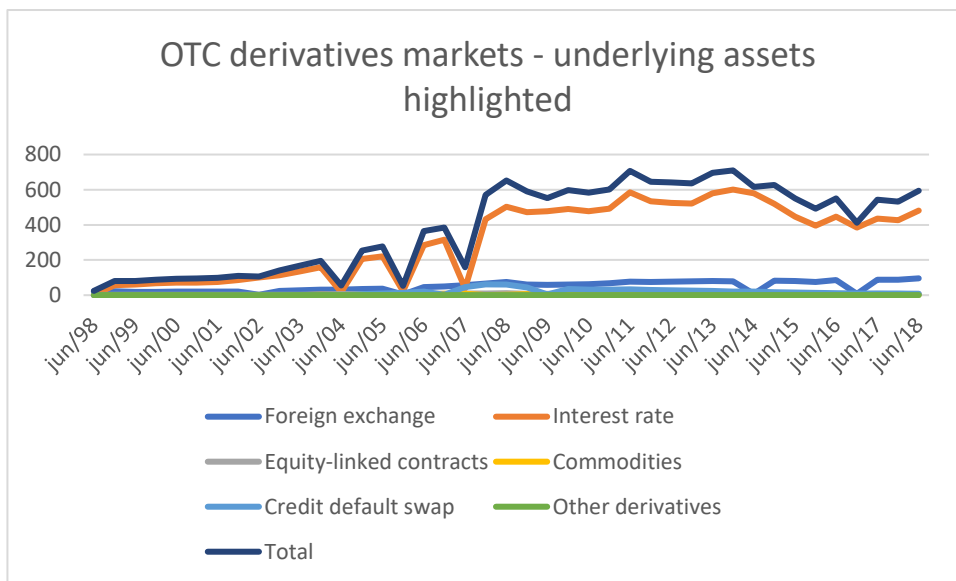


Figure 8: OTC derivatives markets by underlying assets. All figures in notional amounts denominated in trillions of U.S. dollars. Source: BIS, 2018a, 2018b, 2018c.

In derivatives markets interest rates are the most traded underlying assets, given their fundamental role in the global macroeconomy. One can also see that CDS and exchange rates derivatives are also traded in great amounts for their essential roles in managing credit risk and currency’s volatility. Although the interest rate derivatives trade has had ups and downs in the years before crisis, a growth trend appears after the crisis.

Observe now the predominance of interest rate derivatives also in derivatives exchanges. Notional amounts in interest rates greatly exceed exchange rates. As is shown by Figure 9.

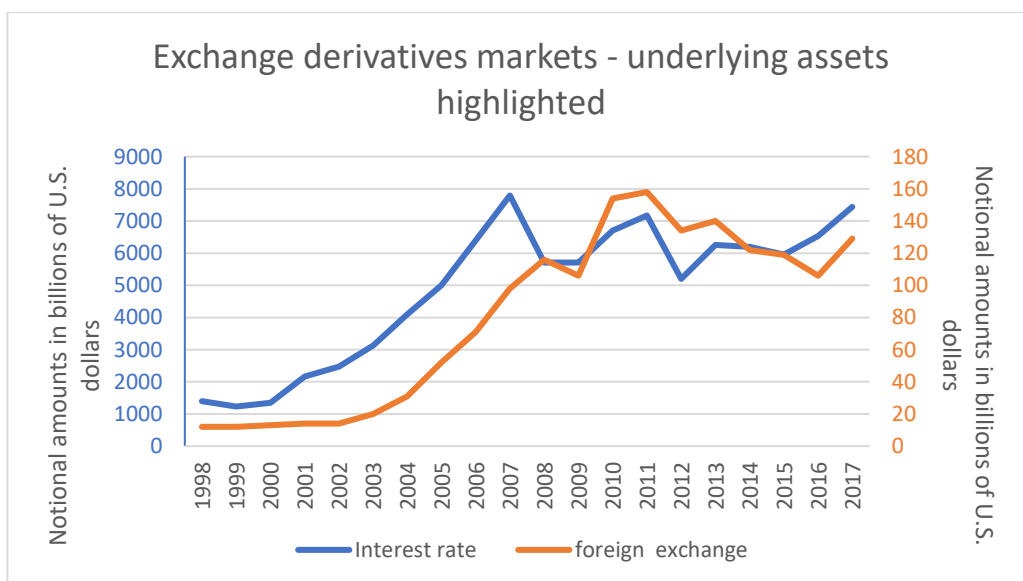


Figure 9: Exchange rate derivatives by underlying assets. Figures express the daily average turnover measured in U.S. billions of dollars for each year. Source: BIS, 2018c.

While interest rate derivatives in exchanges reached the peak of 8 trillion U.S. dollars traded on a daily average in the years preceding the 2008 crisis, foreign exchange derivatives were traded in considerably lower levels of 100 billion U.S. dollars on a daily average before the crisis.

It is also important to visualize the size of each type of derivatives both in OTC and exchange markets. Figure 10 shows the size of main derivatives traded in OTC markets.

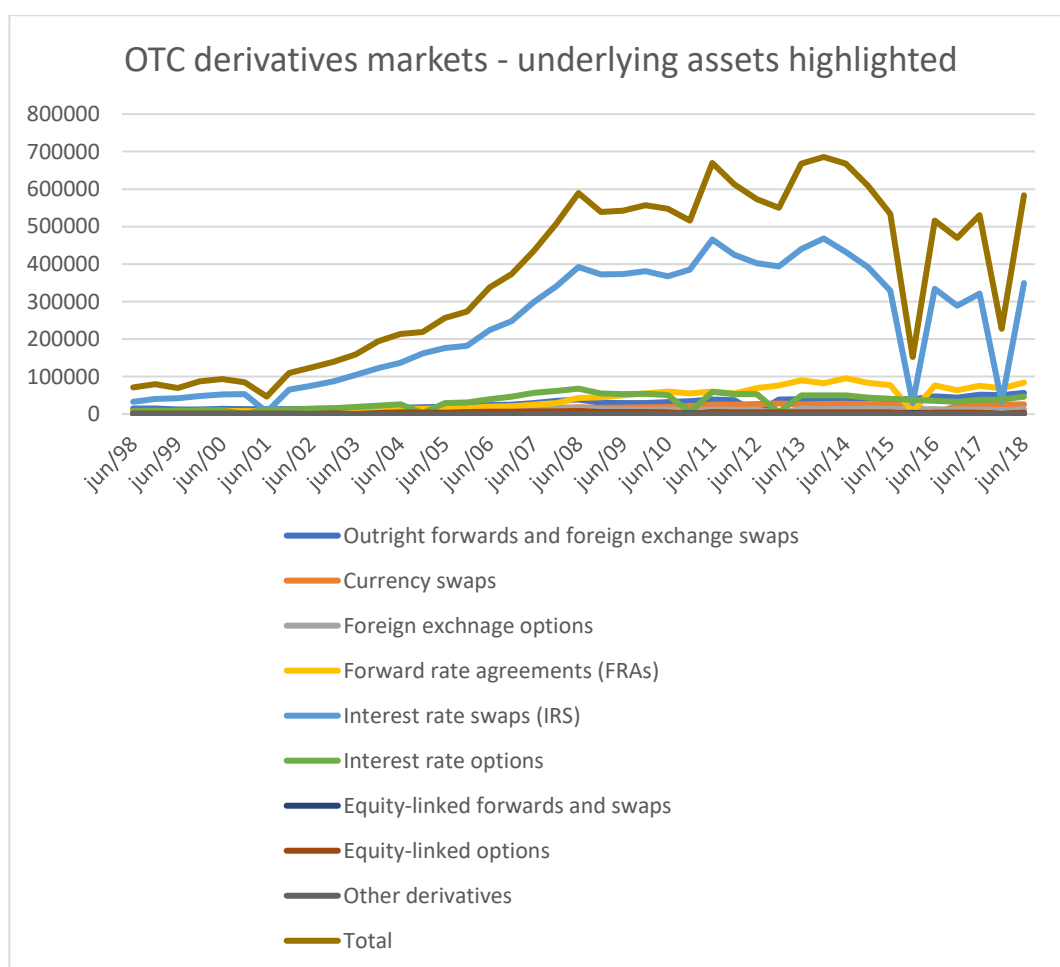


Figure 10: Size of OTC derivatives contracts. Figures in notional amounts of billions of U.S. dollars. Source: BIS, 2018a, 2018b.

Interest rate swaps are the most traded instruments in OTC derivatives markets, reaching almost half a trillion dollars before the crisis. These are followed by FRAs and interest rate options. Behind these are outright forwards and foreign exchange swap and currency swaps are the subsequently larger. Reflecting on the volume of these trades helps

to reflect on the importance of interest and exchange rates in the global monetary and financial system.

Turning now to the the size of derivatives traded in exchanges, Figure 11, shows how much smaller exchange traded markets are compared to OTC derivatives markets:

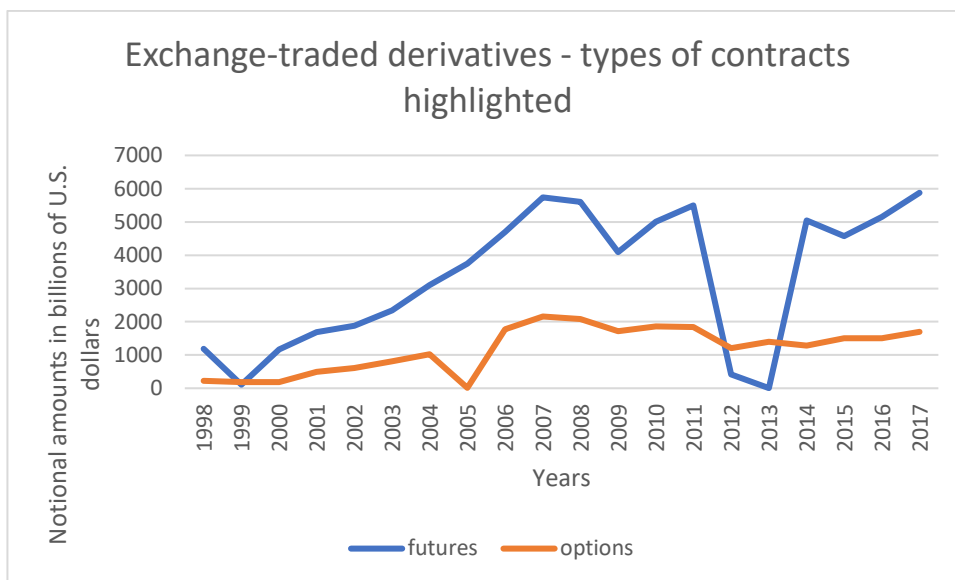


Figure 11: Change of contract size of exchange traded derivatives during the last 19 years. The notional amounts of billions of U.S. dollars shown are daily average turnovers per year. Source: BIS, 2018c.

In the preceding years before the crisis, futures were traded on daily average turnover worth 6 trillion in notional amounts of U.S. dollars. However, trading amounts decreased substantially between 2011 and 2013 (shaded area) with a recovery in the following years. On the other hand, options trading turnover stayed steady over time, with the exception of a quite substantial decrease in 2005.

1.5. Types of derivatives traders

The interests and evaluation of a derivatives' contracting parties in relation to risk is important to notice. As in all financial relations the agents' evaluation of risk-taking may differ. Some agents are less risky-prone, so they get into a derivatives transaction "to hedge a risk, (...) [it means] to take a position that neutralizes the risk as far as possible" (HULL, 2002, p. 70). Those agents are called hedgers, and their goal is to get rid of the exposure to financial price volatility. Companies, agricultural producers, financial institutions, and individual investors all may want to hedge from risks. An example adapted from Hull will help to understand how hedging works: the price of oil in the present is US\$ 125,00 per barrel. An oil company expects the price of the crude oil per barrel to vary on a range of 1,6% up or down in three months, thus expecting the price

fluctuate between US\$ 123,00 and US\$ 127,00. The company, then, engages in a derivatives contract to sell the commodity for US\$ 126,00 per barrel in three months. If in three months the market value of the crude oil barrel is US\$ 123,00 the gains on selling the commodity for US\$ 126,00 will offset the decrease in the spot market value of the crude oil barrel. Now let's suppose the opposite, in three months the spot market value of the barrel of crude oil increases up to US\$ 127,00. If this occurs, the gains with the rise in the commodity price will offset the loss the company will have to bear in the derivatives contract. In short, for a determined range of financial price fluctuation hedging strategies will protect agents from risk exposure.

On the other hand, some agents are more prone to take on risks in exchange for higher returns: the speculators. They take on positions in derivatives as a bet against the market value of the underlying variables in search of profit due to price variations at present in relation to future. Indeed, they take positions just like hedgers do, however, as Fahri explains the difference between one and the other is that speculators take positions in derivatives without possessing the underlying variable. Returning to the previous example, if the agent now is not an oil company undertaking a derivative contract, but a financial institution or an individual investor that does not trade oil barrel and neither possess it, that agent is only engaging in a derivatives contract because he forecasts that the future price of that commodity will be higher than present price, leading him to find it profitable to take a position in a commodity derivatives (FARHI, 1999).

Yet, there is a third kind of derivative trader called arbitrageur, according to Hull: "arbitrage involves locking in a riskless profit by simultaneously entering into transactions in two or more markets" (HULL, 2002, p. 15). Arbitrage in fact consists in taking a long position in a market and a short position in another in the way a risk-free gain will come out of the operation. According to Fahri, that can only happen if the prices of underlying variables traded are correlated, otherwise, it will just be a speculative transaction in which risk is still in place (FAHRI, 1999).

An example adapted from Hull can shed lights on what constitutes an arbitrage trade: Let's consider the price of a share in the New York Stock Exchange at US\$ 100.00 per unit and the price of the same share in the London Stock Exchange at £100.00 at a time where the exchange rate is 1,50 British Pound to U.S. dollars. If a large financial institution that faces low transaction costs buys 100 shares in New York and sells them in London, it will earn US\$ 500,00 in risk-free profit, but only because both prices were correlated. Hedge funds and other institutional investors are institutions that act as

arbitrators in the global financial system, trying to catch profits from the misalignments in financial prices. As competition in financial markets is intense those misalignments do not remain for much time and those arbitrage opportunities may happen in a fraction of minutes, in which trade is frequently made by robots (HULL, 2018).

In this example the arbitrator is acting in two spot markets at the same time, but arbitrators of derivatives generally act long in a derivatives market and short in a spot market (or vice-versa). According to Carneiro *et al*, arbitrage in derivatives and spot markets happen when prices between them are in disequilibrium. That means when – among other parameters not underlined here – future prices are higher than spot price. In this case:

“the agents can take out loans (...), buy the underlying asset in the spot market (...), and simultaneously sell future contracts for the asset in the derivatives market with the same maturity as the loan. (...) For the arbitrator, there is no price risk since the asset purchased in the spot market is hedged by the sale of the same asset in the futures market. In other words, the sale of the asset’s futures contract compensates the gains or losses resulting from asset price variation in the spot market” (CARNEIRO *et al*, 2015).

1.6. International regulation of derivatives

Regulation is a rule or directive made by a political authority. In this sense, financial regulation are the rules, norms and guidelines of operation for a financial institution to undertake activities in markets within a certain jurisdiction. This means financial regulation is set by agencies whose powers are delegated by political authorities of the state, be it the executive, legislative or judiciary branches. Nevertheless, the phenomenon of integration between different national financial markets has posed increasing levels of complexity for the rules and norms applying to financial institutions’ operation. Financial institutions that responded to the national regulations of a single state now have to be accountable to regulations in more than one jurisdiction.

Compliance procedures²¹ are burdensome and can raise transaction costs. To mitigate those inconveniences, internationally active private financial institutions together with national regulatory agencies came together in the 1970’s and 1980’s to establish international fora for coordinating policy action in order to harmonize national financial regulation towards common guidelines. These guidelines would lower the transaction costs of international financial activity once institutions could conform to similar rules in the major financial centers.

²¹ The act of an institution to conform to the norms and rules imposed by regulators.

According to Helleiner, Pagliari and Spagna (2018) the most important national regulatory framework for derivatives is the American, simply because the U.S. is capable of transferring its domestic regulatory preferences to international fora, thereby ensuring that the international regulatory harmonization process is led both by American financial institutions and American regulatory agencies (HELLEINER; PAGLIARI; SPAGNA, 2018). Additionally, American financial institutions are amongst the most internationally active and American financial markets are the deepest and most liquid in world, which further increases American international influence. Given this, non-American financial institutions must conduct business in American financial markets, thereby subjecting them to American financial regulation. On the other hand, American financial institutions also take positions abroad on a wide scale, which makes them willing to have national regulations as close as possible to America's.

Regulatory action undertaken by regulatory agencies involves authorizing the creation and trade of financial instruments, defining the legal aspects of contracts, how they shall be traded and what norms and guidelines financial institutions must follow in order to trade them. In addition to regulation, financial regulatory agencies also undertake supervisory roles, which follow continuously the activities of financial institutions dealing with the financial contracts under their jurisdictional attributes. In the United States – at a federal level – derivatives regulation and supervision is undertaken by three different agencies: The Commodities and Futures Trading Commission (CFTC) which oversees derivatives exchanges, approving and supervising futures and commodity options traded on it, as well as derivatives exchanges intermediaries, the Future Commission Merchants (FCM); The Securities and Exchange Commission (SEC) which oversees derivatives legally defined as securities, such as options on securities and securities indices traded both on exchanges and on OTC markets. In addition, the SEC also supervises brokers-dealers that trade with derivatives securities. Lastly, the Officer of the Official Comptroller regulates activities carried out by banks and as such it regulates the derivatives business of those institutions.

As Cardim stresses, regulatory supervision is the assessment by regulators of the levels of risk that a financial institution is undertaking in its activities. For financial risk has a systemic aspect: as financial institutions are linked through a web of contracts, if some of them conduct excessively risky activities, meaning their outstanding assets run the risk of being defaulted, they may in turn default on their outstanding liabilities,

triggering a process of generalized default and thus a shortage of liquidity that affects the payments system, leaving agents without savings and means of payment.

Systemic risk spread is particularly important within the banking system because it is the pillar of the payments system and thus the fundamental basis of economic activity. One of the most important norms of regulatory supervision is then the exigence by national regulators of capital requirements by banks. Those are the determination of the ratio of capital a bank must hold in what regards its levels of debt. This stops banks from taking excessively leverage²² that could lead them to take excessively risky positions and then default (CARDIM, 2005).

In the 1980's an accord at the Basel Committee of Banking Supervision (BCBS) was reached to set the ratio per which banks should set their proportion of own capital in positions taken, according to risk-profile of the investment made. This accord was needed because after the Latin American and East Europe debt crisis, American banks that had been the major lenders to these countries went bankrupt and had to be bailed out by the American government. As a response, American regulatory agencies decided to strengthen capital requirements regulation. Notwithstanding, American banks argued that raising ratios of capital requirements – also known as capital adequacy – would undermine their competitiveness in relation to German and Japanese banks whose requirements were lower, according to their own national regulations.

Through an alliance with the UK, American regulators pressed their Europeans and Japanese peers within the BCBS to achieve a common capital adequacy ratio to be required from all international active banks. This, in the words of BCBS reports, would “level the playing field” for international banking competitiveness. The common ratio agreed was of 8% on the total nominal risk-based capital. However, in the 1990's U.S. regulators started to capitulate to American banks' pressures to reduce this ratio. In the words of Wood:

“Regulators recognized that there had been a process of slackening in the interpretation and application of capital standards. In efforts to reduce the regulatory burden on their national banks, *regulators had increasingly allowed them to count more and more items as Tier 1 capital and had gradually lowered risk weighting applicable to on-balance-sheet and off-balance-sheet items*” (WOOD, 2005, p. 128, our emphasis).

²² In this case leverage means the proportion of capital of its own an agent has when taking a position. As banks have other sources of access to capital rather than its own revenues (deposits, money market, etc.) they usually use credit to make investment and then profit without exposing its own funds. Capital requirements regulation forces banks to use a proportion of their own funds to take on positions. That leads them to better assess risk, since their own capital is at stake.

Financial innovations such as securitization techniques, derivatives and special purpose vehicles were fundamental off-balance-sheet instruments that U.S. banks started to use to lower their risk-based capital ratio. Again, it is useful to quote Wood:

“(...) banks’ effective risk-based capital requirements were in fact much lower than the required nominal 8% total risk-based capital standard. (...) In a [1998] survey conducted by *The Banker* magazine, the top 1000 banks saw their Tier 1 capital adequacy ratio shirk to 4,48 per cent of total assets, its lowest level since 1992” (FINANCIAL TIMES, 1998 *apud* WOOD, 2005).

The U.S. was prompting the change in its banks’ risk assessments through the relation between American big banks and national regulators. Tett argues that OCC and the FED permitted banks to reduce ratios of capital requirements once they used Credit Default Swaps to manage risks together with external auditing from credit rating agencies. That allowed huge reductions of own capital held by banks. In the authors words:

“Capital reserves could be cut only if banks could prove that default risk on the super-senior portion of the deal was truly negligible, and if the notes being issued by a BISTRO-style structure had a AAA stamp from a ‘nationally recognized credit rating agency’. Those were strict terms, but J.P. Morgan was meeting them. The implications were huge. Banks had typically been forced to hold US\$ 800 million in reserves for every US\$ 10 billion. Now [with CDS management] that could be just US\$ 160 million. The CDS concept had pulled a dance around the Basel rules” (TETT, 2009, pp. 63-64).

In 1998 new negotiations started in BCBS to review the general framework of the 1988 accord. According to Duncan, American regulators’ allowance of its financial institutions to lower capital requirements had put competitive pressures in German and Japanese banks and its respective regulators. The American undermining of the 1988 agreement on harmonization of international banking regulation displeased Germans and Japanese banks and their regulators “who looked way to coordinate their approaches through the Basel committee” (DUNCAN, 2005, p. 127).

Germans in particular had strong disagreements in using credit rating agencies as forms of relaxing capital requirements. However, the final consultative package²³ in BCBS not only favored off-balance-sheet instruments – as derivatives – as well as credit rating agencies as means to lower capital requirements. These would be concrete instruments for evaluating risk. In addition, self-assessing methods for risk measurement started to be favored by BCBS. Therefore, at the end of the day, German and Japanese preferences ceded to America’s. Duncan concludes brilliantly in his assessment of banks

²³ Bunch of regulatory principles proposed by members in the BCBS.

and American regulators during these negotiations, which became to be known Basel II accord: “Banks became aware that Basel (...) intended to make the rules for capital more flexible and free up funds for productive use” (WOOD, 2005, p. 129).

The American allowance for agents to use derivatives as a way to lower capital requirements at the expenses of German and Japanese disagreement required internationally active banks to start using them. This prompted more liquidity in OTC derivatives markets, enhancing the risk management of different assets, rates and commodities on a global scale, as more banks would be dealing with those instruments. Otherwise, non-American banks would not be as competitive as American banks, which after this regulatory relaxation, had far more capital available to undertake business activities, thereby reinforcing the trends of global financial integration through liberating more capital to be globally invested.

Chapter 2. Derivatives as instruments of global financial governance

This chapter discusses the issue of derivatives and their role as fundamental financial instruments for the operation of the global financial system. The chapter starts in section 2.1 with a theoretical discussion on Strange's concept of structural power, seeking to explore how this specific form of power exercised within the global political economy is an exclusive feature of the United States of America and how its exercise is made through an amalgamation between the structurally dominant state and markets related to it. Section 2.2 advances a connection between the U.S. dollar centrality of the global financial system and the exclusive capacity of the U.S. to exercise structural power over this system, seeking to understand what the basis for this specific form of power is. Section 2.3. links derivatives to the U.S. dollar hegemony and to the exercise of structural financial power, by showing how through Mehrling and Fischer Black theoretical approaches to derivatives they can be seen as true instruments of governance and thus instruments of structural financial power for the global financial system.

2.1. Strange's concept of structural power

Although Strange does not pose an explicit definition for the word *structure* in her discussions on the concept of *structural power*, it is possible to infer that the structure which she is referring to is the: "(...) agenda of discussion or [the] design (...) [of] international regimes of rules and customs that are supposed to govern international economic relations" (STRANGE, 1988, p. 25). By that Strange adapts the concept of *social structure* as the bunch of constraints (norms, rules, procedures) that define social behavior in the study of global political economy. It means the underlying assumption of social relations for Strange is that they are determined by constraints that force agents to behave in particular ways. Power is then the imposition of constraints from one or some agents over the others, conducting and limiting their behavior. Nevertheless, the concept of structural power for Strange requires an explicit definition that distinguishes it from relational power. In her own words:

"The concept of relational power is clear and consists in the ability of A to get B by coercion or persuasion to do what B would not otherwise do. The concept of structural power (...), [however], consists in the ability of A in determining the way in which certain basic social needs are provided. One is lever; the other is a framework. The target of relational power, B, if it should decide not to do what is required by A, has to suffer the consequences determined by the other. For the target or object of structural power, the price of resistance is determined more by the system than by any other political authority (...). [Structural power] in short embraces, customs, usages, and modes of operation rather than the more narrow definition that stays closer to

state-state agreements and state-centered institutions” (STRANGE, 2002, p. 145).

Story insights that for Strange power relations depend on the dialectics between goals and outcomes. If two or more agents have different goals, and outcomes only attend to one agent’s goals and not the others, then it can be said that he who has their goals attended holds power in relation to the others who did not have the same privilege. In this context, power relations are about the determination of asymmetric outcomes and not simply about an agent that can make another agent to do something he would not otherwise do, in the way traditional political theory understands power (STORY, 2001). When an agent holds the capacity to asymmetrically determine results within a range of possibilities given to others, this agent holds structural power. In this sense, structural power is not the power that relies on bilateral relations, but on multilateral relations, in which one single agent is more powerful than any other in the set.

This is a conscious capacity. To have its goals attended, the holder of structural power must control conscientiously the necessary instruments to shape outcomes in accordance with their interests and desires. Even if the subjected actors are not conscious of the constraint effects over them. In the words of May:

“For any particular issue the scholar needs to look beyond the superficial relational manifestations of power to identify which actors are shaping the agenda of decision-making and ruling out certain solutions or outcomes, without other actors necessarily being aware of the way parameters are being set” (MAY, 1996, p. 183).

The main characteristics of structural power is the capacity of its holder in alter the range of options available to other agents. This kind of power acts in less visible ways because it facilitates some range of choices and possibilities, whereas it imposes costs and risks to certain decisions (STRANGE, 1988).

The interests the holder of structural power has, the goals he projects and the instruments he must control in order to achieve his goals rely in different structures of the global political economy. These structures are the interaction of different economic realms and the norms and rules related to it. Structural power is exercised by the control of the norms that affect economic developments, channeling them to attain the goals of the structural power holder. For Strange, the structures are four: financial, productive, security and knowledge structures. Structural power permeates all of them and each is dependent on the other, their separation being only theoretically possible (STRANGE, 2002).

Therefore, structural power, for Strange, is the capacity to interfere, control and determine particular sets of norms, rules and procedures over key areas of global political economy. In her own words: “Structural power, in short, confers the power to decide how things shall be done, the power to shape frameworks within states relate to each other, relate to people, or relate to corporate enterprises” (STRANGE, 1988, p. 25). Rule determination is in fact about affecting the range of options available to other actors. In another passage Strange states:

“[The holder of structural power] has the predominant power to shape frameworks and thus influence outcomes. This implies that it can draw the limits within which others can choose from a restricted list of options, the restrictions being in large part the result of the [structural power holder] decisions. As Wallerstein emphasis, hegemony does not mean total power to command. It means predominance; and predominance conveys the ability to range within which it is reasonably possible for others to choose among various courses of action” (STRANGE, 2002, p. 149).

One main question in Strange’s work is *cui bono?* In whose benefit? is in fact her analytical search to understand those who hold structural power. The basis of political economy for her rely on the interaction between the allocation of resources in situations of scarcity, represented by the institution of the market and the exercise of authority, or the enforcement of obedience with the use of coercion, in last instance – represented by the institution of the state. Structural power, or the capacity to exert constraint through norms of behavior comes from the interaction among agents that govern both institutions.

This means there are two aspects of power in the dynamic of state and market interaction. One is the power markets can exert on states, or the other way around. And the other is the power that results from the combined state and market capabilities of exercising governance in the global political economy. It means their joint capacity in setting the norms, rules and procedural mechanisms through which the main areas of global economy will operate.

Power in state and market interactions between themselves rely on decision-making processes that are conducted through bargain. Although markets need the state to give legal validity to their actions and even enforce the rules under which they will operate, markets can influence decision-making through bargaining with politicians and policy-makers. The state, though it is capable of enforcing rules and regulations over markets, needs the economic support market activities provide. Indeed, the state needs the political support that comes from market agents; most of the times the ones

responsible for concentrating and managing wealth. That is why the state must also incur in bargaining relations with market agents in order to achieve legitimacy and capability.

Helleiner (1994) develops the idea of how structural power can be exercised on a global basis. In the international arena when states and markets can jointly determine the rules of operations of different economic realms, they exercise structural power. The structurally dominant state is capable to set norms of behavior for other states and other markets, while markets within the jurisdiction of structurally dominant states are favored by its power of norm determination and thus can exert leverage over markets in other jurisdictions. Markets under the jurisdiction of structurally dominant states can even set the pace of international integration among different national markets, with dominant state support (HELLEINER, 1994).

The construction of structural power is a continuous act of decision-making among actors that hold power, their interactions, goals and the way developments in the global economy affect their interests, leading to new decisions to be made in an enduring cycle. The domestic decisions in the structurally dominant state that result from the interaction between private and public agents will set the global economic norms of governance. This is done in a way that those decisions are the extension of what has been previously bargained and decided in the structurally dominant state domestic realm, with small lee-way for bargaining between dominant and non-dominant states and markets.

The structural power, however, is not only the capacity to underwrite the norms and paradigms of operation, but also the capacity not to follow them and even to break and build new rules that will favor the structurally dominant state. This results from the developments in the global political economy and the way the structurally dominant state sees them affecting its interest, capacity and scope of action. For Fiori (2010) that status of structural dominance which he identifies as hegemony is self-destructive because the hegemon, suffering from competition from emerging powerful states and markets, crumbles the rules and institutions it helped to create to maintain, enlarge and accumulate power more than those who he leads (FIORI, 2010, p. 143).

In this sense, only the structural power holder (understood here as the amalgamated actor that results from state and market interaction) has capability to build, destroy and reset the norms it has settled towards global economic governance. Strange identifies the structurally dominant state as the United States. In her words:

“(...) The United States has more actual and potential structural power than any other political authority in the international system, its power in the system is undiminished (...). Asymmetric structural power has allowed

the United States to break the rules with impunity and to pass the consequent risks and pains of adjustment to others” (STRANGE, 2002, p. 144).

It is also necessary to quote Barcellos (2018) developing Strange’s ideas:

“The specificity of taking domestic actions with global impacts that are capable to restructure an international economic system operation through new norms and rules, without leaving allies and contenders the capacity to respond and defend from those movements, is what underlies the exercise of structural power” (BARCELLOS, 2018, p. 412).

This means the United States can act in its own interest and at the expenses of others in the global economic governance because it holds structural power, which determines the overall structure of international economic relations. Indeed, the legal and regulatory system in the superpower are fundamental variables affecting developments and outcomes of global economic governance. The American regulatory landscape will either harm or enhance the capacity of action of American private agents and the pace and the manner by which foreign agents will be able to access American markets, which they depend on. Likewise, once the bargaining relations between American political authorities and American private agents are set through relatively consensus, both the former and the latter agents will act to preserve the regulatory status domestically and seek to extend it internationally (HELLEINER, PAGLIARI, SPAGNA, 2018).

In the words of Strange, it is as if US domestic policy-making was a magnetic pull to which agents in global economy are attracted by subjection. “Policy-making power has rested – and it has done throughout the post-war period – with the United States” (STRANGE, 2002, pp. 148-149). By extending its norms, regulation and policy-making internationally the U.S. is in fact limiting the restrictive range of options agents may take and by that it is exercising structural power within the global political economy.

2.2. the U.S. dollar hegemony and structural financial power

According to Bell, in chartalist theory, money is an imposition of the state over a certain jurisdiction. It is the token²⁴ the state declares that must be used to pay taxes and the one the state issues to pay for its debt. As taxes are mandatory for subjects of a sovereign, they need to acquire state-money in order to pay for them. In fact, they must use the same money the state issues to pay for its debts, for it is the only token the state accepts as settlements (BELL, 2001).

²⁴ Token is understood in the chartalist theory of money as an object that acquires value for its purposes, having no value before the declarations of its utility.

In a national economy, in the same way the state is responsible to fix what is the token used as unit of account and means of exchange, it is also responsible for assuring the function of store of value of its currency through monetary policy interventions. Nevertheless, in the international arena, there is not a supranational institution responsible for fixing what the token for international money is, nor to guarantee that a single international money exerts its functions. What exists in the international monetary system is a multiplicity of national currencies, apparently competing with each other to be used internationally.

According to Cohen, and Conti and Prates, the lack of imposition of a particular currency in the international sphere makes it so that the determination of what currencies are used for international trade and finance is given by the capacity of some currencies in exerting the functions of money²⁵ more than others – or in spite of others. This creates a monetary hierarchy in the international financial system. The capacity of exerting money functions internationally, in turn, dictates the usage of a currency in the international arena and determines its position in the international monetary hierarchy. U.S. dollars are in the top position of currency hierarchy. Or, as the authors put it: the U.S. dollar hegemony comes from the its key-currency position (COHEN, 2015; CONTI; PRATES, 2018).

Conti and Prates as well as Cohen link the international usage of the dollar to agent's rationality in choosing the currency. This rational choice is influenced by two main factors: the width of the network of market actors that use the currency, giving an incentive to other actors to use it too and the economies of scale effect that a large usage of a currency provokes, reducing the transaction costs of its trade. Those factors, in turn, are connected to the size of the economy of the international currency issuer and the extent by which this currency invoices international trade and international financial transactions. In addition, the breadth, depth and width of the financial markets in which the currency is traded affects the easiness of access to the international currency (IBID.).

Under these rational choices are in fact political constraints: Agents are subjected to hold U.S. dollars. Firstly, because there are no alternative currencies that replace the role and position of greenbacks. Secondly, because the U.S. economy is the largest in the world and the superpower is one of the major trading partners for most nations. Thirdly, because the U.S. holds the largest financial markets, more liquid than any one other.

²⁵ There is a consensus in the economic literature over the functions of money. Those are: unit of account, means of exchange and store of value.

Moreover, the U.S. denominates both imports and exports in its own currency for all its trading partners. A privilege the second most traded currency in world – the Euro – does not hold. In addition, the largest majority of transactions in the global financial system²⁶ are U.S. dollar denominated. Agents prefer to denominate their exports in U.S. dollar because, first, they are exports to the United States and, second, as the international demand for goods vary exporters prefer to denominate them in a common currency. Besides, estimates from “Goldberg (2010) proposes that the U.S. dollar is the reference currency for 104 over 207 analyzed countries” (CONTI; PRATES, 2018, p. 19), meaning that the U.S. dollars is the most used currency for central bank intervention in foreign exchange markets, because it is the one currency agents most care about the exchange rate.

By invoicing international trade and international financial transactions U.S. dollars fulfil the function of unit of account and means of payment for private actors. By being the currency of central bank intervention in foreign exchange markets and the one used to refer to an anchor in exchange rate regime management, it fulfills the same roles of unit account and means of payment for public actors. By serving as asset for portfolio allocation the American dollars fulfills the role of store of value for private agents and by being the major official reserves of central banks it fulfills the role of store of value for public agents. By that it is possible to affirm that greenbacks are the only currency that can accomplish all functions of money in an international level, for both public and private agents.

The spread of the superpower currency throughout the global financial system is coordinated by the price of dollar towards other currencies, or the exchange rate between them. In turn, the price of money affects agents’ access to it. Even though the appreciation or depreciation of American dollars have opposite effects, benefiting some agents while harming others, the uncertainty of the price of dollar over the future affects the capacity of greenbacks to be used as the instrument that will serve as the ultimate source of liquidity.

If the price of money is foreseeable in the future, agents can manage its cashflows accordingly and use money as a safe instrument against other sorts of economic

²⁶ As Conti and Prates (2018) show U.S. dollars make up around 88% of foreign exchange markets and derivatives markets and around 60% of internationally active banks assets and liabilities.

uncertainties. Nevertheless, if the price of money is volatile – meaning that it changes frequently during a certain period – it loses the foreseeability attribute money needs as an instrument of liquidity and becomes one more element added to the generalized uncertainty, pressing the cashflow management of agents because it will affect their capacity to access money. As the U.S. dollar denominates the most important assets in the world – be they securities, bonds or commodities – a volatile price of the dollar will compromise the rate per which agents can change cashflows in national currencies per greenbacks.

That is why for Strange the structural financial power is:

“(...) the power to manage or mismanage the currency in which credit is denominated, thus affecting rates of exchange with credit denominated in other currencies. Thus, the financial structure really has two inseparable aspects. It comprises not just the structures of the political economy through which credit is created but also the monetary system or systems which determine the relative values of the different moneys in which credit is shared by governments and banks (and much will depend therefore on the political and regulatory relation of the one to the other). In the second, the exchange rates between the different moneys, or currencies, are determined by the policies of governments and by markets (and again much will depend on how much freedom governments allow markets). A financial structure, therefore, can be defined as the sum of all the arrangements governing the availability of credit plus all the factors determining the terms on which currencies are exchanged for one another” (STRANGE, 1988, p. 88).

Strange states that the capacity to have or enable others to have access to money is central in financial systems. In addition, she points to the capacity of having control over the exchange rate between different currencies as being fundamental in setting the degree of access to money, or in other words the degree of access to credit. If an agent, then, has the capacity to control the access to money and the rate by which its price is set this agent holds *structural power over the financial structure*, or in other words, it holds *structural financial power*. Due to the hegemony of U.S. dollars in the global monetary system, this agent is the United States of America.

It is possible to say that, on the one hand, the *structural financial power* has the capacity to set up and change, according to its own intentions, interests and goals, the norms, rules and procedures for which monetary and financial systems operate. On the other hand, otherwise, it is important to observe that the holder of structural financial power has the capacity to control the access to central money and the price by which it is exchanged by other currencies, because it holds the privilege of issuing the global hegemonic currency – the one which all agents must hold (!) and manage its access and price through monetary policy.

According to Serrano (2003), with the Nixon shock in 1971, which suspended the fixed parity convertibility between American dollars and gold, the United States destroyed the fundamental norm of operation of the Bretton Woods system while simultaneously creating a new one: the imposition of the dollar as the world's international currency with the total lack of convertibility into gold or any real commodity and by extension the imposition of a floating exchange rate regime. This operative norm for the post-Bretton Woods international monetary system Serrano calls the *floating dollar standard* (SERRANO, 2003).

The end of fixed convertibility between dollar and gold in 1971 and the suspension of the American support for the international cooperation on capital controls in 1974, affected the international price system that through those mechanisms generated relatively stable prices for exchange and interest rates, as well as for commodities. With a floating exchange rate regime and free capital flows, the international price system became volatile between the 1970's and 1980's. At the same time, interest rates as well as commodity prices started to behave in disruptive ways, prompting crisis and economic instability. However, throughout this period and until nowadays the American dollar remains as the standard unit of account of the global monetary system as well as the American debt bonds remain as the standard assets of the global financial system. Still, by the mid-1980's for developed countries and after the 1990's for emerging economies it has been possible to see that economic agents have learned to deal with a floating system of international prices. What accounts for this conundrum?

In line with Strange, the structural financial power is not a monolithic capacity that the U.S. government holds because it issues the hegemonic currency. The structural financial power, therefore, must be understood between the private and public relations that surround the hegemonic currency. Recalling Strange in the last passage: "the monetary system or systems which determine the relative values of the different moneys in which credit is shared by governments and banks (...) depend therefore on the political and regulatory relation of the one to the other" (IDEM.). Hence, in what regards the price of money, the way markets manage it and the way governments enforce market actions through regulation is essential in understanding power within the financial structure.

Notwithstanding, Strange has devoted much of her research on the financial structural power in understanding how power as of the 1970's leaned from governments to markets and not as markets could become reinforcement mechanisms in government power. As is reflected in her statement on the governance of the floating rate regime: "At

the same time as the markets almost entirely took over from governments the determination of exchange rates, the banks took over almost entirely the financing of Third World deficits (...) (STRANGE, 1988, p. 106, our emphasis).

In her most important works on global financial governance, such as *States and Markets*, *Mad Money and Casino Capitalism*, Strange recognizes the effects of U.S. suspension of the convertibility of dollar to gold as a reinforcement of the American state power. Nevertheless, the floating exchange rate regime that emerged in the aftermath of the breakdown of Bretton Woods is understood as a volatile and disordered one, in which greedy bankers and financiers are allowed by governments, specially the American government, to make bets in differentials of financial prices, prompting instability. Thus, no connection is made between the American power and the role markets and private agents play in the post-Bretton Woods system as a new form of global governance and as a possible reinforcement of the American power.

As it will be shown below, the problem of uncertainty towards exchange rates after the breakdown of Bretton Woods was managed by the markets, but with American government direct support, since that special management became the basis of the U.S. dollar hegemony and thus of American state power. Financial derivatives were the instruments created first by futures exchanges and then developed by banks to deal with high volatility levels affecting not only exchange rates in the 1970's, but also interest rates as well as commodity prices and credit risk in the 1980's. Those instruments, seen in general the in IPE literature as disruptive and speculative ones – a view resembling that of Strange – have otherwise become fundamental pieces in the governance of the global financial system and cannot be seen as only forms of betting.

It was Fischer Black²⁷ who first envisioned what the floating exchange rate regime should look like under the management of the market of what he first called *guarantees against risk*. Those would deal with the issue of volatile prices for exchange and interest rates as well as the risk accruing from credit default. Important in Black's

²⁷ Fischer Black was both a researcher and Professor in finance as well as a financial practitioner. He had a Bachelor of arts degree with a major in physics and a PhD in applied mathematics both from Harvard. He lectured both in MIT and Chicago University, mostly dealing with financial theory and its practical matters. In addition, he worked for big American banks like Wells Fargo and Goldman Sachs, in consulting projects on the development of financial contracts and new forms of financial management. By far his most important contribution was the development of a formula for pricing options together with Robert Merton and Myron Scholes. This enabled derivatives to be priced and allowed the development of new risk management techniques with these financial contracts (MERTON; SCHOLE, 1995).

view of what those guarantees could become is its effect over the order and governance of the international financial market.

2.3. Financial derivatives as pillars of U.S. dollar hegemony

For Beckert (2007) markets as any form of social institution need a set of norms, procedures and rules to operate accordingly (BECKERT, 2007). The international financial market from the Nixon to the Volcker shock showed extreme volatility levels in exchanges and interest rates as well as in the levels of credit risk, highlighting not only an overall instability in the international financial system, but also an issue of inappropriate institutional function. For Merhling a market becomes operable when it is liquid or in the author own words: “A liquid market is one in which an individual transaction does not disrupt the continuity of the market. More specifically, it is a market in which you can buy and sell (1) quickly, (2) in volume, (3) without moving the price much” (MEHRLING, 2016, p. 67).

For Fischer Black (1970), liquidity is connected to tradability, or the existence of a market for assets that can be sold on short notice. He argues that in a possible world of equilibrium where demand equals supply liquidity would not be an important variable affecting the expected return of assets, since all assets would have a market to be traded within. However, as he admits, the current world is not in a situation of equilibrium for institutional reasons. Black thus argues that it is necessary to investigate the fundamentals of asset liquidity (BLACK, 1970).

Based on Black’s assumption Mehrling goes furthering in stating that:

“All of microeconomics revolves around the idea that suppliers and demanders are trying to find the optimal supplies and demands *given* the market price. They never consider whether they will actually be able to complete desired trades at that price” (MEHRLING, 2016, p. 67).

In fact, this is all market liquidity is about – granting that transactions can be made at particular moment, for a particular price. Hence, it is the main rule under which a market becomes operable, challenging the Walrasian notion of the market institution being formed by the match of bids and asks without concerns for the particular conditions of pricing and timing along the transaction.

Moving with Fischer Black, the author states that financial assets have two separated functions: they serve as a store of wealth and they transfer risk from one person to another. He illustrates that through the example of dealers of government bonds. Dealers hold millions worth of government bonds in their portfolio, but the funds are

almost entirely from banks and other financial institutions. They bear the risk of fluctuations in the prices of bonds, but they provide just a small part of the funds. Thus, when a dealer sells a government bond to another, he is just transferring risk because there is no change in the situation of funds (money investment) that still comes from banks. Therefore, besides transferring risk, financial assets transfer cashflow payments between parties that are willing to store their wealth in the form of assets (BLACK, 1970).

Based in the above statement, Fischer Black argues that considering a corporate bond, there is no theoretical reason why a financial institution should not guarantee the payment of interest and principal in exchange for a fee that would reflect the market risk of the corporation's possibility of default on the bond expected returns. In other words, the fee would be as high as the default risk. Such a bond would be then, from the investor point of view, free of that kind of risk. Since in a situation of corporation's default over its bond, the bond buyer would have principal and returns paid back by the financial institution offering credit risk guarantees²⁸.

The author argues that it is important to notice that such a guarantee is totally independent from the trade of the bond. Cashflows between the bond holder and the bond buyer would still happen without affecting the guarantee and vice-versa. Since the guarantee is a financial contract different of the bond itself. Clearly, the risk of default of the bond and the changes in the fortune of the issuer will affect the terms in which the guarantee can be transferred. Or in other words, will affect the costs of the dealer of guarantees and thus will affect the fee charged on it. As a result, it will have an impact over its spread. Nevertheless, those factors will not affect the trade of the bond itself neither the spreads of bond dealers.

Mehrling extends the thought of Fischer Black by arguing that the exchange of the asset risk of default between parties is just as those parties were exchanging the risk of long-term corporate bonds by the risk of sovereign bonds. The latter in practice do not carry any risk of default, since a government able to issue its own debt will never default on it whenever it is denominated in its own national currency²⁹ (MEHRLING, 2011). This can be viewed in following formula³⁰:

²⁸ Just like how a CDS works, as seen in chapter 1.

²⁹ For more of this view see Norloff (2014).

³⁰ This and the subsequent formulas are an adaption of the reflections of Mehrling (2011; 2016) on derivatives.

Value of a Corporate Bond + Value of insurance against credit default risk = Value of a Sovereign Bond (risk-free asset in terms of credit default)³¹



Credit default derivatives

The above formula means that if a derivative is used to mitigate the default risks incurring in any corporate bond, it becomes as risk-free as a sovereign bond in terms of credit risk.

For Mehrling (2011), the financial instrument that will exactly match that operation is the Credit Default Swap, which is no less than a swap of IOU's³². In that transaction the party holding the long-term corporate bond promises to pay the counterparty – the sovereign bond holder – the same payments the corporation makes on its bonds in case of default, while the counterparty promises to make the party the same payments the government pays on its sovereign bond. As returns on long-term corporate bonds are usually higher than returns on sovereign bonds, the party ends up paying net payments to the government bond holder; which is for Mehrling the price for having its corporate bond insured, or as Fischer Black would put it, the price of the guarantee that is being given to him.³³

Fischer Black does not develop in his 1970 essay a view of how a dealer of guarantees could offer a guarantee for the exchange rate risk an asset maybe subjected and neither does Mehrling. However, based on their reasoning it is possible to envision that the dealer of guarantees would safeguard the bond holder against any exchange rate fluctuation in return for a fee. Again, exchange rate guarantees would be traded independently from spot markets and the exchange rate risk would set the price of guarantees charged. This operation would be just like exchanging a sovereign bond for a Treasury bond or T-bond (American government public debt bond), since as the sovereign bond is denominated in a currency other than U.S. dollars it is subjected to exchange rate fluctuations. Notwithstanding, the U.S. government bonds are not


³¹ When denominated in a currency that is issued by the government whose bond is related.

³² An IOU (I owe you) is the same a debt declaration. There is an infinity of derivatives contracts and the way transactions are operated vary largely. We are choosing Mehrling's swaps examples (the mentioned above and the other that follow) because the author has been able to simplify the explanation of this kind of transaction to a lay person.

³³ As it was seen in chapter 1, the settlement process of CDS is slightly complex than the one presented by Mehrling. However, his simplification focus on the fact that CDS are insurances against credit risk, which is our concern here.

subjected to exchange rate risk because they are the pattern to which all other currencies value themselves. As can be seen in the following formula:

$$\text{Value of a Sovereign Bond} + \text{Value of guarantee against exchange rate risk} = \text{Value of a T-bond}$$



Foreign exchange derivatives


The above formula means that if a derivative is used to mitigate the exchange rate risk incurring on a sovereign bond it becomes as risk-free as a T-bond in terms of foreign exchange risk.

Similarly, the dealer of guarantees could offer, in exchange for a fee, a guarantee over the price fluctuations of a bond's return. Any bond has returns tied to interest rates. The bonds whose returns are tied to fixed interest rates are subjected to the risk that the overall interest rates are either higher or lower than the interest rates agreed by the bond holder at the time of taking on the position. The dealer of guarantees, then, could offer the bond holder a guarantee over the interest rate fluctuations related to its bond. Indeed, by doing so the dealer of guarantees is rendering the bond holder an interest rate risk-free bond. He would do so by offsetting the variations between the fixed interest rate and the overall interest rate along the maturity period. For that, the bond holder would pay, for a given term, cashflows in fixed interest rate and receive from the dealer of guarantees cashflows payments based in floating interest rate. Again, changes in interest rates would not affect the trade of the bond by the bond holder, they would instead only affect the risk levels the guarantee dealer would be bearing.

Mehrling (2011) explains how that would happen. For him, when parties exchange the interest rate risk it is the same as if they were exchanging a long-term corporate bond, a sovereign bond or a T-bond, which are more subjected to interest rate risk due to a longer maturity, to Treasury Bills, or T-bills (American short-term government bonds) that are less subject to interest rate risk because of a shorter maturity. For the author, the instrument that perfectly matches that exchange of an asset's interest rate risk is the interest rate swap. In this transaction, the party holding T-bonds, sovereign bonds or corporate bonds makes payments based on the fixed interest rates those bonds pay to him and receive payments from his counterparty, based on the floating interest rate for

different periods along the life of contract³⁴. In this case, any variation between the fixed interest rate and the overall interest rate along the maturity is offset by the floating interest rate that actually follows the trajectory of the overall interest rate, rendering the bond holder an asset free of interest-rate risk (MEHRLING, 2011). As it can be seen in the following formula:

$$\text{Value of a T-bond} + \text{Value of a guarantee against interest rate risk} = \text{Value of a T-bill}$$



Interest rate derivative

The above formula means that if a derivative is used to mitigate the interest rate risk incurring on a T-bond it becomes as risk-free as a T-bill in terms of interest.

As a result, the guarantees Fischer Black assigns and Mehrling exemplifies in his formulas are in fact, in a general sense, the usage of derivatives to mitigate these three fundamental risks in the global financial system – default risk, interest rate risk and foreign exchange rate risk. By that, it is possible to observe that liquidity has been granted to the main financial risks incurring in the post-Bretton Woods financial system and as a consequence it was possible to produce virtually risk-free assets. Merhling formulas are based on Fischer Black's approach to guarantees against risk to evidence what derivatives are capable to do in financial terms. It is possible to generalize the above sub-division of three main risks into one formula expressing the effects of derivatives' risk mitigation in the promotion of risk-free assets to the financial system as a whole. According to the author, the value of a risky asset in addition to the value of insurance³⁵ on risky an asset equals the value of a risk-free asset.

³⁴ Just like in the case a of plain vanilla interest rate swap, as seen in chapter 1. One of the parties pays a fixed interest rate and for specific periods, say six months, and receives payments based on the price of standard rate – could be LIBOR, could be the Federal Funds rate – the day before payments are due. So, the party that is paying fixed rates will receive payments based on the price last six-month interest rate of LIBOR or Federal Funds rate, etc. The process is repeated in all the payment periods throughout the life of contract. The fact that there is no interest rate risk in plain vanilla swaps is because the agent that is paying fixed rates receives cashflows paid in the overall floating rates, which variation affect their returns if they are not hedged with an interest rate swap.

³⁵ Insurance on risk and guarantees against risk are interchangeable names Mehrling and Black respectively use to refer to derivatives.

Value of a risky asset + Value of insurance on risky asset = Value of risk-free asset³⁶

What are the implications of the Fischer Black and Mehrling approach then? As Torres Filho highlights, from the microeconomic point of view, derivatives have marketed and distributed risks amongst investors, by offering an insurance against undesired movements in prices and cash flows to risk-averse agents and a bet in profitable opportunities of future price movements to risk-prone agents. Lubochinsky goes further in saying that derivatives have created a market for financial risk and thus, at least in theory, have priced assets and rates according to their risks. For the author, each class of derivatives performs a fundamental microeconomic function: futures price spot market, options render investment position cheaper and swaps allow for the best allocation of resources in accordance with arbitrage costs. As those instruments have granted taking on positions with safety, easiness and low cost, they have attracted investors increasing their capacity of leverage, have widened market liquidity in general and have boomed transaction turnover. As they cover a vast range of underlying assets, they have become fundamental in the process of portfolio diversification, rendering markets more complete and triggering financial globalization (TORRES FILHO, 2014; LUBOCHISNKY, 1993).

Nevertheless, derivatives do not only have implications for the strict universe of microeconomic finance. They also have a global macroeconomic and political impact which the literature on derivatives, both on economics and finance and even in international political economy, has not been able to grasp. Neither the literature that is concerned with the financial techniques of derivatives and their potentials in pricing risk, nor the literature concerned with the systemic risks evolved in derivatives markets and not even the literature that explores the political aspects of derivatives regulation has focused on the implications of the evolution of financial derivatives from the 1970's onward for the governance of the global financial system and its relation with the American financial power.

Fischer Black and Merhling also do not consider in their analysis the implications of derivatives development on American power. Nevertheless, an attentive observation of Mehrling general formula for derivatives' risk management shows that *by using derivatives to manage the most fundamental risks, in the Post-Bretton Woods global*

³⁶ Alternatively to value, Mehrling (2016) also writes down this formula considering yields of assets and insurance against risk, but both terms are interchangeable with prejudice in meaning.

economy any asset becomes comparable, in terms of risk, to the American short-term public debt which is a virtually risk-free asset.

What the formula shows is not trivial in terms of power. Derivatives have reinforced the central position of the U.S. dollar³⁷ after the fall of Bretton Woods by maintaining it as the parameter to which all currencies, interest rates and assets can manage and price their risks. With derivatives acting as financial risk guarantees, a process of risk commensuration was allowed to take place.

According to Bryan and Rafferty risk commensuration is the establishment of “pricing relationships that readily convert (we use the term ‘commensurate’) different forms of asset” and “(make [them] transmutable) among themselves (BRYAN; RAFFERTY, 2006, p. 12 and p. 49). To make the language in the passage clearer, we can restate that the risk commensuration effect prompted by derivatives is allowing different assets with different risk natures to be readily comparable and priceable. This helps to mitigate the discontinuities across time and space in the value of assets, since with derivatives their risks can be compared and priced against a single standard asset which is the U.S. Treasury Bills. That in turn facilitates risk management and transactional flows as well as maintains the centrality of U.S. dollars for the global financial system. Therefore, financial derivatives are fundamental instruments of governance for global finance. It is possible to observe that in table 4.

Asset value	Risk to be mitigated	Derivatives	Risk-free asset
Vale Corporation bond	Credit Default Risk	Credit Default Derivatives	(As if it was) Sovereign Bond
Sovereign Bond	Exchange rate risk	Foreign Exchange Derivatives	(As if it was) T-bond
T-bond	Interest rate risk	Interest rate derivatives	(As if it was) T-bill

Table 4: derivatives mitigation of Vale corporation bond’s risks. Adapted from Mehrling, 2011.

³⁷ Despite the fact that the Merhling formula presents U.S. Treasury Bills as the parameter for managing risks, as U.S. dollar as a currency and as public debts are readily interchangeable – due to the high liquidity of markets for American public debts – we refer to the reinforcement of U.S. public debts centrality, caused by derivatives, as the same as process as the reinforcement of the U.S. dollar hegemony.

Take a Vale bond, a Brazilian mining multinational, traded in São Paulo capital markets. It seems very risky for an international investor. Since the levels of information regarding developing countries companies' performances are not as readily available as developed countries' companies. In addition, developing economies are more prone to upsides and downs, what increases risk levels in emerging capital markets. As a solution for managing these high levels of risk, the international investor can undertake credit default derivatives to render the Vale bond as risk free *as if it was* a Brazilian government bond, with principal and coupons paid in Brazilian real.

However, the international investor still faces the risk that the Brazilian real appreciates, harming his returns. For that purpose, he can use a foreign exchange derivative to lock the future price of Brazilian real against U.S. dollars and preserve returns as he expected. Making this his Vale Corporation bond that is now, with the management of credit risk derivatives, as risk free as Brazilian government bonds **it** can become as free of risk as American T-bonds when foreign exchange derivatives are used over this Vale Corporation bond already insured against credit default risk.

Still, as the Brazilian economy may face ups and downs, the Brazilian central bank may lower interest rates to boost economic activity, again harming the international investor's returns if he took on a bond paying coupons in floating interest rates. To manage this kind of risk the investor can take on an interest rate derivative, like a plain vanilla swap, that would pay him floating rates in similar levels as he took on the bond. Now the Vale corporation bond, which is already insured against credit default and exchange rate risk, with the management of interest rate derivatives becomes as risk-free as the most risk-free asset in the global financial system – the U.S. Treasury Bill, since now credit default, exchange rate and interest rate risk are all insured against risk.

What is the implication of the usage of derivatives' risk mitigation in the above example? It results that an international investor can take on positions in emerging capital markets³⁸ *as if they were* investing in the American capital markets. Derivatives can thus compare and price, in terms of risk, virtually any asset against U.S. Treasury Bills, a fully risk-free asset in terms of interest rate, exchange rate and credit risk. So, in fact, financial derivatives were responsible for a commensuration of risk that has become the pillar for global capital integration and thus for financial globalization to take place. Those instruments allowed investors to move capital flows between developed and emerging

³⁸ Or even developed capital markets with assets not denominated in U.S. dollars.

capital markets as if they were investing in risk-free American government assets. For, even though, assets in the global financial system were not dollar-denominated and carried different risk natures, derivatives rendered them as risk-free as American government assets.

To show the political effect of derivatives management with impact in the operation of the global financial system and the resilience of American power and U.S. dollar hegemony we rewrite the Mehrling's general formula for derivatives:

Value of a risky asset + Value of insurance on risky asset = Value of risk-free asset

Into one that can highlight derivatives management as an instrument of governance for the American state:

Value of a Vale Corporation bond = Value of a U.S. Treasury Bill + Value of a Credit Default Derivatives + Value of a Foreign Exchange Derivatives + Value of an Interest Rate Derivatives

U.S. Treasury Bills centrality in the global financial system allowed for any other assets to be compared and priced according to it, whenever derivatives are used to mitigate its inherent and associated risks. It is because any asset can be compared and priced against U.S. Treasury Bills that any asset is readily comparable and priced against any other³⁹. This is the idea of commensurability enhanced by derivatives: those instruments interconnect different asset in different markets all over the world.

Financial derivatives markets operate along a similar principle as currency markets. Within currency markets, with a few exceptions among the trade of major currencies, it is not possible to trade national currencies per national currencies. The trade must be made from national currencies to U.S. dollars and then to national currencies again. That is what makes U.S. dollar the standard unit of account in the global monetary system: the unit all others must be priced into in order to be valued against each other. With financial derivatives, any asset has its risks priced against a standard risk-free asset, the U.S. Treasury Bills, that then allows different risk natures to be parametrized and commensurated against each other and thus traded, allowing the global asset markets to

³⁹ The comparison and precification in terms of risk between any asset into U.S. Treasury Bills is not perfect. Hence, the above equation cannot be seen as an equilibrium equation. It is expected that the cost of a derivative contract to be the difference between the returns of U.S. Treasury Bills and the asset at stake, being any misalignment corrected by market arbitrators.

work in almost the same way global currency markets: with interchangeability made by a single standard.

Assets with the same risk-free attributes of U.S. Treasury Bills are readily traded by each other because they have one standard asset to be compared with and that is why sacks of soy from Brazil can be comparable and priceable, in terms of risk, against American mortgage bonds. Or fixed interest rates loans from South Korea money markets can be comparable and priceable, in terms of risk, against the risk of default of a South African mining company bond. For their risks are comparable and priceable against U.S. Treasury Bills, making them comparable and priceable against each other, enhancing the relevance and liquidity of dollar-denominated markets.

The floating exchange rate regime imposed by the U.S. after the Nixon shock became operable as an integrated system, structuring the whole global risk management around the U.S. dollar and sustaining the resilience of its hegemony. Financial derivatives totally changed the governance of the international financial system for the post-Bretton Woods area. Operating in a different way than in the Bretton Woods years, those instruments replaced the guarantees the American state and their partners sustained under the Bretton Woods agreement – as the dollar to gold convertibility and the cooperation of international capital controls – and engendered macroeconomic autonomy for the U.S. to follow its monetary policy goals and boost the American financial system expansion.

Financial derivatives transformed the international monetary and financial system. The Bretton Woods arrangement was one with remarkable state control over finance, in which different national monetary and financial system were tied to the U.S. dollar with a fixed value. It was a system sustained by the guarantees of the American state, with convertibility of the dollar to gold and support for cooperation on international capital controls. That system completely changed into a global system in which public and private agents worldwide are linked to the American financial system through all different kinds of financial market segments denominated in U.S. dollars and whose guarantees for the price of asset are managed privately by derivatives market actors.

Important now is to recall Strange's view on financial structural power as the capacity of determining the norms of operation of exchange rate regimes as well as the access to money. Financial derivatives are, therefore, instruments of structural financial power because they have allowed the American state to change the rules and dynamics by which dollars and dollar denominated assets were priced during the Bretton Woods

system. Those instruments allowed the U.S. to change the norms and rules of operation that it had established itself for the international financial order, thus the U.S. did not have to resort to any kind of international cooperation (BARCELLOS, 2018).

The superpower restructuring of the global financial system started with an abrupt disruption with the breakdown of Bretton Woods. Derivatives, in the aftermath, came to be the fundamental instruments of the reorganizing of the international financial and monetary system in a way that reinforced American monetary autonomy and the governance powers of its markets. Furthermore, those instruments allowed agents to manage U.S. dollar and U.S. dollar denominated assets prices' variability, ordering the volatility of global financial system after the Breakdown of Bretton Woods.

By linking derivatives to Strange's structural power ideas, it possible to say that those instruments allowed the United States to manage the disorder of the volatility of the price of money and assets. Enhancing the flexibility by which agents can access money, and particularly dollars, by altering a system of fixed prices as it operated under Bretton Woods for a system of floating prices with insurances against risk. For allowing the change in the norms and operation of the global financial governance, derivatives are truly forms of structural financial power exercised in the intermingling of the American state and big American derivatives dealer banks.

Nevertheless, the statements raised on the relation between financial derivatives and the American power need to be understood historically in order to make sense. This is what the next chapter will explore: how financial derivatives became central instruments of operation for the post-Bretton Woods financial system and how financial structural power is effectively exercised through them.

Chapter 3. Derivatives in the post-Bretton Woods global financial system

This chapter assesses the fundamental role financial derivatives have played in the governance of the post-Bretton Woods global financial system. It starts in the first section by recalling the overall features of the Bretton Woods system in regards to exchange and interest rates as well as capital accounts. These variables outlined the structure of operation of the emerging international monetary system after World War II. The section then moves to the debates over the breakdown of Bretton Woods. The second section assess the operation of the post-Bretton Woods system in line with the recovery of American hegemony, which was harmed by the end of Bretton Woods, and the pressures of the global political economy. The section aims to show how the American restructuring engendered a new form of governance for the global monetary and financial system. The third and last section explores the role of financial derivatives in the restructuring of the American power and as a central instrument of the post-Bretton Woods global financial system.

3.1. The operation of the Bretton Woods system

The Bretton Woods agreement was an international conference led by the United States in the last year of the second World War (1944) that established the operative structure of the international monetary system upon the hegemony of the U.S. dollar. As investigated by Helleiner (1994), the most important factor influencing the general framework at that moment was the mindset of U.S. policy makers. Since the Great Depression in the United States, Keynesian-inspired policy makers took over the conduct of economic policy, favoring state intervention as a means to achieve economic growth. From this, states should be able to interfere and manage two of the most important macroeconomic variables – exchange and interest rates. Those variables are fundamental for determining prices of imports and exports as well as credit access, with impacts on investment and thus on output and growth. However, there are some conditions that must be fulfilled for states to autonomously manage those rates.

These conditions are given by the options available under the so-called monetary trilemma which states monetary policy makers must choose amongst free capital mobility, exchange rate management and independent monetary policy, with only two of the three possible at the same time. In line with that, American policy makers wanted to establish an international monetary system embedded in exchange rate management and

independent monetary policy, so as to provide macroeconomic autonomy for governments to pursue economic growth strategies. According to Krugman, Obstfeld and Melitz (2015), if a country fixes the exchange rate and restricts international financial flows, it is then able to change the home interest rate so as to influence the domestic economy and affect fundamental macroeconomic variables like credit, investment and inflation, for instance (KRUGMAN; OSBSTFELD, MELITZ, 2015, p. 245).

Choosing the multilateral option, another feature of the international liberal mindset of American policy makers, they decided to call upon countries to draft and sign the Articles of Agreement of the International Monetary Fund. An institution founded to help “design an international monetary system that would foster full employment and price stability while allowing individual countries to attain external balance without restrictions on international trade” (KRUGMAN; OBSTFELD, MELITZ, 2015, p. 254).

The fixed exchange rate system was enabled by the:

“multilateral organized convertible currency system predicated on fixed exchange rates in which one currency acted as the anchor and others were denominated of this anchor currency. The anchor currency was to be the U.S. dollar – fixed in terms of gold per at \$ 35 per ounce – with all other currencies linked to it. (...) It was multilateral because the central institution charged to make it work was the IMF” (GERMAIN, 2010, p. 48).

The fixed parity between dollar and gold was in fact one of the articles of agreement of IMF, meaning that the U.S. was imposing a discipline onto itself as a way to grant the face and real value of the world’s mean of payment, unit of account and stock of wealth: the U.S. dollar. For a country that by the end of World War II held by far greatest gold reserves in the world, that was not a challenging commitment. Countries should also follow the discipline of maintaining their national currencies fixed to dollar. Nevertheless, they would be granted exchange rate flexibility through the possibility of making valuations or devaluations in case of persistent imbalance-of-payments⁴⁰. In addition, the IMF would receive funds – both in national currencies and gold – to lend to countries facing imbalances. The only exception in this flexible mechanism of adjustable rates was the U.S. dollar, which should always maintain its fixed parity with gold. The reason why the pegged adjustable exchange rate system would work was because of international cooperation on capital controls. Led by the U.S., capital controls on outflows

⁴⁰ Imbalances-of-payments is the condition of a country in running surplus or deficits in foreign currency. In the case of Bretton Woods system, regarding certain conditions, countries in imbalances-of-payment could depreciate or appreciate their currencies in order to restore balance-of-payment equilibrium.

and Europe's controls both inflows and outflows of capital, isolated countries from the instabilities generated by short-term speculative capital (HELLEINER, 1994).

The international financial system under fixed exchange rates and capital controls could achieve price stability. This was supposed to pave the way to international trade, understood as the element which would lead to global economic growth and peace among nations, according to the international liberal tradition in vogue in American foreign economic policy at that time⁴¹. Notwithstanding, international trade would be stalled if currencies were not convertible, meaning they could not be freely, or with few restrictions, be exchanged one by the other. In fact, until the end of 1958 in Europe and 1964 in Japan convertibility was not restored. Due to a shortage of dollars – which had become the hegemonic currency for trade, the one all agents should have in order to participate in international exchanges – countries resorted to currency controls in order to preserve their balance of payments positions (GERMAIN, 2010).

This means that the Bretton Woods system did not work as it was expected in its foundation. What allowed convertibility to be reached by countries facing a dollar shortage? According to Konnings, it was the American injection of liquidity in the world: mainly through U.S. government financial aid for allies (Marshall Plan as the great example), but also through foreign direct investment from U.S. multinational firms, U.S. commercial deficits (through allowing allies to resort to dumping practices, for instance), and credit from American private banks, through the hegemonic position of the New York financial markets. Another important point highlighted by Konnings was the fact that currency and capital controls were possible up to the 1960's because international finance was subdued to the free trade order, to the extent it only existed to favor international trade, based upon bills of exchange and similar instruments (KONINGS, 2011).

The injection of U.S. dollar liquidity into the global economy produced paradoxical effects to the Bretton Woods system according to Triffin. The convertibility between the dollar and gold brought about an inconsistency. The growth of international trade required the growth of international reserves. As the increase in gold supply lagged way behind international economic growth, the metal became inadequate as an international reserve. Instead, countries should hold dollars as reserves. Nonetheless, for the global reserves in dollars to rise, the United States must be increasing balance-of-

⁴¹ The American liberal tradition in foreign policy favored a directed engagement of the United States in taking part of global governance, especially in economic matters. For a full account of this policy-making mindset see Barcellos (2018).

payments deficits, which would in its turn press the confidence of agents in the capacity of the superpower to maintain the fixed parity between dollar and gold. That is where the so-called Triffin dilemma comes from: If the United States kept growing its deficits, the parity between dollar and gold – the most fundamental pillar of the Bretton Woods system – would be menaced. On the other hand, however, the global economy is dependent of continuous liquidity in dollars to finance trade and growth. The way out for Triffin was a multilateral coordination for substituting the usage of dollars for an international currency not backed by a singular state (TRIFFIN, 1960, 1979, *apud* SERRANO, 2003).

On the other side, the emergence of the Euromarkets in the city of London as offshore, unregulated markets allowed American financial institutions to find a new harbor to escape from strict American financial regulations. As a result, capital outflows directed to London pressed even more the American deficit. Speculative attacks on gold against the dollar became, then, a market response to the growing gap between American reserves of gold and holdings of U.S. dollar abroad (TAVARES, 1997).

Essentially diverging from Triffin, Kindleberger views American deficits not as a paradox, but rather as the only way the global economy can thrive. He argues that the outflow of U.S. capital and aid has, on the one hand, supplied the world with goods and services while, on the other hand, has provided the world with financial intermediary services. These financial services, “extending loans to foreigners [that] are offset by foreigners putting their own money into liquid dollar assets” (DESPRES, KINDLEBERGER, SALANT, 1966, p. 43), have granted access to loans and liquidity to foreign dollar holders.

For Kindleberger, the lack of confidence in the dollar was the result of government officials, central bankers, academic economists and journalists downgrading the position of greenbacks. Notwithstanding, this is an exhibition of incomprehensiveness of the financial intermediary services’ position the U.S. holds, which is reflected in speculation of gold against dollar. Even so, this misunderstanding about the role of the dollar does not reflect a weakness of the currency per se, as shown by the increases in private holdings of liquid dollar assets throughout the 1950’s and 1960’s, as the author argues. For Kindleberger, imposing adjustment into the U.S. economy would cut international capital flows needed for investment into the world economy.

He highlights the importance of the international private capital market, which can also be understood as the American financial system, as the source of liquidity for savers and borrowers’ assets and liabilities at home and abroad. For him, the U.S. deficits are

not the deficits of a trading country in which foreign liabilities exceeds foreign revenues. For the role of the dollar as a hegemonic currency makes the U.S. resemble a bank when it lends long and borrow short, since it is being paid to give up liquidity. As a bank, when it gives a loan and enters a deposit on its books, the United States is no longer in deficit when money outflows from its borders, for it will inflow back paying interest (IBID., p. 44).

In this sense the United States was not taking advantage of seigniorage gains when the FED and the American banks started to issue the international currency in levels bearing the same size of the American deficit, as Triffin argued. Instead, it was providing liquidity and being paid for it at market-based interest rate levels. However, Serrano counters Kindleberger. He argues that the financial services the U.S. provides to the world are not similar to a simple commercial bank being paid and paying market-based interest rates; rather these services are similar to those of a central bank that issues the international currency and settles the international interest rate unilaterally (SERRANO, 2003).

Kindleberger goes further in arguing that if a bank undergoes sound policies, but the agents keep on insisting that they need alternatives means of payment, rather than ones the bank deals with and they are unwilling to hold financial assets within the bank; the lender-of-last-resort responsible for that bank should make the alternatives means of payment less attractive in order to settle down an agent's irrationality. In this sense, if the U.S. government as a bank has managed accordingly the U.S. dollar pursuant to the sound policies of financial intermediary services it undertakes, so its lender-of-last-resort – the FED – should make gold unattractive in order for agents to solely use the money the U.S. government issues.

This was in fact the option pursued by the American government after Kennedy and Lyndon Johnson's failed attempts to save the dollar-gold system⁴². Policy makers in the Nixon government reached consensus towards the fact that sustaining the parity between dollar and gold was a constraint for the American autonomy. Torres Filho, in accordance with Kindleberger, defends the view that the instability in gold markets due to the speculative attacks against the dollar did not show a weakness of the dollar hegemony. Once it was not out of the control of the American government. The United

⁴² For a view on how monetary policies were undertaken in Kennedy and Lyndon Johnson's administrations in order to save the Bretton Woods system see Aguiar (2016).

States had some options like devaluing the dollar, raising interest rates and intervening in gold markets. Nevertheless, by devaluing the dollar and coordinating together with other major economies, the adjustment of exchange rates to new levels were seen as a sign of weakness by the establishment. Raising interest rates to prompt a balance-of-payments adjustment with a federal budget contraction was not an option either, due to the military expenditures needed to fight the cold war. Neither option maintained a gold-defense policy, since it would only reinforce speculative attacks against the dollar (TORRES FILHO, 2018).

That is why on August 1971 the Nixon government suspended the convertibility of dollar to gold on a fixed basis and imposed a 10% import tariff into the American economy until a dollar devaluation in satisfactory levels would be reached. The dollar devaluation was long seen by the establishment as the way to recover American competitiveness in tradable goods. The decision freed the U.S. dollar from the gold discipline and, as Kindleberger predicted in 1966, opened the space for a massive expansion of U.S. dollar liquidity into the world. As can be seen in Table 5.

THE INFLATIONARY EXPLOSION OF INTERNATIONAL LIQUIDITY
(dollar figures in billions)

	End of 1969	End of 1972	End of 1977	Mid- 1978	Mid-1978 in % of 1969
Foreign dollar claims	\$ 78	\$146	\$363	\$373	478
On U.S. government and banks	49	85	210	221	451
On foreign branches of U.S. banks	29	61	153	152	524
International monetary reserves	79	159	319	330	418
Foreign exchange	33	104	244	256	776
Dollars and Eurodollars	20	81	197		985
Other currencies	7	15	27		386
Other	7	8	22		314
Other ^a	46	55	75	75	163
Commercial-bank foreign liabilities	121	217	658	700	579
In dollars and Eurodollars	94	157	481		512
In other currencies	27	60	177		656

Table 5: International liquidity expansion from 1969 to 1978. Source: Triffin, 1979).
Other = World monetary gold, SDR allocations, and IMF loans and investments.

Foreign dollar claims, international monetary reserves and commercial-bank foreign liabilities, the last two measured in terms of U.S., were the variables Triffin used to picture the expansion in liquidity in U.S. in the international financial system. Numbers impressively doubled for each of these three variables from the beginning to the end of the 1970's. The expansion of liquidity of the hegemonic international currency meant an

escalation of global economic activity as well as in the price of assets due respectively to the growth of American economy and the expansion in U.S. dollar offshore markets. In fact, the liquidity expansion was boosted by the end of external restrictions in the U.S. balance-of-payments that were imposed by the gold-dollar convertibility. In the words of Serrano:

“[With the end of the fixed parity between dollar and gold] the USA can incur in permanent deficits on the current account without any concern about the fact that their net external liabilities may be increasing, for these ‘external’ liabilities are denominated in the American currency and not convertible on anything else” (SERRANO, 2003, p. 99).

3.2. The post-Bretton Woods system: the floating dollar standard

The American action of putting an end to the convertibility of the dollar to gold completely changed the governance structure of the international monetary system. Having no longer a fixed value, foreign exchange markets would determine the price of any national currency towards the U.S. dollar. The dollar would be by then, with the absence of gold, the single standard to which all national currencies would be priced. What led Serrano (2003) to state that the post-Bretton Woods system is the floating dollar standard system. By that Serrano indicates that the floating value of the dollar is the discipline to which all agents in the monetary system must abide to. The flexibility at issue, otherwise, is that of U.S. in determining the means of expansion of its monetary basis without the gold and capital accounts constraints of Bretton Woods (SERRANO, 2003).

In 1974 the American government put an end to its capital control arrangements, disrupting the international cooperation for capital controls that could not thrive without American support. Major countries had to follow the American lead and liberalize capital accounts, or loosen regulation and taxes that blocked the movements of capital flows in and out of the country. As Helleiner explains, because the United States has the deepest and most liquid market in the world, when it fully liberalized its capital accounts it made global capital movements flow back to the U.S., posing balance-of-payments constraints to other economies and forcing developed countries to open capital accounts in order to try to compete for global capital flows (HELLEINER, 1994).

The liberalization of capital accounts and the huge increase in international financial flows impeded states to fix the exchange rate levels as before. With the demise of Bretton Woods, central bank capacity of intervention in currency markets to maintain floating exchange rates within a narrow range was severely impaired. Largely due to

speculative capital flows, increased by capital accounts liberalization that would often impact exchange rates. That means the price of a national currency either today or in the future was not certain towards the U.S. dollar, since currency prices after Bretton Woods were totally determined by supply and demand in which private agents – mostly the emerging globally active financial institutions – and to some extent governments, through monetary policy intervention, would set bid and ask prices. As uncertainty became the fundamental feature of the global economy after the breakdown of Bretton Woods it was continuously reflected in exchange rate levels (HELLEINER, 1994; TAVARES, 1997).

Uncertainty was aggravated by numerous factors: the inflation hike in the price of commodities, especially in oil prices; the worsening of competitive pressures among capitalist powers; the political crisis into the periphery of the international system of states; the profit squeeze and stagflation. All these factors led to the generalization of uncertainties for the capitalist venture and prompted volatility in financial prices like exchange and interest rates, commodities, and equities (GINDIN; PANITCH, 2012).

The U.S. itself was facing serious challenges and pressures, which led to the discourse of the end of American hegemony among academics. Fiori analyzes that in the 1960's the U.S. was not successfully handling the communist expansion, as it could be seen in Cuba or Vietnam. Its economic partners had become aggressive market competitors like Germany and Japan. Military costs were skyrocketing and the G-77's developing and less developed nations pressures to be favored on commerce had been showing to be contrary to American national interests (FIORI, 2001). Further, the foundation of OPEC and the transfer of bargaining powers in setting oil prices from American multinationals and the U.S. government to OPEC countries also seemed to put a stress test into the U.S. hegemony (GILPIN, 2000).

The inflation hike especially raised interest rate instability because agents started to demand higher yields from major economies' government bonds in face of political and economic uncertainty. That way, the two most important price determiners, the exchange and interest rates, were under strong uncertainties, stressing the volatility levels in the international economy. At the time of the Latin American and East European debt crisis in late 1970's, the international monetary and financial system underwent a serious rise in default, aggravating credit risk and causing some analysts to define the period between the 1970's and 1980's as a non-system in the international monetary arena (McKINNON, 1993; TAVARES, 1997).

Again, in line with the monetary policy trilemma, countries in the post-Bretton Woods system that submitted to a floating exchange rate regime and capital mobility could no longer undertake an autonomous monetary policy that would gear towards domestic growth rates. Monetary policy would rather become independent. Schwartz explains in general lines this new feature:

“(…) monetary policy no longer acted directly on the whole economy once capital controls were removed and exchange rates floated. In the contemporary period, monetary policy in most countries can be used to speed up or slow down the economy only through its effects on the traded sector of the economy, rather than directly as under the Bretton Woods system (...). An effort to lower inflation by raising interest rates in the context of free capital mobility would draw in foreign capital seeking high returns. As investors exchanged foreign currency for local currency to make their investment, the local currency would appreciate relative to foreign currencies. A rising currency would then price local exporters out of world markets; as demand for exports fell, exporters would reduce investment and lay off workers. Similarly, a rising currency would also make imports cheaper, leading import-competing firms to reduce levels of investment and hiring. These investments and wage reductions in the traded sectors of the economy would then lower inflationary pressures. (SCHWARTZ, 1994, p. 209).

Monetary police would then be geared towards fighting inflation due to the inflation hike in the price of commodities, especially in oil prices, but also agricultural products. Interest rates that were seen in the Bretton Woods period a means of boosting economic growth and control minor inflation uptrends, became as of the 1970's a fundamental way of promoting structural adjustments both to fight inflation, reduce credit access and refrain government expenditure; while on the other hand favoring speculative capital to take advantage of opportunities opened by volatility. Likewise, governments no longer set interest rates autonomously once they had to respond to international capital movements.

However, the adjustment of the world economy did not mean the adjustment of the U.S. economy. The defense of a floating exchange regime by the U.S. is seen by Helleiner as a way to compel the world to adjust to the ever-expanding American deficit, accentuated in the 1970's with the emerging flexible dollar standard. As in the words of Torres Filho: “in a system of floating exchange rates without the intermediation of international mechanisms rather than the market, private capital pressure to currency appreciation would force governments to undertake adjustment measures” (TORRES FILHO, 2014, p. 436, our translation).

There was, however, a threshold in the American capacity of making the world comply with its monetary expansion. Indeed, this expansion was only taking place at such

a pace because it had been supported by surplus countries' holdings of U.S. dollars. They were doing so for two essential reasons – either they did not want a dollar devaluation because it would harm their exports, as in the case of Germany and Japan. Or they had most of their revenues and assets denominated in dollars, as OPEC countries. Those surplus countries supported the dollar by holding both public and private dollar denominated debts under the condition they would receive above-inflation returns and the currency value would not deteriorate along maturity terms.

Notwithstanding, by the end of the 1970's negative real interest rates due to the inflation hikes of the period changed the perception of foreign holders of dollar-denominated assets. They started to lose confidence in the American commitment to preserve the value and returns of their assets, making them threaten to abandon the dollar in 1978 and provoke the dollar crisis. As Helleiner emphasizes:

“With no sign that the United States was going to reduce its growing external deficit and curb domestic inflation, foreigners began to lose confidence in the dollar. Saudi Arabi began to sell its dollar reserves and warned of an oil price increase if the dollar's depreciation continued. [While] West European governments signaled their dissatisfaction with U.S. unilateralism by beginning negotiations that led to the creation of the European Monetary system (EMS) (...) Most important there was an enormous flight from the dollar in the increasingly powerful global financial markets” (HELLEINER, 1994, pp. 131-132).

American response to that challenge was the 1979 Volcker shock which dramatically increased interest rates and tightened the monetary basis, tackling inflation and recovering the confidence in the dollar. This action was fundamental in putting an end in the disorder of 1970's non-system, by making international capital flow back to American financial markets and spur subsequent capital accounts liberalizations in major countries at the fear of flight of capital to the more liquid, deeper, and freer American financial market. Indeed, major countries underwent reforms in securities markets so as to develop more attractive markets in terms of regulation, taxes and infrastructure in order to attain larger shares of global capital (HELLEINER, 1994; UNDERHILL, 1995).

Barcellos (2018) highlights that, for Helleiner, the Volcker shock was a market operation to restore American commitment to monetary confidence in the face of American inflation and the devalued dollar, but it was not really threatened by any other currency, since the dollar was the currency promoting the globalization of the monetary and financial international system. This means the dollar was unique in promoting financial market integration and the world's financial transactions. As Walter highlights,

by the time of the Volcker shock, the dollar was already consolidated as the main financial currency:

[T]hough volatility has increased the exchange risk of holding dollar assets as a store of value, the high liquidity of dollar markets, the broad range of dollar instruments and the low transaction costs in dollar markets ensure that it remains the main transactions and denominations currency in financial markets (WALTER, 1998, p. 201).

According to Serrano, with the Volcker shock the U.S. put inflation under control and progressively got rid of any doubts about its geopolitical leadership, thereby allowing the superpower to regain control over the monetary and financial international system. Important to consider after the Volcker shock is the role played by the federal funds rate, the American overall interest rate. With inflation under control and confidence in greenbacks restored, the U.S. truly became the world central bank, setting the international interest rate for the global financial system as whole and subsuming overall central bank and financial market interest rates to federal funds rate movements (SERRANO, 2003, p. 98).

The next step then was to reorganize the foreign exchange rate regime. The first attempts were in the 1970's in the Smithsonian (1973) and the Bonn (1977) meetings in which the U.S. tried to cooperate with its main allies (Germany, France and Japan) – in most ways through *ad hoc* agreements – on currency appreciation or depreciation and on establishing exchange rate bands. This cooperation was badly needed once currency misalignments between the dollar and major currencies provoked speculative movements or reduced competitiveness in exports among major powers. In fact, it was only after the Plaza (1985) and Louvre meetings (1987) in the mid-1980's that central banks could stop direct support of the dollar and the floating exchange rate regime could operate on the basis of market management. Central to that process was the emergence and consolidation of OTC derivatives markets in the mid-1980's, managing great amounts of foreign exchange rate as well as interest rate risk. Amounts which would skyrocket in the late 1980's and through the 1990's as data in chapter 1 showed (EICHENGREEN, 1998).

The consolidation of OTC derivatives markets in the 1980's was linked to the consolidation in the disintermediation trends banks underwent. The traditional role of banking institutions is to receive deposits in shorter terms and to lend money in longer terms, paying lower interest rates for deposits than the ones charged over loans and as such profiting in what is called banking spread. However, interest rate ceilings in the U.S. in the 1970's and 1980's affected bank's capacity to offer competitive interest rates on

deposits, when non-bank financial institutions started to offer higher interest rates, attracting deposits and stressing banks' liquidity. Under fierce competition, banks had to change its portfolio management strategy: instead of managing assets on a given liability structure, banks started to take on profitable asset opportunities first and then looked for the funds needed to match their positions. This was possible due to the rise of money-markets⁴³ which pumped necessary liquidity for bank positions. As money markets increased the availability of capital for banks, they could engage in riskier investments since they could invest now not only with their own capital but also with credit at their disposal, a process called leverage (KONINGS, 2011).

Another factor reinforcing the disintermediation trend in the banking sector was the change in the financial behavior of corporations. Rather than resorting to banks, corporations simply issued bonds by their own Treasury departments and started to use IPO⁴⁴ launching as forms of funding and financing. Banks, in turn, instead of traditional loans used securitization techniques which consisted in the transfer of rights over debt amortization and interest rate payments of debt contracts to securities that can be traded in capital markets. Securities and derivatives became the big business of the largest American banks. By the 1980's, acting as dealers of assets, they enhanced the liquidity of financial markets, as it will be argued next chapter. As a result of new financial instruments and new asset and management liability techniques, capital market turnover skyrocketed as of the 1980's, but particularly during the 1990's (McKENZIE, 2011; TORRES FILHO, 2014, p. 438, our translation). Figure 12 shows this movement.

⁴³ Markets for short-term bonds. Those were the markets draining liquidity from banks, since they offered higher interest rates. With the change in portfolio management strategies, money-markets instead of banks' competitors became their source of financing assets' positions taken on.

⁴⁴ Initial public offering. Those are the first shares public companies launch in stock markets and the ones that when bought give the companies cash. Contrary to reselling the stocks in secondary markets that despite giving the owner rights over results, do not earn them any cash.

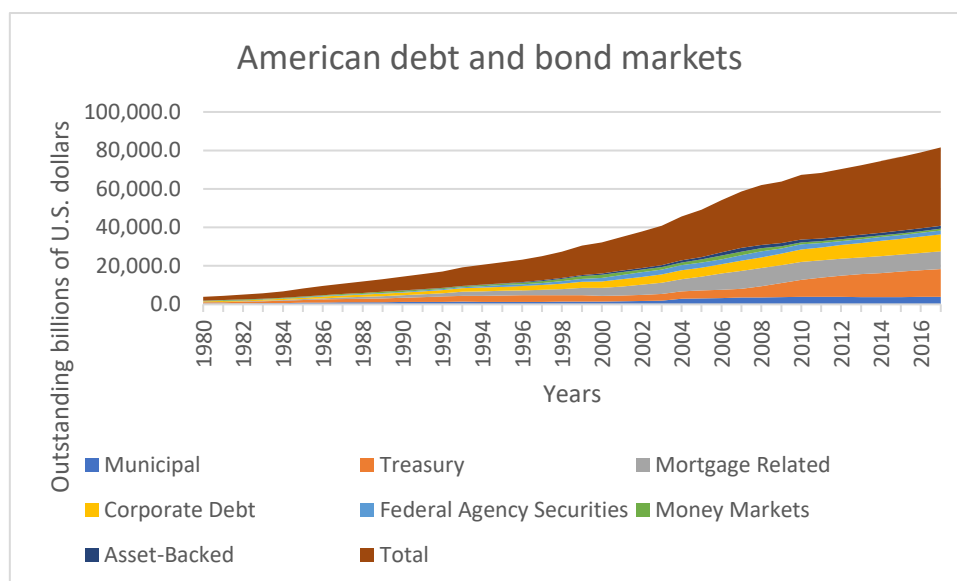


Figure 12: Size of American bond markets. All figures expressed in outstanding amounts of billions of U.S. dollars. Source: adapted from Sifma, 2019.

Although in the 1990's there is a big push into American bond markets, the actual boom happens in the 2000's with the housing bubble and subsequent manufacture of securities and derivatives-like assets from mortgages. The explosion in the 1990's in bond trading in particular and in capital markets is followed by the rise of new non-bank financial institutions. Among others, hedge funds, were part of this emerging non-bank institutions whose "investment strategies consist of taking on short positions of assets that are expected to lose value and long positions of assets that are expected to increase value" (TORRES FILHO, 2014, p. 440).

Hedge funds take on highly leveraged positions, profiting from money-market credit and use of derivatives to place their bets. In 1998, Long-Term Capital Management (LTCM) – the largest American hedge fund by the time, with a controlling position worth US\$ 1 trillion, bankrupted after failed bets against Russian bonds. The event exposed the whole American financial system to collapse, but the FED and Treasury managed to reach a syndicate of American banks to buy the hedge funds positions, avoiding a major financial crisis. The episode triggered debates on OTC derivatives market regulation in the American congress which highlighted the political economy contours of that financial market segment. This background serves as the basis for next chapter's investigation on how OTC derivatives regulation and American state power intersect.

3.3. Derivatives in the floating dollar standard

After the Nixon shock in August 1971 the volatile and thus unstable situation of foreign exchange rates led the financial market to react, launching instruments that would help agents to manage exchange rate risk. Those were the exchange rate futures, which were ready to be traded in May 1972 in the International Money Markets, a division of the Chicago Mercantile Exchange (CME) and one of the largest derivatives exchanges in world⁴⁵ (TORRES FILHO, 2014). The emergence of this key financial innovation within the American financial markets was not without purpose, it was a market opportunity being seized. In fact, since the 1960's the U.S. financial system was thriving in the development of innovations, especially among the banking and nonbank financial institutions which subsequently launched new instruments as a response to pressing competitiveness, regulatory barriers and structural changes followed by the evolution of the domestic and international financial system (KONINGS, 2010).

The futures exchanges already negotiated the special kind of contract in which parties could unbundle risks from underlying assets and trade according to its convenience, so they stepped into making derivatives contracts whose underlying was not a commodity, but an exchange rate, creating the so-called financial derivatives. After the launch of futures exchange rates by CME in 1972, the Chicago Board of Trade (CBOT) launched options on exchange rates. The mid-1970's stagflation crisis propelled a surge in interest rate volatility, which led the CME to launch futures on 90-Day U.S. Treasury bill futures in 1975 and futures on U.S. Treasury Bonds⁴⁶ (TORRES FILHO, 2014). Notwithstanding, as Lubochinsky (1997) described, those contracts were not really used until the beginning of the 1980's when American interest rates underwent dramatic volatility. Again, derivatives exchanges answered with innovation, creating options on interest rates, as the ones launched by Philadelphia Options Exchange in 1982. Nevertheless, the greatest innovation in financial derivatives was brought about not by the derivatives exchanges, but by banks and corporations dealing in over-the-counter (OTC) operations. The first of them were forwards on exchange rates, called outright forwards, which banks started to deal to hedge and speculate over currencies' future

⁴⁵ For a complete explanation on what derivatives are, the different types of this contract, the different markets they are traded, etc refer to chapter 1. This chapter assumes the reader is already familiar with those concepts.

⁴⁶ U.S. Treasury Bills differ from U.S. Treasury bonds in which the former are short-term public debt contracts and the later long-term public debts.

prices just after the floating exchange rate regime system came up (BROOKS; CHANCE, 2008).

The major innovation in OTC markets though was the creation of swaps. The first one ever made was an exchange rate U.S. dollars/Swiss Francs swap between the World Bank and IBM that took place in 1981. In the next year Sallie Mae, an American students loan corporation, adapted the instrument to be denominated in one single currency – the U.S. dollars in the case – and to swap, simultaneously, a fixed interest rate cash flow from ITT corporation by a floating interest loan conceded to the company (ALWORTH; KERTUDO, 1993). The creation of swaps led to further innovations in forwards markets, like the Forward Rate Agreements. Yet, swaps have been the most OTC derivatives traded instrument as from the mid-1980's.

In the beginning of the 1990s Bankers Trust, an investment bank, it made a transaction with a commercial bank that was willing to concede more loans to a borrower client without carrying the underlying credit risk, or the risk that the client would default on the amount borrowed. First the commercial bank lent its client and then entered on a credit default swap transaction with Bankers Trust, paying to the latter a premium due as a possible occurrence of default from its client. Bankers Trust in turn would have to bear the default of the commercial bank's client by buying the bond by its face value in its total amount or in a percentage agreed between Bankers Trust and the commercial bank. This kind of swap got to be known as total return swap – the most general form of Credit Default Swaps (CDS)⁴⁷ – that evolved from a single underlying asset, as seen in the above example, to cover a basket of underlying assets, in which credit risk protection would vary according to the risk degrees within different underlying assets (MENGLER, 2007).

This work only focuses on interest rate, foreign exchange rate and credit risk derivatives, in particular swaps because it argues that the OTC swaps market had a fundamental role in the post-Bretton Woods restructure of American hegemony, as is shown below. Nevertheless, there are an infinite number of underlying assets that derivatives management covers, from commodities to equity and from weather to electricity. Some derivatives just after being launched prospered with great trading volumes, just like futures on index of stocks; while others that did not, like futures on inflation rates, which for their low trading volume are not the apple of the eye of CME.

⁴⁷ For a complete essay on the different kinds CDS, its Market infrastructure, trading mechanisms and usage purposes, see MENGLER (2007) and DAS (2009).

Yet, some derivatives are much more restricted to agent's specific needs like derivatives for droughts, those being called exotic derivatives (CARRUTHERS, 2013).

Interest and foreign exchange rates have a key importance in the global monetary and financial system. They determine international price levels, access to credit and the value of reserves. Since the collapse of the system of fixed exchange rates and international capital controls of Bretton Woods, aggravated by the 1970's stagflation crisis, those rates underwent extraordinary volatility, posing such a threat to the operation of the international financial system that some authors like McKinnon or Tavares hold that there was no true system functioning in international finance at the 1970's. For Torres Filho (2014) the international finance reaches the form of a system in the middle of the 1980's, when financial integration takes further steps guided by the American financial structural power. For him among financial liberalization, securitization, banking disintermediation and high leverage, derivatives were essential for the establishment and consolidation of what he calls the Modern Financial Globalized System (TORRES FILHO, 2014). The risk exposure boom within a system immersed in volatility transformed the way credit risk is managed, strengthening the importance of credit derivatives and placing them as central instruments in risk management in as much as interest rate and foreign exchange derivatives are.

The Bretton Woods system functioned through guarantees of operation based both on fixed long-term exchange rates and stable long term-interest rates⁴⁸ assured by the American state and its state partners⁴⁹. Whereas in the post-Bretton Woods system those guarantees no longer exist and the operation relies on the international financial market that reemerges through the "renaissance" of international actively private financial institutions as of the 1950's and the 1960's (TORRES FILHO, 2014; HELLEINER, 1994; KONINGS, 2010).

With the dismantling of the Bretton Woods agreement by the Nixon shock in 1971, guarantees for interest rate and exchange rate risk, although suspended, were badly needed. Further, with the Latin-American debt crisis in the 1980's, default guarantees were systemically necessary not only from a micro-finance point of view, but also due to the fragile position of American banks balance sheets and their importance in the global

⁴⁸ Being those guarantees underpinned by the convertibility of dollar to gold and the American support for the international cooperation on capital controls.

⁴⁹ As Torres Filho (2014) argues, the Bretton Woods fixed exchange rate system was supported not only by the fixed parity between dollar and gold, but also because American allies supported the dollar, holding it as reserves.

financial system. In that sense, the innovation of financial derivatives must not be seen as only a market opportunity seized by financial institutions, but also as a transfer of responsibilities from the American state to American private agents, with that transfer done in an active way as is argued in the next chapter.

In effect, derivatives have reinforced U.S. dollar hegemony by relating all the main guarantees of financial risk to the global risk-free asset, enhancing global risk management through reinforcing a standard asset for risk measurement – U.S Treasury bills. The superpower currency and public debts are the only ones in the global financial system that do not carry risk of floating. Instead, all the other currencies, commodities and assets float in relation to it. As Mackinnon (1993) points out, the dollar is the main central bank reserve and currency of intervention in foreign exchange markets. It is the one that dominates the homogenous commodities markets, transactions in the global interbank market and in international credit, denomination of asset portfolios, foreign direct investment and international trade. Therefore, it is the currency to which nearly all flows of international capital, if not denominated in it already, must be converted into in order to be directed to other markets and currencies (McKINNON, 1993). The dollar hegemony is expressed in the foreign exchange OTC derivatives markets, as figure 13 shows.

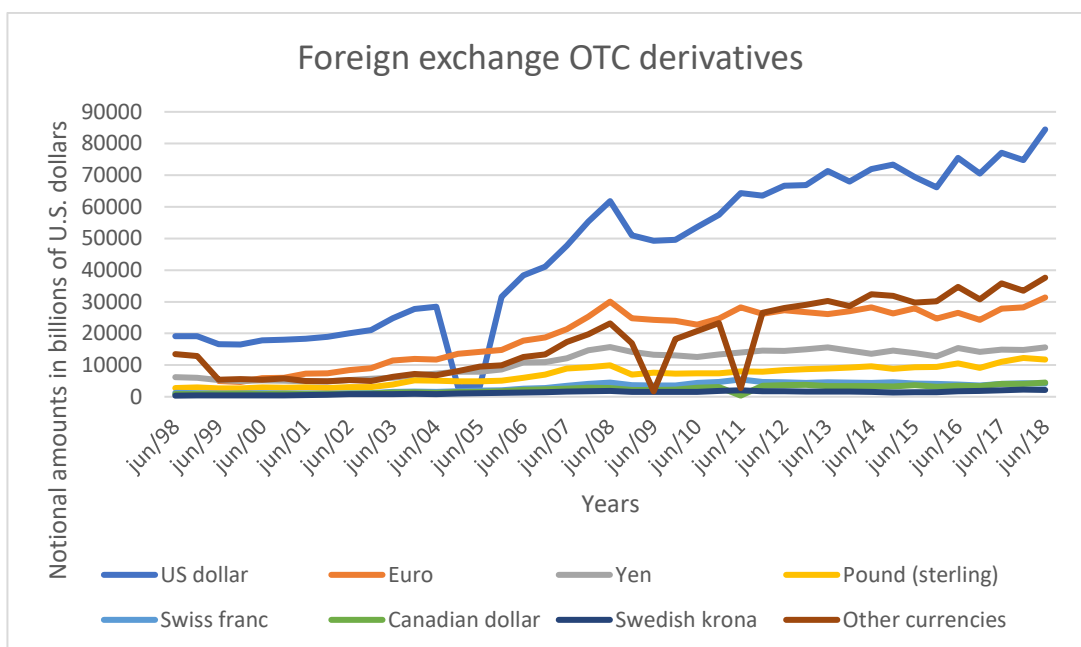


Figure 13: Currency denomination of OTC foreign exchange derivatives.

All figures in notional amounts of billions of U.S. dollars. Source: BIS, 2018c.

As the above figure shows, the dollar is by far the most used currency to denominate foreign exchange contracts in OTC derivatives markets. That is a result of

the structure of the post-Bretton Woods system which “without any credible commitment to a par value, [made that] immediate pressure on the domestic currency to move sharply against the dollar in the foreign exchanges can be enormous” (McKINNON, 1993, p. 30). Derivatives are, therefore, the instruments responsible for linking national currencies to the U.S. dollars. By locking future rates for national currencies to greenbacks, derivatives have reinforced the permanence of U.S. dollars as the sole standard to which all exchange rates are quoted. That creates a par value commitment between the dollar and other currencies, making derivatives responsible for the flux of international capital to move across borders with manageable foreign exchange risk. Consequently, they are responsible for the integration and connection of financial flows that would otherwise not be possible with the existing levels of volatility in the post-Bretton Woods system, making it operable from the point of view of foreign exchange while maintaining the power centralization of the U.S. dollar.

Furthermore, derivatives have facilitated the connection between the moves in the federal funds rate and its effects on the global financial system. In a world of free capital flows, markets’ responsiveness to how the U.S. set short-term liquidity and credit conditions were enhanced by derivatives. They became central instruments in the mechanisms of American monetary policy transmission and communication to the financial markets. Basically, derivatives act as price adjustment instruments once expectations did not match monetary policy changes. Upper (2012) brings counter-evidence to this analysis. He shows that once markets correctly anticipate central bank announcement of minimum bid rates, turnover in derivatives markets for short-term interest rates tends to fall and derivatives prices tend not to change. On the other hand, when expectations are not consistent with monetary policy announcements, prices in derivatives markets tend to change, accommodating former expectations to new policy actions⁵⁰. As there is a strong relation between interest rates, currency and credit default markets, new outcomes from monetary policy tend to be transmitted throughout these three fundamental financial markets, resettling expectations and promoting price adjustments. Also, as derivatives markets are linked to spot markets, they enhance price

⁵⁰ Upper study strictly focus in how non-matched expectations are adjusted in derivatives markets after new bid rate announcements. However, it is possible to extend the reasoning for virtually all kinds of monetary policy transmission mechanisms, since what matters is that derivatives will adjust prices once expectations did not match policy actions. By that derivatives transmit price adjustments throughout a vast range of underlying assets (commodities, interest and exchange rates, credit and credit default markets, etc.). As a result, derivatives serve as an enhancement instrument of monetary policy transmission mechanisms for virtually all financial markets segments.

adjustment and overall liquidity not only for future prices, but also to spot prices (BIS, 1994; UPPER, 2006).

Conversely, it has tremendous effects on U.S. monetary power since derivatives not only released the U.S. from backing onerous (in terms of policy autonomy) guarantees against risk, but also enhanced the liquidity of financial markets. This point is essential in the global financial market expansion. The development of derivatives allowed the management of new forms of risk through at a fast-pacing innovation rate. This has prompted markets to increase turnover levels, since different kinds of high-risk positions could be taken on and managed. These instruments have also become an effective instrument of state control, by making financial prices to be adjusted in a smooth way according to the U.S. monetary policy goals. Derivatives markets, as such, have assumed former demanding roles due to the American hegemonic position while at the same time have reinforced its power condition.

Professor Franklin Serrano pictures the structure of the Post-Bretton Woods system according to the centrality of the U.S. monetary policy. He calls the post-Bretton Woods system the *floating dollar standard* to express that under the U.S. dollar as fiat currency, countries' interest and exchange rates had to flexibly move and adapt to U.S. monetary policy goals. The concept of flexibility set by Serrano, however, does not refer to a condition of permanent adjustment policies by states, as the Bretton Woods system of pegged adjustable exchange rates and capital controls allowed, but to the fact that at changes in the U.S. monetary supply, the financial markets and central banks must adjust themselves to American policy options and accommodate to their expansion or contraction. Indeed, it was for this purpose that the U.S. released its financial system from the Bretton Woods commitment: to prompt an ever-growing expansion of public deficits and private credit in which its macroeconomic autonomy was granted vis-à-vis other states (KONINGS, 2010; SERRANO, 2003; TAVARES, 1997).

Derivatives markets have granted that American monetary policy action is transmitted throughout the global financial system, reinforcing American monetary autonomy. The derivatives market allows the floating dollar standard to be a system capable of readjusting itself according to American monetary policy objectives and without requiring the superpower to engage in any specific adjustment policy of its own. All of this powerful structural mechanism, backed by the fact the U.S. short-term public debt and by extent the U.S. dollar, is the global standard for risk mitigation and management to which virtually all assets, rates, currencies, indexes, commodities, and

credit risks are priced accordingly. As highlighted by the formula designed from Black and Mehrling's derivatives approach as shown in chapter 2, which is worth remembering:

Value of a Vale Corporation bond = Value of a U.S. Treasury Bill + Value of a Credit Default Derivatives + Value of a Foreign Exchange Derivatives + Value of an Interest Rate Derivatives

Again, what the formula shows is that the U.S. Treasury bill is central for derivatives dealers to have a standard to base the levels of risk of default of non-dollar denominated assets whose returns are paid in coupons not linked to federal funds rate or other major interest rates. When derivatives are used to mitigate the risks of that kind of asset (in our example a Vale Corporation bond) credit default of corporations or sovereign governments are compared and priced according to U.S. Treasury Bills, exchange rates of national currencies are compared and priced to U.S. dollars and interest rates linked to assets' coupons are compared and priced to FED's Federal Funds rate, the American overall interest rate.

Derivatives, by creating a risk mitigation and management system, have allowed the floating exchange rate regime to become operable, in spite of the inherently systemic volatility in financial prices and fundamental macroeconomic rates. Since agents are capable to switch – with risks mitigated – from dollar-denominated to non-dollar denominated assets and currencies (and vice-versa) by using derivatives, making international capital flows within a system of volatile prices feasible. That is why this work defends a hypothesis that financial derivatives are pillar instruments for the governance of the post-Bretton Woods system, reinforcing the hegemonic centrality of U.S. dollars and the American public debt, by making U.S. Treasury Bills the standard asset in the floating rate system in the same way as the dollar is the standard unit of account in this system, as highlighted by Black and Mehrling's approach in chapter 2.

It is important here to state that when talking about the governance of the post-Bretton Woods system, the central concept tied to American monetary and financial power is operability and not stability. It was not the intentions of the hegemon to bring in to the world a stable financial system after the Bretton Woods breakdown, as the continuous financial crisis from the 1970's onwards shows. This challenges the theory of hegemonic stability as argued by Fiori (FIORI, 2004). Instead, to the hegemon the intention for breaking out of the Bretton Woods regime was to enlarge its policy

autonomy and state power, while granting its private actors the freedom to act in pursuant of its own interests as the conservative coalition that comes into power in the 1970's aimed to do (BLYTH, 2002; HELLEINER, 1994).

If derivatives brought a certain degree of stability and thus operability for the global financial system, it was a consequence of the intentions of the American state to open space for private financial agents to put through their profit-led interests. Indeed, the transfer of global financial governance responsibilities from the American state to private agents was a result from the 1970's and 1980's conservative coalition motivation of reducing state control over the financial activity (HELLEINER, 1994; KRIPPNER, 2011). Not a deliberate intention from the American state to completely pass the torch of global finance governance. Neither was it a forceful action of the market in superseding the American state power. Derivatives, as guarantees of post-Bretton Woods financial risks, were a consequence of the American state's choosing to change its role in international financial governance and of markets seizing the opportunity left by the superpower, which resulted in the reinforcement of its financial and monetary hegemony.

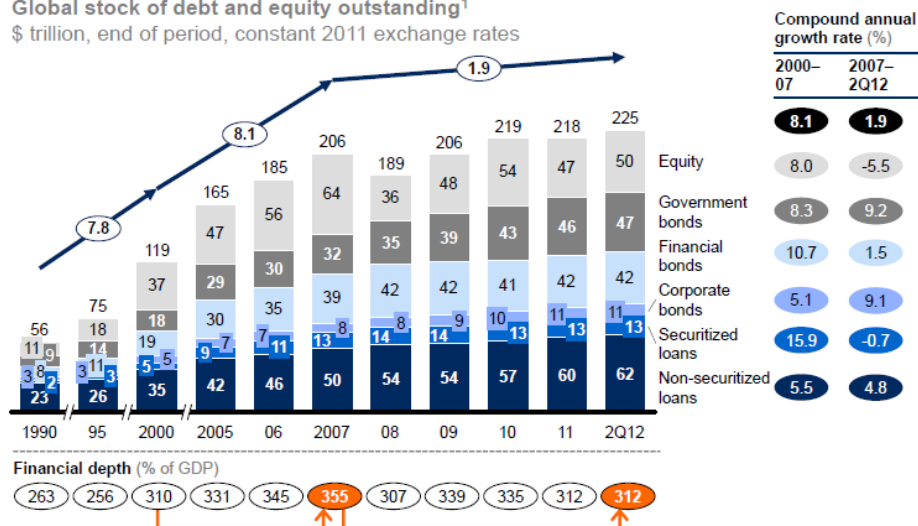
The massive growth of derivatives markets, especially in OTC as from the mid-1980's, accompanied the enormous expansion of the global financial system⁵¹. As figure 14 shows:

⁵¹ The concept of expansion in what regards the global financial system is that of McKinsey Global Institute (2013) which uses the ratio of wealth denominated in financial assets per countries' GDP as indicators of that trend.

Global financial assets have grown to \$225 trillion, but growth has slowed since 2007

Global stock of debt and equity outstanding¹

\$ trillion, end of period, constant 2011 exchange rates



¹ Based on a sample of 183 countries.

SOURCE: McKinsey Global Institute Financial Assets Database; McKinsey Global Institute analysis

Figure 14: Global stock of debt and equity as ratio of GDP. Observe the trend in the financialization of global wealth since the 1990's. Source: MCKINSEY GLOBAL INSTITUTE (2013).

Although a correlation test has not been made between the global derivatives market growth and the hike in global wealth under the form of financial assets. If we recall Figure 6 which shows the growth of OTC derivatives markets⁵², it is possible to observe that both follow the same trend in the expansion of the global financial system. Therefore, it is important to investigate the governance of that emerging system, paying special attention to how the governance agents – the American financial institutions and the American state – managed the derivatives market growth, which is the concern of the next chapter.

⁵² See in chapter 1, section 1.4.

Chapter 4. The OTC derivatives regulation and the American financial power

This chapter includes two analytical efforts. Firstly, it will study the main agents of derivatives markets – the big dealer banks – with a focus on understanding the role they assume in the post-Bretton Woods international financial system. It will assess how this position actually made them the central governance agents, taking over responsibilities and functions previously handled by the American state. Secondly, this chapter will investigate the relations between states and markets in the building up of the global governance of financial risk. It will analyze the behavior of the American state in this emerging form of governance in the 1980's and 1990's resorting to the lens of American domestic politics. The latter comes up as the background to evaluate the hypothesis that along with the conflicts in the American over-the-counter derivatives markets there was an active attitude of American officials in defending its regulatory exemption for political purposes, rather than just for lobby incentives. As it is sought to be shown, American officials had in mind the relation between OTC derivatives markets, big dealer banks and American state power based on the hegemony of the dollar. The chapter closes in section 4.5 with a reflection on OTC regulatory exemptions and the American financial structural power.

4.1. The grantors of market liquidity for financial risk: derivatives dealer banks

According to Schinasi *et al* (2000) the OTC derivatives markets have long been developed through a transformation in the role of banks from brokers to market makers and therefore dealers, what made these markets liquid. The genesis of derivatives markets was the so-called parallel (or back to back) loans which emerged out as a way to circumvent the capital and exchange controls of the Bretton Woods system. Merhling (2011) exemplifies that starting point through recalling the exchange controls imposed by the U.K. in the 1960's in opposition to British multinationals' need of borrowing in dollars to expand its activities. To evade government controls, American and British companies made a special kind of loan agreement. British multinationals operating in the U.S. made loans in pounds to the British branches of American multinationals which, in compensation made loans in dollars to British branches operating in the United States (SCHINASI, 2000; MERHLING, 2011).

In this way, both companies were able to bypass capital controls, since the operations were considered to be domestic from the legal point of view. As Helleiner states, American and British governments turned a blind eye for those earlier forms of capital evasion in the Bretton Woods system. The British government was fundamental in the formal creation of Eurodollar markets in the City of London, by legally backing dollar deposits in the emerging offshore market. What turned capital controls into *de jure* legislation without practical enforcement (HELLEINER, 1994).

Banks seized the market opportunity opened by parallel loans and boosted by the Golden Age growth. They started to offer to corporations the service of finding clients with opposing foreign exchange needs and then matched the back to back loan transaction, becoming brokers of that kind of contracts and reaching high profitability levels through the charging of fees. However, the turnover of derivatives transaction increased throughout the 1970's, but especially in the 1980's with the development of swaps. Banks then stepped out from the role of intermediaries to assume the role of dealers, effectively acting as the counterparty to any company willing to enter into a derivatives transaction and therefore becoming market makers⁵³. That means, in other words, banks became the grantors that agents would be able to take on and close out positions with ease and without affecting price movements, making the market liquid.

What motivated banks to become derivatives dealers was transcending the fee-led profitability in the condition of brokers, to perform proprietary trading through the management of portfolio positions. That meant that banks, as dealers, would take on derivatives transactions as part of their own business. They could now profit from the bid-offer spread, buying low and selling high in derivatives transactions and by this way nailing the speculative, hedging and risk management opportunities arising in the volatile post-Bretton Woods system. In addition, as McGinity cites it, advisory services and the operation of commodity pools have attracted banks for derivatives dealing (SCHINASI *et al*, 2000; MCGINITY, 1996).

For Schinasi *et al* (2000) the agency of markets, together with the already established derivatives exchanges and the developments in information technology and financial theory, were responsible for making the OTC derivatives markets liquid and thus fully operable. When a bank accepts to enter in a derivatives transaction with an end-

⁵³ Refer to the concept of dealer as market maker in chapter 1, section 1.2.2 to a wider view.

user⁵⁴ it actually is creating a market for the kind (interest rate risk, exchange rate risk, etc.) and level of risk (the amounts of risk it is willing to hold in its portfolio) it is willing to accept. What is important here is that since the bank was able to measure and price that particular risk, it made the financial risk a commodity. The risks it is unwilling to accept it unbundles and sell, by entering in a derivatives transaction to a counterparty that is willing to take on the position because of speculative or hedge reasons, making the financial risk commodity a tradable one.

For instance, the bank has entered in a foreign exchange swap of dollar to Swiss franc with a company, in which the total notional amount of the contract is US\$ 100,000. Notwithstanding, the bank just wants to hold 10% of this total notional amount in its risk portfolio, so it unbundles the rest of the contract (US\$ 90,000) into another foreign exchange swap contract which it sells to a third party, another bank. This second bank is also willing to take into the transaction because it speculates it will profit from future exchange rate U.S. dollar/Swiss Franc moves, or because it also hedging this same kind of foreign exchange rate risk from other positions in its portfolio.

As a consequence, derivatives dealer banks form a large network in which financial risks are being marketed, unbundled and offset from a wide range of portfolio positions that give place to the over-the-counter derivatives markets. As Schinasi *et al* put it:

“OTC derivatives markets are global and have become central to the efficient functioning of the international financial system. They closely link institutions, markets, and financial centers. They have become a major driving force behind the integration of national financial markets and the globalization of finance. The most obvious linkages arise from the contracts themselves. Currency swaps are used to transform currency risks and mobilize liquidity internationally across the major financial centers. Linkages also occur through the internationally active financial institutions that make up these markets. OTC derivatives markets also link the major dealing institutions, first through the array of market risks, and importantly, through a complex lattice of multiple, bilateral counterparty relationships between the major intermediaries” (SCHIANSI *et al*, 2000, p. 43).

Eventually, the risks a bank is not able to manage in OTC markets are instead managed in derivatives exchanges, taking on positions as any other participant. That is

⁵⁴ Despite banks, end-users are also parties in derivatives markets, frequently referred in the derivatives literature as the non-bank financial institutions and non-financial institutions. They have a bunch of differing purposes for trading in derivatives of which this work does not cover. For a complete view on why end-usage of derivatives markets happen see Bodnar *et al* (1995). One important point made by a study of the Deutsche Börse (2007) is that just 1% OTC derivatives markets is comprised of individual investor, giving this market a wholesale nature due to the size of transactions and amounts of daily turnover.

why exchanges are also grantors of liquidity for those instruments, though they comprise only 16% of the derivatives markets, according to 2007 figures, which relates derivatives exchanges to a still important but minor role in derivatives markets. A Deutsche Börse special report defends the notion that OTC derivatives markets are global in nature, since they operate with almost complete disregard of national borders. Besides, a 1996 BIS report indicated that more than half of the transactions were cross-border (DEUTSCHE BÖRSE, 2008).

Therefore, by becoming market makers, big American derivatives banks have accepted to undertake the risks associated with systemic volatility and have made any sort of financial risk a form of tradable asset. Conversely, by making global risk a business, those banks transformed a private activity into an exercise of authority within one essential realm of global financial governance: the global management of risk. This had a state power effect of making those banks the ‘hub’ which ties the U.S. dollar to the multiplicity of currencies, assets, interest rates, commodities and credit default risks. In this phenomenon, American derivatives-dealer banks became the global financial system ‘connectors’ for the largest amounts of global capital flows.

This condition of authority over a governance system was not spontaneously assumed by private agents as one would suppose. Instead, it was the American state’s deliberate decisions not to regulate that market that allowed derivatives dealer banks to take up this role. In the sequence, concern is directed to how the transition in the agency of governance took place, how was the state and market relationship developed upon that point and what were the implications for the American state power. Central in this analysis are American banks taking off the role of the American state as the grantors of financial guarantees. Through enhancing the liquidity of now private financial guarantees – the derivatives – those banks have underpinned the operation the post-Bretton Woods global financial system.

4.2. States and markets in the build-up of a governance for financial risk

As Duffie (2011) stresses, the dealing activity is much different from that of matching buyers and sellers put off by brokers. Dealing involves that agents hold in their portfolios the risks associated with the financial assets until ultimate buyers or sellers are interested in a transaction match because the dealer is buying and selling for his own account. In the words of the author: “[That financial activity’s] long-run success depends not only on skill but also on access to a pool of capital that is able to absorb significant losses. Dealing also requires sufficient liquidity to handle large fluctuations in cash

flows” (DUFFIE, 2011, p. 30). American banks were the agents in the best competitive position to assume the dealing activity for derivatives markets because they have access to the FED’s and American money markets’⁵⁵ liquidity channels, giving them the necessary capital pool to handle any incurring losses. Not to mention their long-term expertise with securities dealing, especially government bonds and stocks. Nevertheless, besides these two important factors it is important to investigate what role regulation played for those agents to achieve the global OTC derivatives markets dominance.

The American dominance in that market segment was somehow contested in the mid-1990’s up to its complete overrule in the years before the 2008 crisis. As the table 6 shows, up to 1995 American banks held half of OTC derivatives market share, with European banks holding the other half:

Top 20 IRS dealers in outstanding transaction for 1995 (US\$ billions)
1 Chemical Bank \$389.7 (American)
2 J.P. Morgan 367.7 (American)
3 Société Generale 345.9 (European)
4 Compagnie Financière de Paribus 342.7 (European)
5 Credit Lyonnais 272.8 (European)
6 Merrill Lynch 265.0 (American)
7 Bankers Trust 255.7 (American)
8 Barclays Bank 247.4 (European)
9 Chase Manhattan 222.2 (American)
10 Citicorp 217.0 (American)
11 Bank of America 191.1 (American)
12 Credit Agricole 181.7 (European)
13 Banque Indosuez 174.1 (European)
14 Banque Nationale de Paris 160.1 (European)
15 Westpac 147.8 (Australian)
16 Salomon Brothers 144.0 (American)
17 Caisse des Depots 111.8 (European)
18 First Chicago 74.8 (American)

⁵⁵ Money markets trade short-term maturity assets (one day to one year) as a source of short-term credit, an important source of liquidity for dealer banks in particular and for the financial system as whole. Those assets have higher returns than bank deposits and are as safe as them.

19 Bank of Nova Scotia 73.8 (Canadian)
20 Banque Bruxelles Lambert 56.6 (European)
Total of Top 20: 4,241.9

Table 6: World’s major interest-rate-swap firms (year end 1992). Source: The World's Major Derivative Dealers, Swaps Monitor Publications (1993) (Apud GORTON; ROSEN, 1995). Note Interest swaps are taken here as an example because they are the main derivative traded in OTC derivatives, followed by currency swaps.

Notwithstanding, as more recent data shows, American banks achieved hegemony in this market in the preceding years of the 2008 crisis:

“The largest OTC derivatives dealer by volume is J. P. Morgan Chase & Company, with a total notional position recently measured at \$79 trillion, according to data reported to the Office of the Comptroller of the Currency (2009). Bank of America Corporation, Goldman Sachs, Morgan Stanley, and Citigroup come next in terms of their notional holdings of derivatives, with \$75 trillion, \$50 trillion, \$42 trillion, and \$35 trillion, respectively” (DUFFIE, 2011, p. 15).

In terms of size it is necessary to quote Spagna, also referring to the 2009 Office of the Currency Comptroller study on OTC derivatives markets dealing volumes:

U.S. banks heavily dominate the dealer market. At the end of 2008, US commercial banks had closed deals worth USD 200 trillion of notional value, with the top four institutions, JP Morgan Chase, Bank of America, Citibank, and Goldman Sachs accounting for 90% of this amount. OTC derivatives trades represent a major share of the dealers’ total revenue. Goldman Sachs, for example, reported an estimated 25%–35% share of revenue for the years 2006–2009 (SPAGNA, 2018, p. 30-32).

In face of this evolution in the American banks’ dominance of global OTC derivatives market share, it is necessary to investigate how their hegemony was achieved stemming from a position of side-by-side competition with European banks. Following Helleiner’s patent investigation of how states – and in particular the American state – acted to further the financial globalization trends of the 1970’s, this chapter aims to inquire how the American state took part in the American bank’s hegemony of OTC derivatives markets. For Norloff (2014), the American state uses the financial regulation to reinforce the American financial market capacity in creating investment vehicles that attract agents to take positions in dollar-denominated assets. It is part of an active policy to keep the dollar as the global hegemonic currency and to keep the competitiveness and, therefore, the attractiveness of the American financial market. That policy results in

dismantling incentives for public and private agents to migrate to other currencies as well as raises the costs of doing so. In this respect, the United States uses its structural power to determine and limit the range of monetary and financial choices available to agents, guiding options indirectly toward outcomes that are most beneficial to itself (NORLOFF, 2014).

The American state intervention in regulatory rules – whether relaxing them or not – impacts directly the capacity of financial institutions to create new instruments to strengthen asset management and amplify investment opportunities. Thus, financial regulation is a strategic instrument for bolstering American monetary power and this is why discussions and regulatory outcomes in the American OTC derivatives market regulation before the subprime crisis were involved in harsh political struggle. Not only because banks wished regulatory exemptions to broaden profit margins through freedom in activities to be carried out – especially in the manufacturing of financial innovations and the promotion of new forms of asset and liability and financial risk management. But also, because the American state benefited from those same regulatory exemptions in OTC derivatives markets, once it allowed American private agents to dominate the governance of financial derivatives which are the instruments necessary for the operation of U.S. dollars as fiat currency. It was strategic that American private agents could govern this pillar of the post-Bretton Woods dollar system. Since this system is characterized by a private governance of a state instrument of power – the American currency – the American state wanted global capital flow risk management performed by national chartered commercial banks, which are under FED's umbrella and Treasury's regulatory control and are part of the American exercise of power through monetary policy. For big American OTC derivatives dealer banks are the main actors effectively transmitting throughout derivatives and spot markets the price adjustments needed in occasion of new U.S. monetary policy actions. Those agents rebound American monetary policy goals to the global financial system, mainly because they are market-makers and dealers for fundamental derivatives and spot markets and thus they allow agents to rearrange former positions according to new expectations⁵⁶.

⁵⁶ An idea already explored in chapter 3. It is only being retackled here to place the importance of American big derivatives banks of central agents managing derivatives.

In this view of how the American state is placed towards OTC derivatives regulation before the 2008 crisis, this work contends the mainstream International Political Economy literature on the subject. Tsingou is, by far, one of the best representatives on how IPE sees OTC derivatives regulation. She argues that the advancements in deregulation made the differences between public and private become blurred. She adopts the concept of *club governance* to identify the formation of a transnational community between high public officials, regulators, financial practitioners and academics in which the G-30 became its formal gathering body.

In fact, this transnational community was a truly epistemic community⁵⁷. Its main shared assumption was that expertise gives leadership. Private financial agents, because of continuous contact with and development of OTC derivatives should be responsible to govern this market in order to avoid any ‘regulatory threat’ an unaware public might cause. Guiding by that underlying view, the role of G-30 is to lobby regulators, especially in the United States and in the Basel Committee of Banking Supervision (BCBS)⁵⁸, on the capacity of the financial industry to promote sound self-regulatory measures.

The problem in this analysis is that private agents are considered to be the sole guides of the regulatory framework. Public agents have no active resolutions other than to fiercely support private agents’ interests. This takes from them any kind of agency and does not allow one to investigate if there was any strategic consideration in the public officials’ mindset when their decisions were taken. The state is in fact taken out of the analysis when private and public agents are considered as one sole corpus. As in the words of the author:

The G-30 report was essentially a private initiative. There was no delegation or official prompting to deal with the topic. Interviews with members and private sector bankers who were active in the 1990s confirm that the effort stemmed from a desire among the transnational policy community to retain control of the agenda and maintain the regulatory status quo. The principal financial firms, especially J. P. Morgan, made public their risk management models (RiskMetrics), earning good will for sharing expertise with competitors. *The G-30 study made the case that the private sector had the know-how, capacity and incentive to self-regulate*. Key to this was that the proposed standards went further than established practices and were demanding on financial institutions (TSINGOU, 2015, p. 243, our emphasis).

⁵⁷ For Vanel (2010) epistemic communities are those that referend the norms, rules and procedures of a particular social practice. In the realm of finance, the American financial institutions by their leading hegemonic role have a greater say in setting up what the overall practices will be considered as valid.

⁵⁸ It is a bureau inside the Bank of International Settlements responsible for the political coordination of the international harmonization of banking regulation.

Morgan has a slightly differing view from that of Tsingou. The former analyzes the self-regulating role of ISDA⁵⁹ whose responsibility was to group the major actors engaged in derivatives activities: dealers, buyers and specialized consultants, from large banks to financially developed corporations and from hedge funds to government accounting offices and law, accountancy and financial specialized consulting firms. Membership in ISDA gives the power to participate in rule making and communication activities. The association activities comprise both technical financial and regulatory issues spread over a wide variety of committees and working groups that in fact oversees derivatives markets all over the world, with most important members clearly having the most important say in those processes (MORGAN, 2008).

For Morgan, although the financial industry lobby of OTC derivatives markets was well structured around ISDA, it was dependent on regulators because in many critical areas the organization needed to lobby governments in order to harmonize regulatory procedures. Regulatory harmonization is essential in OTC derivatives markets because of its transborder character. When it is achieved it grants ISDA members that the cross-border transactions they perform are actually made under a single worldwide regulatory framework. After all, as Morgan notes, ISDA is an organization that serves as a locus of negotiation. It is not as powerful as a self-regulatory agency, where governments simply delegate private agents with the attributions that should be done by public agents. Instead, ISDA is an expertise and lobby gathering in which proposals must be discussed and accepted among members and governments must be convinced of the virtues of new regulatory changes at stakes.

As an example of this particularity of the organization, the author brings to analysis the netting agreement case in ISDA: “Netting refers to the process whereby all the debts and credits between two actors in the market are aggregated (netted) to produce one single settlement figure. It is as if all debts and obligations cancel one another out until a single figure is left” (MORGAN, 2008, p. 647). ISDA decided to influence regulators on the need to accept netting agreement in the way the organization had framed. However, Japanese regulators did not support the idea of netting contracts because that would mean, in the case of bankruptcy of a derivatives-engaged party, that its counterparty would have preferences in default bailout in face of other creditors, workers,

⁵⁹ International Swaps Derivatives Association (ISDA), established in 1984, which role was to standardize swap contracts to give them more legal safety through a promotion of self-regulation.

suppliers. Thus, it was a very sensitive regulatory issue. The ISDA in this situation was subjected to the power of the Japanese state in allowing or not this kind of contract.

For Morgan this showcases that ISDA is not completely free from public debates and scrutiny. However, he still recognizes those cases are few in comparison to the private governance ISDA is able to put through. Another piece of evidence that the self-regulatory powers of ISDA may come up against state regulatory barriers is the need of regulators to endorse ISDA's new compliance rules. To circumvent any regulatory barrier, the organization looks for financial commentators to lobby regulators to recognize new contract models and legally enforce them in the most important jurisdictions for derivatives trading. This shows that although private agents have a great role in governing the OTC derivatives markets, in terms of proposals for market infrastructure, public agents have the final say on regulations and frequently may have differing and opposing views, that private lobby cannot change. After all, understanding and agreement relations may vary between private and public agents. In sum, Morgan's work is relevant in the measure it brings up to discussion the nuances of the relationship between private self-regulators and public legal enforcers, skipping the one sole corpus analysis developed by Tsingou.

Coleman brings a strategic analysis for the OTC derivatives market regulation from the point of view of public-private agents' relationship. For him, globalization has posed a threat to the nation-state because this movement made political and economic forces to go beyond borders (COLEMAN, 2012). In the post-Bretton Woods system, with the global financial market immersed in volatility and instability, the most pressing challenge of global financial governance was to manage risk – especially foreign exchange, interest rate and credit risk. Therefore, governments should take measures to allow private agents to diligently undertake that task, since states would no longer be charged of financial management as before. In the post-Bretton Woods era, the relation of the state with financial management would be restricted to the regulation of financial activities. According to the neoliberal project, the state should not provide financial services. Yet, in financial regulation as any other economic policy, not only microeconomic aspects should face the consideration of policy makers, but also the broader macro challenges tied to state power-led motivations and interests. In this aspect, the role of governance is the intermediation between private profit-led incentives and state power-led strategies.

For Coleman, the U.S. and the U.K. are the countries that better adapted themselves to this new form of governance in face of the challenge of managing global risks. This was due to what he calls their *transformative capacity*. Those states had the capacity to adapt to economic changes through an interplay between agencies and industries. They did bargain with the private sector because each side holds autonomy, but strategic state policies helped to shape the goals set by one and the other. In this view, the state has a key role in looking for consensus among private agents, indicating key action to be taken and the policies that will support it, always with a national strategic goal in mind. Coleman lists the condition for this kind of capacity to become effective:

“Several factors are conducive to the kind of partnership at the center of such capacity. The state actors involved must have adequate expertise and a capacity to coordinate activities among themselves when necessary. The interest associations representing the firms in the sector must have sufficiently encompassing domains that they can speak for the large majority of the firms (Weiss 1998:60). Finally, negotiations between state actors and industry representatives must be institutionalized and regular rather than ad hoc and spasmodic” (COLEMAN, 2012, p. 5).

For the author the more informal model of financial regulation adopted by the U.K. has led to less battle within the state bureaus than the formal multi-agency American model. For Coleman, this difference between both has made the British regulatory approach to OTC derivatives market more able to manage the global risks the financial globalizations trends impose, prompting the U.S. to follow the British model. Back in 1986, with the *Big Bang* – or the liberalization of financial services in the United Kingdom – the Financial Services Act was authorized by the British parliament. The act designated one sole institution the Securities and Investment Board (SIB), a private institution with public powers, to oversee and authorize new banking and investment activity. This authorization was made once other financial practitioners recognize that the newcomer meets the standards required.

Coleman says the U.K. state in the figure of the Bank of England and the Services Investment Board had an informal web of consultancy and discussion with agencies and private interested partners. The author calls this arrangement “governed interdependence”. This structure was ready to respond to the derivatives challenge since derivatives were governed under one single law – the Financial Services Act (COLEMAN, 2012).

The U.K. model opted for government regulatory exemptions and concentration of self-regulatory entities. Further, all banking and investment activities passed to the authority of one sole regulatory agency – the Financial Services Agency. Rules and regulators were well defined, often with the state in dialogue with private agents to come up with the regulatory landscape. For Coleman this arrangement was effective in allowing financial conglomerates and whole entities in managing risk.

On the other hand, in the United States there were different agencies and even specific congressional committees to supervise each kind of financial instrument or financial institution. That happened because the American option in terms of regulation is to divide authority among different institutions in order to avoid the concentration of power. In this sense, agencies play both judicial and policy making roles which Coleman calls statutory law, leading the U.S. to have a more formal, statutory regulation than U.K. For that reason, according the author, the American regulatory environment does not allow a governed interdependence, because frequently agencies struggle with each other into a competitive division. This environment excludes the same interplay between private and public agents that exists in the UK and is needed for anticipating movements supported by transformative capacity. As a result, Coleman states that U.S. policy makers were not able to come up with strategies for the governance of OTC derivatives and because of conflicts within agencies and officials the U.S. was less able to deal with OTC derivatives risks. Finally, Coleman argues that the American claim for a deregulatory move in OTC derivatives markets was a realization by the establishment that American derivatives markets were less competitive than British ones.

Although our work recognizes that the American multi-level regulation is prone to overlapping authority and responsibilities, which leads to political struggles, it counters the idea that the American state did not have a strategic plan to deal with the risks emerging in the post-Bretton Woods global financial system, as Coleman argues. Central in our analysis is the role of regulatory exemptions in OTC derivatives markets as a form of strategic consideration towards global governance, made by American officials.

As Michael Greenberger former CFTC director (1997-1999) put it, the regulatory exemptions for this market prevented: transparency rules; capital reserve requirements; anti-fraud rules; anti-manipulation rules and regulation of intermediaries, letting banks free to take riskier investments (THE WARNING, 2009). These regulatory exemptions are better understood if seen in comparison to mercantile and futures exchanges, organized derivatives markets that were obliged by the CFTC to establish and register

norms and limits in the daily volume of transactions; apply margin requirements, transparency and clearing rules and a package of compliance procedures that in a certain way put constraints to financial innovation, leverage levels and the development of risk management techniques; impediments that, on the other hand, were not founded in OTC derivatives markets.

In this regard, it is necessary to observe that the American OTC derivatives' regulatory exemptions lie in the genesis and subsequent development of that market. Before the 2008 crisis, those markets were off-limits in the absence of regulation, being strategic for banks that had a greater maneuver of operation and innovation in risk management. Carruthers calls attention to the fact that OTC derivatives markets regulatory exemptions made the rate of creation of new derivatives contract in that market to expand from 5 new kinds contracts launched every year in the 1970's to an average of 48 new contracts per year in the 1990's (GORHAM; SINGH, 2009 *apud* CARRUTHERS, 2013).

Based in the above considerations, this work raises the hypothesis that American officials regarded OTC derivatives markets regulatory exemptions as strategic. In the sense that by giving freedom to big American dealer banks to conduct derivatives management whichever way they chose, this would enhance the governance capacity of the American and global financial system. The next section will investigate the struggle between financial industry lobbyists, agency regulators and monetary policy officials with a focus in how the latter were positioned to effectively battle for and put through the OTC derivatives market regulatory exemptions.

4.3. The struggles within the American regulation of OTC derivatives markets

The Commodity Futures and Trading Commission (CFTC) was established in 1975, succeeding the Commodity Exchanges Authority (CEA), the previous agency responsible for regulating agricultural futures. The role of the CFTC was to regulate more widely the futures market in the wake of financial derivatives market expansion, whose starting point was the launching of currency derivatives in 1972 in the then Chicago Board of Trade. In the same year of its creation, the CFTC approved the first futures contract on U.S. government debt – the Chicago Mercantile Exchange 90-Day U.S. Treasury bill futures. In 1977, the agency approved the second one – the Chicago Board of Trade U.S. Treasury bond futures. These decisions show that the new agency had been accompanying the then newest financial instruments from the very beginning (HOUTHAKKER, 1982).

According to Romano the most frequent argument cited in the congressional hearings that preceded the CFTC authorization was the need for an independent agency to regulate the then expanding market for non-agricultural futures, in which currency and government bonds futures are included. An important question here is: if the American state sought to regulate financial derivatives and approve further such fundamental contracts for the post-Bretton Woods system, is this not evidence of the relevance of the state in regards to those instruments?

Evidence of an active agency from the American state would exist if the officials of CEA had an active role in demanding an extension of its jurisdiction over financial futures. Or if they had also a leading role in defending an independent agency to increase its regulatory powers. However, as Romano shows, CEA officials had no relevant position during the debates that lead to the establishment of CFTC (ROMANO, 1997). In the wake of the 1972-1973 global food price crisis, following Nixon's breakout of agricultural price controls in 1972, farmers and consumers' associations, social movement activists and food security engaged NGO's blamed speculators and futures markets for volatility in agricultural futures prices and the ensuing severe effects on people's food supply around the world (CLAPP; HELLEINER, 2012). The salience of the crisis in American public opinion gave American farmers and consumers' associations much power to vindicate before Congress and against derivatives exchanges as they argued for an enhancement in futures regulation and defended the role of independent regulator successfully. This is why those agents were central in setting up the creation of CFTC and not American officials.

There is strong evidence in favor of the view that during the 1970's the American state did not envision derivatives markets as a source of power. According to Aguiar, the Nixon government had no clear vision of how the post-Bretton Woods international financial system would operate. Their goal was ensuring the American state monetary autonomy by ending the dollar to gold convertibility and the support for capital controls cooperation. As in the words of Volcker:

“Presidents – certainly Johnson and Nixon – did not want to hear that their options were limited by the weakness of the dollar. Consider the issue of maintaining our troops in Germany and Japan. It would be a gross simplification to boil all that down to a calculation of how many U.S. divisions abroad were worth how much loss of gold” (VOLCKER; GYOHTEN, 1992, p. 62 *apud* TORRES FILHO, 2018, p. 24).

Despite the intention to maintain American hegemony, there was no apparent strategy of what kind of governance the American state would impose on the international

financial system, as the 1970's crisis over both American hegemony and over the international financial system's operation shows (AGUIAR, 2016).

Actually, the conservative coalition project to underpin the new financial governance based on deregulation and financial innovation started to take up its earlier form only in the beginning of the 1980's (KRIPPNER, 2011). By that time the academic and technical environment for regulatory discussions on those instruments started to flourish, with one fundamental position undertaken by financial practitioners, invoicing financial institutions' interests, that quested the very own need for regulating futures markets and claimed that non-regulated markets generate competitive markets (HOUTHAKKER, 1982; CAGAN, 1981). Nevertheless, only in 1999 were derivatives exchanges allowed by the CFTC to launch new instruments with prior approval from the Commission.

Nonetheless, as Kindleberger stated in the 1960's, academia was aware that a system based in fixed prices for both exchange and interest rates would not be possible in a world of ever-expanding liquidity in U.S. dollars. The discourse over the need for a floating exchange rate regime in the 1970's was itself linked to underlying idea: that this new financial system needed instruments to deal with systemic volatility at the microeconomic level, by agents, companies and banks to become operable.

That assumption was clearly observed in the Treasury's attitude by the time of the CFTC authorization in 1975. The department feared off-exchange traded futures were submitted to CFTC regulatory jurisdiction. This decision would enlarge CFTC jurisdiction to include futures and forwards on interbank transactions, which already made up a significant portion of the American over-the-counter derivatives in the 1970's. Helleiner reveals the historical influence of the banking lobby over the Treasury because the latter is responsible for regulating the banking system. For the author, the influence one had over the other was such that the Treasury department became, since the end of the 19th century, the central channel of strategic formulation and representation of bankers' interests in the American administration (HELLEINER, 1994).

The Treasury's argument against the CFTC jurisdiction to regulate derivatives managed by banks was that it would create regulatory uncertainty for their operation. Officials moved, then, to pass an amendment in Congress specifically exempting off-exchange traded derivatives from CFTC regulation. This amendment has been known as

Treasury amendment, inaugurating the regulatory exemptions⁶⁰ for OTC derivatives markets in the United States. The difference in lobby achievement between exchanges and banks in what regards granting regulatory exemptions for derivatives business sets up the difference in terms of powers between one and the other. Banks are historically a very strong lobby sector as Helleiner (1994) shows, while futures exchanges depended on farmers (a strong lobby sector) to advance their interests and as such were vulnerable to their *quid pro quo* (HELLEINER, 1994; ROMANO, 1997).

It is only the development of swaps and the subsequent boom in the OTC derivatives markets in the 1980's that calls the attention of regulators to its activities once more. As Table 7 shows.

SELECTED OFF-BALANCE SHEET ACTIVITIES OF US BANKS, 1980-1987*
(\$ billions)

Year	Capital	Loan Commitments	Standby Letters of Credit	Commercial Letters of Credit	Foreign Exchange Commitments Outstanding	Interest Rate Swaps Outstanding
1980	108	na	47	20	177	na
1981	118	na	72	20	189	na
1982	129	na	100	17	215	na
1983	141	432	120	30	464	na
1984	154	496	146	30	584	na
1985	170	531	175	29	735	186
1986	183	572	170	28	893	367
1987	187	574	167	31	1241	451

* First quarter, 1987.

Source: Information supplied to author by Mr J. Chessen, Federal Deposit Insurance Corpn.

Table 7: Growth of OTC derivatives markets in the 1980's for foreign exchange derivatives and IRS outstanding. Source: LEWIS (1988).

⁶⁰ Financial regulation norms, rules and procedures are agency, instrument and institution-specific in the United States. It means that if an agency has exempted a financial instrument or financial activity from regulation, it means that agency will not oversight, supervise and enforce any regulatory act under financial institutions carrying out financial activities with that specific financial instruments. However, if a financial institution is exempted from regulation over a specific instrument or over a specific market segment, it does not mean that this institution is "free" from all kinds of financial regulation. Other agencies may still claim jurisdictional powers over its activities. In the case of the regulatory exemption for off-exchange derivatives made by CFTC, it meant that banks would not have oversight from this agency no longer within activities carried on with those instruments. Nevertheless, they would still be subjected to an overall regulatory framework whose banking institutions are subjected to under the National Bank Act. Supervised and enforced by the Office of the Comptroller of the Currency, a bureau under the Treasury Department.

In a restricted sense, the OTC swap market and, in a broad sense, the OTC derivatives market generated a true regulatory contention between different American financial regulatory agencies and the Treasury in which both regulators and monetary policy officials were guided by differing views in their intentions on whether to concede regulatory exemptions or not.

From the 1980's to the 1990's the OCC, CFTC, SEC, GAO, FED and the Treasury have found themselves entangled in a regulatory dispute whereby motivations for competitiveness, systemic importance, regulatory grasp and fear of systemic risks divided agents' views in such a strong political separation that inclusively the Congress had to act as both a contender and an ultimate voice. Those regulatory struggles, as well as the differing motivations of the contending agents, are presented below in sequential order.

The Office of the Comptroller of the Currency (OCC) is the oldest regulatory agency over banks, established as bureau of the FED, and whose function is to charter and regulate American national commercial banks (active banks in all American states). One of this agency's roles is to authorize new banking activities in accordance with the 1862 Bank Act, which states the powers of banks, or in other words, which activities they are allowed to perform. The allowance of new banking activities is made through the OCC's interpretive letters in which banks submit new activities for analysis and receive comment on whether they might be performed, how, and to what extent.

According to Omarova, since the 1960's the OCC through its interpretive letters favored a broader scope for banking activities. However, two opposing views were in dispute inside the agency, one that according the author was: "open to constant change and capable of including any financial activity of the day" and another, more intermediate reasoning, stated that the business of banking should concern only the activities related to "deposit taking, credit granting, or credit exchange". From 1980's onwards the former, more broad view, became predominant, meaning that OCC was willing to authorize activities out of the traditional scope of deposit taking and lend making of banks. (OMAROVA, 2009, p. 1050).

Omarova challenges the view that the change in OCC interpretive letters to a broader approach was a product of technical and neutral decisions, for the author:

"Contrary to an implicit assumption underlying most conventional explanations, the financial innovation of recent decades did not happen 'naturally'; it was not some generalized evolutionary force but, to great extent, a product of policy choices and decisions by regulatory agencies. [They have shaped] the course of financial innovation and enabling regulated financial institutions to take increasingly greater and more complex risks [and with

opaque policy choices – done through agency interpretation and policy guidance on a discretionary basis], the OCC gradually and deliberately expand[ed] the ability of large U.S. commercial banks to engage in trading and dealing in complex over-the-counter derivatives and emerge as the leading players in global derivatives markets” (OMAROVA, 2009, pp. 1044-1045).

Through its interpretive letters, banks required new activities to be analyzed by OCC and this agency authorized various derivatives transactions as incidental or part of the business of banking. These authorizations had a political purpose – to allow commercial banks to become large and skillful risk managers. Still in line with the author:

OCC articulated an overly expansive definition of the ‘business of banking’ as financial intermediation and dealing in financial risk, in all of its forms, and that this pattern of analysis allowed the OCC to expand the range of bank-permissible activities virtually without any statutory constraint. [By elasticizing the concept of the business of banking the OCC] *empowered the largest U.S. commercial banks to emerge, in the last twenty plus years, as a new breed of financial super-intermediary – a wholesale dealer in financial risk*” (Ibid, p. 1047, our emphasis).

According to the National Bank Act, commodities derivatives transactions should not be permissible because they involved banks making or accepting the physical delivery of a nonfinancial commodity and to deal with nonfinancial products is not an activity of banks. Nonetheless, in 1987 the OCC authorized the Chase Manhattan matched commodity swap index trading. The agency understood that swaps were similar to lending and deposit taking activities of banks and in general possessed the same risks. As those transactions were matched, meaning end-users like farmers were the counterparty, the OCC interpreted the operation was just like the bank offering a loan to a borrower in exchange for an interest rate.

That decision inaugurated a regulatory battle between OCC and the CFTC. A few months later, OCC authorized Chase Manhattan commodity swaps. At the same time, the CFTC started an investigation of the same contracts and launched a note requiring comments over the possible regulation of hybrids⁶¹ and commodities swaps. According to CFTC these contracts would be similar to the structure of payments of futures and therefore those instruments would be non-authorized futures that should pass to the agency’s jurisdiction. The CFTC, as a recently founded regulatory agency and in need of reauthorizations from Congress⁶², held the grips of the instruments it could exercise

⁶¹ Derivatives contracts that are combinations of different types of derivatives like the swaption, for instance, which is the option of a swap.

⁶² One specificity about the CFTC is that it needs periodical reauthorization from Congress to have its regulatory activity considered as jurisdictionally valid. Romano gives a political explanation for this

jurisdiction over, in order to justify its own existence and purpose (ROMANO, 1997; SCALCIONE, 2011).

CFTC's intention in regulating the OTC derivatives market was fiercely criticized by the financial industry lobby that was by this time organized around ISDA. Monetary policy officials and agency regulators joined the financial industry lobby revolt. They were: Treasury secretary Nicholas Brady, former Wall Street banker; Richard Breeden, Securities and Exchange Commission's (SEC)⁶³ chairman and Alan Greenspan, the FED's President. From that point, this powerful interest group openly acted to block the CFTC in attaining its goal of regulating hybrids and commodities swaps.

High American officials, to which the OCC is connected, favored the broader OCC interpretation of what banks activities are and radically disapproved of the CFTC regulating banking sector activity, which they were guardians of.

As a result of powerful opposition, in 1989 CFTC disclosed a policy statement considering that some commodities' transactions, according to the agency's jurisdiction, would not be regulated as futures. The exemption for swaps was based on some of its characteristics such as: terms customized individually; lack of a clearing system and margin requirements; business lines that were not sold to the public, what did not give swaps the same features of exchanged-traded futures, those ones under the CFTC jurisdiction. Notwithstanding, CFTC policy statement while exempting *some* swap transactions, opened space to non-exempted contracts to be regulated, indicating regulatory uncertainty to the financial industry. As Wattenbarger observes:

However, the policy statement did not represent a determination by the CFTC that the Commodity Exchange Act is wholly inapplicable to OTC derivatives. Rather, the CFTC expressed its view that 'at this time most swap transactions, although possessing elements of futures or options contracts, are not appropriately regulated as such under the Act and regulations.' The CFTC left open the possibility of future regulation of OTC derivatives (WATTENBARGER, 1999, p. 9-10).

In the same year of the CFTC's withdrawal from regulating swaps, as a way to reduce the bank industry awareness of legal uncertainty, the OCC issued an interpretive letter, assuring that the banking powers govern not only over the activities listed on the

feature: back in 1974 when the creation of independent futures regulation was being discussed in the Congress, Democrats wanted to transfer power from the executive branch – because they wanted to weaken Nixon administration – to legislative branch. One way they sought to have control of the new agency was to periodically reauthorize its regulatory jurisdictional powers.

⁶³ American regulatory agency for capital markets.

National Bank Act. Instead, the powers were extensive to any incidental activity the bank needed to carry out as part of its business, in a clear sign of definitely backing out of the prior intermediate view of banking activities. Further, *the OCC considered that if banks could trade on underlying assets, they could also trade in its respective derivatives, increasing the freedom of banks to operate derivatives as they desired, for it opened space for banks to come up with derivatives to virtually any kind of underlying asset.* However, the regulatory uncertainty left by the possibility of the CFTC regulating off-exchange derivatives, especially swaps, made the financial industry allied to monetary policy officials to search for a definitive exemption to that financial market segment. In fact, that interest group had been showing an increasing discontent to CFTC's continuous jurisdictional expansion over a growing class of financial derivatives, not only over swaps, but also over futures and options on stocks and stock indexes.

The CFTC, differently from the OCC, was an agency that required periodic reauthorizations for its supervisory and regulatory activity to have legal validity; Therefore, the officials mentioned above pressed the Congress, as from 1990, to validate the third agency reauthorization through conditioning two amendments to CFTC's statute. One would guarantee the transfer of jurisdiction over stock derivatives to the SEC – a more “sensible” agency to financial industry lobby interests, whereas the other would guarantee absolute jurisdiction for the CFTC to exempt swaps and hybrids traded over-the-counter.

The first amendment was rejected because both exchanges and farmers feared the CFTC would lose political power and suffer budget constraints if it lost regulatory jurisdiction over stocks and stock index futures, adversely affecting futures markets. The second amendment passed in 1992 when the third agency reauthorization came into effect and in 1993 the CFTC, following explicitly the amendments recommendations exempted hybrids and swaps from regulation, pointing to a victory of the banking lobby (ROMANO, 1997; WATTENBARGER, 1999).

In the meantime, from 1990 to 1992, the OCC allowed banks to engage in non-matched or portfolio commodities swaps trading for non-speculative purposes. Trading could happen in exchanges and OTC markets and could also involve underlying assets that were closely related to commodities. That meant in practice the OCC was allowing banks to engage in derivatives activities for purposes other than hedging end-users. Despite having prohibited speculative trading, the differences between hedging and

speculation were so subtle that regulators could not easily face the difference and punish speculator banks. Henceforth, the agency was authorizing banks to engage in swaps transactions for speculative purposes, with the justification that this activity was incidental to bank activities because they should seek financial exposure to underlying assets as part of their business. As the OCC tendency was successively to broaden banking powers to authorize a greater range of derivatives to be traded by banks, up to 1994 foreign exchange, interest rate, commodities and equities swaps for non-hedging purposes were all authorized by the agency (OMAROVA, 2009).

It is important to stress this OCC action because allowing speculative activities, even if not directly, was fundamentally important to improve liquidity in OTC derivatives markets, as speculators taking positions as forms of bets are the agents granting that hedgers will be able to move in and out of positions quickly, easily and not having returns harshly affected. This interpretation was key in enlarging the OTC derivatives markets. Besides, as the agency was controlled by the FED, it is important to note that monetary policy officials saw the regulatory exemption as badly needed for the new role of risk management banks were assuming. If this were not the case they would not have fought for those exemptions so hardly.

In fact, swaps were being favored by regulators since beginning of the 1990's. Regulators believed derivatives would give banks better risk management capabilities. That, in accordance to Torres Filho (2014), by extension allowed the expansion of banking activity, since derivatives allowed the expansion of the portfolio. Hence, as risks were increasingly being offset through derivatives, their market turnover was also increasing. Therefore, liquidity was extended into other parts of the global financial system because agents could now take on positions in locked future prices with low cost. This turned more agents into market participants and thus more counterparties to back operations (OMAROVA, 2009, p. 1067; TORRES FILHO, 2014).

In this sense, it is important to observe the differing attitude of regulators in the 1970's and 1980's from the 1990's and 2000's. Up to mid-1980's financial derivatives were opaque and even unknown by regulators. They did not have a full picture of how those instruments operated, were traded, the risks they posed and their effects over the financial system.

Goodhart brings in some important evidences of this in his historical study of the BCBS (GOODHART, 2011). According to the author, a debate over whether and how to regulate bank's off-balance sheet activities started in 1985 in the BCBS. Off balance sheet

“denotes that the activities involving contingent commitment or contracts which generate income to a bank but are not normally captured as assets or liabilities under conventional accounting procedures” (LEWIS, 1988, p. 387). In the 1980’s, Banks were leveraging off-balance sheet positions in as much as several times of its balance sheet books. This was calling the attention of regulators because they feared it could be a path for regulatory evasion and for an overwhelming risk exposition. Among all off-balance sheet instruments, derivatives were identified as one of the most profitable and thus most important.

In the first BCBS report in 1985 on off-balance sheet activities, regulators were encouraged to supervise and find appropriate methods of control and measurement for both amounts outstanding and risk levels of those activities. In 1986 regulators sought to bring them to the records of supervision and in 1987 they extended the risk ratio classification that endured for on-balance sheet items to off-balance sheet items (GOODHART, 2011, pp. 351, 353 and 358). This brings enough evidence to say that still in the 1970’s and early 1980’s regulators did not have a clear idea of what derivatives were. However, from mid-1980’s OTC derivatives activities boom, prompted regulators to start to study and investigate those instruments. In 1990 the BCBS recognized the possibilities that swaps give in terms of enhancing risk exposure and management in foreign exchange and interest rates. The committee even argued in favor of a reduction the capital requirements’ coefficient⁶⁴ as long as banks manage risk using these instruments. As Alworth and Kurtedo quote:

“les possibilités qu'offrent les swaps, pour une gestion globale des risques de taux ou de change, avec une souplesse plus grande et des risques de crédit et de liquidité moindres que sur le marché au comptant (...); cet avantage est explicitement reconnu dans les norms de fonds propres établies au sein du Comité de Bâle, qui leur affecte un coefficient de risque inférieur à celui des opérations portées au bilan (...) Plus concrètement, les autorités monétaires ont encouragé l'établissement d'accords de compensation juridiquement acceptables et universellement reconnus. En novembre 1990, la BRI publiait un rapport (Rapport Lamfalussy) préparé par l'un de ses comités (Committee on Interbank Netting Schemes), soulignant les possibilités d'une réduction des risques systémiques par la compensation sous certaines conditions. Les travaux de l'ISDA pour une reconnaissance de ses contrats-cadres par l'ensemble des juridictions du Groupe des Dix vont également dans ce sens.

⁶⁴ The first international agreement for banking regulatory harmonization rules was established in 1988. It set up that banks should keep a minimum of own capital in order to have enough liquidity to face situations of financial panic. Those minimum own capital levels were called “capital requirements” and were calculated according to an agreed coefficient that took into consideration, among other aspects, the level of risks banks had been submitted. In the 1990’s the discussions revolved around the idea that swaps – by its risk management attributes – could be used to lower capital requirements, since those instruments would guarantee that the banks’ portfolio risks would be better managed.

Pour les grandes banques internationales, une telle reconnaissance permettrait de réduire considérablement les exigences en matière de fonds propres” (ALWORTH; KURTEDO, 1997, p. 94, our emphasis).

The BCBS’s enthusiasm for swaps was so high that the organization itself started to encourage banks to use derivatives as risk management tools:

“The Basel Committee has welcomed this advice [that derivatives should be used] and has begun to work closely with financial services firms on risk management protocols. Its approach is to identify 'best practice' and to publicize these widely. Reflecting a certain faith in market discipline, it believes that the markets will reward those firms whose practices are up-to date and come closest to these ideal types (Padoa-Schioppa 1997)” (...). *Similarly, in developing a revised capital adequacy standard for banks that takes account of market risk, the BCBS has sought to encourage common practices for treating derivatives on and off the balance sheets of global banks” (COLEMAN, 2012, p. 31, our emphasis).*

As Spagna recalls “In the mid-1990s, the OCC, in cooperation with the Federal Reserve, also approved banks’ use of CDSs to reduce their required capital reserves under Basel I” (SPAGNA, 2018, p. 36). The above evidence shows that as regulators became aware of the potentials of derivatives they started to favor their use by banks, so those institutions could manage the post-Bretton Woods systemic risks while expanding its activities, which reveals that top officials in international financial institutions considered those instruments as strategic relevant for the global financial system expansion, apart from lobby influence. The same positioning could be seen in the U.S.; as in the words of Greenspan:

Derivatives have permitted the unbundling of financial risks. Because risks can be unbundled, individual financial instruments now can be analyzed in terms of their common underlying risk factors, and risks can be managed on a portfolio basis. Partly because of the proposed Basel II capital requirements, the sophisticated risk-management approaches that derivatives have facilitated are being employed more widely and systematically in the banking and financial services industries (GREENSPAN, 2005, p. 1).

Therefore, the governor of the FED, one the most important American officials in the post-Bretton Woods restructuring of global finance declared the systemic importance of OTC derivatives markets. At the same time, the FED through OCC and U.S. Congress battles had actively waged to keep derivatives unregulated as a form of boosting derivatives-dealer banks’ activities. It is, therefore, a sign of the importance the high American financial officials gave to these instruments not only for the proper operation of the American and global financial system, but also to the reinforcement of U.S. dollar’s hegemonic position, an idea that will be further explicated in the next section. After all, *what was at stake was the capacity of American banks to become the governors of post-*

Bretton Woods global risks. As such, regulatory exemptions would give U.S. banks a large space for ingeniously making innovations to improve risk management techniques. It would allow financial institutions to deliver the financial markets synthetic assets as risk free as American public debt and by that reinforcing U.S. dollar hegemony. As long as the U.S. Treasury Bill would stand as the pattern to which all global risks would be evaluated and priced. All of this taking place in a time when the faith in private governance and minor worry over systemic risks were the prevalent ideology.

Contradictorily, also in the mid-1990's the OTC derivatives market's growing turnover started to call the attention of regulators to the systemic risk it might pose. In 1994, a wing of the Democratic Party led by then representative Edward Markey put forward a series of hearings in the subcommittee of telecommunication and finance in the House of Representatives. These hearings followed a series of scandals – massively displayed in the media – involving millions of dollars lost by companies and even by Orange County, California, which traded derivatives over-the-counter with banks.

Companies' lawyers alleged that clients had not been clearly informed about the nature and risks of contracts, raising worries among American public opinion about the proper regulation of those contracts and made the Congress, pressed by the politicization of theme, to summon the hearings. The Government Accountability Office (GAO), the agency responsible by comptrolling and public auditing in the United States, expressed during the hearings the high levels of systemic risk the OTC derivatives markets endured:

[...] A 1994 GAO report warned that the 'combination of global involvement, concentration, and linkages means that the sudden failure or abrupt withdrawal from trading of any of these large US [derivatives] dealers could cause liquidity problems in the markets and could also pose risks to the others [financial institutions], including federally insured banks and the financial system as a whole (PAGLIARI, 2013, p. 134).

"In its 1994 report on derivatives, the USGAO noted this gap and signaled its worry. The five major broker-dealers and the three largest insurance firms in this group accounted for about 30 per cent of US OTC dealers' total volume (USGAO 1994: 11). The USGAO and many members of Congress worried that this regulatory 'gap' might provide an opening for systemic risk, because these unregistered affiliates often held large positions in OTC derivatives markets. Evidence shows that some of these large positions were with another unregulated group of firms, hedge funds. Regulators simply did not have access to this information, a factor that added to the severity of the systemic crisis created by the near collapse of a very large hedge fund in 1998, Long Term Capital Management (LTCM)" (USGAO 1999, p. 4 *Apud* Coleman, 2012, p. 26)

Besides, the GAO explicitly recommended that the American Congress place OTC derivatives markets under consistent regulation by federal agencies. Nevertheless,

during the hearings, financial industry lobbyists affirmed self-regulatory initiatives prompted by ISDA were sufficient to that markets safe operation. High American officials like the FED's Alan Greenspan and the SEC's Arthur Levitt defended private self-regulation as well. As in the words of Levitt in one of the hearings:

“I am here today to address recommendations made last week by the GAO in its study of the derivatives market. I commend Charles Bowsher and his colleagues at the GAO. The report contains a thoughtful assessment of the derivatives marketplace and accurately identifies a broad range of goals and objectives for the regulatory community. There is obviously a great deal to be done. We need to understand this market better, and we are going to have to go to the industry to do that. The question for all of us here today is not whether this market is going to have more regulatory oversight but how it will get done. From the SEC's perspective, I believe the first step is not legislation but a careful evaluation of the market and an assessment of the level of cooperation we, as regulators, will receive from the industry in designing a sensible regulatory structure” (HOUSE OF REPRESENTATIVES, 1994, p. 188-189).

Subsequently to the hearings, Congress members submitted bills to: i) increase the regulatory supervision by federal regulatory agencies to derivatives transactions in the banking system; ii) increase the international cooperation efforts to regulate OTC derivatives markets; iii) forbid institutions that receive federal deposit insurance to engage in derivatives trading; iv) demand from financial institutions that trade derivatives to introduce capital, accounting and transparency requirements; and v) enforce the SEC to regulate OTC derivatives markets. Nevertheless, *none* of the bills neither any similar became effective regulation due to the intense lobby of the ISDA and high monetary policy officials' opposition (PAGLIARI, 2013; SPAGNA, 2018).

In 1998, the Clinton administration nominated Brooksley Born to be the chair of CFTC. She was openly in favor of granting the agency enough jurisdictional powers to regulate the OTC derivatives market for considering it too untransparent. For her, there was no recording keeping or reporting in that market, regulators had no information of what was going on. There was no way for the government to know how big the market was and who was taking part in the transactions, making this financial market segment prone to fraud. Likewise, she was afraid of systemic risk effects from the unregulated status that market had. In a time when the financial expansion was on its way (THE WARNING, 2009).

Soon after she took charge, she was personally warned by Greenspan that she should not try to regulate OTC derivatives at risk of triggering an unforeseen financial crisis. Nevertheless, she moved on with her initial aim and in May 7th, 1998 the CFTC

published an official document called *concept release* in which the agency asked interested parties to comment on the possibility of regulating OTC derivatives markets.

The release was immediately repelled by the *President's Working Group*, an interest group joined on behalf of the American Presidency consisting of the then Treasury secretary Robert Rubin, FED president Alan Greenspan and the SEC's Arthur Levitt. The group considered a public communiqué that Mrs. Born declaration was a misjudgment. In addition, the President's Working Group announced that it would call upon the Congress to approve a bill blocking the CFTC from regulating the OTC derivatives markets. As an independent agency, only the Congress could prevent it from taking action; a case on nearly the same aspects to the 1987's later conflict.

After a series of hearings in the American Congress where the CFTC chairperson, the President's Working Group members and financial industry lobbyists testified, representatives voted for forbidding CFTC to regulate OTC derivatives markets. Finally, in 2000 Congress passed the Commodity Futures Modernization Act (CFMA) with a clause that removes from the CFTC statute the jurisdiction to regulate OTC derivatives between sophisticated parties, or financial institutions specialized in OTC derivatives markets – the derivatives dealer banks. From that point the CFTC would only be charged to supervise the self-regulation of financial institutions trading derivatives (THE WARNING, 2009).

Coleman sums up the strategic feature behind these regulatory struggles:

“The CFTC exemption for selected OTC derivatives, the tolerance for a number of unsupervised affiliates of broker-dealers and FCMs working in OTC markets, and the reluctance to reform existing institutional arrangements to permit a single supervisory authority all exemplify somewhat special treatment for the supervision of OTC derivatives markets and of the firms active in those markets” (COLEMAN, 2012, p. 34).

However, despite clear actions of the OCC and the BCBS as well as U.S. monetary policy officials to favor the derivatives trading of banks, it is still necessary to investigate agents' rationality. It is important to check whether they had a strategic plan in mind when they proceeded to fight for regulatory exemptions or at least if they had any macro or systemic reasoning in those actions. This is inquired into in the next section through a case study of the 1998 congressional hearings on OTC derivatives regulation.

4.4. American officials' strategic rationality on OTC derivatives regulation: the 1998 case study

On June 10th, 1998, Brooksley Born, called upon Congress for a hearing on over-the-counter derivatives markets and defended the power of the CFTC to regulate and even exempt from regulation derivatives instruments traded in OTC markets. She endorsed the exemption powers of the Commodities Exchange Act and the Treasury Amendment. She stated that over-the-counter transactions in foreign currencies, government securities, and certain other financial instruments, as well as options on securities and options on securities indexes are excluded from the act's regulatory range. However, she argued that the CFTC's exemption for swaps and hybrids did not exempt all of those instruments and that even though exemptions meant those instruments should not be regulated, they still had to be subject to some requirements:

“To be eligible for exemptive treatment, the swap must be a swap agreement as defined by the rule: it must be entered into solely between certain defined eligible swap participants; it must not be part of a fungible class of agreements that are standardized in their terms; it must include as a material consideration the credit-worthiness of the parties to the obligation; and it must not be entered into or traded on or through a multilateral transaction execution facility” (HOUSE OF REPRESENTATIVES, 1998a, p. 4)

She argued, then, that the developments in swaps markets “encompassing new end-users of varying degrees of sophistication, (...) [had raised questions] whether the Commission should broaden the definition of eligible swap participants contained in its current rule, and whether record keeping, sales practice, or other protections may now be appropriate”. (Ibid.). She then addresses the motivations for the concept release to be issued, which are linked to concerns of eligible participants in the market and whether current regulation is sufficient to play an anti-fraud and anti-manipulation roles. In her own words:

“The Concept Release seeks public comment on whether the Commission's current exemptions for swaps and hybrid instruments remain appropriate as to the definitions of eligible transactions and eligible participants and the prohibitions against fungible swaps, swaps clearing, and transaction execution facilities. It asks whether the current prohibitions on fraud and manipulation in swaps transactions are sufficient to protect the public, or whether the Commission should consider terms and conditions relating to registration, capital, internal controls, sales practices, record keeping, or reporting” (HOUSE OF REPRESENTATIVES, 1998a, pp. 5 – 6).

And in spite of her guarantees: “The Concept Release does not propose any modification of the Commission's regulations, nor does it presuppose that any modification is needed. The Commission is open to evidence in support of broadening its exemptions, evidence indicating a need for additional safeguards, and evidence for maintaining the status quo” (Ibid. p. 6). The other members of the President’s Working Group understood that the concept release was a broad attempt to regulate OTC derivatives markets. As in the words of John Hawke Jr., undersecretary for domestic finance of the Treasury, on July 24th, 1998 – the last hearing specifically held on the subject:

“CFTC may be considering overseeing OTC derivatives clearinghouses, regulating multilateral transaction execution facilities for OTC derivatives, requiring registration by OTC derivatives dealers and perhaps other market participants, imposing capital requirements for OTC derivatives dealers, prescribing internal control requirements for OTC derivatives market participants, establishing extensive sales practice rules and disclosure requirements for OTC derivatives dealers, adopting recordkeeping and reporting requirements for OTC derivatives dealers and requiring mandatory membership in a self-regulatory organization for OTC derivatives dealers” (HOUSE OF REPRESENTATIVES, 1998b, p. 76).

Basically, the FED and Treasury’s main concern – as evidenced in Hawke’s testimony – was that the CFTC would, subsequently to the concept release, launch regulations for swap markets that would reassemble the tighter regulations of futures markets. As expressed in Larry Summers’ own words in the June 30th, 1998 hearing – the second hearing on the subject:

“If swaps are viewed as futures ‘the legality of swaps involving nonexempt securities’ would be called into question. Consequently, if OTC derivatives based on nonexempt securities are deemed to be futures contracts, there is the possibility that they could be viewed as illegal and unenforceable. Second, the Concept Release causes uncertainty for other types of OTC derivatives, even those that would be clearly covered by the CFTC's exemptive authority, if they were deemed to be futures contracts, since it raises the possibility of increased regulation over this market.” (HOUSE OF REPRESENTATIVES, 1999, p. 8).

It is important to observe that what the FED, Treasury and SEC claimed as a matter of legal uncertainty posed by the concept release interpretations was in fact a fear of the intention of the CFTC to regulate OTC derivatives markets just as futures markets. That could be seen in Greenspan’s insistent argument that the Commodity Exchanges Act (CEA) is not applicable to OTC, rather only to exchanges and that concerns have persisted on the matters that the CEA could jeopardize the enforceability of certain OTC derivatives transactions. Greenspan in the hearings extensively argued as to why OTC derivatives markets should not be enforceable under the CEA, emphasizing that those markets had a

different infrastructure, business environment and compliance mechanisms than futures markets. He argued that the regulation of OTC swaps in particular and OTC derivatives in general would undermine the competitiveness U.S. derivatives dealer banks. This would trigger banks to move their derivatives dealing activity abroad, taking out from American regulators' oversight this important market segment when it was in fact American exemptive regulatory action, he contends, that was essential for this market to thrive. Still in his words, without American regulators supervision, the competitiveness of American banks dealing OTC would be at risk (HOUSE OF REPRESENTATIVES, 1998b, p. 30.).

Top officials from the FED, Treasury and SEC then joined Greenspan in arguing about the systemic importance of OTC derivatives market to the American economy and to the global financial system proper management. They successively made the point that it was unnecessary to regulate the markets, either pointing to the legal uncertainties it would create if swaps were regulated under the CEA⁶⁵ or even highlighting the possibility of financial crisis posed by this rising "legal threat" (HOUSE OF REPRESENTATIVES, 1998a, 1998b and 1999).

It is important to highlight, however, that officials did have a strategic view of what regulatory exemptions in OTC derivatives market did in terms of opening space for that market to become fundamental for the American and global financial system. Some would back a deeper notion that the regulatory exemptions for OTC derivatives had been essential for the OTC markets innovative environment. In the words of James Leach, House representative member of the foreign exchange committee:

“(...) though they have become important risk management tool, over-the-counter swaps and hybrids have only recently come off the drawing boards of our financial engineers, and do not fit legal definitions written long before they were created. So as not to risk standing in the way of innovation, Congress in 1992 ducked the issue of determining whether swaps and hybrids constitutes future contracts under the Commodity Exchange Act. Instead, Congress encouraged the CFTC to exempt swaps and hybrids and possibly all but the fraud manipulation provisions of the CEA. The Commission promptly acted on the exemptions. Although this was – and remains – an imperfect solution, it did provide a measure of legal certainty, allowing OTC derivatives markets to grow at rapid pace” (HOUSE OF REPRESENTATIVES, 1998b, p. 284).

⁶⁵ It is important to make clear that the Commodity Exchange Act is the overall regulatory framework to which futures and options and subjected to and the CFTC is the regulatory agency responsible to enforce it.

Richard Lindsey, director of the division of market regulation from SEC, reinforces Leach's view:

“In enacting the Futures Trading Practices Act of 1992, Congress gave the CFTC broad exemptive, not regulatory, authority concerning swaps transactions. The conference report for the CEA verifies that the purpose for giving the CFTC those exemptive powers was to provide certainty and stability to existing and emerging markets, thereby fostering financial innovation and market development. The objective was legal certainty for swaps, not expansive regulation of an evolving market” (HOUSE OF REPRESENTATIVES, 1998b, p. 87).

For others, as Michael Brosnan, deputy comptroller for risk evaluation for the OCC, there was a direct relation between the condition of American banks as derivatives dealers, their capacity of managing risk and the then regulatory status:

“While we note that the derivatives market, and, in particular, the swaps market, is growing rapidly, we believe that the current regulatory structure for these markets is effective and appropriate. From our perspective as bank regulators, we know that banks' derivative activities include not only their role as dealers to satisfy customer demand, but also the integration of the activity into their asset/liability risk management processes” (HOUSE OF REPRESENTATIVES, 1998b, p. 376).

Kenneth Ryder, executive director, office of research and analysis of thrift supervision would also argue that regulating OTC derivatives markets would raise the cost of operations, which regulators regarded as a deeply undermining effect and highlighted the importance of regulatory exemptions for market operations:

“the [Office of Thrift Supervision] would be concerned if the cost of OTC derivatives transactions were to increase significantly as a result of additional regulation. It would be unfortunate, indeed, if -- because of additional regulation --the costs of engaging in derivatives transactions to hedge or manage risk were to escalate and become prohibitively high for those seeking to manage and control their interest rate risk exposure.” (HOUSE OF REPRESENTATIVES, 1998b, p. 390).

The centrality of OTC derivatives markets for both the American and the global economy was also a topic in discussion. Again, in the words of Hawke Jr. from the Treasury:

“the OTC derivatives market is a huge, global market, which, when properly used, enables participants, including many businesses, to manage their risk exposures and lower their financing costs. For example, a small U.S. business involved in exporting or importing goods can use derivatives to protect against fluctuations in foreign exchange rates. OTC derivatives also serve as an alternative mechanism for participants to take positions based on their market views, which can increase the liquidity and narrow the bid-ask spreads in the underlying cash markets. These functions of the OTC derivatives market serve to facilitate domestic commerce and international trade, capital formation, and international investment flows and, thus, ultimately, economic growth. Developments that disrupt this market are clearly not desirable. Such disruption can inhibit the use of an important risk management tool. Also, the

perceived threat has global implications because of the linkages among markets worldwide. At some point, disruption can increase systemic risk, especially if a fear develops that obligations will not be honored on a large scale.” (HOUSE OF REPRESENTATIVES, 1998b, pp. 295 - 296).

Greenspan and Lindsey, respectively, reinforce this strategic view:

“The large increase in the volume of OTC transactions reflects the judgments of counterparties that these instruments provide extensive protection against undue asset concentration risk. *They are clearly perceived to add significant value to our financial structure, both here in the United States and internationally*” (HOUSE OF REPRESENTATIVES, 1998b, pp. 308 – 309, our emphasis).

“OTC derivative instruments are important financial management tools. They reflect the unique strength and innovation of American capital markets, and the securities firms and banks that participate in those markets. The growth of the OTC derivatives market has come in part as a result of the careful approach taken by Congress and U.S. financial regulators. That approach has focused on promoting legal certainty for OTC derivatives transactions and building consensus among regulators through the President's Working Group on Financial Markets”. (HOUSE OF REPRESENTATIVES, 1998b, p. 86).

Finally, Summers statement that “the American OTC derivatives market is second to none. In a few short years, it has assumed a major role in our own economy and has become a magnet for derivative business from around the world” (HOUSE OF REPRESENTATIVES, 1999c, p. 8) is a sign that American top officials had in mind OTC strategic importance. Therefore, by understanding the political struggle over OTC derivatives markets as a historical development, it is clear that top American officials were aware of the coordinate efforts of both Treasury and FED to keep these markets exempted. As they were also mindful of the impacts this policy had in allowing American banks to become dominant and play a fundamental role in global risk management. This specific connection is captured in the words of Levitt:

“It is widely recognized that OTC derivative instruments are important financial management tools that, in many respects, reflect the unique strength and innovation of American capital markets. In fact, U.S. markets and market professionals have been the global leaders in derivatives technology and development (...) The growth in activity involving this market has come, in part, as a result of the careful approach to regulation taken by Congress and by U.S. financial regulators. That approach has focused on promoting legal certainty for OTC derivative transactions and encouraging the development of sound industry practices. That approach has also relied on building consensus among U.S. financial regulators through their participation in the President's Working Group on Financial Markets” (HOUSE OF REPRESENTATIVES, 1998b, p. 118).

Levitt signals that the regulatory status of the time was not a simple and non-guided development. Instead, it was a deliberately coordinated action between top officials from the FED, Treasury and SEC to allow private self-regulation of OTC derivatives markets to boost its activity. It means self-regulation was not only achieved by private lobbying as some parts of the current literature on OTC derivatives market regulation claim. Nonetheless, self-regulation was favored by public agents who successfully developed a strategy to attract the U.S. government support for this market to thrive, acting under the strategic consideration of its fundamental role into the global financial system. This was achieved by using, since the 1970's, series of normative procedures such as the OCC interpretation letter as well as political instruments such as congressional reauthorizations of the CFTC.

This claim does not deny the possibility that high American officials' actions have also been guided by private lobby incentives. What this hypothesis vindicates is that officials had strategic considerations over derivatives regulatory exemptions besides private influence on deregulatory moves. Considering Strange's concept of bargaining in enacting structural power, it is possible to observe in this case study that public and private agency have come together in forming one compatible amalgamation of interest that boosted American financial structural power. Without denying totally the lobby influence hypothesis on OTC derivatives regulation, the work highlights the autonomous creation of interests and considerations by public agents in that realm.

4.5. Structural power and financial regulation

The OCC's attitude of allowing banks to trade both underlying assets and any related derivatives, without the need to form a matched portfolio⁶⁶, represented an active participation of the American state in the construction – together with private agents – of the global OTC derivatives markets. A fundamental pillar for risk management in the global financial system. This is a clear example of the exercise of financial structural power through an amalgamation of private agents' search for competitiveness, together with the state capacity of enforcing laws and regulations.

American banks' hegemonic position in OTC derivatives, in its turn, was achieved in the late 1990's, out of the competition with European banks. By assuring that American OTC derivatives markets did not have the same position limits, margin requirements,

⁶⁶ It means banks could deal with derivatives without possessing the underlying asset related to it, what was in fact an implicit allowance to deal with derivatives for speculative purposes. This enhanced liquidity for these instruments, prompting a global market for risk management led by American banks.

transparency and clearing rules, American regulators granted their banks a larger maneuver of operation for derivatives management than derivatives exchanges had.

American high officials from the fields of financial regulation and monetary policy did have a strategic view on the importance of regulatory exemptions for the OTC derivatives markets. They knew how much importance that market had gained by the 1990's for global risk management, international capital flows, financial integration and the normalization of the floating rate system and how regulatory exemptions were fundamental for this financial structure to succeed, underpinning and strengthening the U.S. dollar hegemony.

American officials' view became clearer in the hints those agents – namely FED's Greenspan, Treasury's Sumner and Rubin and SEC's Levitt – gave during the hearings in the American Congress over the battle to regulate OTC derivatives markets, challenging the view of Brooksley Born of the CFTC. She was less concerned with what impacts changing the regulatory landscape would have on global financial governance and more concerned with the growing fraud that OTC derivatives were geared toward. On the other hand, for American officials changes in OTC regulatory framework to make it as regulated as exchanges, as Brooksley Born seemed to insist upon, they argued, would cause severe disruptions for the global financial system.

By the end of the 1990's American officials had won the regulatory turf battle with the CFTC, one that had been extended for 20 years, following the trajectory of developments of financial derivatives since the 1970's and allowing attentive observers to see the imbrications between public and private agents in the construction of financial instruments, regulatory frameworks and markets for global risk management. All this was done within the amalgamation of the American state and American financial institutions, acting first in the realm of the American financial system and then making it so that domestic norms and rules were translated globally. This can be seen in the American imposition on off-balance sheet items, such as derivatives, to reduce banks' capital requirements in the BCBS forum in 1998.

This allowed the United States not only to legitimate internationally its domestic regulation, but also to break the norms of the Basel I agreement. The U.S. undermined the 8% risk-based ratio as capital adequacy requirements and imposed a new norm in which capital requirement reduction would be allowed in Basel II. Whenever off-sheet balance items such as derivatives could be used to manage risk. The United States did so because American financial institutions found ways to be more competitive than its

European and Japanese peers at the expenses of the norms for levelling the playing field, they badly needed in the late 1980's.

Therefore, the structural power holder, the United States, rewrote the norms of global financial governance twice through the 1970's and 1990's: Firstly, by suspending the convertibility of dollar to gold with the Nixon shock and through regulatory acts developing OTC derivatives markets as a new form of governing exchange rate risk and flows of international capital, surpassing the Bretton Woods system governance structure. Secondly, in the end of the 1990's the U.S. rewrote the norms for international banking regulation, by allowing domestically and favoring in BCBS the usage of off-sheet balance items, such as derivatives, to reduce the levels of capital requirements that itself had pledged in the 1980's. Because American financial institutions had become more competitive than its peers by using derivatives, the American state acted to sanction the hegemonic position of American banks in the global financial system with this new rule in international banking regulation.

These two events draw a clear exercise of structural power in the amalgamation of the American state and American financial institutions, translating domestic decisions and norms to the global financial governance system and limiting the range of options available to other actors. Agents, in the floating rate regime, are inclined either to use derivatives as forms of risk management or to face high levels of volatility when taking positions. In fact, the U.S. left no option to actors in the global financial system other than managing risk with derivatives if they want to operate in the floating rate regime.

In this regime, there are no public guarantees for international prices and the only guarantees against volatility are privately managed insurances against risk. Even if other states or private agents do not want to trade with derivatives, the structure of the global financial system will lead agents to engage in its usage. That reinforces the condition of the U.S. Treasury Bill and the U.S. dollar to be, respectively, the standard asset and the standard unit of account in the global financial system. Thus, placing derivatives as instruments of structural financial power. Since they allowed the United States to rewrite the norms of global financial governance at the expenses of any other state and without any actor being capable to either resist or find and create alternatives to it.

Final remarks

The objective of this work was to understand how financial contracts and financial regulation can be instruments for the reinforcement of currency and state power. In this case, how financial derivatives have reinforced U.S. dollar hegemony and by extent American state power. The specific objectives were first to understand the relation between financial derivatives and U.S. dollar hegemony. The results show that financial derivatives have made the post-Bretton Woods system operable by mitigating the three fundamental macroeconomic risks: exchange rate risk, interest rate risk and credit default risk and thus allowing any asset in the global financial system to become as risk-free as U.S. Treasury Bills: the standard asset in the system in the same way the U.S. dollar acts as the unit of account. As assets, mitigated by derivatives, became comparable and priceable to U.S. Treasury Bill, they then became interchangeable from one another, allowing global transaction flows and global integration to take place on a fast pace as of 1980's, when global markets for risk management started to emerge with the development of swaps in over-the-counter markets.

Central to derivatives is the capacity to allow assets of different nature in terms of risk to be readily compared and priced. Bryan and Rafferty (2006) described it as the commensurability effect. The point missed by the authors, but showed by Mehrling (2016), is that commensuration by derivatives is only carried out because all assets can become as free of risk as U.S. Treasury Bills and then can be transmutable in terms of risk by each other. Without this asset as standard for risk measurement, risk commensurability would not be possible. Interchangeability of asset in forms of global capital flows that trade assets from different markets, with different risks, would not be possible either and thus financial globalization would be harmed.

Financial derivatives permitted the American state to rewrite the norms of operation of the international financial system in the post-Bretton Woods period. With the Nixon shock the United States freed itself to sustain guarantees that kept a fixed value for the dollar. However, that generated increasing levels of volatility and instability in the global financial system, leading some authors to call it a non-system. Financial derivatives allowed this system to go on without systemic disruption. Through a learning-by-doing process, agents started to use derivatives as a way counter, mitigate and manage systemic volatility. That created a new system of system of guarantees, as highlighted by

Black, in which private financial institutions now offered guarantees against all sorts of financial risk in the form of financial contracts.

Financial derivatives are also in broad terms instruments of structural power, because they allowed the United States to rewrite the norms of operation of the international monetary and financial system unilaterally, determining the range of options available for all agents within this system: after 1971 actors must operate financial risk through derivatives management, having no other option available other than facing risk exposure if not doing so. Therefore, financial derivatives are fundamental pillars in which contemporary global financial governance is underpinned.

This supported the floating dollar regime to become operable, making it so that all currencies could float against U.S. dollars, managing exchange rate volatility with derivatives. In addition, derivatives also enhanced the American monetary policy transmission mechanisms to the global financial system in the dynamics before the 2008 crisis. Once monetary policy is set, derivatives markets adjust possible incorrect expectations of the FED's minimum bid rates and transmit price variation across futures and spot markets for all kinds of underlying assets. Together, these two aspects make it so that derivatives are instruments of structural financial power in Susan Strange's definition of the concept. Since they allow the structural power holder, the United States, to set the norms of access to global money (U.S. dollars) and the norms that define the rate by which all national currencies are exchanged to it.

The choice to use a structural theoretical framework based on Susan Strange's ideas and Black and Mehrling's theory of finance to shed light on the connection between derivatives, regulation, state power and governance came from disagreement on how Marxist and club governance theorists saw derivatives and OTC markets' regulation, respectively. The disagreement with the former regarded the conception of what derivatives were in financial terms and their implications for the global financial system, such as their view on derivatives and forms of global money and capital, instead of insurances against risk. The disagreement with the latter came with its exclusive interpretation of outcomes in OTC derivatives regulation as a function of private interests and lobbying.

This theoretical approach is innovative in the field of IPE in that it connects the structural power IPE theory of Susan Strange to a theory of finance from Black and Mehrling on how derivatives work. This connection highlighted how power in global governance terms is exercised by the amalgamation between states and markets, just as

Strange has always defended that power in the global political economy should be studied.

Our second inquiry was led by the astonishing growth of derivatives markets. How did those markets grow at such a fast pace? Was that just a private-led phenomenon or did the American state take any stake on their development? Through our analysis of 20 years (from the 1970's to the 1990's) of turf battles among different American regulatory agencies, it is clear that the state engagement in market operation was relevant. So too it is clear that the current hypothesis raised by the literature of public and private relations on OTC markets, which claims public agents' actions are functions of private agents' interest is insufficient to explain the whole phenomenon. For American officials could have other reasons besides lobby induced motivations to fiercely engage in defending regulatory exemptions for OTC derivatives markets.

That is why this research chose to interpret financial contracts and financial regulation as a strategic state instruments and strategic state policy, respectively. The work analyzed the actors, their interests and their political force in financial regulatory conflicts and disputes, addressing the balance of power among regulators, legislators, high officials and private agents and the way they influence each other.

A question raised during the research process was how banks became responsible for producing order in the global financial system through innovating in over-the-counter derivatives markets. The analysis of bank's derivatives dealing activities allowed one to observe how financial **market** infrastructure was responsible to underpin and solidify global financial governance through the trading and managing of risk. Additionally, the central question for understanding financial regulation as a means of power was the inquiry on how regulatory exemptions have **acted** as an improving element in the capacity of banks to create new kinds of financial derivatives and by that way to generate liquidity for new kinds of financial risks, making global risk management possible for corporations, commodity producers and investors.

Finally, the present work did not take regulatory processes as mere technical decisions on how financial institutions are allowed to carry their business. As well, the work did not take for granted the assumptions that American high officials and regulators always reflect in their overall decisions what private agents want. Thus, the work was able to question whether high American officials had particular and autonomous strategic considerations on how regulation should be formulated, taking account states' aims and not only private interests, even if those were interlinked. As a result, the work was able

to show financial officials were capable to develop their own mindset towards what was strategically relevant.

The study of the history of OTC derivatives markets regulatory struggles revealed how OCC, through its interpretive letters was fundamental in allowing American derivatives dealer banks to engage in trading for speculative purposes, what enhanced the liquidity for markets of financial risk. Whereas, at the same time, American officials were blocking the CFTC and any attempt in Congress to regulate OTC derivatives markets, specially swaps throughout the 1970's up to the 1990's.

The 1998 turf battle case study among the CFTC, Treasury department, SEC and FED revealed, through congressional hearings analysis, important strategic policy considerations from American high officials of finance such as Summers, Rubin, Levitt and Greenspan against Brooksley Born less strategic view on what the OTC derivatives markets meant for global financial governance. For the former OTC derivatives markets regulatory exemptions were strategic in allowing banks – by not making them subject to similar regulation as derivatives exchanges – to enhance their capacity of managing risk, generating liquidity for new and different risk natures as new contracts for new kinds of underlying assets that were being created at a fast-pace throughout the 1980's and 1990's. So, in fact, OTC derivatives markets were fundamental supports for the expansion of American dollar liquidity in this period and by extension for the expansion of the global financial system in itself.

The intermingling of public and private agents, with public agents developing strategic views on how private agents carry on their activities and pursue their own interest was also an important finding. It shows how bargaining between states and markets can be conducted by other motives rather than only private lobby incentives. It highlighted how a realm such as finance, as long seen by the IPE literature as only reflecting private interests, can in fact be a powerful basis for statecraft, setting and resetting structural power in a lively motion. In addition, the translation of OCC regulatory relaxation on the derivatives business of banks to the international arena showed another form of structural power. This is seen in the BIS decision to allow CDS to be used as a form to reduce banks' capital requirements. Domestic decisions were imposed internationally at the expense of other countries' desires. With fierce control of the institutions by which rules can be legitimated, other agents are left with no other option than applying the newly imposed norms.

References

AGUIAR, Felipe. **A economia política da ruptura do padrão monetário nos anos 1970**. Dissertação de Mestrado, Programa de Pós-graduação em economia política internacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2016.

ALWORTH, Julian; KERTUDO, Jean-Marie. Les swaps, structure, marché et risques. **Revue d'économie financière**, n°24, p. 91-109, 1993.

BARCELLOS, Fernando. American structural power within international financial governance: from Bretton Woods to globalization. **Brazilian Journal of International Relations**, Marília, v. 7, n. 2, p. 390-414, mai./ago. 2018.

BLACK, Fischer. **Fundamentals of liquidity**, 1970. Unpublished manuscript.

BECKERT, Jens. The Great Transformation of Embeddedness. Karl Polanyi and the New Economic Sociology, **Max-Planck-Institute for the Study of Societies Discussion Paper 07/1**, 2007.

BELL, Stephanie. The role of the state and the hierarchy of money. **Cambridge Journal of Economics**, v. 25, n. 2, p. 149-163, 2001.

BELLUZZO, Luis Gonzaga. Dinheiro e as transfigurações da riqueza. In: FIOIRI, J. L. (Org.). **Poder e dinheiro: uma economia política da globalização**. Petrópolis, RJ: Vozes, 1997. p. 151-193.

BIS. **Recent Developments in International Interbank Relations**. Basel: BIS, 1992.

BIS. **Macroeconomic and monetary policy issues led by the growth of OTC derivatives markets**. Basel: BIS, 1994.

BIS. **International Banking and Financial Market Developments**. Basel: BIS, 1996.

BIS. **International Banking and Financial Market Developments**. Basel: BIS, 1998

BIS. **Global OTC derivatives markets**. Basel: BIS, 2018a. Available at: <https://stats.bis.org/statx/srs/table/d5.2>. Accessed on December 27th, 2018.

BIS. **Global OTC derivatives markets**. Basel: BIS, 2018b. Available at: <https://stats.bis.org/statx/srs/table/d5.1>. Accessed on December 28th, 2018.

BIS. **Exchange-traded futures and options, by location of exchange**. Basel: BIS, 2018c. Available at: < <https://stats.bis.org/statx/srs/table/d1> > Accessed on December 29th, 2018.

BLYTH, Mark. **Great transformations: Economic ideas and institutional change in the twentieth century**. New York: Cambridge University Press, 2002.

BOUCHAUD, Jean-Philippe; POTTERS, Marc. **Theory of financial risks: from statistical physics to risk management**. Cambridge: Cambridge University Press, 2000.

BRYAN, Dick; RAFFERTY, Michael. **Capitalism with derivatives**: a political economy of financial derivatives, capital and class. New York: Palgrave MacMillan, 2006.

CAGAN, Phillip. Financial futures markets: Is more regulation needed?. **The Journal of Futures Markets (pre-1986)**, v. 1, n. 2, p. 169, 1981.

CARDIM, Fernando. Inovação financeira e regulação prudencial: da regulação de liquidez aos acordos de Basileia. In: SOBREIRA, Rogério (org.). **Regulação financeira e bancária**. Rio de Janeiro: Atlas, 2005.

CARNEIRO, Ricardo de Medeiros et al. The fourth dimension: derivatives and financial dominance. **Review of Radical Political Economics**, v. 47, n. 4, p. 641-662, 2015.

CARRUTHERS, B. Diverging derivatives: Law, governance and modern financial markets. **Journal of Comparative Economics**, San Diego, v. 41, n. 2, p. 386-400, 2013.

CLAPP, Jennifer; HELLEINER, Eric. Troubled futures? The global food crisis and the politics of agricultural derivatives regulation. **Review of International Political Economy**, v. 19, n. 2, p. 181-207, 2012.

COBBAUT, Robert. **Théorie financière**. 4^{ème} ed. Paris: economica, 1994.

COLEMAN, William. Governing Global Finance: Financial derivatives, liberal states and transformative capacity, **Institute on Globalization and the Human Condition McMaster University**, n. 01/02, 2012.

CHANCE, Don; BROOKS, Robert. **An introduction to derivatives and risk management**. 7th ed. Mason: Thompson higher education, 2005.

CHEN, James. **Basis Point (BPS)**. Investopedia, November 28th, 2017. Available at: <https://www.investopedia.com/terms/b/basispoint.asp>. Accessed on February 5th, 2019.

_____. **Coupon**. Investopedia, February 9th, 2018. Available at: <https://www.investopedia.com/terms/c/coupon.asp>. Accessed on February 5th, 2019.

COHEN, Benjamin. **Currency power: Understanding monetary rivalry**. New Jersey: Princeton University Press, 2015.

DE CONTI, Bruno; PRATES, Daniela. The International Monetary System hierarchy: current configuration and determinants. **Texto para Discussão. Unicamp. IE**, Campinas, n. 335, 2018

DE ANDRADE ALENCAR, Fernando Barcellos. O poder americano e a economia política do mercado de derivativos de balcão pré-crise de 2008. **Revista Iniciativa Econômica**, v. 4, n. 1, 2018.

_____; NUNES, Lucas Silva Ferreira.

Susan Strange: poder estrutural e hierarquia monetária, uma breve discussão. **Revista de Geopolítica**, v. 9, n. 1, p. 125-142, 2018.

DESPRES, Emile; KINDLEBERGER, Charles; SALANT, Walter. **The dollar and world liquidity: a minority view**. Washington: Brookings Institution, 1966.

DEUTSCHE BÖRSE GROUP. **The global derivatives market: an introduction**. Frankfurt: Deutsche Börse AG, 2008.

DODD, Randall. The structure of OTC derivatives markets. **The financier**, v. 9, n. 1-4, p. 41-46, 2002.

DUFFIE, Darrell. **How big banks fail and what to do about it**. New Jersey: Princeton University Press, 2011.

_____. **Dark markets: Asset Pricing and Information Transmission in Over-the-Counter Markets**. New Jersey: Princeton University Press, 2012.

EICHENGREEN, Barry. **Globalizing capital: a history of the international monetary system**. New Jersey: Princeton University Press, 1998.

FACCINI, Leonardo. **Desvendando os derivativos II – opções, swaps e taxas**. 5ª semana nacional de educação financeira da Comissão de Valores Mobiliários, Rio de Janeiro, May 17th 2018.

FARHI, Maryse. Derivativos financeiros: hedge, especulação e arbitragem. **Economia e Sociedade**, v. 8, n. 2, p. 93-114, 1999.

FIORI, José Luís. **O poder americano**. Petrópolis, RJ: Editora Vozes, 2004.

_____. Prefácio ao poder global. **Revista tempo no mundo**, v. 2, n. 1, 2010.

GERMAIN, Randall. **Global politics and financial governance**. New York: Palgrave Macmillan, 2010.

GILPIN, Robert. **The challenge of global capitalism: the world economy in the 21st century**. New Jersey: Princeton University Press, 2000.

GINDIN, Sam; PANITCH, Leo. **The making of global capitalism**. London: Verso Books, 2012.

GOODHART, Charles. **The Basel Committee on Banking Supervision: A history of the early years 1974–1997**. New York: Cambridge University Press, 2011.

GOURINCHAS, Pierre. Vers un nouveau système monétaire international? **La découverte: regards croisés sur l'économie**, v. 2, n. 10, 2011.

GORTON, Gary; ROSEN, Richard. Banks and derivatives. **NBER Macroeconomics Annual**, v. 10, p. 299-339, 1995.

GREENSPAN, Allan. Risk transfer and financial stability. **Federal Reserve Bank of Chicago Proceedings**, Chicago, n. 968, 2005. Available at: <https://www.federalreserve.gov/boarddocs/speeches/2005/20050505/>. Accessed on June 9th, 2018.

HELLEINER, Eric. **States and the reemergence of global finance: from Bretton Woods to the 1990's**. Ithaca and London: Cornell University Press, 1994.

_____; PAGLIARI, Stefano; SPAGNA, Irene. Introduction—Governing the World's Biggest Market: The Politics of Derivatives Regulation after the 2008 Crisis. In: HELLEINER, Eric; PAGLIARI, Stefano; SPAGNA, Irene (eds.). **Governing the world's biggest markets: the politics of derivatives regulation after the 2008 crisis**. New York: Oxford University Press, 2018.

HOUSE OF REPRESENTATIVES. **Derivative financial markets**: hearings before the Subcommittee on Telecommunications and Finance of the Committee on Energy and Commerce, House of Representatives, One Hundred Third Congress, second session. Washington: U.S. Government Printing Office, 1994. Available at: https://archive.org/stream/derivativefinanc01unit/derivativefinanc01unit_djvu.txt. Accessed on January 10th, 2018.

HOUSE OF REPRESENTATIVES. **Regulation of the over-the-counter derivatives market**: hearing before the Subcommittee on Risk Management and Specialty Crops of the Committee on Agriculture House of Representatives, One Hundred Fifth Congress, second session, June 10, 1998. Washington: U.S. Government Printing Office, 1998a.

HOUSE OF REPRESENTATIVES. **The Financial Derivatives Supervisory Improvement Act of 1998 and H.R. 4239--The Financial Contract Netting Improvement Act**: hearings before the Committee on Banking and Financial Services, House of Representatives, One Hundred Fifth Congress, second session, July 17, 24, 1998. Washington: U.S. Government Printing Office, 1998b.

HOUSE OF REPRESENTATIVES. **Over-the-counter derivatives**: hearing before the Committee on Agriculture, Nutrition, and Forestry, United States Senate, One Hundred Fifth Congress, second session, July 30, 1998. Washington: U.S. government Printing Office, 1999.

HOUTHAKKER, Hendrik S. The regulation of financial and other futures markets. **The Journal of Finance**, v. 37, n. 2, p. 481-491, 1982.

HULL, John. **Options, futures and other derivatives**. 5th ed. New Jersey: Prentice Hall, 2002.

HULL, John. **Options, futures and other derivatives**. 10th ed. New York: Pearson Education, 2018.

KREGEL, Jan A. Derivatives and global capital flows: applications to Asia. In: **Financial Liberalization and the Asian Crisis**. London: Palgrave Macmillan, 2001. p. 40-62.

KONINGS, Martijn. **The development of American finance**. New York: Cambridge University Press, 2011.

KRIPPNER, Greta R. **Capitalizing on crisis**. Cambridge: Harvard University Press, 2011.

KRUGMAN, Paul; OBSTFELD, Maurice; MELITZ, Marc. **International economics: Theory and policy**. 10th ed. Boston: Pearson, 2015.

KUMMER, Steve; PAULETTO, Christian. The history of derivatives: A few milestones. In: **EFTA Seminar on Regulation of Derivatives Markets**. Zurich, 2012. p. 431-466.

LAMBERT, Emily. **The Futures: The Rise of the Speculator and the Origins of the World's Biggest Markets**. New York: Basic Books, 2011.

LEWIS, Mervyn Keith. Off-balance sheet activities and financial innovation in banking. **PSL Quarterly Review**, v. 41, n. 167, 1988.

LUBOCHINSKY, Catherine. Marchés de produits dérivés: évolution et analyse économique. **Revue d'économie financière**, Arcueil, n. 24, p. 43-58, 1993.

MARTINS, Norberto Montani. **Regulação do Mercado de Derivativos Financeiros: uma análise crítica das reformas pós-2008 à luz da experiência brasileira (1979-2017)**. Rio de Janeiro, 2019. Tese (Doutorado em Economia) - Programa de Pós-Graduação em Economia, Instituto de Economia, Universidade Federal do Rio de Janeiro, 2019.

MAY, Christopher. Strange fruit: Susan Strange's theory of structural power in the international political economy. **Global Society**, v. 10, n.2, p. 167-189, 1996.

McGINITY, Steven. Derivatives-Related Bank Activities as Authorized by the Office of the Comptroller of the Currency and the Federal Reserve Board. **Chicago-Kent Law Review**, v. 71, n. 4 p. 1195-1246, 1996.

McKENSEY GLOBAL INSTITUTE. **Financial globalization: retreat or reset**. Global capital markets, 2013.

McKENZIE, R. Casino capitalism with derivatives: Fragility and instability in contemporary finance. **Review of Radical Political Economics**, v. 43, n. 2, p. 198-215, 2011.

McKINNON, Robert. The rules of the game: international money in historical perspective. **Journal of Economic Literature**, v. 31, p. 1-44, 1993.

MEHRLING, Perry. **The new Lombard Street: how the FED became the dealer of last resort**. New Jersey: Princeton University Press, 2011.

_____. **Economics of money and banking**, 2016. Unpublished manuscript.

MENGLE, David. Credit derivatives: An overview. **Economic Review (Federal Reserve Bank of Atlanta)**, v. 92, n. 4, p. 1-25, 2007.

MORGAN, Glenn. Market formation and governance in international financial markets: The case of OTC derivatives. **Human Relations**, v. 61, n. 5, p. 637-660, 2008.

_____. Reforming OTC markets: the politics and economics of technical fixes. **European Business Organization Law Review (EBOR)**, v. 13, n. 3, p. 391-412, 2012.

MURPHY, Cris. **Forward rate agreement definition**. Investopedia, February 3rd, 2019. Available at: <https://www.investopedia.com/terms/f/fra.asp>. Accessed on February 5th, 2019.

NORLOFF, Carla. Dollar hegemony: a power analysis. **Review of International Political Economy**, v. 21, n. 5, 2014.

OMAROVA, S. The Quiet Metamorphosis: How Derivatives Changed the Business of Banking. **University of Miami Law Review**, v. 63, n. 4, p. 1041-1108, 2009.

PAGLIARI, Stefano. OTC derivatives. In: _____. **Public Salience and International Financial Regulation: Explaining the International Regulation of OTC Derivatives, Rating Agencies, and Hedge Funds**. 2013. 326f. Phd Thesis (Doctor in Philosophy) - Global Governance Program, University of Waterloo, Toronto, 2013.

PISTOR, Katharina. A legal theory of finance Pistor. **Journal of Comparative Economics**, v. 41, n. 2, 2013.

ROMANO, Roberta. The political dynamics of derivative securities regulation. **Yale Journal on Regulation**, v. 14, n. 1913, p. 279-406, 1997.

SANTOS, José Carlos de Souza; SILVA, Marcos Eugênio da. **Derivativos e renda fixa: teoria e aplicações ao mercado brasileiro**. São Paulo: Atlas, 2015.

SANTOS, Joseph. A History of Futures Trading in the United States. **EH.Net**, La Crosse, Mar. 16, 2008. Available at: <http://eh.net/encyclopedia/a-history-of-futures-trading-in-the-united-states/>. Accessed on September 19th, 2017.

SCALCIONE, Raffaele. **The derivatives revolution: a trapped innovation and a blueprint for regulatory reform**. Alphen aan den rijn: Kluwer Law International, 2011.

SCHWARTZ, Herman. **States versus markets: the emergence of a global economy**. 1st ed. New York: Palgrave MacMillan, 1994.

SCHINASI, Garry. et al. Modern Banking and OTC Derivatives Markets: The Transformation of Global Finance and its Implications for Systemic Risk. **IMF Occasional Papers**. Washington, jan. 2000.

SERRANO, Franklin. From 'static' gold to the floating dollar. **Contributions to Political Economy**, v. 22, n. 1, p. 87-102, 2003.

SIFMA. **U.S. bond market issuance and outstanding**: Monthly, quarterly, or annual issuance and outstanding volumes for the U.S. fixed income markets. February 5th, 2019. Available at: <https://www.sifma.org/resources/research/us-bond-market-issuance-and-outstanding/>. Accessed on February 10th, 2019.

SPAGNA, Irene. Becoming the World's Biggest Market: OTC Derivatives before the Global Financial Crisis of 2008. In: HELLEINER, Eric; PAGLIARI, Stefano; SPAGNA, Irene (eds.). **Governing the world's biggest markets: the politics of derivatives regulation after the 2008 crisis**. New York: Oxford University Press, 2018.

STORY, Jonathan. Le système mondial de Susan Strange. **Politique étrangère**, v. 66, n.2, p. 433-447, 2001.

STRANGE, Susan. **States and Markets**. London: Pinter Publishers, 1988.

_____. **Mad Money: When Markets Outgrow Governments.** Michigan: The University of Michigan Press, 1998.

_____. Towards a theory of transnational empire. In: MAY, Christopher; TOOZE, Roger. **Authority and markets: Susan Strange's writings on international political economy.** New York: Palgrave Macmillan, 2002.

_____. **Casino capitalism.** Manchester: Manchester University Press, 2015.

TAVARES, Maria da Conceição. A retomada da hegemonia norte-americana. In: FIOIRI, J. L. (Org.). **Poder e dinheiro: uma economia política da globalização.** Petrópolis, RJ: Vozes, 1997. p. 55-85.

TETT, Gillian. **Fool's gold: The Inside Story of J.P. Morgan and How Wall St. Greed Corrupted Its Bold Dream and Created a Financial Catastrophe.** New York: Free Press, 2009.

THE WARNING. Direção: Michael Kirk. Produção: Michael Kirk, Jim Gilmore e Mike Wisner. Produzido por Frontline em coprodução com Kirk Documentary Group, Ltd. Boston, Massachusetts: WGBH-TV, 2009. Available at:

<http://www.pbs.org/wgbh/frontline/film/warning/?autoplay>. Accessed on August 20th 2018.

TORRES FILHO, Ernani. A crise do sistema financeiro globalizado contemporâneo. **Revista de Economia Política**, v. 34, n. 3, p. 433-450, jul./set. 2014.

_____. Moeda, finanças e guerra. In: FIORI, José Luis. **Sobre a guerra.** Petrópolis, RJ: Vozes, 2018.

TRIFFIN, Robert. **Gold and the dollar crisis: yesterday and tomorrow.** New Jersey: Princeton University Press, 1979.

TSINGOU, Eleni. Transnational policy communities and financial governance: the role of private actors in derivatives regulation, **Centre for the Study of Globalisation and Regionalisation Working Paper No. 111/03**, 2003.

_____. Club governance and the making of global financial rules. **Review of International Political Economy**, v. 22, n. 2, p. 225-256, 2015.

UPPER, Christian. Derivatives activity and monetary policy. **BIS Quarterly Review**, September 2006.

UNDERHILL, Geoffrey. Keeping governments out of politics: transnational securities markets, regulatory cooperation, and political legitimacy. **Review of International Studies**, v. 21, n. 3, pp. 251-278, 1995.

VROLIJK, Coenraad. Derivatives Effect on Monetary Policy Transmission. **International Monetary Fund**, 1997.

WALTER, Andrew. **World power and world money: the role of hegemony and international money order.** New York: Palgrave Macmillan, 1993.

WATTENBARGER, Joel. CFTC jurisdiction over OTC derivatives. **Harvard law school 3rd year paper**, May 7, 1999. Available at: <https://cyber.harvard.edu/rfi/papers/cftc.pdf>. Accessed on August 20th, 2018.

WEBER, Ernst Juerg. A short history of derivative security markets. In: HAFNER, Wolfgang; ZIMMERMANN, Heinz. **Vinzenz Bronzin's Option Pricing Models**. Berlin: Springer, 2009. p. 431-466.

WOOD, Duncan. **Governing global banking: the Basel Committee and the politics of financial globalisation**. Farnham: Ashgate Pub Ltd., 2005.