The governmentality of sovereign credit ratings: exploring the political economy of creditworthiness in South Africa

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Abstract

The sovereign credit ratings issued by the 'Big Three' credit rating agencies (CRAs) – Standard & Poor's (S&P), Moody's, and Fitch – significantly influence how emerging market governments structure their economies. This is despite several rating failures that have cast doubt on the accuracy and transparency of ratings and revealed problems such as conflict of interest in the business model of CRAs. Existing critiques about the political economy of sovereign credit ratings, however, fail to explain how their authority remains intact amidst these contestations. This thesis shows how the authoritative agency of CRAs and sovereign credit ratings are produced by an epistemic culture that places a high value on numerical data as a transparent reflection of reality and therefore the most rational basis for decision making. While acknowledging that ratings can be improved, the assumption is that under certain conditions, CRAs can unearth the objective 'truth' about a government's fiscal profligacy. This thesis reveals the historical, discursive, and geopolitical framework that informs this assumption and how it fits into global power relationships. As such, the thesis shows how modern credit arrangements are embedded in long-term colonial histories and the continued relevance of these histories in the reproduction of the global political economy.

The goal is to re-politicise the discourse of sovereign credit ratings by exposing the historical ambiguities, ideological contestations, and methodological compromises that underpin their production. This analysis is divided into two themes. The first two chapters of this project examine the historical processes through which financial markets and the economy became de-politicised, and conceived as a natural, self-regulatory mechanism that can be scientifically 'known' and the macro-economic policies this assumption made possible. The two chapters after that reveal the myriad subjective assessments, political considerations, and methodological compromises that go into the production of ratings. These include deciding what type of data to collect, model specifications, as well as how to interpret flawed or missing data.

The final two chapters of this thesis consider how sovereign credit ratings are entangled in the political economy of South Africa. These chapters reveal the post-colonial nature of modern financial markets by showing how South Africa's political economy has profoundly been shaped by colonial regimes of power and knowledge. Sovereign credit ratings are entangled in the reproduction of these power structures in two ways. First, the assessment of creditworthiness necessitates a forgetting of not only these violent histories and how they have come to shape asymmetrical power relations around the globe, but also their own complicity in the reproduction of these hierarchies. Secondly, their authoritative position in financial markets contributes significantly to the normalisation and sedimentation of macroeconomic policies which similarly require a 'forgetting' of these histories by disciplining unorthodox fiscal and monetary measures to address them. By exposing the political processes inherent in ratings, this thesis emphasises the necessity of broadening their content to enable modalities of economic policy making that aligns with the social welfare and democratic needs of society.

Keywords: sovereign credit ratings, global South, South Africa, governmentality, post-colonial finance

Declaration

I declare that this thesis is my own work. It has been submitted for the degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted for any degree or examination at any other university.

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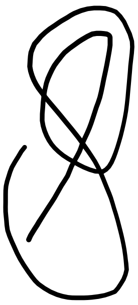

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Table of Contents

List of Abbreviations

AIM	academic-institutional-media
ALIU	Anti Land Invasion Unit
AMCU	Association of Mineworkers Union
ANC	African National Congress
ASGISA	Accelerated and Shared Growth Initiative for South Africa
BIS	Bank of International Settlements
BRICS	Brazil, Russia, India, China, South Africa
CAPM	Capital-Asset Pricing Model
CBOT	Chicago Board of Trade
CCM	Country Ceiling Model
CDO	Collateralised Debt Obligations
COSATU	Congress of South African Trade Unions
COVID-19	Coronavirus 2019
CRAs	Credit Rating Agencies
DBSA	Development Bank of Southern Africa
DEP	Department of Economic Policy
EDF	Expected Default Frequency
EMH	Efficient Markets Hypothesis
EMO	Emoluments Orders
ESMA	European Securities and Markets Authority
FDI	Foreign Direct Investment
FED	Federal Research Bank
FMG	Financial Markets Group
FSB	Financial Stability Board
GDP	Gross Domestic Product
GE	General Electric Company
GEAR	Growth Employment and Redistribution
GFC	Global Financial Crisis
IFA	International Financial Architecture
IFC	International Financial Corporation
IFIs	International Financial Institutions
IMF	International Monetary Fund

IMS	International Monetary System
IPE	International Political Economy
IR	International Relations
IS/LM	Investment Savings/Liquidity Preference Money Supply
JSE	Johannesburg Stock Exchange
LLN	Law of Large Numbers
MBS	Mortgage-Backed Securities
MCI	Micro-Credit Initiative
MEC	mineral-energy complex
MERG	Macro-Economic Research Group
MIV	micro-credit investment vehicles
NCA	National Credit Act
NDP	National Development Plan
NGOs	Non-Governmental Organisations
NIFA	New International Financial Architecture
NP	National Party
NUM	National Union of Mineworkers
OCC	Office of the Comptroller of the Currency
ODA	Official Development Assistance
OECD	Organisation of Economic Co-operation and Development
OLS	Ordinary Least Squares
OTC	Over-the-Counter
PGM	Platinum Group Metals
PIT	Point-in-Time
QO	Qualitative Overlay
RAC	Royal African Charter
RAMP	Ratings Analysis Methodology Profile
RDP	Reconstruction and Development Programme
REH	Rational Expectations Hypothesis
S&P's	Standard & Poor's
SACP	South African Communist Party
SAHRC	South African Human Rights Council
SANDF	South African National Defence Force
SAPS	South African Police Service

SARB	South African Reserve Bank
SEC	Security and Exchange Commission
SRM	Sovereign Rating Methodology
Stats SA	Statistics South Africa
TTC	Through-the-Cycle
VaR	Value-at-Risk
VOC	Vereenigde Oostindische Compagnie
WEF	World Economic Forum
WTO	World Trade Organisation
UN	United Nations
UNDP	United Nations Development Programme

Preface

> Dear Paul,
>
> Toward the end of 2008, something happened in the realm of high finance as a result of which, we are informed, most of us are now poorer […]
> The question is, what is the something that happened? […]
> The answer we are given is that certain numbers changed.
> Certain numbers that used to be high suddenly became low, and as a result we are poorer.
> But the numbers 0, 1, 2, … 9 are mere signs, no less than the letters a, b, c, … z are mere signs. So it could not have been the drop in the numbers that in itself made us poorer. It must have been something that was signified by the drop in the numbers that did it.
> But what exactly was it, signified by the new, lower numbers that made us poorer? The answer is: another set of numbers […]
> [W]hy, I ask, do we have to accept the verdict that we are now poorer and must start behaving as if we are poorer? Why not, I ask, simply throw away this particular set of numbers, numbers that make us unhappy and don't reflect a reality anyway, and make up new numbers for ourselves, perhaps numbers that show us to be richer than we used to be [..]
> The response I receive to this proposal (this 'naïve' proposal) is a pitying head shake. The numbers that confront us, the numbers we have inherited, I am told, do indeed describe the way things are; the internal logic in the progression of those numbers from higher to lower, from early 2008 to late 2008, describes a real impoverishment that has taken place […]
> P.S.: I am not unaware that in proposing that we make up a new, "good" set of numbers to take the place of the old, "bad" numbers and install these new numbers in all the world's computers, I am proposing no less than the discarding of the old, bad economic system and its replacement by a new, good one – in other words, the inauguration of universal economic justice […] (Auster & Coetzee, 2012:18-21).[1]

In this letter, J.M. Coetzee makes several observations that constitute the main themes of this thesis. First, he notes how the use of numbers dominate the language of finance markets, making it difficult for us to *see* the crisis. Although Coetzee writes from Australia, the only major economy that avoided a recession during the 2008/09 Global Financial Crisis (GFC) (Khalil, 2020), his observation alludes to the 'black boxed' nature of financial markets and the numbers that represent them.[2] The arithmetic appearance of financial markets render these spaces opaque to outsiders, and it becomes difficult to imagine how markets materialise outside the trading rooms of stock exchanges in New York, London, Beijing or Tokyo (MacKenzie, 2005). It is during times of crisis, when the 'normal' operation of the market becomes disrupted, that

[1] These letters between J.M. Coetzee and Paul Auster are published in *Here and Now: Letters, 2008-2011* (Auster & Coetzee, 2012). This letter in particular was written by J.M. Coetzee to Paul Auster on the 6th of December, 2008.
[2] John Maxwell Coetzee (1940-) was born in Cape Town, South Africa. He emigrated to Australia in 2002 and won the Nobel Prize in Literature in 2003. He has chronicled South Africa's transition from apartheid, and I draw on his works several times in this thesis (see Kannemeyer, 2012).

we are able to expose the intricate connections between financial practices and disparate places, practices, locales, histories, economies, and societies across the globe. Second, Coetzee points out the numbers that made us poorer are signifiers of things whose value had dropped. They are signifiers in the same way letters and words mean certain things in certain contexts. These meanings are socially and discursively contingent: they do not exist outside human action and belief systems; as noted in the post-script, Coetzee suggests that the current way of valuation can be changed. He then proposes that we replace these numbers with better ones: we must find new things to value *and* new ways of valuing things. In his reply to Coetzee's letter a few days later, Paul Auster adds the following:

> What we are talking about here, I think, is the power of fiction to affect reality, and the supreme fiction of our world is money. What is money but worthless pieces of paper? If that paper has acquired value, it is only because large numbers of people have chosen to give it value. The system runs on faith. Not truth or reality, but collective belief (Auster & Coetzee, 2012:22-24).[3]

Contrary to mainstream explanations that the 2008/09 GFC was caused by greed, miscalculations of credit risk, or a flawed regulation (see Amadeo, 2020; Kohn, 2011a, 2011b; Weidner, 2015), the implication here is that it was a lack of belief that certain objects have value which sits at the heart of the crisis. An etymological enquiry of 'credit', as de Goede (2000:60) points out, captures the socially constructed nature of financial practices. *Crédit,* as used by the French circa 1520 meant 'belief' and 'trust.' From Latin, in the form of *credere,* credit means 'to trust, entrust, believe' – a person worthy of trust or having the reputation for being believed. In commercial transactions, credit came to mean respect and trustworthiness, 'honour, acknowledgment of merit' (Online Etymology Dictionary, 2017). In modern finance, complex risk metrics that hold out the promise of calculating the creditworthiness of a certain borrower, obscures the sociality of financial practices and the extent to which they depend on faith and imaginations of profit. Third, Coetzee's question of why 'we have to accept the verdict that we are now poorer and must start behaving as if we are poorer?' necessitates an investigation into the power of financial numbers to shape the behaviour of market participants. If we accept the assertion that financial practices are based on social imaginaries of trust, value, and profit, how do some ideas of creditworthiness and profit shape the collective belief of market participants while others fail?

[3] From Paul Auster to J.M. Coetzee, written on the 9th of December 2008.

This thesis examines the authority of a particular set of numbers that have become extremely influential in shaping the trust and behaviour of financial participants, namely, sovereign credit ratings. Sovereign credit ratings are risk assessments of a government's capacity and willingness to repay its financial debt obligations in full and on time (see Fitch, 2018a; Moody's, 2019; S&P's, 2017a). Packaged into an alphanumerical indicator and placed on a rating scale from AAA (prime grade) to D (in default), these ratings essentially answer the question of whether or not a government can be trusted to deliver on its promises of future profits in a particular transaction (Fioramonti, 2014). These calculations help grant governments access to liquid capital markets and the necessary debt financing for programmes of national self-determination such as health care or fiscal stimulus. In a context where states significantly rely on capital markets to finance their development needs, sovereign credit ratings are powerful technologies that encourage states to present themselves in a creditworthy manner to investors. Far from being merely 'informed opinions' of credit quality, sovereign ratings are imbued with power and knowledge by establishing an infrastructure of referentiality – via the rating scale – to signal what 'correct', creditworthy conduct entails (Löwenheim, 2008; Paudyn, 2014).

This project interrogates the historical, geopolitical, and discursive frameworks that make the rating of sovereign default risk possible. It engages with Coetzee's observations in the following ways. First, my thesis aims to disrupt the technical, black boxed nature of financial numbers by exploring how the discourse of sovereign creditworthiness is based on a set of ideas and theories about the economy and the marketplace that are historically contingent and the product of multiple contestations and ambiguities. I investigate how discourses of trust and creditworthiness are rooted in a masculine, racist, and colonial imagination of rationality and scientific 'truth' that envisions people and spaces beyond the horizon of 'the West' as chaotic, irrational, and backward. Yet, these places and people are potentially lucrative and thus destinations to be conquered (Agnew, 2003; de Goede, 2000, 2005). This geopolitical imagination of creditworthiness resurfaces in contemporary portrayals of 'emerging' and 'frontier' markets as investment destinations beleaguered with uncertainty: corrupt politicians, inaccurate information, inexperienced traders and policy-makers, currency volatility, and social unrest. However, because they are still 'becoming' advanced, they are lucrative short-term investments; they are 'wild frontiers', 'hot' and 'ripe' for capital penetration (Sidaway & Pryke, 2000; see also Lee, 2003; Schultz, 2021). Far from being merely rhetoric, this thesis shows how these descriptions of emerging markets can often engender the volatility of their currencies, Gross Domestic Product (GDP) and economic growth (Schultz, 2021). Sovereign credit ratings tend to sediment these colonial tropes in their assessments of political willingness to repay debt which, as this thesis shows, engages with a particularly geopolitical dimension of trustworthiness and rationality. This project is motivated by a desire to interrogate how the discourse of sovereign creditworthiness fits into global power relationships: to what extent does it represent what Doty (1996) terms an *imperial encounter*? Doty (1996) explains how the asymmetrical power relations between the global North and global South is produced through representational practices, where one entity "has been able to construct 'realities' that were taken seriously and acted upon and the other entity has been denied equal degrees or kinds of agency" (Doty, 1996:3). How do sovereign credit ratings constitute identities, actors, objects, and power relationships?

My thesis also looks at how these power relations, shaped by long-term histories of colonial violence, unfold in the political economy of South Africa. By doing so, this thesis seeks to elucidate how credit activities are entangled in socio-economic realities beyond New York or London. The aim is to 'spatialise' global capital markets by exploring how they interact with, and configure, unstable geographies of accumulation (Brenner & Theodore, 2002:7). This is not to conflate all of post-apartheid's South Africa's socio-economic problems to the decisions and activities of financial elites like CRAs. Instead, the goal is to explore the spatial impact of the workings of global finance (highlighting the authoritative position of CRAs) and the imaginaries that enable financial flows to move around the globe (Pryke, 2006). Focusing on 'the local' and 'everyday life' of South Africans within the global political economy, the objective here is to explore the networks of socio-historical and power relations articulated through financial flows at particular sites, such as mining enclaves, city-centres, or through public infrastructure. Here, the local becomes stretched, as Hunter (2010:23) suggests, to account for the ways in which global markets and states figure in people's life experience, and what these experiences can reveal about the continuous assembling and reassembling of capital relations (Rankin, 2011:565).

Second, this study examines the micro-processes involved in the production of a sovereign credit rating. I will focus on the methodologies, models, and assumptions of the Big Three CRAs that is, Moody's, S&P's, and Fitch. The goal here is to investigate how certain phenomena about the budgetary affairs of governments are translated as 'risks', such as deficit spending or redistributive programmes. Far from representing an objective reality about the likelihood that a government will default on its debt obligations, these assessments reflect the social and cultural worlds of the actors and organisations that create them and the regimes of power within which they are formed (Merry, 2016a:4). However, once packaged into an alphanumerical indicator, the social aspect of credit ratings becomes stripped away. Moreover, I show how the articulation of sovereign creditworthiness not only embodies a particular ideological claim about what constitutes normal budgetary conduct, but that the production of ratings also involves countless subjective, political considerations that shape both the collection and presentation of data (de Goede, 2017a; Gitelman & Jackson, 2013; Jerven, 2013; Merry, 2016a). Data and information are never 'raw' – neutral – and always presuppose some form of interpretation. Selecting what counts as data, where and how it should be collected, compiled, stored, and processed entails an interpretive base (Gitelman & Jackson, 2013:3). My thesis interrogates the cultural, political, and epistemic practices that shape the translation and interpretation of data into sovereign credit risk.

Third, this thesis addresses Coetzee's question about why we accept and act upon financial numbers. I will adopt a post-structural lens of power, mainly influenced by the work of Michel Foucault, which explores the discursive workings of power that normalise certain ideas and possibilities of budgetary rectitude at the expense of others (de Goede, 2003, 2006; Peterson, 2006). This notion of power differs from conventional accounts that capture power as a commodity, owned by one entity to restrict, punish, or control another (Digeser, 1992; Foucault, 1982). Power works through systems of knowledge and discursive practices to establish a field of normality concerning financial behaviour (de Goede, 2012:46). Although CRAs are often scrutinised, especially during times of crisis, the information they sell has become embedded in the everyday decision-making of market actors. In this sense, CRAs do not only measure sovereign creditworthiness, but are in fact part and parcel of the processes that *produce* the budgetary realities of states. Given that financial practices are based on social imaginaries of trust and profit, market actors are constantly seeking to determine not only the accuracy of information about a certain entity, but also how the 'market' will react to news and interpret information. As such, 'expert analyses', risk valuation metrics, and growth estimates are more than just observations of commercial realities, but precisely how financial markets materialise (de Goede, 2005:7). This thesis emphasises the geopolitics of financial and economic knowledge production and the subjects/objects this discourse creates and foreclose. Theories and calculations of sovereign default probability are formed within an epistemic culture that places high value on numerical data as a form of knowledge and a basis for decision making (Merry, 2016a:9). Here, culture refers to a set of techniques and practices of knowledge production to be applied within a specific situation instead of a description of society. Its characteristics are trust in technical rationality and the idea that all things can be measured and that those measures provide an ideal guide to decision making (Poovey, 1998). My thesis situates this culture within a broader geopolitical history of economic theory and methods, dominated by the ideas, experiences, and histories of the global North and in particular, colonialism. This geopolitical history has significantly influenced who gets to define sovereign creditworthiness and how should be measured. I explore how this history becomes concealed and de-politicised in the rating process, thereby consolidating and reinforcing existing power relations between states, regions, and societies.

This project has come a long way since May 2016. Originally, I wanted to adopt a neo-Marxist lens to examine the politics of sovereign credit ratings in sub-Saharan Africa. This changed when I encountered the following works, all of which have had a significant influence on this project: Marieke de Goede's *Virtue, Fortune, and Faith: A Genealogy of Finance* (2005); Sally Engle Merry's *The Seductions of Quantification: Measuring Human Rights, Gender Violence and Sex Trafficking* (2016a); Mary S. Morgan's *The World in the Model* (2012), as well as Morten Jerven's *Poor Numbers: How we are misled by African development statistics and what to do about it* (2013). These works chronicle the politics of quantitative knowledge production and draw attention to the many uncertainties, contestations, compromises, and subjective assessments that get concealed through the numerical representation of phenomena. This motivated me to incorporate literature on the politics of financial and economic knowledge production into the disciplinary domain of International Political Economy (IPE). The goal is to expand 'the political' in political economy beyond a focus on government policies and behaviour vis-à-vis the market. I aim to show how an exposition on the (geo)political history of financial and economic ideas, which underpin the articulation and measurement of sovereign creditworthiness, opens a space for a critique of the present.

Akin to the journey of many doctoral students, this project encountered some rough patches, and I considered discarding it on a number of occasions. There are many people in my life that prevented this from happening. First and foremost, my supervisor, Professor Lawrence Hamilton. I would like to thank him for his words of encouragement and mentorship during the past few years. Perhaps without knowing it, he often said the right things at exactly the right time. Apart from this, I would also like to thank him for giving me a doctoral bursary through his SARCHi/Newton Research Chair in Political Theory, funded by the National Research

Foundation and the British Academy. A special thank you therefore goes to these funding bodies for their financial support in the first three years of my doctoral studies. ***The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the NRF.***

I am also grateful to have had the opportunity to be a visiting PhD student at Clare Hall, Cambridge University, for three months in 2018. This formed part of the SARCHi/Newton Research Chair's Wits-Polis exchange programme and was undoubtedly the highpoint of my doctoral studies. I got to attend a number of academic workshops, conferences and attend talks of some of my academic heroes. During my visit, I made a number of friendships that I will always cherish. But I am particularly grateful to have made friends with Christopher Tso, whom I'd like to thank for sending me articles that aren't available in South Africa, being an ear when I needed one, and for setting up around 50 Garmin Running Challenges since 2019 that forced me to stay active! Thank you, and hopefully, I will now get to beat you.

I am also grateful for the friendship and support of Chinique Mortimer, Gerbrandt van Heerden, Benito Trollip, Frankie Bielfeld, Aditi Mehrotra, and Marlie Freitas dos Santos. Thank you for always being patient and willing to listen to my ideas, challenging me, and for providing encouragement and support (albeit in the form of jokes, gossip stories, or wine) when I needed it most. I am also particularly grateful for Nadine Boller, Leone Hudson and Lizanne du Toit, who agreed to read large parts of this thesis and providing invaluable feedback.

A special thanks should also go to my amazing parents. Being polar opposites, both of them played a unique role throughout my PhD journey. On the one hand, I would like to thank my father for always reminding me to not to take myself too seriously, for providing me with endless dad jokes, and for believing that this 'school assignment' would be exceptional. On the other hand, I would not be where I am today without my mother. Thank you for all those years of giving up luxuries and working long hours to be able to provide me the opportunity to pursue a tertiary degree without accumulating any debt. Words cannot express my gratitude.

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Introduction

In recent decades, the rating judgements of the Big Three CRAs significantly influence how governments structure their economies and spend their budgets (Fioramonti 2014; Gaillard, 2012; Paudyn, 2014; Roos, 2019; Sinclair, 2005). This is especially true for emerging and frontier markets that target private capital to finance their development needs, instead of relying on Official Development Assistance (ODA) and World Bank or International Monetary Fund (IMF) loans as they did during the 1970s and 1980s (Armijo, 1999:17). Since the 1970s, the criteria of sovereign creditworthiness entail an austere fiscal programme, the privatisation of state-owned entities, the removal of capital controls, central bank independence, targeting inflation, and reducing 'red tape' to ease doing business (Armijo, 1999; Datz, 2004; Grabel, 2000). These measures, it is assumed, creates a 'favourable investment environment' and thus the necessary capital to finance economic growth and repay debt (Grabel, 2000; Mosely, 2003:104; Paudyn, 2014). Yet, in many instances, government efforts to improve creditworthiness oppose more immediate social welfare and development needs (Armijo, 1999; Datz, 2004).

This is especially true for post-apartheid South Africa. Instead of borrowing money from international creditors to address urgent issues of socio-economic and racial inequality, the post-apartheid government chose to consolidate its budget through the adoption of an austere fiscal programme (Bond, 2013; Habib, 2013; Hamilton & Viegi, 2009). Targeting private capital investment, the goal is to gain credibility in the eyes of investors and CRAs to obtain favourable access to capital markets, which would lower the cost of financing the transformation of the economy (Hamilton & Viegi, 2009). This entailed significant compromises on the African National Congress's (ANC) promises during the anti-apartheid struggle to restore social justice through state-led initiatives to grow the economy such as the nationalisation of key industries – including land – to create jobs and promote social equality (Nattrass, 1994). Seen as 'macro-economic populism' and unsustainable in the long-term, economic 'experts' associated with the IMF and World Bank argued that the social backlogs left by apartheid could best be financed through private-sector-led investment, albeit at the cost socially progressive compromises in the short-term (Lachman & Bercuson, 1992:1). Yet, despite implementing the necessary policy measures to create a 'favourable investment environment', it is now general knowledge that the much hoped for influx of capital failed to arrive. When it did, it was short-term and volatile (Hamilton, 2014a:155). As such, the government's ability to substantially address the social, economic, and spatial legacy of apartheid has been limited, and South Africa is consistently ranked one of the most unequal societies in the world (Hamilton, 2014a; OECD, 2020). This, in turn, has undermined the government's creditworthiness, as persistent inequalities and frustrations with historical continuities in modes of suffering leads to frequent, and often violent, protests in a way that reduces the country's attractiveness for investors (Alexander et al., 2018; Hamilton, 2014b; Hart, 2014). Despite some important socio-political changes post-1994, colonialism and apartheid's socio-spatial, racial, and economic legacy stubbornly persists (see Chapter Five). Indeed, post-apartheid South Africa remains a *haunted society* in Chambers' (2002:96) formulation, that is, one that struggles to put its ghosts to rest:

> It always seems easier to lay the ghost than to repair the injustice – but 'seems' is the operative word because ghosts ultimately refuse to lie down and be still, for the very reason that the consciousness of injustice, otherwise known as a sense of guilt, inhabits the living, not the dead. However much…we may think that the dead should feel less alive and act more dead, they remain restless because the living remain anxious, being prevented by guilt from completing the normal process of mourning that would lay them to rest. They keep returning, as *revenants* (author's emphasis).

These challenges often portray South Africa as a 'risky' investment, as persistent inequalities and social unrests spur fears that the state will be pressured to renege on its debt obligations (Hamilton & Viegi, 2009; May & Woolard, 1997). Having been downgraded below investment grade – 'junk' – by the Big Three CRAs in March 2020, the first time since the government got it first rating 26 years ago, the cost of borrowing has reached a record high (World Government Bonds, 2020a). In an attempt to restore its credibility, the government has announced a range of measures to consolidate its budget, including significant spending reductions (National Treasury of South Africa, 2020a). These budgetary cuts come amidst the COVID-19 pandemic that has had a devastating impact on livelihoods, particularly amongst low-income households. Such measures are furthermore expected to exacerbate the socio-economic impact of the pandemic-induced recession, thereby further limiting the government's ability to address, in a meaningful way, historical inequalities (African Peer Review Mechanism, 2020).

South Africa has not been the only country whose pursuit of policy credibility has undermined its creditworthiness (see Bhogal, 2017; Datz, 2004; Grabel, 2000; Kaminsky & Schmukler, 2002; Roos, 2019). In fact, in recent years, the Big Three CRAs have received a great amount of criticism from governments, policy makers, and international financial institutions (IFIs) like the Financial Stability Board (FSB) and the IMF (see Ferri et al., 1999; IMF, 2010; Mennillo & Sinclair, 2019; Partnoy, 1999; Paudyn, 2014; Ryan, 2012). A prominent critique relates to the *procyclicality* of rating actions, which tends to intensify during times of crisis. Procyclicality refers to the tendency of CRAs to be lenient during 'booms' and excessively conservative during 'busts', thereby intensifying the socio-economic impact accompanied by different business cycles (Mandel, 2020). For instance, Ferri et al. (1999) show how the rating actions of the Big Three CRAs aggravated the 1997/98 Asian Financial Crisis. They allude to the fact that, at first, CRAs failed to predict the emergence of the crisis and when they did, became excessively conservative. Standard & Poor's, for instance, downgraded South Korea three notches in a single day (Ryan, 2012:11). According to Ferri et al. (1999: 336), these rating downgrades could not be justified when considering the economic fundamentals of these countries. This unduly exacerbated the cost of borrowing abroad for these countries, which amplified the crisis (see also IMF, 2010). Likewise, before the 2008/09 GFC, CRAs assigned high investment ratings to toxic sub-prime backed securities and allegedly ignored signs of deteriorating credit quality (Lewis, 2010). As rising defaults in the United States (US) sub-prime mortgage market began to feed through international securities markets, the weakening economic conditions led to a European Sovereign Debt Crisis. The government debt of 'periphery' countries (Portugal, Greece, Ireland, and Spain) was excessively downgraded after nearly ten years of rating stability (Gaillard, 2013). According to critics, these downgrades were both too excessive and occurred too fast, thereby accelerating the debt crisis (Ryan, 2012). Between 1999 and 2009, the creditworthiness of Greece, for instance, was consistently rated in the upper-medium grade by the Big Three CRAs. When the government announced that the budget deficit would be double the previous government's estimate in December of 2009, the downgrades began. Three years later, in 2012, the Hellenic republic's creditworthiness was rated approximately eight rating categories below its 2009 levels (World Government Bonds, 2020b).

These 'rating failures' have been accompanied by calls from governments and policymakers to reduce market reliance on the Big Three CRAs, strengthen supervision and regulation of the rating industry and to enhance the transparency of the rating process (Ryan, 2012; Paudyn, 2014). As a response, the US Security and Exchange Commission (SEC) has expanded its mandate to regulate CRAs, while the European Securities and Markets Authority (ESMA) has been granted centralised supervisory powers over these private firms (Mennillo & Sinclair, 2019). Yet, amidst the COVID-19 pandemic, which is expected to plunge the global economy into the deepest recession since World War II (World Bank, 2020), signs of rating procyclicality are re-emerging. By the end of July 2020, CRAs have downgraded a record number of issuers (Jones, 2020). Fitch has downgraded 32 governments, with more than a third of its 118 sovereign grades placed on a negative outlook, and similar trends are evident in the rating actions of S&P's and Moody's (Jones, 2020). On the 24th of April 2020, the US SEC announced the formation of an internal interdisciplinary COVID-19 Market Monitoring Group, tasked with the responsibility to monitor the interrelationship between the rating actions of the Big Three CRAs and financial stability amidst the pandemic (US SEC, 2020). While cautioning against analogies with the 2008/09 GFC, the monitoring group recognises the centrality of ratings in the movement of capital and the devastating impact rating procyclicality could have for the stability of the financial system (US SEC, 2020). This is especially the case for emerging markets, where 'progress in reducing mechanistic reliance on ratings since the global financial crisis may have been slower…than in advanced economies' (FSB, 2020:8).

Rationale

Despite the many criticisms and rating failures that cast doubt on both the transparency and accuracy of credit ratings, the authority of the Big Three CRAs financial markets remain intact, especially when it comes to emerging markets. This thesis aims to understand how the authority of CRAs in financial markets is constituted and the political economy of sovereign creditworthiness normalised. Building on existing literature in the field of IPE (Löwenheim, 2008; Mennillo & Sinclair, 2019; Paudyn, 2014), I show that the authority of CRAs is rooted in an epistemic culture that recognises the production of quantitative risk metrics as objective and transparent. These metrics hold out the promise of eliminating uncertainty by replacing it with risk, 'turning the incalculable to calculable and subject to rational choice modelling' (Short, as cited in Paudyn, 2013:798). However, the process of transforming uncertainties into calculable risks that provide information about a government's fiscal profligacy is far from being an objective, 'technical' exercise. Instead, it is based on a number of political considerations and historical contestations about what *can* and *should* be measured, the weights that should be accorded to different categories, as well as the theories and datasets that should go into credit risk modelling. The main rationale of this thesis is to re-politicise the discourse and practice of sovereign credit risk. To re-politicise in this sense means to 'interrupt' discourse, 'to challenge what have, through discursive practices, been constituted as normal, natural ways of carrying on' (Edkins, 1999:12). This requires a genealogical investigation into the contested political and cultural histories that made possible certain assumptions about sovereign default risk and the mathematical tools for its measurement (de Goede, 2004).

Furthermore, this thesis endeavours to show how the discourse of sovereign credit risk, and the budgetary limits it articulates for governments, gets *entangled* in the political economy of South Africa. This entanglement, I suggest, has been produced through long-term histories of colonialism that have forged the global connections that constitute the condition of capitalist-modernity (Bhambra, 2020). Indeed, although the relations between colonialism and capitalism have been thoroughly documented, and often acknowledged in IPE, Bhambra (2020) argues that the centrality of colonialism is rarely given a central role in our understanding of contemporary structures in the global economy (Schultz, 2021). Historical analyses of capitalism in IPE tend to present colonialism as the companion condition of the emergence of capitalism which, in mainstream economics, 'is understood to be constituted through an immanent logic…that is independent of colonialism' (Bhambra, 2021:2). Here, colonialism is presented as a consequence of the operation of the logic of capitalism, rather than being integral to its operation. As such, colonialism has been displaced from IPE's centre of analyses and returns via the discourse of imperialism, that is, a later stage of the development of capitalism in its maturity (Hobson, as cited in Bhambra, 2021:2). CRA's and other international financial institutions, politicians, and corporations particularly linked to the US, have often been described as the leading actors behind modern imperialism (Bond, 2013; Roos, 2019). Yet, as this thesis shows, there is an underlying continuity between Europe's colonial imaginary and the conquests these visions gave rise to and modern 'imperialist' capital market arrangements. For the purposes of this project, I explore how these continuities have been articulated and reproduced through the mathematisation and rationalisation of neo-classical economics and particularly, rational economic man. By exploring how this history is entangled in post-apartheid South Africa's political economy, this thesis seeks to render visible the long-term, profoundly political, and colonial histories of modern credit practices (de Goede, 2020). I also aim to show how the de-politicisation of sovereign credit ratings, and financial discourses in general, enable the reproduction of colonial regimes of power and knowledge by transforming the complexities, histories, and messiness that constitute the social world into a single measurement. This number not only enables the erasure of historical injustices, but also produces particular modes of power that are central to the reproduction of hierarchies in modern capital markets.

The objective is therefore to emphasise the urgency to question how sovereign creditworthiness is defined and measured in a way that makes certain forms of budgetary rectitude possible over others, as well as the socio-material realities these discursive practices produce for populations across the globe. Before explaining how this analysis will be approached, the following section briefly outlines existing accounts of the politics of CRAs in IPE. It delineates IPE as a field of study and explains how this thesis endeavours to contribute to post-structural understandings of the practises of knowledge production that underpins modern financial practices.

Literature Review

Expanding 'the political' in International Political Economy

As an academic discipline, IPE is often assumed to have emerged in the 1970s as a result of a 'mutual neglect' (Strange, 1970) in the field of International Relations (IR) and international economics to account for how a number of significant changes in the world economy could influence the international society and relations between states. This is not to suggest, however, that the interaction between politics and economics on a global and domestic level have not been explored before the 1970s (Conley, 2007; Ravenhill, 2010). Political economy analyses have a long history and date back to the intellectual pursuits of Adam Smith, David Ricardo, Karl Marx, and economic anthropologists like Karl Polyani (see Gamble et al., 1996; Underhill, 2000). Here political economy has a range of meanings. Some scholars focus on the political basis of economic actions, that is, how government policies affect market operations. For others, political economy entails a focus on the economic basis of political action: how economic forces shape government policies (Frieden & Lake, 2000:1). Although, in the field of development economics – specifically dependency theory – a separation between politics and economics never took place, towards the end of the twentieth century, economists such as Stanley Jevons, Leon Walras, and Alfred Marshall sought to separate their field from political concerns so as to render economics a scientific discipline. I will explore this issue in detail in Chapter Two. Nevertheless, for the purposes of this discussion, the separation between politics and economics meant that interest was scant among those in IR and economics to understand how their fields interact. As Benjamin Cohen writes (cited in de Goede, 2001:33), about the post-war boom in the study of monetary relations:

> [F]or all the intellectual energy expended in these efforts, most discussions have been seriously deficient in at least one fundamental respect. They have failed to integrate satisfactorily the economic and the political aspects of the problem into a singly analytical framework. With few exceptions, economics and political scientists each have relied on their separate disciplinary approaches to design parallel analyses of the same set of issues…The result has been a vain sort of dialogue of the deaf.

To this end, it became imperative for IPE scholars to bridge the gap between economics and politics. Although there is much debate about what exactly this research agenda should focus on, many explore the changing relationship between the state and the market. For Susan Strange (1998:18) this entails a focus on 'the social, political and economic arrangements affecting the global systems of production, exchange and distribution, and the mix of values reflected therein.' The mix of values – security, prosperity, freedom, and justice – within the market-authority nexus constitutes the core of IPE for Strange, coupled with her focus on explaining structures of power in the world economy (Murphy & Tooze, 1991:2). Robert Gilpin's (1987) study on IPE focuses on the causes and effect of the world market economy, the relationship between economic and political trends, and the significance of the world economy for domestic economies (as cited in Murphy & Tooze, 1991:2). In a later publication, however, Gilpin (2001) notes the limitations of his initial focus which failed to take into account how domestic factors can influence the international economy and entailed a limited treatment of the role that non-state actors play in both domestic and international economic affairs. These include private actors such as investors, CRAs, IFIs, multinational corporations, think tanks, and non-governmental organisations (NGOs). The growing influence of non-state actors has, according to Strange (1998), led to the 'declining authority of states' and the growing power of market processes and actors to secrete the daily life of citizens across the globe.

For Robert Cox (2002:79-80), IPE is predominantly a critical discipline that 'gradually changed the way of thinking about world order.' He centres the focus of IPE on the 'frameworks or historical structures within which human activity takes place and the slow processes of change in these frameworks' (Cox, 2002:79). This focus differs significantly from mainstream IR theories that worked with fixed assumptions about the nature of the state system, the economy, and the market. Instead, Cox (2002) postulates that the norms and practices that constitute the international political economy are not 'pre-determined' by 'natural' or 'inevitable procedures' but exists through ongoing processes that have been historically formed by human intervention (Abbott & Worth, 2002:1). Despite this broadly critical agenda, there are a limited number of studies that explore the historical and discursive contingency of our understanding of economic phenomena. In other words, although the field of IPE explores how politics and economics interact, these analyses operate within a restricted definition of both. Politics refer almost exclusively to identifiable actions of states and non-state actors. These actions interact with the domain of the economic, yet remains largely distinct from it (de Goede, 2001:34). 'This distinction', according to Murphy and Tooze (1991:24) is based on a definition of economics "as the science investigating wealth production and distribution under scarcity, where wealth is somehow separate from 'politics,' and 'politics' takes place where the realm of economics stops."

Ratings, CRAs and IPE: limits of structural critiques

The continued conceptual separation of politics and economics in IPE leaves the historical and discursive contingency of economic realities – such as sovereign credit risk – unquestioned. Existing analyses of sovereign credit ratings and CRAs within IPE typically operate through the distinction between 'politics' and 'economics' mentioned above. Here the authority of CRAs and private creditors are often explained in terms of *structural* power. Structures are made up of interactions between different actors, where the conduct of these practices and engagements resembles the shared understandings of acceptable behaviour toward different actors and objects (Wendt, 1994). A classic example is the master-slave relation, whereby structure is conceived as an internal relationship – a direct constitutive relation in the sense that the position of the master exists only by virtue of its relation to the structural position of the slave. Structures, therefore, produce 'the very social capacities of structural, or subject, positions in direct relation to one another, and the associated interest that underlie and dispose action' (Barnett & Duvall, 2005:18). As such, it is the structure of the global capitalist economy that shapes the fate and conditions of existence for CRAs and sovereign governments, or markets and states. This happens in two critical ways. First, structural positions do not generate equal social privileges, but instead distribute differential capacities and advantages to different positions. Thus, social structures are made up of unequal social privileges and capacities (Barnett & Duvall, 2005:18-20; Roos, 2019; Rupert, 2005). Second, social structures not only constitute actors and their capacities, but also their self-understanding and interests. As such, structural power operates in such a way that it limits some actors from recognising their own domination.

This account has much in common with Steven Lukes third face of power, developed in his seminal book, *Power: A Radical View* (1974). The first face of power refers to Robert Dahl's classic formulation, where power entails the ability of *A* to get *B* to do what *B* would not otherwise do. Power, in this definition, is both coercive and intentional and lead to observable behavioural change in its target population (Abrahamsen, 2004:1458). The notion of intent was later challenged by Bachrach and Baratz, who suggests that power is not solely a matter of getting *B* to do something she does not want to do, but also preventing *B* from doing what she wants to do (Lukes, 1974:16; see also Hayward, 2000). This second face of power incorporates the ability to shape political agendas and prevent issues from entering public debate as another way of exercising power. In the field of IPE, this dimension of power is used to explain how some actors (linked to the US and Western Europe) have the ability to shape the institutional arrangements of organisations like the World Trade Organisation (WTO), IMF, World Bank and United Nations (UN) in a way that indirectly exercises power over other actors (Finnemore & Skikkink, 1998; Keohane, 1984). The third face of power, developed by Lukes (1974), adds another dimension that is largely ignored in the first two faces of power. Here power not only influences whether actors behave as they want, but can also shape the ways they perceive their wants, desires and interests (Hayward, 2000:4). As Lukes observes (1974:24): 'is it not the supreme and most insidious exercise of power to prevent people, to whatever degree, from having grievances shaping their perceptions, cognitions, and preferences in such a way that they accept their role in the existing order of things?"

According to scholars like Roos (2019), the structural power of CRAs in IPE stems from a number of changes in the regulation of cross-border capital accompanied by the dismantlement of the Bretton Woods monetary regime in the 1970s. These include the implementation of floating exchanges, the deregulation of financial markets, the rise of monetarism, and the disintermediation and securitisation of capital (Carruthers & Kim, 2011; Sinclair, 2005).[4] This led to an explosion in the amount of private capital and intensified the financialisation of the world economy (Roos, 2019:60). Often positioned alongside 'globalisation', financialisation refers to how the growing integration of states, economies, cultures, and societies have intensified the influence of capital markets, their intermediaries, interests, and processes in contemporary economic and political life (Pike & Pollard, 2010:30). According to Roos (2019), financialisation since the 1960s has especially benefitted the financial interests of big banks and advanced capitalist democracies and have strengthened the structural position of private capital over the interests of the state. Financialisation post-Bretton Woods has also consolidated the shift towards capital market-based financing for states. This creates intense competition among states for a sustained share of global capital markets, financial services and products to fund

[4] Disintermediation involves the replacement of traditional forms of lending, like bank loans, to the increased use of debt securities such as bonds and notes or investment in stocks (Seabrooke, 2006a:198-199). Whereas traditionally banks took money from savers and lend it to borrowers at an interest rate – with the aim to create a profitable spread in the long term – banks increasingly securitise loans. Securitisation involves bundling loans together and selling them to investors. It turns bank loans, which are notoriously illiquid, into marketable securities. Instead of holding a loan until it reaches maturity, banks pooled loans together and then sold them as 'new debt to a third party' (Carruthers & Kim, 2011:243; Seabrooke, 2006b:155). As such, banks recovered their capital sooner (when securitised loans are sold) rather than later (when borrowers complete repayment) and were ready to lend again.

public investments (Kruck, 2011:33). Although modalities of public borrowing can be traced back centuries, Roos (2019) argues that from the 1980s, the influence of private financiers in the regulatory affairs of a nation has become increasingly invasive. Furthermore, while states traditionally relied primarily on taxation for public debt creation, they now increasingly depend on external sources of revenue, particularly developing countries. This, according to Roos (2019:57) renders the state

> […] structurally dependent on the provision of private credit to be able to reproduce itself and carry out its social, political, and economic functions over time. The effect of this dependence is to constrain the state's relative autonomy from finance and impose certain limits on the room for manoeuvre available to government.

Structural Marxist scholars maintain that CRAs both legitimise and advance the interests of private capital, thereby strengthening the structural power of finance vis-à-vis the state (Bond, 2013; Iannou, 2013). Here, financialisation is seen as a process driven by the expansionary ambitions of the market, enabled by elite individuals, politicians, and organisations associated with the US and Western Europe. This agenda has furthermore been imposed onto the governments of Third World countries, which intensifies inequality on both a domestic and global level (see Bond, 2012, 2001; Cerny, 2005; Fine, 2013; Soederberg, 2013). The solution for Cerny (2005) and Soederberg (2013, 2005) is to transform the transnational regulation of financial markets and to promote the stability of the financial system and protect citizens against market volatility. Bond (2001, 2012) on the other hand suggests that the core dynamics of financialisation can be challenged by global anti-neoliberal social movements, while Fine (2013) calls for a complete abolishment of the capitalist system.

Although structural accounts recognise the role that politics play in the global economy, they nevertheless reify an image of finance as an autonomous sphere with mythical powers that impose itself on societies and states. They tend to assume a zero-sum struggle between the state and private creditors for material resources or sovereign authority (Barnett & Duvall, 2005:2). Without undermining the value of these contributions, it is necessary to expand the scope of political criticism by exploring how structures are produced on a daily basis in disparate places and through a wide range of discursive practices. These include, among others, the monitoring and reporting activities of the Financial Stability Board (FSB), IMF, and World Bank, the measurement and ranking of economic performance of states, corporations, and investment vehicles as well as cultural representations of spaces and people in entertainment media such as Hollywood films. Thus, instead of viewing sovereign credit risk, financial markets, and the economy as something that exists prior to and, therefore, independently of theories about it, I draw on a growing body of post-structural analyses in IPE that challenges this perception by exposing how objects are constituted through the discourses used to describe them and to act upon them (du Gay & Pryke, 2002:2). Here, sovereign credit risk is not an unmediated reality that can be objectively 'known'. Rather, it is a mediated concept: 'a series of representations and practices through which meanings are produced, identities constituted, social relations established, and political and ethical outcomes made more or less possible' (Bialasiewicz et al., 2007).

Theoretical framework and methodological approach

Power-knowledge, discourse, and truth

Foucault's theorisation of power provides a framework through which we can analyse the discursivity of economic and financial reality. One of the most important ways that Foucault's notion of power differs from the first three faces outlined above is that he rejects the idea of a sovereign, human subject which demands an analysis of: 'why certain people want to dominate, what they seek, what is their overall strategy' (Foucault, 1980:97). Foucault's conceptualisation of power does not take as presupposed the subjects *A* and *B*, but rather focus on how they are constituted through discursive systems. Instead of asking: 'who is in power?', we should interrogate:

> […] how things work at the level of on-going subjugation, at the level of those continuous and un-interrupted processes which subject our bodies, govern our gestures, dictate our behaviours etc…we should try to discover how it is that subjects are gradually, progressively, really and materially constituted through a multiplicity of organisms, forces, energies, materials, desires, thoughts etc. (Foucault, 1980:97).

By implication, rather than asking *why* CRAs have the power to shape the budgetary realities of states, we should focus on *how* their authority is produced through discursive systems that enable them to act in a particular way and influence the decision-making of others. Post-structuralism sees discourse as systems of meaning that constitute institutions, practices, and identities in contradictory and disjunctive ways (Fourclough, as cited in Larner, 2006:205). By attaching meaning to social realities, discourses make intelligible ways of being in, and acting towards the world (Milliken, 1999:26). These systems of meaning do not exist outside relations of power, which draws attention to how discourse 'rules out' certain ways of making sense about reality. For instance, in Chapter Six of this thesis, I show how the discourse of sovereign credit risk 'ruled out' certain policies of budgetary rectitude for the post-apartheid state, such as implementing capital controls to protect local industries or using discretionary fiscal policy measures for redistributive goals. These budgetary norms have been articulated in spaces of hegemony, particularly academic institutions linked to Wall Street and London, and are also the product of historical and political contestation regarding what counts as 'the economy', how it should be investigated, and managed. This thesis – particularly chapters two to four – interrogates the contestations, historical processes and ideological contingencies that have normalised certain ideas about budgetary rectitude. The goal is to examine how meanings are produced through a power-knowledge nexus that determines – through forms of exclusion – what gets to be counted as 'true', 'valid' or 'scientific' claims (Foucault, 1976). Knowledge, by implication, is both produced by and exists within a 'certain strategic relation in which man is placed' which ultimately define the effect of knowledge. Knowledge is therefore *partial, oblique* and *perspectival* (Foucault, 1978a:14). Power and knowledge therefore 'directly imply one another' according to Foucault (1977:27-28): 'there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations.' This power-knowledge, knowledge-power dyad is produced in a circulatory fashion: power both produces and is produced by knowledge (Digeser, 1992:989).

The link between power and knowledge is bound up in complex and historically grounded technologies of truth production that enables the fixation and stabilisation of particular meanings and identities in circulation of discourses (Doty, 1996:6-8). Here, 'truth' should not be seen as something that can be seized or unearthed with the correct methodological tools, but rather as an ideology that determines the types of discourse a society accepts in order to make it function as true:

> […] the mechanisms and instances that enable one to distinguish true and false statements; the means by which each is sanctions; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true (Foucault, 1978b:132).

Ideology, as it is used here, refers less to the conscious distortion of truth to advance class interests. Instead, ideology functions more as an *episteme,* the orderly 'unconscious' structures that underlie the production of 'scientific knowledge' (O' Farrell, 2007). The effects of an episteme are always discursive, as it constitutes the 'epistemological field' that shapes the conditions of possibility for knowledge production in a given time and place. In this sense, the production of knowledge always follows a filtering: not only should particular statements submit to a regime of truth – the defining rules of discourse – but only they, from a multiplicity of statements are constructed by it (DuBois, 1991:6).

The partiality of knowledge suggests that, contrary to their stable appearance, discourses of sovereign credit risk are inherently open-ended and incomplete. Discourses are unstable grids that require work to 'articulate' and 'rearticulate' their knowledges and identities (to fix a regime of truth) and open-ended meshes (Doty, 1996:5-6; Milliken, 1999:230). When a certain meaning or interpretation about, for instance, 'proper' fiscal rectitude becomes fixed, it can only ever be of a partial nature (Doty, 1996:6). The incomplete and overflowing nature of discourses 'opens up spaces for change, continuity, and variation' (Doty, 1996:6). This necessitates a focus on the efforts made to stabilise and fix dominant meanings as well as to study the 'subjected knowledges' that were silenced by hegemonic discourses. Subjected knowledges refer to the 'blocs of historical knowledge that have been disqualified as inadequate to their task or insufficiently elaborated: naïve knowledges, located low down on the hierarchy, beneath the required level of cognition or scientificity' (Foucault, 1980:82). This thesis adopts Foucault's genealogical method to account for the political history of knowledges that have rendered sovereign credit risk intelligible and measurable.

The genealogical method

Influenced by Nietzsche, Foucault (1998) encourages the use of genealogy to investigate the constitution of knowledges, discourse or domains of objects whose meanings continue to guide our daily lives and set clear limits to political and social options (Bartleson, 1995). Genealogies are historical investigations into the ideas and events that have shaped our thinking, speaking and acting towards phenomena (Bleiker, 2005:25). The goal, however, is not to uncover a single meaning or an authentic origin of, for instance, the emergence of sovereign creditworthiness. A search for origins, according to Foucault (1977:78), would be 'an attempt to capture the exact essence of things, their purest possibilities'. This is often the case in historical analyses of global finance, whereby financial globalisation gets portrayed as an evolutionary and thus inevitable, teleological unfolding of history (de Goede, 2005:14-15). According to Edkins (1999:8) these accounts read events 'backward or retroactively'. Such readings facilitate 'objective' explanations of why certain forces were able to exert their dominance and how particular tendencies 'won' (Edkins, 1999:8). A genealogy, by contrast, 'starts from an analysis of the present, and identify something as problematic in that present in order to write a history of it'

(Bartleson, 1995:73). Such an investigation focuses on that which seems unproblematic and timeless, and interrogates the historical processes, contestations, and accidents that have rendered them stable in the present.

By adopting a genealogical method, this thesis traces the insecurities and uncertainties that accompany the technical and objective appearance of financial numbers, particularly sovereign credit risk ratings. I will investigate the epistemological field that has rendered certain ideas about the problem of sovereign credit risk possible – 'them and none other in their place' (Foucault, 1991:59). To this end, I position the discourse of sovereign credit risk within historical debates about finance, credit, and the economy that have shaped the 'limits of the sayable' (Foucault, 1991:59) in the measurement of default probability. This historical investigation is *episodic* in the sense that it does not aim to supply a history of the past as it actually was. Instead, a genealogical analysis 'deals with those episodes which are involved in the effective formation of that which was identified as problematic in the present' (Bartleson, 1995:73). Chapter Two and Three, for instance, examines the historical contexts, political assumptions, and discursive strategies that underpin contemporary macro-economic policies such as inflation targeting and central bank autonomy. This investigation reveals the many contestations, ambiguities, and compromises that accompany these policies – issues that remain relevant today. The genealogical method therefore enables us to render visible the fragility of modern arrangements of financial markets and the economy. By following lines of fragility in the present, a genealogy describes:

> […] that-which-is by making it appear as something: that might not be, or might not be as it is […] History serves to show that-which-is has not always been; i.e. that the things which seem most evident to us are always formed in the confluence of encounters and chances, during the course of a precarious and fragile history (Foucault, 1988: 36-37).

These 'fragilities' can be explored through a plethora of sources: works of art, fictional texts, scientific publications, policy documents, as well as primary data-collection methods like in-depth interviews or focus groups with key actors in the rating industry and government. While qualitative interviews with these actors would certainly have been valuable in gaining insight into the micro-processes involved in the production of ratings, there are a number of constraints that complicated this approach. These include, amongst others, geographical limitations. Sovereign credit rating analysts are primarily located in the headquarters of CRAs, that is, New York, London, Paris and Honk Kong. This is coupled with additional constraints such as securing financial assistance, ethical clearance and, given the secrecy of these rating decisions, access to the necessary information. As such, this thesis relies mainly on secondary data as sources of analysis. The selection of sources is guided by a thematic analysis of financial and economic discourses, particularly as they relate to the rating of sovereign creditworthiness. These include the fragile and contested nature of credit relations that emphasise the extent to which financial practices rely on imaginations of trust, faith, and rationality. To this end, the thesis relies on existing analyses and critiques of fictional works produced by authors like Daniel Defoe which capture the anxiety, hysteria, and fears associated with the rise of credit structures in eighteenth-century England. Portraying finance as a fickle, irrational, and hysterical female – Lady Credit – Defoe argued that the virtues of the colonial gentleman, i.e. rationality, scientific asceticism, and self-discipline, provides a solution to 'master' the uncertain nature of Lady Credit. The historical and socio-political context of Defoe's colonial gentleman, particularly his masculine, racial, and geographical qualities is an important theme throughout this thesis. For instance, I show how this articulation or rationality has travelled to the discipline of economics. Here, I rely on the original works of economists such as William Stanley Jevons and Leon Walras to examine how the ambiguities and historical context of Defoe's gentleman have been de-politicised through the mathematisation of theories of individual economic behaviour. The analysis of these works aims to describe the 'episteme' of this historical period, 'the relations of various scientific discourses: the episteme is not a sort of grand underlying theory, it is a space of dispersion, it is an open and doubtless indefinitely describable field of relationships' (Foucault, 1991:55, emphasis in original). To this end, this thesis relies not only on original texts published by prominent scholars, but also considers how colonial, masculine, and racialised discourses of rationality surface in policy documents, travel diaries of colonial voyagers, letters of correspondence, and scientific publications in economic journals. This thesis consequently traces how these political assumptions about rationality resonate not only in the neo-classical economic models of Milton Friedman and Robert Lucas, but also the geopolitical imagination of modern financial markets. Exploring, once again, the original publications of key economists, my focus here is to establish the extent to which historically racialised, colonial connections have been 'normalised' through mathematical modelling. Additionally, this thesis investigates how the geopolitical imagination of rationality shapes discourses of creditworthiness in financial journals, 'expert commentaries', policy advice, financial regulations, and the methodologies of CRAs. These resources enable an exposition of how historical ideas, concepts, and categorisations are produced, reproduced and transformed 'in a particular set of practices through which meaning is given to physical and social realities' (Hajer, as cited in Sharp & Richardson, 2001:196).

In demonstrating the insecurities that accompany the institutionalised discursive frameworks of financial markets and the economy, it becomes possible to open a conversational space for political criticism to take place, as well as to imagine alternative ways of understanding phenomena (Williams, 1999:80). This does not mean, however, that it is possible to identify, via genealogy, historical alternatives and choose a different path (de Goede, 2005:19; du Gay & Pryke, 2002). Although this thesis highlights the historical and discursive contingency of modern credit practices, the goal is not to endorse a politics that 'serves to free up ideologically frozen relations of dependence and domination in the name of human possibility and inventiveness' (du Gay & Pryke, 2002:5). Laclau (1990:33-35), drawing on Husserl's distinction between sedimentation and reactivation, explains why this is not the case. Sedimented theoretical categories are those that are routinely produced in scientific disciplines, where the results of previous investigations are taken for granted to the extent that they 'conceal the acts of their original institution' (Laclau, 1990:34; Laclau & Moffe, 2001:viii). Reactivation 'makes those acts visible again', by recovering the constitutive activities of thought that enabled the sedimentation of certain discourses. Laclau (1990:34-35) nevertheless argues that:

> The moment of reactivation cannot consist of a return to origins, to the historic system of alternative possibilities that were discarded…rejected alternatives do not mean everything that is *logically* possible, but those alternatives which were *in fact* attempted, which thus represented antagonistic alternatives and were suppressed. But in a new situation, the system of those alternatives will be different. Reactivation does not therefore consist of returning to the original situation, but merely of rediscovering, through the emergence of new antagonisms, the contingent nature of so-called 'objectivity' (emphasis in original).

The passing of time has therefore modified systems of possibilities. This is because discourses are not merely social constructions that exist in texts. They regulate, shape, and constrain modes of conduct, possibilities of action, and identities (de Goede, 2005:19). Sovereign credit ratings, for instance, form part of an apparatus of financial regulations, academic curricula, pricing models, bond indices, policy think tanks, credit risk analyses, and other investment vehicles that perform the discourse of sovereign creditworthiness into being. Ratings have embedded in them certain theories about how the economy works, how it should work, how it should be managed, how it grows, as well as what constitutes signs of danger. These theories outline a field of 'normal' conduct for a wide range of subjects: investors, policy-makers, governments, CRAs, and IFIs. Over time, these modes of conduct, ways of thinking and acting toward the problem of sovereign default risk becomes stabilised, or 'sedimented' in Laclau's formulation. And although it is not possible to revisit the exact origin of these sedimented objectivities, a genealogical analysis of these objectivities can reveal their contingent nature. By questioning these objectivities that make sovereign creditworthiness intelligible, it becomes possible to broaden the democratic content of financial practices (de Goede, 2001:61). At this point, it is necessary to explain how the materialisation of discourse will be approached through the concepts of performativity and governmentality.

Re-imagining the ideal/real dichotomy: the performative and governing effect of ratings

A performative analytic of discourse problematises the ideal/material dichotomy and suggest that practices of budgetary rectitude, investment, or credit risk analyses cannot exist independent of ideas and beliefs about them (Campbell, as cited in de Goede, 2003:80; see also Aitken, 2006; Barry & Slater, 2002; Callon, 2007, 1998; Cochoy et al., 2010; MacKenzie, 2004, 2006; MacKenzie & Millo, 2003; Paudyn, 2014). CRAs, for instance, do not merely publish their opinions on the default risk of a sovereign's debt. Attached to these judgments are a set of meanings that render intelligible certain modes of conducts for investors and governments. CRAs and credit risk ratings do not exist in isolation; they are connected to an infrastructure of meanings, practices and institutions that create the conditions for this representation to materialise (Merry, 2016a:21). Their discursive authority becomes revealed by how rating judgments create self-fulfilling prophecies when market participants coordinate their behaviour in line with the rating actions of the Big Three CRAs. This often generates 'herding behaviour', which triggers the very contagion risk CRAs must then judge (Paudyn, 2014:52).

The idea that discourses perform the reality they claim to describe has largely been influenced by J.L. Austin's ideas on 'performative utterances'. Austin (1962) argues that speech does not primarily 'state' facts, but in certain felicitous conditions, 'acts' or 'performs' certain realities. The performativity of speech acts can be seen in their 'illocutionary' and 'perlocutionary' effects. Illocutionary acts are those we do *in* speaking, which have a pragmatic force by virtue of conventions interpreting them, for example promises, bets or apologies (Espeland & Stevens, 2008:404). Here, ratings – as statements of creditworthiness – help constitute the things they measure by communicating a range of judgments about proper fiscal conduct. Formulated through a readily identifiable scale, ratings translate normative statements about creditworthiness into practice. Perlocutionary performative effects on the other hand, depend on the reality produced by illocutionary utterances that translate that depiction into material existence when felicitous conditions are in place. These utterances are sensitive to context and communities of interpretation (Espeland & Stevens, 2008:404; Sinclair, 2005). For performativity to yield a material reality that conforms to its modelled depiction, that discourse, model, or theory must be applied over and over again (Butler, 2010; de Goede, 2005:7-8). As such, it would be a mistake to overvalue the subject who speaks, i.e., CRAs, as their speech acts are reiterated forms of discourse (Butler, 2010: 48). CRAs articulate and rate sovereign credit risk but are not the sovereign originators of their actions (de Goede, 2005:10; Milliken, 1999). Rating agencies learn what to say, speak in codified ways, which implies that 'the codification and ritualisation of that discourse precede and makes possible the subject who speaks' (Butler, 2010:148). According to Butler (2011:xix), this entails a process of materialisation that 'is neither a single act nor a causal process initiated by a subject and culminating in a set of fixed effects.' Instead, it is an ongoing, citational practice that 'operates through the reiteration of norms' (Butler, 2011:xix; de Goede, 2005:7). As such, it is not only CRAs that establish, time and again, the existence of sovereign credit risk. A series of mundane practices, such as expert analyses, commentaries, working papers published by IFIs, regulatory practices, and policy analyses are some of the discursive practices that contribute to the reiteration, re-establishment, and sedimentation of ideas about sovereign creditworthiness, the economy, and, indeed, the market. This is not to suggest that discourse *construct* reality. Instead, a performative analytic invites us to study the 'spatially distributed and temporally reiterative process that characterise the performative agency of various institutions' (Butler, 2010:148). How are the felicitous conditions that perform sovereign credit ratings into existence produced? To address this question, it is necessary to return to another dimension of Foucault's account of power-knowledge, which looks at the governing effect of discourse.

Governmentality ties together Foucault's conceptualisation of power-knowledge and discourse by investigating the political imaginaries and political rationalities that guide praxis (Zanotti, 2013). Power is diffused, circulates through discourse and has a governing effect. Governmental power is likened to the term *conduct*, which implies on the one hand *to lead others* and on the other hand, *a way of behaving within a more or less open field of possibilities* (Foucault, 1982). This activity of governing does not act directly on its subjects. Instead, the operation of power entails the 'conduct of conduct' of others (Foucault, 1982). Governmental power works through 'the structuring of possible fields of action' and rendering some modes of conduct more rational than others. Yet, this is not the conscious action of one actor or institution, but rather activities that exist at multiple sites through heterogenous strategies and practices. Government takes place from a distance over 'free' subjects who are faced with a structured field of possible actions. By 'free subjects' Foucault (1982) means individuals or collective subjects 'who are faced with a field of possibilities in which several ways of behaving, several reactions and diverse comportments, may be realised.' This is not to say that freedom is as an illusion. Instead, government works *through* freedom and presupposes the capacity of the subject to act and, crucially, choose to act in a certain way (Rose, 1999: 95). As Wendy Brown (1995: 6) explains:

> Freedom is neither a philosophical absolute nor a tangible entity but a relation and contextual practice that takes shape in opposition to whatever is locally and ideologically conceived as unfreedom…Rendering either the ancient or liberal formations of freedom as 'concepts' abstracts them from the historical practices in which they are rooted, the institutions against which they are oriented, the domination they are designed to contest, the privileges they are designed to protect. Treating them as concepts not only prevents appreciation of their local and historical character but pre-empts perception of what is denied and suppressed by them, of what kinds of domination are enacted by particular practices of freedom.

Central to this analysis of freedom is a focus on the regimes of power-knowledge and truth that govern how subjects choose to act and relate to themselves and others, which has also been explained in terms of subjectification/subjectivation (Rose, 1999; Rosenberg & Milchman, 2009). Subjectification refers to how human beings, states, territories, economies and organisations become objectified as subjects in discourse and the modes of government this wields. Subjectivation on the other hand entails a mode of governing oneself, self-fashioning, based on what one takes to be the truth of a discourse. These practices of self-fashioning should be seen in the context of a particular problem of government, such as, securing the stability of the financial system. This problem is made visible through representative practices of risk, uncertainty, and danger that constructs a field of 'safe', and 'proper' fiscal conduct for states, municipalities, and corporations (Philips & Ilcan, 2004: 395). Here, government takes place 'at a distance' by making use of various technologies to create locales, governments and individuals able to operate a regulated autonomy (Rose & Miller, 1992:184). Through processes of subjectivation and subjectification, governmentality recasts the subjectivities of actors so that they internalise the goals of government. In other words, by normalising a specific set of budgetary conducts, the government of sovereign credit risk takes place through a complex set of apparatuses that results in the self-regulation among states, policy officials and investors to achieve the same ends (Rose & Miller, 1992: 184; Rydin, 2007).

The rationalities and technologies of government: liberalism and neoliberalism

The question of *how* certain modes of conduct are made to appear more normal relates to the political rationality of government. As a neologism for 'government' and 'mentality', a governmentality analytic requires an investigation into the political discourses that inform a 'system of thinking about the nature of the practice of government (who can govern; what governing is; what or who is to be governed)' (Gordon, 1991:3). Rationalities of government have a distinct moral and normative character in that they define the ideals and principles of how actors – governments, CRAs, investors – *should* conduct themselves and elaborate on the fitting authorities and duties for actors concerned with these ideals (Rose & Miller, 1992:178). Of particular interest to this thesis is Foucault's account of liberal and neoliberal governmentality that emerged in the eighteenth-century.

In his 1979 lectures, published in *The Birth of Biopolitics* (2008), Foucault starts with an analysis of liberalism as an 'art of government' that embodied a significant change in thinking about the governmental connections between the market and the state. As a rationality of political government, liberalism in this view is not a theory, ideology, philosophy of individual freedom, or a set of policies adopted by a government. Instead, rationality describes and visualises a way of doing things that functions as a method for the rationalisation of governmental practices (Burchell, 1996). Foucault emphasises the critical and problematising character of liberalism by investigating how 'classical' liberalism in eighteenth-century Europe emerged in relation to the problem of 'how a necessary market freedom can be reconciled with the unlimited exercise of political sovereignty' (Burchell, 1996:21). In other words, how can we secure the freedom of the market in relation to the judicial powers of the State? This problem should be read as a criticism of the 'police state', associated with the *Raison d'état* during the Middle Ages. Foucault grounded his analyses of the *Raison d'état* in Niccolò Machiavelli's *The Prince,* which details the advice Machiavelli gives to the Price on how he could secure his sovereignty. The main objective of the Prince, according to Machiavelli, should be to secure his sovereign authority by ensuring not only that the country is rich, but that the sovereign has wealth and funds at his disposal, and can build an army with which to secure his policies (Foucault, 1978c:214).

The *Raison d'état* assumes that the Prince has an adequate and detailed knowledge of what had to be governed and how, which constituted the point of critique for liberal thinkers. They were sceptical about the ability of the state, or any actor or institution for that matter, to know in detail what has to be governed. Moreover, alongside the nascent discourse of classical economics, particularly that of Adam Smith, the market became framed as something that "obeyed and had to obey 'natural', that is to say, spontaneous mechanisms" (Foucault, 2008:31). The principal actor in this model of the marketplace is *homo œconomicus:* the self-interested individual whose actions, when left alone, supposedly have a multiplying and beneficial value as they spontaneously converge with the interests of others (Foucault, 2008:270; Polanyi, 1944:112). In classic economics, *homo œconomicus* is characterised by his inherent propensity to 'truck, barter, and exchange one thing for another' (Smith, 2008{1776}:25). Markets should therefore be unrestricted sites of exchange that enable *homo œconomicus* to pursue economic activities. Foucault (2009:451) argues that this naturalistic interpretation of economic functions implied a form of government where the state has the responsibility to:

> […] respect these natural processes…It will be necessary to arouse, to facilitate, and to *laisser faire,* in other words to manage and no longer control through rules and regulations. The essential objective of this management will not so much be to prevent things as to ensure that the necessary and natural regulations work…Natural phenomena will have to be framed in such a way that they do not veer off course, or in such a way that clumsy, arbitrary, and blind intervention does not make them veer off course.

The impression of freedom in liberalism however, should not be equated with anarchy, since it historically depends on the exercise of discipline (Dean, 2002; Foucault, 2008; Gane, 2012; Rose, 1999:61-97). 'Economic freedom' or liberalism in this sense, is bound up with disciplinary techniques (Foucault, 2008:67). Foucault visualises this rationality of governing through Jeremy Bentham's *Panopticon*. Bentham's Panopticon is an architectural design initially proposed to institutions like schools, factories, cities, asylums and prisons, and is primarily recognised by how it enables the surveillance of individuals in order to increase the profitability of their bodies (Foucault, 2008:67, 1977). As a formula for liberal government, the Panopticon appoints a supervisory role for the state vis-a-vis the market: to ensure that everything is working in accordance with its natural mechanisms. In this limited function of supervision, the state should solely interfere when something is not happening in accordance with the natural mechanisms of exchange (Barry et al., 1996; Foucault, 2008:67; Gane, 2012). In this sense, Gane (2012:618) suggests that the Panopticon becomes a normative model of governance that recasts the connection between the state and the market, where the former seeks to promote conditions of 'freedom' for the latter through disciplinary techniques that operate through specific forms and practices of surveillance.

In the aftermath of the Second World War, which revealed the 'intrinsic defects' of the state, the connection between the state and the market in classical liberalism became problematised.

Instead of looking at how a space of market freedom can be found within an existing state, the problem became reversed and dealt with 'how to create a State on the basis of economic freedom that will secure the State's legitimacy and self-limitation' (Burchell, 1996:22). These questions emerged in the German School of *Ordoliberalen*, which argues that the cause of National Socialism was not the result of some monstrous aberration, but the inevitable outcome of a series of anti-liberal policies: national protectionism, Keynesian demand economics, and the welfare policies of Bismarckian state socialism. These policies, the Ordo-liberals argue, enables an exorbitant growth of the State with disastrous consequences that are inevitable (Burchell, 1996; Gordon, 1996; Plehwe, 2009). The Chicago School of neoliberal thought similarly used the Second World War as a criticism of the consequences of too much government. Here, the sense of naturalism inscribed into liberalism gets replaced with a kind of constructivism (Burchell, 1996; Dean, 2010:69-74; Foucault, 2008). This is best exemplified by how *homo œconomicus* transforms from being a 'man of exchange' into an 'entrepreneur' in neoliberal society, defined solely in terms of competition (Burchell, 1996; Foucault, 2008:118-120, 131-147; Hamann, 2009; Joronen, 2013:359). Here competition is not a natural action, but rather actively created. *Homo œconomicus* will conduct himself in terms of an enterprise only under certain conditions, which have to be carefully and artificially created (Foucault, 2008:120). This suggests a divergence from the state's supervisory role in liberalism, which served as the foundation of its legitimacy. The Panopticon becomes effectively reversed: instead of the state ensuring the legitimacy of the market, the market produces legitimacy for the state, which in turn becomes its 'guarantor' (Gane, 2012:626; Lemke, 2001). Neoliberalism removes the limiting, supervisory role of the state in relation to the economy and puts a regulatory, internal principle in its place: it is the model of the market economy which serves as the organisational principle for the state and society (Foucault, 2008:116; Lemke, 2001:200).

Since the market refers to a space of competition in neoliberalism, where this sense of competition is produced through a set of artificially created conditions, the role of the State is to work actively to ensure competition in the market. As the 2008/09 GFC illustrated, the market in neoliberalism relies extensively on the State, not only as a banker of last resort, but to institutionalise an infrastructure for its 'free functioning'. In return, should the State agree to do this, the market produces the State's legitimacy in the eyes of financiers via, for instance, sovereign credit ratings. The neoliberal art of government therefore requires the State to work *for* the game of market competition and as a kind of enterprise itself by extending the principles of competition or 'choice' into all its structures and institutions (Barry et al., 1996; Foucault, 2008; Gordon, 1991:43; Joronen, 2013). Neoliberalism necessitates the State to marketised to its core, to continuously make the effort to ensure that competition plays, as Foucault (2008:145) explains a 'regulatory role at every moment and every point in society', thereby promoting the 'general regulation of society by the market'. Thus, for the purposes of this thesis, neoliberalism refers to a political rationality that seeks to govern through the calculative choice of formally free actors (Rose, 1999). The model of *homo œconomicus* as a calculative, utilitarian agent becomes an 'approach' capable of addressing the totality of human behaviour and consequently, of envisaging a coherent, purely economic method of programming the totality of governmental action (Gordon, 1991:43). *Homo œconomicus* is posited as a fundamental human faculty of *choice,* which encodes the social domain as an economic space where cost-benefit calculations can be applied to the decision-making processes within the family, married life the management of populations, and importantly, financial markets. Here, government is not confined to the power of the State, with the State being a sovereign, unified actor with considerable autonomy (Rose & Miller, 1992:177). Instead, it invokes an inquiry of how, and to what extent, the State is articulated into the *activity* of government. Foucault (1978c:221) terms this configuration of the state in the activity of government as the 'governmentalisation of the State':

> […] the invention and assembly of a whole array of technologies that connected up calculations and strategies developed in political centres to those thousands of spatially scattered points where the constitutional, fiscal, organisational and judicial powers of the State connect with endeavours to manage economic life, the health and habits of the population [nation states], the civility of the masses and so forth (Rose, 1999:18).

With regards to the role of the State vis-à-vis financial markets amidst the contemporary bout of financialisation, a governmentality analytic sees the changing relation between states and non-state actors like CRAs as a 'changing logic or rationality of government' (Sending & Neumann, 2006:152). Thus, contrary to the idea that financialisation implies a reduction of state authority or what Thrift calls 'a phantom state' – as suggested in a zero-sum conception of power in global politics – neoliberal governmentality redefines the State from being a passive object that is acted upon into an entity that is both an object and subject of government (Sending & Neumann, 2006).

This operation of government relies on the use of technologies that instrumentalise political rationalities and includes the particular, technical devices of writing, rating, ranking, numbering and computing that renders a realm into discourse as a knowable, calculable and administrable object (Miller & Rose, 2008:30). This thesis investigates the discursive technologies that render the domain of government – in this case, sovereign credit risk – knowable, in a calculative form, and problematised with a corresponding set of interventions (Miller & Rose, 2008:33; Rose & Miller, 1992:184). The governmentality of sovereign credit risk is embedded in a set of problems concerning the 'global' government of financial markets. A recurrent theme in discussions about the 'international financial architecture' (IFA), for instance, is the prevention of crises (Knorr-Cetina, 2007). The IFA can be defined as the 'collective governance arrangements for promoting the stability of the international financial system' (Elson, 2010). Focused on securing the stable circulation of financial flows, the governing activities of the IFA aim to manage uncertainty through the deployment of, amongst others, risk metrics that hold out the promise of transforming unknowable futures into knowable probabilities that can be acted upon in the present (de Goede, 2012; Langley, 2013; Paudyn, 2014). Risk, as Dean (1999:25) explains:

> […] is a way – or rather a set of different ways – of ordering reality, of rendering it into a calculable form. It is a way of representing events so they might be made governable in particular ways, with particular techniques, and for particular goals. It is a component of diverse forms of calculative rationality for governing the conduct of individuals, collectivities and populations.

To this end, the neoliberal governmentality of the IFA, which has as its goal the secure and stable functioning of the financial system, seeks to create conditions that enable and encourage market participants to behave in a rational, calculative manner. This entails the use of technologies that problematise irrational, deviant behaviour: threats to the stability of the financial system. In the case of sovereign credit ratings, these technologies include the representation of sovereign creditworthiness on a scale that not only enables comparison, but also entails a normative directionality that governments have to take in order to improve their status. Sovereign credit ratings act as a technology of government that link together responsibility and calculation: to create the responsible states (Miller, 2001:380).

The deployment of risk technologies to secure the stability of the financial system coincides with a profit motive, resonating with the entrepreneurial spirit of *homo œconomicus* in neoliberalism (Amoore, 2013). This is captured in the dual meaning of *securitisation* being, in one sense, 'a process that renders societal problems into objects of security' and in another 'a process that renders future income streams and other financial claims into tradeable financial instruments such as derivatives' (de Goede, 2012:xxii). Although these meanings may appear distinct at first glance, they are both based on processes of mediation and calculation, which are inherently political, and 'whereby an uncertain and insecure future is rendered actionable, as well as commercially profitable, in the present' (de Goede, 2012:xxii). Risk is therefore a form of government that works through probabilities, by 'maximising the positive elements…and minimising what is risky and inconvenient' (Foucault, 2009:34).

While a substantial part of this thesis seeks to re-politicise the discourse of sovereign credit risk by exploring, amongst others, the historical contingency and political contestations underpinning the production of knowledge about finance and the economy, I also investigate how this governmentality gets entangled in the political economy of South Africa. This necessitates a focus on how the governmentality of sovereign credit risk – its political rationalities and technologies – interacts with socio-spatial materialities that exceed their institutional form. These spaces are produced through processes of uneven development, based on historical rounds of accumulation, dispossession, and particular geographies of biased investment that reproduce socio-spatial inequalities. By examining how local and social histories are entangled in the governmentality of sovereign credit ratings, I do not mean to suggest some form of linear causality between these modalities of governing and the reproduction of historical spatial inequalities. The 'global' governing of sovereign credit ratings does not act in a determinative way, but involves a promiscuous entanglement with the local, that shapes unpredictable conditions of possibility (Ong, 2007:5). Adopting an assemblage perspective, I examine how the governmentality of sovereign credit ratings involves an 'interplay of forces where a range of actors mobilize, enrol, translate, channel, broker and bridge in ways that make different kinds of government possible' (Allen & Cochrane, 2007:1171). The following section discusses the assemblage approach and how it will be used to investigate the relations and effects between the diverse elements that come together in the rating of sovereign credit risk.

Studying the sovereign credit risk assemblage

An assemblage can be thought of as a whole 'whose properties emerge from the interactions between parts' (DeLanda, 2006:5). Assemblages are made up of a multiplicity of heterogeneous objects, "whose unity comes solely from the fact that these items function together, that they 'work' together as a functional entity" (Patton, 1994:185). This unity is not the result of an organised system, however. The components that make up an assemblage do not function in an organic manner but are shaped and defined through *relations of exteriority*. The exteriority of relations implies a certain autonomy of the parts that make up an assemblage, which allows us to consider how the diverse components have potential agency beyond these relations to create something new (Anderson et al. 2012). The components in an assemblage therefore do not have an intrinsic 'function'. Instead, their functioning depends on how they interact with other parts, which differs across time and space. Massumi (1987:xiii) explains the idea of relations of exteriority in an assemblage by suggesting we think of concepts or objects as bricks. 'It can be used to build the courthouse of reason. Or it can be thrown through the window (Massumi, 1987:xiii)'. The meaning and function of a concept and/or object is shaped through its external relations with other elements. Contrary to how, in an organism such as the branch of a tree, each part has an entirely determined and necessary role, the relations between parts in an assemblage are contingent rather than necessary. They are aggregated, mixed, and composed, and like a 'machine' they can be removed and used in other assemblages (Dovey, 2010:16). As such, the components that make up an assemblage are defined in terms of their *capacities:* they are an open-ended set of potentialities (Anderson et al., 2012; DeLanda, 2006:11).

Deleuze and Guattari (1987) frame the interaction between heterogeneous relations in an assemblage in the image of a rhizome and thus contrary to the arborescent system mentioned above. Rhizomes are plants that grow in surface extensions through interconnected vertical root systems. Here, it is not always possible to physically trace the interactive relations in an assemblage, as their rhizomic operation often throw up shoots in different locations. The 'lines' in a rhizome always territorialise, de-territorialise and re-territorialise themselves (Deleuze & Guattari, 1987). These processes always exist in relation to each other. To illustrate this point, Deleuze and Guattari (1987:10) adopts the following analogy:

> The orchid de-territorialises by forming an image, a tracing of a wasp; but the wasp re-territorialises on that image. The wasp is nevertheless de-territorialised, becoming a piece in the orchid's reproductive apparatus. But it re-territorialises the orchid by transporting its pollen. Wasp and orchid, as heterogeneous elements, from a rhizome.

A rhizomic understanding of how objects, discourses, history, and politics interact enables us to expand our investigation into the processes and practices that not only de-politicise sovereign credit ratings, but also how this assemblage territorialise itself in place. A sovereign credit rating, for instance, is an assemblage of heterogeneous elements: histories of statistical probability methods, economic theories, modelling software, performance metrics, data/information infrastructures, buildings, electricity, education systems and curricula, face-to-face meetings, profit motives, imaginations, fears, and political rationalities. Within this assemblage, economic theory is nothing more than a further assemblage of connections between things, histories, and practices. It is the connection between these multiplicities that makes up an assemblage. The question then becomes: how are they brought together? Here, concepts such as governmentality and apparatus enables an investigation into the techniques, discourses, and epistemologies that bring heterogenous elements together in a particular way and in a particular time and place.

Causality, within this framework, *is realised in its effect* (Deleuze, 1988:37). It is not governed by a set of underlying laws, and it cannot be predetermined. William Connolly (2004:342) terms this form of causality as *emergent causality,* which occurs when something that takes place 'at the immanent level has effects at another level'. Yet, this causality is *emergent* for the following two reasons:

> […] first, the character of the immanent activity is not knowable in precise detail prior to effects that emerge at the second level, second, the new effects become *infused* into the very being or organisation of the second level in such a way that the cause cannot be said to be fully different from the effect engendered and, third, a series of loops and feedback loops operate between first and second levels to generate the stabilised result (Connolly, 2004:342, original emphasis).

Emergent causality in an assemblage stems from the agency of various somatic, technological, cultural, and atmospheric elements (Bennet, as cited in de Goede, 2012:29). An assemblage furthermore distinguishes itself from a social structure, which implies a greater degree of coherence. Although, as Connolly's notion of emergent causality implies, the various feedback loops between different levels of effect generates a stabilised result, this sense of coherence is always temporal, contingent and unstable. Indeed, Marcus and Saka (2006:102) notes that the concept of assemblage provokes a 'nervous condition for analytic reason', caused by an attempt to balance 'the contradictions between the ephemeral and the structural, and between the structural and the unstably heterogenous'. This can be seen during financial crises, for instance, but also by how the sovereign credit rating assemblage interacts with the political economy of South Africa that is characterised by historical tensions, inequality, and violence. Sovereign credit ratings are not *the* causal determinant in this story. They often act as a *catalyst* in the decision-making of government authorities on macro-economic policies which, in many ways, enable historical forms of suffering to persist in South Africa's social fabric. Here, 'catalyst' refers to how 'well-placed' elements in an assemblage sometimes have a decisive effect by how it interacts with other elements in a particular time and place (Anderson et al., 2012:182). DeLanda (2006:20) for instance uses the claim that 'smoking cigarettes causes cancer' to illustrate how some causes in an assemblage lead to moments of turbulence, but emphasises that 'one and the same causes can produce very different effects depending on the part of the whole it acts upon'. He explains that not everyone who smokes develops lung cancer and not all victims of lung cancer were smokers at some point in their life. In cases where smoking did lead to lung cancer, cigarettes acted as a catalyst for cancer. Causality is therefore multiple and indeterminate, which implies that the identification of mechanical causality only becomes 'visible in shifts between moments of unchartered turbulence and the congealment of agencies that appear as traces' (Anderson et al., 2012:183).

The study of the sovereign government assemblage in this thesis also depends on an understanding of causality in terms of *resonance*. Akin to the rhizomic functioning of assemblages, the re-politicisation of sovereign credit risk in this thesis brings together disparate histories which, on the surface, might appear to have no relation to each other. Drawing on Connolly's (2005) notion of resonance that replaces traditional understandings of causation, I aim to show the complex ways in which:

> […] diverse elements infiltrate into the others, metabolising into a moving complex – Causation as resonance between elements become fused together to a considerable degree. Here causality, as relations of dependence between separate factors, morphs into energised complexities of mutual imbrication and interinvolvement, in which heretofore unconnected or loosely associated elements *fold, bend, blend, emulsify,* and dissolve into each other, forging a qualitative assemblage resistant to classical models of explanation (Connolly, 2005:870).

In line with a rhizomic framework, this understanding of causation enables the use of diverse methodological sources to examine how relations in an assemblage resonate together. Any point in a rhizome, according to Deleuze and Guattari (1987:7) can and must be connected to other points. These semiotic connections however, are not necessarily linked to one specific discourse, but instead 'bring into play not only different regimes of signs but also states of things of differing status' (Deleuze & Guatarri, 1987:7). This thesis for instance investigates the resonances between the identity of colonial man in the works of Daniel Defoe and the contemporary modelling of rational action in the marketplace. Although there are traces of Defoe's colonial gentleman, this model of rationality has been subject to various transformations (or ruptures a-la Deleuze and Guattari, 1987), connected to diverse elements with varying political, social, and economic consequences.

This tension between temporal stability and uncertain periods of emergence, or 'lines of flight' in a rhizome, exemplifies the mediation between territorialisation and de-territorialisation.

Territorialisation refers to the processes that aim to stabilise an assemblage, 'to draw a circle around that uncertain and fragile centre, to organise a limited space' and keep 'the forces of chaos' outside (Deleuze & Guattari, 1987:343). Here, territorialisation can be understood in a literal way, that is, to create spatial boundaries (DeLanda, 2006:13; Dovey, 2010:17-19). This includes the use of physical boundaries to territorialise spaces such as walls to separate rooms in a house, fences to demarcate the geographical boundaries of a property, neighbourhood, or nation. Territorialisation also involves non-spatial processes that seek to stabilise an assemblage by increasing its internal homogeneity (DeLanda, 2006). For instance, the segregation practices that exclude people, groups, or nations to become members of an organisation or society. In global finance, the sovereign creditworthiness assemblage deploys a range of surveillant mechanisms, performance metrics, and rating updates to normalise particular fiscal conduct. This practice of governing involves a political imagination of the 'globe' that envisions spaces beyond the horizon of the West as sources of uncertainty and a threat to the financial system. The territorialisation of spaces 'is a matter of marking out a territory in thought and inscribing it in the real, topographising it, investing it with powers, bounding it by exclusions, defining who or what can rightfully enter' (Rose, 1999:34). However, because assemblage emphasises the 'instability of things' (Marcus & Saka, 2006), these territories are temporal, contingent, and always prone to de-territorialisation. These lines of flight signifies the open-ended potential of assemblages to interact with and create new assemblages through processes of re-territorialisation. Urban inequalities between, for instance, Mitchell's Plain and Constantia in the Western Cape province of South Africa, are produced through relations of history and potential. These include histories of capital accumulation, historical configurations of uneven spatial development, and legacies of socio-political contestation that plays a crucial role in defining the nature of possibility, inequality, poverty, struggle, and mobilisation at a particular site (McFarlane, 2011a:381).

> Assemblage places emphasis on the depth and potentiality of urban sites, processes and actors in terms of their histories, the labour required to produce them and the inevitable capacity to exceed the sum of their connections…By 'depth', I am referring to the crucial role of multiple and overlapping histories in producing habits of practice, ways of going on, and trajectories of policy and economy that shape urban inequality…By 'potentiality', I am referring both to the intensity and excessiveness of the moment- the capacity of events to disrupt patterns…invent new connections and ways of inhabiting everyday urban life…(McFarlane, 2011b:209).

This thesis investigates the relations of history mediating South Africa's sovereign creditworthiness and the unstable and unequal territories this assemblage creates. On the one hand, the modalities of spatial governing sovereign credit ratings assemble tend to reify historical forms of socio-spatial and economic exclusion. On the other hand, while these modalities of governing often succeed in attracting much sought for foreign investment, they are continuously contested *in place* by those who must bear the brunt of austerity measures, inadequate housing, sanitation, education, and physical safety. In this way, the sovereign creditworthiness assemblage creates the conditions for its own demise. Growing resistance to post-apartheid spatial governmentalities in the form of large-scale protests reinscribes the geopolitical imagination amongst investors and CRAs, undermining the government's creditworthiness. The conclusion chapter of this thesis considers how, via re-politicisation, the authority of CRAs and financial markets in general can be resisted, which could open the space for alternative ways of imagining sovereign credit risk.

Structure of thesis

This thesis is divided into six chapters and a conclusion. The first chapter examines the masculine, colonial imagination of creditworthiness and rational finance. This chapter draws on de Goede's (2000, 2005) account of Daniel Defoe's personification of finance in eighteenth-century England as Lady Credit. Defoe's writings took place in a context that saw both an unprecedented rise in credit practices and growing concerns about what this form of wealth creation means for the virtue of society. In an attempt to create a moral and political space for financial practices to take place, Defoe argued that Lady Credit, despite being an irrational female, can be beneficial for the country on the condition that she be engaged with on a gentlemanly ethic. This gentleman − emblematic of the colonial voyager − is rational, calculative, honest and will therefore bring out the best in Lady Credit. By creating a moral space for the nascent financial structures to flourish, the English state was able to establish a system of long-term borrowing via secondary debt instruments to fund its colonial conquests and wars with rival powers in Europe. The chapter then explores the lines of resonance between Defoe's binary imagination of the English gentleman and Lady Credit and modern representations of emerging and frontier markets. These resonances are bound up in a violent history of colonial conquest and slave trade, which were funded by the institutionalisation of credit instruments as we know them today, including national debt.

Chapter Two examines how Defoe's portrayal of rationality and truth became absorbed in the research agenda of economists associated with the 1870s Marginal Revolution. This chapter examines the discursive techniques deployed by economists such as William Stanley Jevons, Léon Walras and Alfred Marshall to establish the field of economics as a scientific, apolitical discipline. These techniques entailed the use of analogies with physics and rational mechanics to not only describe the workings of the economy – reduced to the study of price formation – as being driven by natural laws, but also consolidated the use of mathematics to investigate and represent the economy. The use of analogies was justified by the Enlightenment episteme and an unconditional faith in the scientific method, used primarily in the natural sciences, to reveal the true laws governing society. Thus, by merely incorporating analogies from natural sciences, certain economic theories became conceived as scientific and truthful representations of phenomena. A number of theories developed from these analogies continue to inform the way in which economists and financial analysts understand and investigate market phenomena, such as general equilibrium theory. The goal of this chapter is therefore to reveal the historical contingency through which certain theories and understandings of the economy, and the implications they entail for macro-economic policymaking, became conceived as 'rational' and scientific. However, the determinist framework of the marginal economists encountered several methodological complications, the cause of which is the limitation of man's imperfect knowledge of the underlying causes governing social and natural phenomena. This opened the space for probability theory and statistical methods to the study of economics to portray not necessarily the way things really work, but rather how they *ought* to work, based on notions of normality.

Chapter Three explores how the use of statistical inference and probability mathematics enabled the portrayal of the economy in model form. Model-making, this chapter reveals, is a characteristically creative exercise whereby the representation of economic phenomena has been manipulated by the political imagination of model-makers. Inherent to this discursive exercise is an idealisation of how things ought to work, coupled with a set of policy prescriptions for governments. This chapter reveals how model-making emerged as crucial political devices through which economists advised governments on how they should 'engineer' the economy out of crisis-situations, such as the Great Depression and, later, the fiscal crisis of the State. The chapter also reveals how these modelling exercises have enabled the 'triumph' over calculative risk over uncertainty in financial economics and are therefore central to the recognition of credit risk rating as a scientific, objective practice.

Chapter Four navigates the 'chain of translation' involved in the production of sovereign credit ratings. Akin to Laclau's explanation of sedimented knowledges, this chapter examines how the histories, theories, methods, and Western-centred epistemic cultures discussed in the previous chapters unfold in the rating of sovereign credit risk. The chapter shows how the circulation of value in financial markets takes the form of an epistemic infrastructure where certain nodes – centres of calculation – occupy authoritative spaces of representation. Furthermore, this chapter revealed the extent to which the rating of sovereign creditworthiness involves requires a great amount of interpretive work, which is inherently political.

Chapter Five spatialises the governmentality of sovereign credit ratings in South Africa by examining the historical and political processes involved in the production of raw life. These processes include the colonial conquests conducted by European powers via joint-stock companies such as Holland's Vereenigde Oostindische Compagnie (VOC) in the seventeenth century and Britain's East India Company in the eighteenth century. This was accompanied by not only large scale dispossession, but also, especially in the case of Britain, the introduction of racist scientific reasoning that played an influential role in apartheid ideology. Here, a number of close entanglements between Lady Credit, the colonial gentleman, and the post-apartheid present becomes revealed. The goal of this chapter was to show how the governmentality of sovereign credit risk assembles forms of knowledge that enables a forgetting of this history and obscures the many ways in which it is complicit in its continuous reproduction.

Chapter Six examines how the governmentality of sovereign credit ratings unfolded the making of South Africa's macro-economic policies post-1994. This entailed the use of scenario planning exercises that worked to rationalise new-classical policy prescriptions, such as inflation targeting, austerity, and central bank autonomy. These scenario exercises, alongside the consultative practices of influential knowledge actors like the World Bank and IMF, cautioned against the use of Keynesian policy tools to transform the economy and redistribute wealth. Portrayed as macro-economic populism, a Keynesian economic programme for post-apartheid South Africa was portrayed in the same light as Lucas and Friedman's attack on demand-side economics to diagnose the problem of stagflation in the late 1960s. They argued that the benefits would be short-lived, as inflation, uncertainty, and unemployment would inevitably follow. Instead, the ANC should act responsible: consolidate the budget and enable a business-friendly environment to attract investment. Although, initially, the post-apartheid state was able to secure favourable ratings from the Big Three CRAs, the inability of the government to substantively address the historical legacy of apartheid has rendered social and labour unrest ubiquitous. This has undermined the government's efforts to secure private capital investment and, coupled with sluggish economic growth and currency volatility, South Africa's creditworthiness has been deteriorating over the past few years and rated 'junk' by the Big Three in 2020.

Chapter Seven, the concluding chapter, considers how the analyses of de-politicisation conducted in this thesis enable us to challenge the authority of sovereign credit ratings by re-politicising the stabilised knowledges contingent in their production.

Chapter One

The political history of creditworthiness

In August 2013, financial analysts from Morgan Stanley coined the term 'fragile five' to describe the economies of South Africa, Brazil, Indonesia, Turkey, and India. Morgan Stanley's analysts argued that these countries have become too dependent on unreliable foreign investments to finance their domestic economies (Kuepper, 2017). Their state of 'fragility' followed the US Federal Reserve Bank's (Fed) announcement of a rise in interest rates and a significant reduction to its bond-buying programme (Nechio, 2014). Prior to this, in the wake of the 2008/09 GFC, the FED carried out a series of large-scale purchases of government and asset-backed securities to lower longer-term interest rates and provide additional stimulus to the economy. This 'highly accommodative monetary policy' strengthened market participants' tolerance for risk, which enabled a large amount of 'hot money' to flow into emerging market economies (Colombo, 2013). As they are not yet 'advanced', emerging markets signify geographies of risk *and* accumulation (see Lee, 2003; Schultz, 2019; Sidaway & Pryke, 2000). They are 'risk-versus-reward' investments, as one hedge fund manager put it:

> […] emerging markets are arguably the single most important avatar of investment opportunity for our generation. The demand for commodities to support the modernisation and urbanisation of these and other developing economies, and the demand for food and products by growing consumer classes, should continue to fuel opportunities for years to come (Brown, 2009).

In the immediate aftermath of the crisis, emerging markets witnessed historically unprecedented levels of foreign investment; by the end of 2010 capital inflows to this group of economies totalled US$825 billion (Gamble, 2010). However, uncertain about how emerging markets would respond to the FED's tapering measures, investors withdrew their money and re-invested it into advanced economies (Kuepper, 2017; Nechio, 2014). The 'fragile five' currencies, namely the South African rand, Brazilian real, Turkish lira, Indian rupee and Indonesian rupiah were especially implicated in this currency run, which resulted in widening budget deficits, weakened currencies and contractions in economic growth (England, 2013; Kuepper, 2017; Nechio, 2014; Thomas Jr., 2014).

For many analysts, the events that led up to the formation of the 'fragile five' confirmed the existence of an emerging market 'bubble' that was bound to pop (Colombo, 2013; Emmot, 2015; Samuelson, 2013). Placing 'emerging markets on trial' for their irrational behaviour, Koeserich et al., (2014) writes that the risk-versus-reward rhetoric associated with emerging markets created highly distorted incentives for investors. 'Gone are investor illusions [that] the emerging world had miraculously grown into an all-weather source of returns. Gone is the easy money, exposing market complacency about emerging market (EM) risks (Koesterich et al., 2014).' This notion of 'distorted incentives' parallels Jeffrey Sachs's (1997) reference to 'optical illusions' during the 1997/98 Asian Financial Crisis, which clouded investors' judgements and channelled money into the wrong investments. According to Sachs (1997), there are two drivers of optical illusions in financial markets. First, the idea that when macroeconomic conditions look good, as emerging markets did in the aftermath of the 2008 financial crisis, the increase in foreign capital inflows generates overvalued currencies. This 'wilfully deceives' investors into thinking that emerging markets would 'behave differently in a crisis' (Koesterich et al., 2014). A second illusion occurs when emerging markets pursue a policy of financial market liberation that grants them access to large amounts of credit (Sachs, 1997; see also Koesterich et al., 2014). Sachs (1997) alludes to how the banks of the Asian crisis countries (Thailand, Indonesia, Korea and Malaysia) invested with 'reckless abandon' into their domestic economies – a kind of 'irresponsible' bank lending that typically follows financial market liberation. Koesterich et al., (2014) similarly argue that emerging markets pursued reckless lending policies in the aftermath of the 2008/09 GFC, which enabled them to 'feast on credit' without implementing proper banking regulation policies.

In these depictions of financial crises and market instabilities, investors get portrayed as victims, deluded and misguided by optical illusions that prevent them from seeing fundamental economic truths (de Goede, 2000:59). The risk-versus-reward rhetoric associated with emerging markets increases the potential for 'optical illusions', as it taps into investors' desires for short-term financial gain that clouds their understanding of how the economy 'really works'. To remedy this sense of uncertainty, financial leaders emphasise the importance of quantitative risk assessments as a means of ensuring transparency in global capital markets. The higher the transparency, the less room for optical illusions (Best, 2010). Consider the following statement made by Donal Kohn in his 2011 address to the Financial Markets Group (FMG)[5]:

[5] The FMG is a research centre at LSE, established in 1987 (LSE, 2018). On 6 September 2011, Kohn addressed a group of researchers as an external member of the Bank of England's Interim Financial Policy Committee. This committee was formed in 2010 by the British government, tasked with the responsibility of identifying risks to financial stability in the UK and secondly, to make recommendations to government and financial institutions on how to address these risks via policy measures (Kohn, 2011b).

> The stability of the financial system ultimately rests on the decisions of its private sector participants. To be sure, government regulations can and should help shape those decisions and provide a structure within which private participants are more likely to help stabilise the system. But, in the end, it is those private decisions that will determine the allocation of capital, economic growth, and economic and financial stability. Those decisions cannot contribute to financial stability if they are not well informed…The available information needs to be comprehensive and accurate, it needs to focus on the important risks and characteristics, it needs to enable comparisons across institutions and time to facilitate analysis… (Kohn, 2011a).

Kohn (2011a) goes on to suggest that it was ultimately the lack of transparency, caused by a lack of quality information that exacerbated the 2008/09 GFC. Greater transparency, according to Kohn (2011a), promotes 'better market discipline' and thus financial stability. To improve the quality and transparency of information, Kohn (2011a) emphasises the importance of implementing regulations that incentivise institutions and investors to 'release as much or as useful information as is needed to judge fully and accurately the risks to the institutions or to the broader financial system'.

Underpinning the accounts of financial instability is an image of the marketplace as an ensemble of rational actors – *homo œconomicus* – using all available information at their disposal to choose among a bundle of perfectly divisible commodities. In a free, competitive environment, these exchanges between 'rational' agents generate prices that accurately reflect market fundamentals, ensure the efficient allocation of capital and, in the long-term, 'natural' equilibrium (Arrow & Debreu, 1954; Fama, 1965; Lucas 1972). Here, financial instabilities are the result of information asymmetries, caused by corrupt politicians, greed, and moral hazard that leads to a miscalculation of risk.

This chapter aims to re-politicise this depiction of the marketplace by exploring the gendered, geopolitical imagination of rationality. Of interest are the resonances between *homo œconomicus* and the historical portrayal of rationality and creditworthiness as characteristics of the colonial gentleman, the 'self-disciplined, naturally legitimate ruler and protector of morals' (Hooper 1999:482). To this end, this chapter draws extensively on Marieke de Goede's (2000, 2004, 2005) work on the gendered history of credit. De Goede reveals how the identity of the colonial gentleman underpins Daniel Defoe's modelling of rationality in eighteenth-century England as an attempt to create a moral and political space for financial practices to take place. Defoe personified finance as Lady Credit, a being both irrational and ambiguous, yet potentially beneficial for the welfare of the nation. To maximise the benefits Lady Credit had to offer, Defoe argued that only the English gentleman: a rational, self-disciplined, educated man should be engaged with finance, as he possesses the necessary virtues to master her uncertain nature. The rationalisation of finance enabled the English state to conduct numerous wars and colonial conquests that were funded by credit instruments as we know them today, including national debt. Given the significance that these colonial encounters continue to play in the formation of South Africa's political economy, Defoe's discursive portrayals of rationality are more than just rhetorical devices. Instead, they are intricately bound up in a violent history of colonial conquest, slave trade, and the dispossession and subordination of people, places, and nature. This chapter extends Defoe's gendered imagination of irrationality to a geopolitical one and considers how this vision informs contemporary portrayals of emerging markets as 'fragile', 'risky', yet, akin to Lady Credit, potentially rewarding. By investigating the lines of resonance between Lady Credit and the geopolitical imagination of emerging markets, this chapter shows how discourses governing modern finance has been produced through a process of negation with the colonial Other that has important implications for understanding global power relations.

This discussion is divided into four sections, the first of which emphasises the sociality of credit. The first section shows how notions of truth and honesty are linked to historical portrayals of the colonial European gentleman, and the many resonances these imaginations have with contemporary representations of risk and irrationality in financial markets. The second section discusses how, in order to carve out a space for financial practices to take place, Defoe gendered the uncertainty of credit as a female that can be mastered by the rational faculties of the English gentleman. The third section outlines the methods and value systems required for this mastering of Lady Credit and considers how these techniques resonate with contemporary efforts to govern uncertainty and secure the stable functioning of the financial system. The final section extends the gendered portrayal of uncertainty to the geopolitical imagination of emerging markets and examines how these discourses reproduce asymmetrical relations between the global North and the global South.

The social dimension of finance: credit, trust, and opinion

Contemporary financial markets exist in what Mackenzie (2005) terms 'black boxes', they are opaque to outsiders as their contents assume an aura of technicality. However, as discussed earlier, financial practices depend significantly on social imaginaries of trust, 'worth' and profit (de Goede, 2000:60; Wennerlind, 2011). Consider, for instance, how the diamond magnate De Beers sought to retain the value of diamonds in the 1980s amidst a number of realisations that contested the 'myths' about their worth. These myths based the value of diamonds on a set of intrinsic, natural properties (Pallister et al., 1988:108-111). The first myth, according to Pallister et al. (1988:108-111) is that diamonds are special – unique, unusual, and not easily replicated. However, De Beers and other diamond manufacturers like the US's General Electric Company (GE) was aware that this was not really the case: industrial diamonds are manufactured in laboratories throughout the world. In 1970, GE announced that it had perfected the process to make synthetic diamonds in unlimited quantities but decided not to proceed. The reason is that they 'would be destroyed by the success of [their] own invention. The more diamonds we made, the cheaper they would become. Then the mystique would be gone…' (cited in Pallister et al., 1988:109). A second myth is that diamonds are scarce. De Beers wanted to maintain this idea at a time when world markets were glutted, which led the company to suspend all diamond production in South Africa in order to reduce supply (Pallister et al., 1988:109). Third, the company embarked on a number of multi-million-dollar advertising campaigns that created an image of diamonds being 'forever' and therefore a perfect symbol of enduring love in the form of an engagement ring. This is a double-sided image however, with one being safe and another being sexy, 'dividing women into patriarchal categories of wife and whore' (Pallister et al., 1988:110). The latter side became symbolised in the 1950's with Marilyn Monroe's song, 'Diamonds are a girl's best friend', through which diamonds became the price a married man had to pay to enjoy his mistress.

Although these are representative practices that intentionally seek to create value, they are by no means different from how the value, or 'worth' of commodities – including paper money – depends on a range of interpretations, instead of being an intrinsic property of something. Value has to be imagined which, as Tsing (2001) points out, depends on stories of discovery, scarcity, and opportunity. She documents the story of Canadian gold mining company Bre-X that attracted large amounts of investment after it claimed to have discovered gold in the forests of Indonesia. This turned out to be false, and investors lost their money. Nevertheless, Tsing (2001) alludes to how speculative financial practices depends on imaginations of profit *before* it can be extracted: 'the possibility of economic performance must be conjured like a spirit to draw an audience of potential investors' (cited in de Goede, 2005:8). Charles Davenant (1771{1698}:38), a political economist writing in a context that saw the unprecedented emergence of credit instruments in England, similarly emphasises the imaginative character of credit:

> Of all Beings that have Existence only in the Minds of Men, nothing is more fantastical and nice than Credit; 'tis never to be forc'd; it hangs upon Opinion; it depends upon our Passions of Hope and Fear; it comes many times unsought for, and often goes away without Reason, and when once lost, is hardly to be quite recover'd.

The issuing of debt is a relationship established on trust: belief that one entity will honour its commitments. While credit is 'fantastical and nice', Davenant emphasises that it 'hangs upon Opinion': it has a porous foundation and is therefore unstable, subject to chance and liable to accident and uncertainty (Wennerlind, 2011:1-2).

In the context of eighteenth-century Europe, the extent to which someone was considered to be trusted in a business transaction (how someone's creditworthiness was established) related particularly to gender and social status (Shapin, 1994; Wennerlind, 2011:88). Members of the gentility ranked the most creditworthy, as they embodied a greater sense of honesty and virtue compared to women and servants and thus better able to hold true on their promises (Wennerlind, 2011; see also O'Brien, 1996; Shapin, 1994). During this period, numerous coffee houses in London's St. James area transformed their premises into gathering houses for gentlemen's clubs. These spaces were exclusively reserved for members of a society to conduct business, share information and, importantly, determine the creditworthiness of individuals, organisations and even countries (Seabrooke, 2006:150; Taddei, 1999:4). Emphasising the connections between 'credit' and 'truth' in the emergence of the scientific method, Shapin (1994) argues that truth was generated in a social network, which recognised the seventeenth-century gentleman as the quintessential truth-teller. Gentility, Shapin (1994:42) argues, 'was a massively powerful instrument in the recognition, constitution and protection of truth…gentility implied a conception of truth, just as the location of truth in that culture might invoke a notion of gentility.' As mentioned earlier, Foucault's conceptualisation of truth similarly emphasises that the production and recognition of 'truth' are intricately linked to not only the discourses a society accepts as true, but also 'the *status of those who are charged with saying what counts as true* (Foucault, 1976:132, my emphasis). Shapin's notion of 'gentlemanly science' indicates the link between objective truth and the social-economic status of the person charged with telling the truth (de Goede, 2000:60; Wennerlind, 2011:88). The generation of 'truth' is therefore not based on an objective reality that transcends universally, it is inherently political and produced by a range of mechanisms and assumptions about credibility, as Shapin's notion of gentlemanly science shows. Here, the gendered dimension of credit becomes visible in that wealth, worth and reputation – credibility – was seen as aspects that belonged solely to the *gentleman* (de Goede, 2000:60; see also Amussen, 1988:152).

The gendered dimension of credit can be understood in relation to the emergence of paper money and public credit in seventeenth-century England and the Scientific Revolution (O'Brien, 1996; Wennerlind, 2011). This is not to say that financial instruments did not exist prior to this. Modalities of public borrowing can be traced back to ancient and medieval times. Bullock (1930:266) showed how Dionysius of Syracuse (432-367 BC) borrowed money from citizens and repaid them by debasing the coinage. Compared to contemporary debt instruments, such as securities traded in secondary, liquid markets with processes and yields visible on public exchanges, ancient and medieval modalities of public borrowing entailed loans in kind (commodities) instead of money, for shorter rather than longer periods and for war or personal purposes rather than a permanent source of funding (Salsman, 2017:12). In other words, lending to government meant lending personally to rulers, usually monarchs and popes. Yet, I am interested in the emergence of credit as a means of payment that emerged in eighteenth-century England, as it enables an exposition of the sociality of credit practices in modern finance (Baucom, 2005; Carruthers, 1996; Salsman, 2017; Wennerlind, 2011). Contrary to debt instruments that existed prior to this, credit money is detached from a direct relationship to any actual commodities (Boyer-Xambeu et al., as cited in Ingham, 1999:87). As Strange insists (1999:347):

> The big breakthrough for states came at the turn of the [seventeenth] century with the introduction of a new kind of money – state promises-to-pay. Two Scots, John Law and William Patterson, both saw that by this means money could be created with which to replenish the resources of the state by issuing pieces of paper carrying the 'guarantee' of the monarch.

Credit money, as a form of payment, is a type of 'depersonalised debt' that differs from commodity money (Ingham, 1999, 2001). Bills of exchange and promissory notes became transferable in practice. 'Bills existed as pure debt; that is to say, *they were no longer based directly on goods, but rather on promises*' (Ingham, 1999:87, my emphasis). Money, regardless of its phenomenal form, is credit in that it represents a claim on goods and is, therefore 'constituted by social relations and cannot be understood outside them' (Ingham, 2001:306).

The eighteenth-century proliferation of depersonalised debt instruments in London's secondary markets took place on an unprecedented scale and symbolises the development of institutionalised finance as we know it today (Dickson, 1976). These developments in England's system of public borrowing are crucial considerations in comprehending the fiscal strength of the state and have been termed a 'Financial Revolution' (Carruthers, 1996:71; de Goede, 2000, 2005; Dickson, 1967; Wennerlind, 2011). This revolution entailed a critical transformation of English society from a feudal aristocratic to a commercial, trade-orientated one, and enabled the formation of London as one of the principal financial centres in the world (de Goede, 2000:61; see also Langley, 2002). The financial infrastructure required for this form of large-scale public borrowing stimulated innovations such as liquid secondary markets in public debt instruments, circulating credit currency, new partnership banks and new insurance offices (Dickson, as cited in de Goede, 2000:61; Wennerlind, 2011:8). Through this system of public borrowing, the English state was able to tap into the savings of the population in order to fund its numerous wars, undertake colonial conquests and ensure commercial and military might in Europe (Baucom, 2005; Brown, 2001; Carruthers, 1996:76; de Goede, 2000; Dickson, 1967; Wennerlind, 2011:5-7).

The creation of joint-stock companies interlaced finance and the State. Through this system of long-term public debt, joint-stock companies received monopoly concessions to conduct trade and conquest in the name of the State. As Strange (1991) points out, the contemporary international economy consists of the unique combination of a 'political system based on territorial states' and an 'economic system based on markets and profit'. This combination however, has a particularly violent history (see Chapter Five and Six) that is often overlooked: it is through the creation of public credit that practices of slave trade, colonial endeavours and the subordination of peoples, countries and regions were made possible (Baucom, 2005; Inikori, 1990; Paul, 2011). For instance, the Royal African Charter (RAC), a joint-stock company, was chartered in 1672 with a thousand-year monopoly on African trade and the specific purpose of rivalling Spanish and Portuguese trade in Africa in order to open the way for British slavers (Newson & Minshin, 2007:12; Paul, 2011:38). The RAC was empowered to 'deal in slaves, gold and silver, and to establish forts and factories at appropriate places on the African coast' (Palmer, as cited in de Goede, 2005:24). Visions of long-term prosperity, along with the crown's endorsement of colonial voyages that secured the public's 'trust' in the credibility of businesses like the RAC and the South Sea Company, enabled not only the proliferation of financial innovations but also prompted citizens to buy stocks in the RAC and South Sea Company (Baucom, 2005; Burch, 1998:107-135).

The significance of this colonial history in the forging of global connections which constitute the basis of modern capital relations is often overlooked in IPE (Bhambra, 2020). Yet, as the discourse of 'fragile five' mentioned earlier might suggest, this history continues to play a prominent role in the reproduction of the global political economy. Baucom (2005) has shown, for instance, how the transatlantic slave trade conducted by joint-stock companies was central to the development of insurance schemes and modern banking systems. Challenges such as the specific time horizons of slaving enterprises, their geopolitical pathways and the vast amount of resources required for these enterprises stimulated the innovation of new types of lending instruments. Because credit depends on an imagination of value that will materialise at some point in the future, financiers developed a system of collateral whereby slaves were treated as a 'guarantee' if a debtor was unable to settle its debts (Baucom, 2005:89). Thus, not only did credit instruments enable the slave trade via joint-stock companies like the Royal African Charter, but also the purchasing of slaves. Additionally, treated as collateral, the transatlantic slave trade turned human beings 'as a species of money' that regarded them, 'on the point of sale in the new world as the account deposits for a network of interest-bearing bonds' (Baucom, 2005:90). Today, the countries from where slaves were extracted – essentially funding the commercial might of imperial powers – are some of the highest indebted countries (Kazi, 2020). Private investors from the global North tend to target bonds and stocks in emerging and frontier markets as the 'high risk' they symbolise translates to higher yields, enabling them to reap significant profits. From the 1980s, there has been a vast amount of outflows of public money from the global South in interest payments: nearly 4.2 trillion US dollars, far overshadowing the aid received by these countries (Hickel, 2017).

Yet, one should be careful not to interpret the emergence of this form of state credit and public debt as monetary evolutions that sprang up naturally and inaugurated the conceptual apparatus of modern finance. Indeed, as Charles Davenant's description of credit suggests, credit's porous foundation meant that the evolution of credit money as a form of payment was anything but uncontroversial and required 'nothing short of an epistemological revolution […] for people to understand and embrace it, and to overcome their trepidations about basing both commerce and the state on what was fundamentally a mental construct' (Wennerlind, 2011:2; see also Baucom, 2005; Brown, 2001; de Goede, 2005, 2002; Glaisyer, 2005; Hoppit, 1990; Ingrassia, 1998; Nicholson, 1994; Pocock, 1975; Wennerlind, 2011). In order to re-politicise finance and eventually open a conversational space for political criticism to take place (Williams, 1999:80), de Goede (2000) suggests that we approach the Financial Revolution as the articulation of moral and political spaces in which credit instruments became possible and condoned.

Debating credit: the quest to moralise finance

At the time of its introduction, credit money was conceived by many as morally suspect instead of naturally beneficial (Carruthers, 1996:85-89; Hoppit, 1990; Paul, 2011). The concepts of promise and pledge underlying credit assumably subjugated England to the whims and fancies of its emerging financial elite, also known as the 'Monied Interest' (Carruthers, 1996:86). This burgeoning group of elites obtained their wealth not through the production of tangible commodities, but through the stock market (Paul, 2011:12). The so-called 'Landed Interest', Britain's traditional elite, was among the strongest voices of opposition against credit – a fury that was fuelled by burdens of low rents, high interest rates and heavy taxes on landed estates (Carruthers, 1996:85-87; Dickson, 1967:15-35). A prominent line of critique against the emerging financial class was that this form of wealth creation, located in London's booming stock market, stimulated self-interested behaviour and caused a decline in civic mindedness (Carruthers, 1996; Paul, 2011:12). The term 'stock-jobbing', with clear overtones of self-interest and corruption, was freely used to denote any kind of activity in the stock market (Dickson, 1976:32-33). Stock-jobbers referred to stock brokers or middlemen in the City of London and were typically portrayed as evil, effeminate individuals who are corrupting the morals of society by encouraging practices like gambling, usury and excessive ambition for luxuries (Hoppit, 1990:316).

The rapid transformation of England from a feudal society to a commercial one sparked a sense of nostalgia for Aristotelian notions of freehold and real property as the foundations of personality and value (Nicholson, 1994:4). The Tories' public pronouncements, representing the pleas of the 'Landed Interest', articulated landed property as the guarantee of a civic virtue that enabled the citizen as head of his household to rule and be ruled as one of a community of heads making decisions that would bind all of society in an equitable, dignified manner (Nicholson, 1994). It was believed that wealth 'created out of nothing', as opponents interpreted credit, fostered corruption, greed, gambling, and vanity (de Goede, 2005; Hoppit, 1990; Horne, 1978; Paul, 2011). This sense of hostility was expressed in the literary works of prominent writers at the time. For example, in Alexander Pope's *Epistle to Bathurst* (1757{1735}), he laments the 'invention of money' and the ease in which individuals can gain access to funds (Ingrassia, 1998:4). 'Blest paper-credit! last and best supply! / That lends Corruption lighter wings to fly' (lines 39-40). According to Pope, the possibilities of wealth facilitated by paper credit caused disruption of entrenched social order that had traditionally ensured a sense of civic mindedness, by luring financial participants into schemes promising vast amounts of wealth. Charles Davenant (1771:217) argued similarly in a 1702 pamphlet, adding that '[t]hese gimcracks and new devices of funds, stocks, exchequer bills, malt and lottery tickets, have turned the brains of a great part of the city: there is not such a thing left as publick spirit, and in its room we have set up knavery, extortion, and self-interest.'

Concerns akin to those expressed by Pope and Davenant captures the extent to which contemporaries emphasised the importance of morals in society (see Horne, 1978; Ingrassia, 1998; Nicholson, 1994; Pocock, 1975). Pocock (1975) labelled this conflict between commerce and virtue England's 'Machiavellian Moment', which can be interpreted in two ways. In the first sense, the Machiavellian Moment constitutes a problem in historical self-understanding as a crisis develops between personality and society (Nicholson, 1944:1; Pocock, 1975:vii). Secondly, the moment in question symbolises a phase in which the republic is seen as confronting its own temporal finitude – as attempting to remain morally and politically stable in a stream of irrational events that could destruct stable social orders. According to Pocock (1975:viii), this entailed the confrontation of 'virtue' with 'fortune' and 'corruption'. Thus, in attempting to resist the revolutionary changes brought by finance activities, there was a growing need to disperse virtue throughout society, so as to enable individuals to recognise a public interest and act upon it. The goal of any social organisation should therefore 'be the creation and nurturing of virtuous men' (Horne, 1978:ix). Commercial activities, especially ones created through credit mechanisms, were seen to be the most dangerous threat to virtuous life. Even supporters of credit emphasised the importance of virtue and, in fact, constructed their defence within a moral framework by claiming that the successful use of credit depended upon good conduct, i.e., to get credit depended on behaving credibly (Hoppit, 1990:316). The Machiavellian Moment thus has a continuing history (Nicholson, 1994:2; Pocock, 1975:viii), evinced in contemporary attempts to restore virtue to the financial system by making use of risk instruments that would supposedly ensure transparency in the dissemination of information in markets, hence promoting responsible and accountable conduct in the financial sphere.

With some recognising the necessity of credit and critics emphasising issues of virtue, corruption, power, passions, justice and faith, credit became the focus of political struggle and satirical debate during this period (de Goede, 2000, 2005; Hoppit, 1990; Ingrassia, 1998; Nicholson, 1994; Sherman, 1996). These debates took place through various press outlets like pamphlets, court house reports, newspapers, novels and other literary works (Pocock, 1975:427-428). The 'paper wars' peaked between 1698 and 1734 and a number of legendary

British authors participated, most notably Daniel Defoe, Johnathan Swift and Alexander Pope (Pocock, 1975:426). These debates played an important role in expressing the political confusion around the transition from a feudal society, in which wealth was embodied in land, to a commercial and trading one where wealth is more intangibly located in mechanisms of credit-creation (Backscheider, 1981; Nicholson, 1994; Pocock, 1975). As such, they do merely reflect on emerging credit structures: 'they *produce and manage* new (financial) knowledge and subjectivities' (de Goede, 2005:26, emphasis in original). Literary texts, according to Osteen and Woodmansee (1999:4) 'both produce and respond to reformulations of the nature of representation and credit embodied in money and in the economic system in general'. In the following section, I use de Goede's analysis of Daniel Defoe's imagination of credit as a 'female inconstant' − Lady credit − to capture the porous foundation of the money system. The characterisation of Lady Credit as an 'inconstant, often self-willed but persuadable woman' is a pattern of representation that, though not absolute, nevertheless forms part of an older practice of gendering feminine that which is devalued (Ingrassia, 1998:2; Latta, 2002). Iconographic associations with female figures, particularly Fortuna, were deployed by both opponents and supporters of credit structures as a way of highlighting credit's fickle and insubstantial nature (Glaisyer, 2005:278). de Goede looks at how Defoe captures this insubstantial essence of credit, but also the ways in which to manage and eventually, 'master' her through scientific methods. This analysis enables us to reveal the politics of sovereign creditworthiness by exposing the resonances between discourses of credit risk and colonial imaginations of uncertainty and profit that underpin portrayals of 'emerging', 'frontier' as well as 'fragile five' markets. Far from being merely 'colourful rhetoric' to describe economic phenomena, these descriptions are used in a strategic way to justify policy responses to crises, investment decisions, as well as legitimise particular political discourses (Kelly, 2001).

Gendering uncertainty: Lady Credit and Fortuna

The feminisation of credit in public discussions, according to Ingrassia (1998), typically took place through the deployment of sexual metaphors and female allegorical 'figures of disorder'. The intangible nature of speculative investment prompted the representation of financial participants such as stock-jobbers, investors and insurers, preoccupied with paper credit as 'feminised creatures', lured by fickle female goddesses who symbolically control the new economic world (Ingrassia, 1998:20). These depictions of credit embodied 'many associations of negative and stereotypically female qualities [like] avaricious sexuality, emotional instability [and] hysteria' (Ingrassia, cited in de Goede, 2005:26). The 'paper wars', conducted in the pages of *The Spectator, The Review* and *The Tatler* thus followed a tradition of sexualised public discourse. They reproduced a long misogynist tradition and preserves what McKeon (2002:205) describes as 'that association with the volatility of exchange (or of *fortuna*) which they possess under older, patrilineal assumptions.' Merchant alludes to seventeenth and eighteenth-century conceptions of the scientific method assuming a distinct sexual character and refers to Francis Bacon's construction of Nature as a female that had to be subdued and mastered by the male scientific mind through 'relentless interrogation' (Merchant 1989:170; see also Harding, 1986; Lloyd, 1984). In *The Masculine Birth of Time* (1603), Bacon writes 'I am come in very truth leading to you nature with all her children to bind her to your service and make her your slave (quoted in Merchant, 1989:170). The accumulation of knowledge, obtained through the scientific method, combined with mechanical technologies that enabled discoveries such as printing, gunpowder, warfare and navigation 'helps us to think about the secrets locked in nature's bosom'. 'They do not … merely exert a general guidance over nature's course; they have the power to conquer and subdue her, to shake her foundations' (Bacon, as cited in Merchant, 1989:172). This sexualised representation of nature, as Agnew (2003:26) points out, also featured in the eighteenth-century European geopolitical imagination, which ascribed the different levels of wealth, commerce and in general 'socio-economic progress' in terms of climactic factors. Here, the tropical climates of the global South were seen to encourage idleness, whereas the temperate climates of Europe stimulated industry and innovation. Representations of climactic differences had a distinct gendered character in the sense that they denoted differing levels of sexual desire in women according to their 'level of civilisation'. Writing in 1767, Adam Ferguson for example associated hot climates as zones of unrestrained passion while temperate climates produced greater control (Agnew, 2003:26-27). These projections of nature as a female that can be 'known' and mastered through science also informed Defoe's defence for financial practices.

Defoe's sexual representations of credit were characteristic of the time. What was original about his work, de Goede (2000, 2005) shows, is that he used sexual metaphors as literary devices to put forward a new idea of morality in which the nascent credit structures would be able to flourish. Defoe's feminine representation of credit engages with the moral conflicts between virtue, fortune and corruption that characterised England's Machiavellian moment. Displaying no sense of nostalgia for Aristotelian values of landed property, where wealth is located in tangible commodities as a guarantee for civic virtue, Defoe conceded the possibility that wealth based on the circulation of credit can coexist with civic virtue. He highlighted for example, how ‘money-as-pledge’ could enable the creation of sturdy financial structures that would strengthen England’s domestic and foreign authority, on the precondition of a gentlemanly ethic (de Goede, 2000:63, 2005:27). By linking the conditions for the successful coexistence of finance and civic virtue on a particular identity, the English gentleman, Defoe’s work offers a resourceful starting point to gain insight into the discursive foundations of the modern financial economy (de Goede, 2000:63; Hoppit, 1990). This is also true for his later novels, particularly *Robinson Crusoe* (Defoe, 1719), as I will explain later.

Defoe’s feminised depiction of credit personifies all the irrational, fantastical, passionate and irresponsible elements that Pope, Davenant and other participants in the paper wars attributed to the new credit-based economy (de Goede, 2000, 2005). When Defoe introduced Lady Credit in a 1706 issue of his *Review of the State of the English Nation,* he emphasised her dubious character, which is worth quoting at length:

> Money has a younger Sister, a very useful and officious Servant in Trade … Her name in our Language is call’d CREDIT, in some countries Honour, and in others I know not what.
> This is a coy Lass, and wonderful chary of her Self; yet a most necessary, useful, industrious creature: she has some Qualification so particular, and is so very nice in Conduct, that a World of Good People lose her Favour, before they well know her Name; others are courting her all their days to no purpose, and can never come into her Books. If once she be disoblig’d, she’s the most difficult to be Friends again with us, of any thing in the World and yet she will court those most, that have no occasion for her; and will stand at their Doors neglected and ill-us’d, scorn’d and rejected like a Beggar, and never leave them: But let such have a Care of themselves, and be sure they never come to want her; for, if they do, they may depend upon it, she will pay them home, and never be reconcil’d to them […]
> ’Tis a strange thing to think, how absolute this Lady is; despotickly she governs all her Actions: If you court her, you lose her, or must buy her at unreasonable Rates; and if you do, she is always jealous of you, and Suspicious; and if you don’t discharge her to a Tittle of your Agreement, she is gone […] (Defoe, quoted in Sherman, 1996:41-42).

In this introduction, Lady Credit’s ambiguous character is displayed to us through a range of stereotypical, unpleasant feminine characteristics. While she is fundamentally good-natured, nice and useful, she can also be jealous, suspicious and stubborn if mistreated. She is also a ‘coy Lass’, a young, shy girl: attractive and innocent, yet mature enough to know how to use her attractiveness, coquettishly inviting public men to play. In stereotypical feminine fashion, she lavishes her attention on those possessed of so much money that they ‘have no occasion for her’, while ignoring those who ‘are courting her all their days’ (de Goede, 2005:28).

Lady Credit is thus ambiguous and fickle. De Goede (2000:64) traces her haphazard characterisation in Defoe's writings, highlighting how she appears alternately as an innocent lady, a virtuous virgin or gentlewoman on the one hand, or on the other a spoilt flirt and demanding mistress (see also Latta, 2002; Pocock, 1975:453; Sherman, 1996:41-45). She displays various degrees of sexual activity and Defoe even refers to her as a 'whore' in *Eleven Opinions of Mr. Harley* (1711): 'a meer Common Strumpet, will lie with any Body that has Money to supply her insatiable Cravings' (quoted in Sherman, 1996:51). Yet she is also a passive victim of the concoctions of various political fractions and is always in danger of being raped (Backscheider, 1981:94; de Goede, 2000:64). Pocock (1975) traces the narrative development of Lady Credit from an inconstant mistress to a 'stabilising, virtuous and intelligent agency'. In fact, the August 1 *Review* introduces Lady Credit as the daughter of Prudence and sets out her genealogy in association with Virtue, Wisdom and Probity (Backscheider, 1981). On the other hand, Sherman (1996:51) suggests that Lady Credit has always been and eventually remains a whore in Defoe's writings. These conflicts allude to how her character is best understood as ambiguous, malleable, and inconsistent. Baucom (2005:81) describes that her vulnerability in the face of 'the fickle swings of the imagination, her insubstantiality apart from the trust alternately vested in and withdrawn from her, was the very secret of her power.' Yet it is her very changeability that enables Lady Credit to change society's fortunes. This depiction of her powers, to govern over the fortunes of a society, evokes images of literary goddesses of the Renaissance, especially Fortuna (Pocock, 1975:453).

Fortuna, the mistress of chance and luck, has a long lineage in the history of political thought. Aristotle described her as the one who distributes the external foods of wealth, power, beauty and health – a conception retained in Renaissance Christian thought (Daston, 1988:151). Identified as a female, Fortuna was typified as fickle, capricious and unpredictable, and although man could attempt to please and honour her, he was never guaranteed success (Pitkin, 1984:140). Her symbol is the wheel, which signifies the means 'by which men are raised to power and fame and then suddenly cast down by changes they cannot predict or control' (Pocock, 1975:38). The wheel's movement and Fortuna's character shifts from capriciousness to inexorability in Christian writings, especially in the thought of Boethius, where Fortuna is pitted against virtue (Campbell, 2003; Pitkin, 1984:140). Within this tradition Fortuna becomes the enemy of prudence, rationality and calculability: the characteristics that ensure the production of virtuous men in society. Pocock (1975:37) shows how this dichotomy between Fortuna and virtue was often expressed in the image of a sexual relation:

> […] masculine active intelligence was seeking to dominate a feminine passive unpredictability which would submissively reward him for his strength or vindictively betray him for his weakness. *Virtus* could therefore carry many of the connotations of virility, with which it is etymologically linked; *vir* means man.

These contrasting images of Fortuna in her historical lineage captures the different degrees of human autonomy in the face of her powers (de Goede, 2005:30). Ciofarri (1947) has documented for example how the image of Fortuna changes between Dante, Boccaccio and Machiavelli. In Dante's *Divine Comedy,* Fortuna is portrayed as a true goddess, appointed by the 'Master of the Universe' to distribute earthly goods from one nation to another, and from one family to another, thus leaving no possibility of human defence against her or even human understanding of her actions (Ciofarri, 1947:2; see also Campbell, 2003:17-24; Pitkin, 1984:141). Her divinity changes in Boccaccio's *Decameron,* replaced by an image of the goddess as mischievous and cunning. Determining the outcomes of human actions, Fortuna enters the financial sphere and enables the promotion of men's illicit intentions and favours 'the business of lending at usury' (Ciofarri, 1947:3). However, it is in the works of Machiavelli that Fortuna becomes of particular interest for this chapter. Machiavelli emphasises Fortuna's mischievous, cunning and cruel qualities: '…she pushes the sailor back into the storm just at the moment when he thinks he has reached the shore …she cuts off her victim at the time he is nearest reaching his goal … she strikes so frequently and so constantly that her striking is compared to that of a hammer …' (Ciofarri, 1947:4). In *Tercets on Fortune,* Machiavelli (1989:746) portrays Fortuna as an 'unstable goddess and fickle deity' who 'often sets the undeserving on a throne to which the deserving never attains'. Similar to Lady Credit she is at once hostile to men, finds pleasure in putting them down because she is full of envy (Machiavelli, 1989:533), but also likes to tempt and tease them, setting before them apparent short-range goods or dangers or seduce them into the wrong course of action (Campbell, 2003:26; Pitkin, 1984:155). Here, Fortuna loses her god-like qualities and 'what remains is the image of fortune as a woman, mostly in juxtaposition to autonomous human effort, often explicitly to *virtú'* (Pitkin, 1984:153). Stripped from her divine abilities, Fortuna's humane demeanour implies the possibility to control and dominate her (Ciofarri, 1947:6; see also Campbell, 2003; Daston, 1988:152).

Machiavelli's characterisation of Fortuna shares distinct similarities with Lady Credit, as de Goede (2005:30) points out, buttressed by a view of two despotic female figures ruling over the affairs of men. Most strikingly is the duplicity inherent to both Fortuna and Lady Credit, the double nature of the feminine who is simultaneously a 'sexually attractive maiden' and a 'dangerous matriarch' (Pitkin, 1984:143; see also Campbell, 2003:28). This duplicity underpins

Defoe and Machiavelli's stories that begin with a woman's state of purity and innocence, implying that she is (still) a virgin (de Goede, 2000:65). This virgin is characterised by a passive seductiveness, which Machiavelli articulates as evidence of 'mysterious and dangerous powers' specifically confined to daughters and young women: beautiful, desirable possessions, potentially sources of great pleasure for men…objects of desire, conquest or possession' (Pitkin, 1984:110-111). Lady Credit similarly starts her career as an innocent virgin, while the suspense of lurking disaster accompanies her introduction in the 1706 *Review.* She then matures, as noted earlier, into a threatening and conniving woman akin to Machiavelli's Fortuna, in de Goede's (2005:31) words being 'unreliable, malleable, and fickle, both are seductive and tyrannising, both are represented as stately ladies who need to be treated with respect on one hand and as unreliable loose women who cause destruction on the other'. Depicting man and goddess in a distinct sexual conflict, virtue becomes the manner in which Fortuna can be resisted (Campbell, 2003:26-27). Thus, by framing Lady Credit in Fortuna's persona, Defoe opened the way for articulating the financial sphere as manageable, necessary, and eventually respectable. As the following section shows, the methods, values and forms of knowledge Defoe put forward to tame and secure the reputation of Lady Credit resonate with contemporary discourses that seek to rationalise and stabilise the financial sphere.

Governing uncertainty through self-discipline: the gendered face of (ir)rationality

Similar to Fortuna's lineage, Lady Credit's persona also underwent numerous changes reflecting controversial interpretations of the financial sphere at the time. Yet, Defoe argues that Lady Credit is indispensable for the English nation. She becomes an emblem of England's soundness: when she is well, she graces every aspect of English life, therefore confidence, health and even peace abide. Should she die, '[T]he French will beat you without Fighting, make Peace with you without treating, and end the War without seeking' (Defoe, as cited in Backscheider, 1981:91). Credit 'turn'd nothing into something, Coin'd Paper into Metal, and stampt a Value upon what had no Value before' (Defoe, as cited in Backscheider, 1981:92). At home, she makes everyone, small shop-owners and large estate holders prosper; abroad she makes England a force to be reckoned with (Backscheider, 1981:92). Defoe therefore suggests that Lady Credit should not be abolished, but rather actively mastered and controlled. Similar to Machiavelli's Fortuna, she is neither a virgin nor a whore: she is what financial man makes of her (de Goede, 2005:31). Indeed, a brief consideration of Machiavelli's advice to man in his struggle to resist the temptations of Fortuna reveals not only how his conceptions foreshadow

Defoe's, but also disclose striking parallels to contemporary discourses of financial risk management.

Following in the footsteps of Aristotle's *Eudemian Ethics*, where he pits good luck against good reasoning and argues that the latter snatches 'victory in the jaws of defeat' from the former, Machiavelli argues that man can control the blows of Fortuna through active anticipation (Daston, 1988:152). In *The Prince,* Machiavelli (1989:90) compares Fortuna to a potentially destructive river that can be partially tamed by proper precautions:

> I compare Fortune with one of our destructive rivers which, when it is angry, turns the plains into lakes, throws down the trees and the buildings…everyone yields to its fury and nowhere repel it. Yet through such it is, we need not therefore conclude that when the river is quiet, men cannot take precautions with both embankments and dykes, so that when waters rise…their fury is neither so wild nor so damaging. The same things happen about Fortune. She shows her power where strength and wisdom do not prepare to resist her, and directs her fury where she knows that no dykes or embankments are ready to hold her.

Instead of letting Chance govern the activities of men, man must show virtuosity and anticipate the cunning forces of Fortuna. Machiavelli's confrontation with Fortuna led him to value the virile qualities that constitute the Roman *virtus:* 'that quality of stern, serious, strong-minded, courageous manliness that despises pleasure and playfulness, cleaving to duty and strenuous effort' (Pitkin, 1984:50). Virtue, not only located in man's military capacity to fight in combat but also how he uses knowledge, skill and foresight to seduce Fortuna, becomes the manner in which he controls the blows of this 'capricious bitch goddess' (Walker, 1989:36).

This sentiment re-emerges as the means through which the capricious nature of credit can be mastered in Defoe's sexual warfare between Lady Credit and her suitors. Like Fortuna, who is attracted to men who have the ability to master her, Lady Credit will also be conquered by those who pretend to 'have no occasion' for her (de Goede, 2005:32-33, 2000:66). In other words, those who are able to practice self-control – the source of which are virtues of knowledge, skill, and foresight. Since Lady Credit is by nature fickle, Defoe insists that the monetary fertility she is able to generate can only take place if men are confident in the prosperity of the kingdom and hence appealed for the construction of foundations of 'regular structures', such as honour and mutual trust to underpin the emerging financial sphere:

> […] if you will entertain this Virgin, you must act upon the Principles of Honour, and Justice; you must preserve Sacred all the Foundations, and build regular Structures upon them; you must answer all Demands, with a respect to the Solemnity and Value of the

> Enlightenment; with respect to Justice, and Honour, and without any respect to Parties – If this not observ'd, Credit will not come (quoted in Pocock, 1975:455).

Referring to the gentility, Defoe argues that an honourable marriage can ensure Lady Credit's respectability, especially if she agrees to 'marry…without a potion' the 'Young Man full of Application, sober, sensible and honest, that lays his Bones to his Work, and his Head to his Business' (as cited in Latta, 2002:374). In his *Compleat English Gentleman* (1729), Defoe described the English gentleman as 'a person *Born* (for here lies the Essence of Quality) of some known, or Ancient Family; whose Ancestors have at least from some time been rais'd above the Class of Mechanicks' (quoted in Shapin, 1994:53). Once married to an honourable gentleman, Lady Credit becomes positively usurious and better able to produce not only more credit, but also creditworthy and interest-generating citizens (Latta, 2002). Thus, only when she exists in a relationship with the gentleman, being his wife, her reputation gets restored. This breed of men is perceived to be the most trustworthy due to their social status and education, which provides them with the necessary qualities to act in moderation when engaging in financial activities. In other words, the gentility possesses the necessary qualities to tame or discipline Lady Credit's capricious nature, by resisting her temptations. Eighteenth-century moral philosopher Francis Hutcheson (1755:12) shared this view, claiming that it is possible to accumulate wealth and ensure a virtuous society at the same time if financial man remains calm and moderate: '…the calm desire of wealth will force one, tho' with reluctance, into splendid expences when necessary to gain a good bargain or a gainful employment; while the passion of avarice is repining at these expences' (quoted in Hirschman, 1997:65). What distinguishes a calm desire from avarice is thus the willingness to pay high costs to achieve even higher benefits; in other words, to act with calculation and rationality (Hirschman, 1997:65).

Governing uncertainty through the institutionalisation of bookkeeping: discipline and numbers

Defoe explains that the first step to control and eventually manage Lady Credit is for the gentleman to learn how to control himself. In the *Compleat English Gentleman,* Defoe (1729:244) emphasises the importance of governing oneself before governing subordinates: 'If the gentleman we are treating of can not govern himself, how should we expect any good oeconomy in his household?' Meticulous bookkeeping is the way to self-mastery and good government. The combination of calculation, anticipation and planning will foster an ethical relationship to the self, enable accountability and the mastering of Lady Credit (de Goede, 2005:35). The keeping of one's books enables the punctuality of payments and represents a way to keep Lady

Credit and her temptations in check by promoting the tradesman's honesty: "nothing can support Credit, be it publick or private, but Honesty; a punctual dealing, a general probity in every transaction; he that once breaks thro' his honesty, violates his credit". In this sense, the system of keeping one's books represents a way through which man can mathematise his commitments, secure his reputation and promote good, virtuous men (Backsheider, 1981:94). Bookkeeping resembles what Ewald (1991:207) terms a moral technology in that by conducting one's life according to an enterprise, man no longer resigns 'to the decrees of providence and the blows of fate', but rather gains active responsibility over his affairs and the ability to arm himself against ill fortune.

There is another dimension to bookkeeping, as a moral technology, that is important for the articulation of financial rationality: since it requires the tradesman to 'cast up his books' (Defoe:1841{1726}:186), it represents a mechanism through which man obtains an undistorted, truthful reflection of his state of affairs. Much like Kohn's emphasis on transparent information to secure the stability of the financial system, Defoe emphasised that bookkeeping would ensure rational, calculative action when faced with temptress credit. The 'duty to truth' that forms the core of accounting facilitates an ethical relation to the self, required for mastering credit and thus holds out the promise of undistorted access to economic truth (Carruthers & Espeland, 1991:41; de Goede, 2000:69). This association between accounting, truth and virtue should be read in the context of the consolidation of double-entry booking as an economic technology in eighteenth-century England (Carruthers & Espeland, 1991; see also Poovey, 1998; Sherman, 1996). According to Poovey, double-entry bookkeeping was one of the earliest practices where a prototype of the modern 'fact' was generated, that is, where statements are assumed to reflect things that really exist and recorded in a language that seems transparent. Since the early nineteenth-century, this transparent language took the form of numerical representation (Poovey, 1998; Porter, 1995). Rooted in the works of Italian mathematician Fra Luca Pacioli, double-entry bookkeeping requires that every transaction be entered on two occasions, once as a credit and once as a debit in order to ensure accuracy (Black *et al.,* 2011:115). Because each transaction is entered twice, this method of accounting became constructed as the epitome of reliable calculation and a vehicle to gain undistorted access to commercial realities (Sherman, 1996:131-8). The asceticism of the accountant was reflected in the ability to adhere to the principle of *mechanical objectivity*: 'the honesty and self-restraint required to foreswear judgement, interpretation…the testimony of one's senses' as well as 'the taut concentration required for precise observation and measurement, endlessly repeated around the clock' (Daston & Galison, 1992:83). As such, apart from merely recording the transactions merchants conducted, double-entry bookkeeping produced, on the one hand, the social effect that proclaims the honesty of merchants as a group. On the other hand, the epistemological effects rendered the formal precision of the double-entry system, which drew on the rule-bound system of arithmetic as a guarantee of the accuracy of the details it recorded (Poovey, 1998:30). This necessitated the accountant to subject himself to a complexity of demands such as 'solitude, passivity and impersonality' in order to access scientific truth (Shapin, 1994:5).

Through scientific asceticism, the scientist can end up victorious in Bacon's sexist imagination of the struggle between Nature and the scientific mind. As Daston (1994a:41) argues, Baconian facts depended upon the 'freedom from theoretical bias', by adhering to the principle of mechanical objectivity as a means to 'check the mind's inborn tendency to refract all experience through a theoretical lens'. Once again, scientific asceticism was best displayed by members of the gentility (see Chapter Two), who were perceived to be strong enough to control their passions and wilfully abnegate the self. Undistorted access to financial truth thus becomes possible in double-entry bookkeeping as a function of a masculine demeanour that included austerity, self-mastery, and the disciplining of the inner enemy of desire, luxury and wealth (de Goede, 2000:70).

From gender to geography: Lady Credit and the geopolitical imagination of emerging markets

Defoe's gentleman parallels the identity of the colonial voyager who positioned himself on the top of the hierarchy of human nature and progress, with a 'geopolitical predestination…an imperial mission to civilise the other' (Slater, 1995:369). Indeed, we find evidence of this imperial fantasy in his *Robinson Crusoe* (1719), which tells the story of a colonial voyager who got stranded on an island near the coast of Venezuela after a storm wreaked his ship. This voyage formed part of a series of adventures into the 'new economic world' located in the South Seas. According to Watson (2018), *Robinson Crusoe* is typically treated as the originating moment of the individualistic novel. The main character was animated by neither love nor honour, but instead economic self-interest. Crusoe therefore shares significant similarities with neo-classical *homo œconomicus,* as I will discuss in the following chapters. To this end, alongside Lady Credit, Defoe's texts serve as a cultural fable through which we can understand the historical and material changes that constitute modernity, particularly those associated with the expansion of the British Empire. As Brown (2001:4) points out, Lady Credit signifies the discursive and imaginative constitution of modernity, in the eighteenth century, and that this 'constitution is circumscribed by alterity – by an imaginative negotiation with the figure of the woman or of the non-European.' Here, modernity entails a 'master narrative' that celebrates Western reason, progress, and scientific rationality as the only way to know, interpret and *be* in the world (Chowdry & Nair, 2002:16). This narrative is a mythical representation of Western history and patterns of knowledge production that makes Western culture seductive. 'Beyond repression', writes Quijano (2007:169), 'the main instrument of all power is its seduction. Cultural Europeanisation was transformed into an aspiration.' For instance, whilst Crusoe is stranded on the island, he rescues a prisoner from native cannibals, and makes this prisoner his servant. Crusoe also names this servant Friday, teaches him English, and converts him to Christianity. He also teaches him the tools and mechanisms that enabled him to survive on the island, and attribute these 'civilised' skills to God's deliverance. Because God did not leave him stranded without these implements of civilisation, Crusoe was able to master the island, instead of being subdued by it. Indeed, Christianity served as a primary justification for expanding the British empire (Fleck, 1998). Christianity signified light, civilisation, morality, grace, contrary to the darkness that beleaguered, for instance, the African continent. 'The doors of this dark continent' writes Albert Lloyd, 'are wide open for the reception of Christianity…which alone shall drive away the darkness' (Lloyd as cited in Jarosz, 1992:107). Here, Defoe's gentlemen, including Robinson Crusoe, blessed with Christian virtues and morals, can justify his colonial conquests by framing it as a way to rescue the continent and its peoples, who 'stagger on in the dark without the light of Christ to guide them' (Chapman as cited in Jarosz, 1992:107). Thus, by converting the Other into a vision of its own, the colonial gentleman is able to not only benefit from the wealth African territories offer, but also mitigate danger by normalising a particular conception set of values. The threat is muted, as Said (2003:47-48) suggests, by imposing familiar values upon an unknown entity: 'This process of conversion is a disciplinary one: it is taught, it has its own societies, periodicals, traditions, vocabulary, rhetoric, all in basic ways connected to and supplied by the prevailing cultural norms of the West.'

Yet, there is a limit to this process of conversion. For instance, in *Robinson Crusoe* (1719), the main character constantly doubts Friday's belief and acceptance of Christianity (Fleck, 1998). He experiences great difficulties in educating Friday about the nature of the devil, which leads him to conclude that Friday is not a true Christian like himself. This revelation enables Crusoe to maintain a difference between himself and Friday, which exemplifies how Britain's colonial conquests developed a sense of self through a process of negation with the Other. As such, although Friday could attempt to adhere to the standards of civilisation and Christianity set out by Crusoe, he will ultimately fail, which will ensure his difference vis-à-vis the colonial 'master'. Friday's 'failed' Christianity embodies the ambivalence Bhabha (1994:86) identifies with colonial mimicry:

> […] colonial mimicry is constructed around an *ambivalence;* in order to be effective, mimicry must continually produce its slippage, its excess, its difference…almost the same, *but not quite*…The success of colonial appropriation depends on a proliferation of inappropriate objects that ensure its strategic failure, so that mimicry is at once resemblance and menace (emphasis in original).

Thus, as long as Crusoe and the colonisers can claim that Friday and the colonial Other has yet to receive the necessary revelation and become true Christians, imperial expansion can continue unimpeded (Fleck, 1998:85). Modernity is therefore a story told through the articulation of difference, but one that cannot exist without its darker side: coloniality (Mignolo, 2011). Coloniality and modernity are two parts of the same coin; they constitute each other (Mignolo, 2011:42). As Mbembe states, 'Africa still constitutes one of the metaphors through which the West represents the origins of its own norms, develops a self-image, and integrates this image into the set of signifiers asserting what is supposed to be its identity' (cited in Abrahamsen, 2007:114). In contemporary financial markets, relations of modernity/coloniality are reproduced through the binary representation of investment destinations such as 'advanced/emerging' markets. Here, emerging markets are spaces located beyond 'the West' and can be seen as modern incarnations of Lady Credit and Friday: irrational, backward, uncertain, yet potentially lucrative.

As an investment asset, 'emerging markets' appeared for the first time in the 1980s as the Cold War came to an end (IFC, 2016). Coined by Antoine van Agtmael of the International Financial Corporation (IFC), emerging markets – rather than 'Third World' markets – create an equity investment fund for 'developing' countries in Latin America, Africa, and Asia. Contrary to the term 'Third World', which connotes extreme poverty, shoddy goods, and hopelessness, the idea behind 'emerging markets' is to cultivate a shared geographical imagination that 'suggested progress, uplift, and dynamism' (Van Agtmael, as cited in IFC, 2016:47). Here, the rhetoric of salvation, newness, and progress that underpinned Defoe's colonial gentlemen's fantasies reaffirms the seductive properties of the modernity narrative. Texts about emerging markets are characterised by frequent references to geographic metaphors of *frontiers, pioneers* and *exploration* (Sidaway & Pryke, 2000:196). Emerging markets, like Lady Credit, are 'ripe' for private investment by Western actors (see for instance Bartenstein, 2018; Yousuf, 2012). This rhetoric has often been accompanied by exotic-erotic scripts of sex and violence. In 1996, for instance, the manager of global investment company Schroder's new 'emerging markets unit trust' informed readers of a British Sunday newspaper that 'sex and violence in emerging markets is in the wild frontiers – places such as Russia and Peru' (Hinde, as cited in Sidaway & Pryke, 2000:196). Managers of emerging market investment vehicles often assume the role of explorers that 'cross exotic frontiers in hunt for returns' (Valente, 2011). Franklin Templeton, an asset management firm that introduced the first 'emerging market fund', likened its manager, Mark Mobius to Hollywood's Indiana Jones. In response, Mobius explains that emerging markets 'can appear in exotic places', they are 'colourful and unpredictable, they thrive in the strangest places' (Mobius, as cited in Sidaway & Pryke, 2000:196).

At the same time however, investors should be cautious when considering emerging markets, as promises of wealth can be elusive 'bubbles' that do not reflect 'economic fundamentals' (see for instance Dupoux et al., 2016). These fears stem from the notion that advanced markets are much more 'efficient', transparent, and reliable when it comes to conveying information. According to the Efficient Market Hypothesis (EMH), an efficient market is one 'where there are large number of rational profit-maximisers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants' (Fama, 1995:76). Assuming no interference from any planning agency, free markets generate prices that accurately reflect market fundamentals (MacKenzie, 2006; see also Chapter Three). The idea of 'emerging markets', akin to frontier economies, the 'Third World', developing countries, and Dark Africa, suggests an intermediary state, one that is distant from Western, 'advanced', developed, industrialised countries. There is no singular set of requirements for 'upgrading' to advanced status and very few countries have in fact received such a promotion (Liberto, 2019). This thesis, particularly chapters four and six, explains how the governmentality and performativity of sovereign credit ratings reinforces and reproduces this ambivalence between the global North and global South. Derrida (1997) has termed this style of binary thinking as Logocentrism. Logocentric thinking entails the production of identities through modalities of repression and exclusion that separates countries, people, space and time into binary oppositions such as rational/irrational, man/woman, civil/barbaric, advanced/emerging. Logocentrism assumes the priority of the first term of the pair and the second term in relation to it as a compilation, negation, or disruption of the first (Edkins, 1999:66, 2007:96). In financial markets, this style of thinking appears, amongst others, in assumptions about the honesty of politicians and experience of traders in the stock markets. Risk-averse investors also point to how emerging markets lack market fundamentals found in advanced countries such as sophisticated financial infrastructures, high levels of liquidity, meaningful regulatory bodies, large market capitalisation and high levels of per capita income (NASDAQ, 2011). Consequently, according to the EMH, all information about stocks is available and transparent, and prices reflect true market fundamentals. This is not the case for emerging markets, where information about stocks tend to be incorrect, 'the flow of information is not rapid, or the price is not adjusted to the information' (Alam et al., 2007). Emerging markets are also beleaguered with inexperienced traders, investors, and market regulators and are therefore characterised by low liquidity, unreliable information and considerable volatility (Amadeo, 2017, 2016; Black et al., 2011:128; Henisz & Zelner, 2010). These factors, as Morgan Stanley's analysts point out, render emerging markets 'fragile'.

Fragility refers to a state of physical weakness, of being 'easily broken', or to be 'of frail constitution' (Online Etymology Dictionary, 2020). Fragility stands in contrast to strength, duration, and reliability. Morgan Stanley's analysts argued that the fragility of the 'fragile five' economies became revealed when, amidst fluctuations in advanced markets, they were unable to withstand changes in market sentiment. Following this report, a currency run on emerging market took place, which sparked various policy interventions by governments in the fragile five economies. Turkey's central bank, for instance, raised its interest rates in response to weakening investment in order to persuade foreign investors to hold on to their lira instead of exchanging them for dollars (Thomas Jr., 2014). In many ways, the construction of 'fragile five' *performed* their weakening economic conditions into being. As a sphere marked by the creation, buying, and selling of credit (Germain, 1997:17), financial practices involve an engagement with the future to determine the risks and rewards of a particular investment. These engagements are negotiations with uncertainty, political processes 'of mediation and calculation' whereby an 'insecure future is rendered actionable, as well as commercially profitable, in the present' (de Goede, 2012:xxi).

Emerging markets are also fragile as a result of their inability to act in an honest, rational, and disciplined manner when engaging with Lady Credit. In the 1510s for instance, 'fragile' conveyed a sense of moral weakness, defined as 'liable to sin, morally weak' (Online Etymology Dictionary, 2020). Here, Defoe's preconditions for rational finance, that is, a duty to truth through meticulous bookkeeping that enables the gentleman to practice self-control when tempted with Lady Credit, resurfaces in the imagination of emerging market risk. These countries are beleaguered with corrupt politicians and financial regulatory bodies that lead to 'investor illusions' as mentioned previously. For instance, the Brazil, Russia, India, China, and South Africa (BRICS) grouping has been characterised by the Big Three CRAs as 'hotbeds of ideological temperaments', necessitating a stricter application in the calculation of their sovereign creditworthiness (Paudyn, 2014:18). Thus, contrary to the image of stability and conformity to financial norms exemplified by advanced countries, emerging markets are much more uncertain, dubious, and irrational. Even in instances where countries have experienced significant economic growth that should, in theory, lead to a better credit score, the image of uncertainty translates into higher risk. The following excerpt taken from Mosley's (2003:102) interview with asset management company, Investec, confirms this sentiment:

> Politics are much more important [in developing countries] than in developed markets. Every aspect of policy/performance generates politically related concerns. Who governs matters in these markets…It's hard to know what a government will do…There are not necessarily clear priorities for these governments; there are so many issues; it's hard to know how they will prioritise…The problems experienced in the developing world are totally non-existent in the developed world.

The geopolitical imagination of risk in emerging markets means that investment products are priced at a lower rate and/or a substantial risk premium as compensation in order to create the possibility of high reward (Lee, 2003:65). Favoured by risk-loving investors, investment flows to emerging markets are often short-term and highly sensitive to market sentiment. In a context where governments increasingly rely on liquid capital markets to finance, for instance, national programmes of self-determination such as health care, education, or fiscal stimulus, the geopolitical imagination of emerging markets prompt a set of policy reforms to improve their creditworthiness. These include reforms to secure the efficient functioning of the marketplace, such as an autonomous central bank to keep inflation rates low, privatisation, trade liberalisation, and floating exchange rates. Such reforms signify a 'favourable investment environment' (Fitch, 2015, 2016; S&P's, 2020). Indeed, despite the absence of a definite set of requirements, the IFC list as one of their conditions for 'emerging markets' to graduate to 'advanced' ones, capital market openness. Nations that introduce investment restrictions such as capital controls, remain categorised as emerging, based on the view that 'pervasive investment restriction on portfolio investment should not exist in developed stock markets' (IFC, as cited in Mosely, 2003:104). Capital market openness promotes investor sentiment while minimal government interference enables for instance, the ease of doing 'business', access to domestic markets and scant 'red tape' – regulatory requirements for commercial practices. For the 'Big Three CRAs', attempts to enhance capital market openness signifies greater creditworthiness as it shows a government's *willingness* to conform to global 'standards' of practice. For instance, in January 2016, S&Ps downgraded Poland's creditworthiness as a result of 'weakening institutions' (S&P's, 2016). According to the rating agency, the newly elected government initiated legislative measures that are more 'interventionist', like raising taxes on foreign businesses and revising the autonomous operating powers of the National Bank of Poland. These measures are linked to sovereign creditworthiness since, as S&Ps (2006:4) explains: 'A government that is unwilling to repay debt is usually pursuing economic policies that weaken its ability to do so'. In essence, emerging markets are forms of othering and de-othering: as well as being speculative geographies of profit, they must also be non-others; they must conform to capitalist norms (Lee, 2003:73).

Negotiating sovereignty in a post-colonial context

The histories represented by Defoe's colonial voyagers, coupled with the financial innovations associated with Lady Credit, reveals a close nexus between the modern idea of sovereignty and European imperialism (Anand, 2002:214). Although, as mentioned in the introductory chapter, the governmentalisation of the State in IPE means that sovereignty is no longer understood to be confined to the judicial powers of the nation-state, this history is nevertheless marked by unequal degrees of agency in the articulation of sovereignty that continues to shape global power relations. In the case of sovereign credit ratings, sovereignty is mediated by experts, discourses, and technologies that are often located and/or connected to hegemonic financial centres such as Wall Street and London. Although creditworthiness assessments are not the sole mediators of sovereignty, they nevertheless play a crucial role in the State's ability to fund its own development needs and welfare projects. In other words, perform its identity as a 'state' (Paudyn, 2014).

J.M. Coetzee's *Foe* (1986a), a rewriting of *Robinson Crusoe,* provides a powerful critique on the privileged status of the colonial gentleman to *speak for* that which he identifies he is not: the woman, the non-European. Through a process of negation, the people, places, and societies outside the horizon of the West appears 'as blank spaces waiting to be filled in by Western writing' as a 'people without history' (Doty, 1996:11). *Foe* tells the story of Cruso, spelled without the 'e' in the original, which has been described as deliberate character castration (Washington, 1996). The story is told from the viewpoint of Susan Barton, who is on a quest to find her daughter who has been kidnapped and taken into South Seas. After a prolonged struggle, she caught a ship to Lisbon and lands on Cruso's island, where she stays for one year before an English ship comes by and rescue her and Friday. The latter, however, cannot speak. According to Cruso, his tongue was removed by slavers; Susan, however, expresses doubt about whether or not Cruso might have removed Friday's tongue, a question whose answer is never revealed. Nevertheless, she struggles to look at Friday after learning this, and throughout the novel, she is anxious about what this untold story might mean to her safety. When she and Friday reach England (Cruso died *en route* due to high fever), Susan searches for the novelist Daniel Foe, wanting to persuade him to turn her story of the island into a book. Foe is evidently derived from Daniel Defoe, yet 'foe' also means enemy, opponent (van der Russel, 2006). Foe, however, expresses scant interest in Cruso and Friday, as he is focused on getting away from creditors as a result of being buried in debt. Apart from this, he is also more interested in Susan's adventures in Bahia than the story of the island. As such, it is up to Susan to write the story of Cruso's island.

In a quest to hide from creditors, Foe abandoned his house and Susan and Friday moves in. They start selling his belongings to buy food. Here, she also focuses on writing her novel and frequently sends letters to Foe, asking for his advice on how to find out the truth about Friday's story. At one point, she tries to learn Friday how to write his story, but soon gives up. She also gets confused about what she should do with Friday and decides to take him back to Africa. Yet, once she reaches the ports in Bristol, she realises that there's no hope, as he will get sold back into slavery if she sends him out on any ship. Upon their return to London, Susan and Foe debate about Friday's story, and she becomes extremely uncomfortable with the silence and otherness he represents. Yet, appropriating his story in her book would be to appropriate it with the familiar and lose exactly that which makes it other: 'To tell my story and be silent on Friday's tongue is no better than offering a book for sale with pages in it quietly left empty. Yet the only tongue that can tell Friday's secret is the tongue he has lost!' (Coetzee, 1986a:67). She articulates this process of appropriation in her debate with Foe as follows:

> Friday has no command of words and therefore no defence against being re-shaped day by day in conformity with the desires of others. I say he is a cannibal and he becomes a cannibal; I say he is a laundryman and he becomes a laundryman. What is the truth of

> Friday? You will respond: he is neither cannibal nor laundryman, these are mere names, they do not touch his essence, he is a substantial body, he is himself, Friday is Friday. But that is not so. No matter what he is to himself…what he is to the world is what I make of him (Coetzee, 1986a:121-22).

Susan Barton therefore acknowledges the power she has to define Friday, but that this story would be based on her imaginations and theories. Friday's story is untranslatable. By rendering the silence of Friday visible, this novel enables us to show how the idea of sovereignty has historically been defined in relation to non-European territories, the relation to what it is not.

Until the first half of the twentieth century, the international community of states was, as Anand (2002:214) points out, defined by a double standard. Whereas the 'civilised' world (Europe, US, and Japan) had the right to sovereign statehood, the rest was open to forms of imperial control, based on the assumption that they fail to meet a certain standard of civilisation that is 'necessary to maintain international relations' and which serves as a condition for statehood (Hannum, as cited by Anand, 2002:214). As formal instances of direct colonial control started to demise, the ability of newly 'independent' states to define the standards of civilisation that have to be met in order to participate in the international monetary system (IMS) remain limited. Solomon (as cited in Oliver, 2005:108) defines an IMS as a 'set of arrangement, rules, practices and institutions under which payments are made and received for transactions carried out across national boundaries.' A state's ability to participate in an IMS is determined by 'standards of civilization' to which states should measure up to and conform if they are to be recognised as legitimate and sovereign members of international society (Bowden & Seabrooke, 2006; Larner & Walters, 2004; Oliver, 2006). Although the concept 'civilisation' has been replaced by more sensitised, politically correct versions such as 'development' and 'modernisation', they nevertheless imply a similar rationality that subjugates states to a set of particular, acceptable standards. As I discuss in the following chapters, the standards of sovereign creditworthiness have similarly been defined by the knowledge, history, and experiences of the global North, characterising Latour's (1993) notion of a particular universality: when one society extends to all others the historically constructed values in which it believes. Here, quantitative risk technologies such as credit ratings obscure the Logocentric differentiations, historical and discursive contingency as well as normative directionality embedded in their making.

Moreover, risk technologies hold out the promise of taming of the uncertainty that comes with the incorporation of uncertain, irrational, and chaotic spaces: threats to the stability of the financial system and the ongoing circulation of profit. They do this in two ways. First, by transforming uncertainties into calculable probabilities, risk technologies enable financial actors to identify, predict, and mitigate potential threats in the financial system (Power, 2007). Risk metrics resemble the 'moral technologies' (Ewald, 1991) referred to earlier, as they facilitate rational, disciplined decision-making in the market place. The concept of risk thus implies a domain of decision-making about the future and corresponding allocation of responsibility for that decision (Luhmann, as cited by Power, 2007:5). Second, far from being objective, risk metrics have embedded in them a set of norms that inform judgements about the trustworthiness of a particular issuer, causes of danger, and instability. These judgements normalise a particular set of conducts perceived to secure the reputation of Lady Credit, creditworthiness. Akin to how, in Said's terms, the threat of the Other is muted through a process of conversion, sovereign credit ratings are imbued with power and knowledge that aims to shape the conduct of states. Here, national economies, societies, and individuals become subjugated to a particular form of governance by norms. This process of normalisation brings five distinctions into play:

> […] it refers individual actions to a whole that is at once a field of comparison, a space of differentiation and the principle of a rule to be followed. It differentiates individuals from one another, in terms of the following rule: that the rule be made to function as a minimal threshold, as an average to be respected or as an optimum towards which one must move. It measures in quantitative terms and hierarchizes in terms of value the abilities, the level, the 'nature' of individuals. It introduces…the constraint of conformity that must be achieved. Lastly, it traces the limit that will define in relation to all other differences, the external frontier of the abnormal […] (Foucault, 1977:182-183).

The normalisation of particular discourses of sovereign creditworthiness through the deployment of de-politicised, rational language reifies the hegemony of a particular set of values, knowledge, and ideals to govern the flow of capital in the global economy.

Conclusion

This chapter examined the sociality of credit instruments and financial practices, by exposing how they depend on socio-cultural imaginations of trust and profit. Starting with a discussion on the use of the trope 'fragile five', this chapter revealed the gendered, colonial vision that underpins Morgan Stanley's analysts' framing of emerging markets as fragile. Fragile, as this chapter showed, connotes a state of physical weakness, of being 'easily broken' and stands in stark contrast to strength, durability, and reliability. Yet, fragility also refers to moral weakness and a liability to sin (Online Etymology Dictionary, 2020). This image of emerging markets resonates with the depiction of stock-jobbers in London's St. James area during the eighteenth-century: effeminate, evil, and corrupt individuals who cannot resist Lady Credit's temptations. It is these individuals, according to Defoe, that puts Lady Credit's reputation in danger. Akin to Machiavelli's Fortuna, Defoe's Lady Credit is characteristically capricious, fickle, and potentially cunning. Yet, Lady Credit – as a personification of finance – is also potentially lucrative for the English nation. This characterisation of Lady Credit should be read in a context that saw not only the proliferation of financial practices, but also growing concerns that this form of wealth 'created out of nothing' would corrupt the morals of society. By framing finance as a female, Defoe argued that Lady Credit can be mastered through the masculine demeanours of knowledge, foresight, and honesty. Framed in the image of the English gentleman, these virtues enable financial actors to act in a moderate, rational, and calculative manner. Of crucial importance here is the link Defoe establishes between rationality, creditworthiness and the scientific method as a means to secure the honesty of financial actors. This method requires the scientist to practice self-restraint and exclude their personal bias by following a set of prescribed rules when accumulating knowledge. Rules 'are a check on subjectivity: they should make it impossible for personal biases or preferences to affect the outcome of an investigation' (Porter, 1995:4). It is through asceticism of the scientist, typically displayed by members of the gentility, that we can gain access to transparent information, that is, 'true' and factual reflection of affairs.

This chapter also positioned Defoe's texts and the fable of Lady Credit alongside historical and material changes that constitute modernity/coloniality. Indeed, England's 'Financial Revolution', manifested in the emergence of credit instruments as we know them today, particularly sovereign debt, enabled the expansion of the British Empire through colonial conquests, wars, and slave trade. These colonial encounters have significantly shaped global power relations, and this chapter argued that financial markets are crucial sites where modernity/coloniality becomes reproduced. Here, the mathematisation of creditworthiness in the language of risk has enabled the de-politicisation of rational behaviour and erased its gendered, Logocentric imagination.

The next chapter interrogates the 'epistemic field' that enabled the mathematisation of market transactions. Here, we see how Defoe's 'gentlemanly science' (Shapin, 1994) which tied honesty, rationality, truth, and solvency to the European gentleman became absorbed in an epistemological and methodological edifice for the study of economics and financial markets for years to come. This is not to suggest a linear and unproblematic progression from Defoe's writings to the nineteenth-century marginalists. Instead, by looking at the lines of resonance between these histories of rational thought, the goal of the next chapters is to expose not only the geopolitical particularly of economic knowledge, but also the contingencies and ambiguities that accompany the modelling of rationality.

Chapter Two

Assembling the technical economy

The previous chapter examined Defoe's articulation of finance as a rational, scientific domain that parallels the values and demeanour of the English gentleman. I also examined the geopolitical imagination of this vision of rationality and how it underpins the conceptualisation and measurement of creditworthiness in modern financial markets. Here the historical, spatial, and masculine assumptions underpinning rational and creditworthy behaviour gets obscured through complex risk metrics that hold out the promise of governing the 'temporal and uncertain' (Foucault, 2007:35) in global capital markets. As outlined in the introduction, the authority of risk metrics derives from their technical, mathematical appearance. From the eighteenth-century, scientists believed that the numerical, and specifically mathematical, representation of phenomena to be the most transparent, exact reflection of affairs. This assumption postulates that quantitative analyses necessitate a special kind of scientific asceticism and the ability to adhere to the principle of mechanical objectivity in the acquisition of knowledge.

The current chapter explores how this portrayal of rationality, science and 'truth' became absorbed and systematically theorised in economics. In other words, the processes and practices through which the economy became conceived as a mechanism that can 'be known' through the scientific method. I focus on the contributions of the '1870 Marginal Revolution'[6] and the works of William Stanley Jevons and Leon Walras. These economists fervently campaigned for the use of mathematics in economics to advance the field as a deductive, scientific discipline (Mirowski 1989a; Morgan 2008; Schabas 1989). Mathematics, they believed, enhanced clarity and the conciseness of theory that make economic arguments seem more rigorous (Weintraub 2002). They drew extensively on analogies from physics and rational mechanics to mathematically articulate and scientifically justify their economic theories. These include the neo-classical theory of value and the natural forces driving equilibrium price formation, namely

[6] I recognise that the extent to which this movement represents a 'revolutionary' event in economic theory is contested, mainly because the idea of utility as a source of valuation has multiple histories (Meek, 1972). Blaug (1972) for instance, opposes the use of the word 'revolution' to refer to this movement and suggest that the word 'process' fits better. Streissler (1972) on the other hand, along with Hart (2002), calls into question whether thinkers like Carl Menger and Alfred Marshall can be associated with this 'revolution', implying that their intellectual endeavours significantly differ from the other marginalists. Due to time and space constraints and since this debate does not contribute to my analysis, I prefer to not dwell on these arguments. Indeed, such a focus contradicts the epistemological approach of this thesis, as it would require a focus on 'who gets to be counted as true marginalists'. Such an approach to history, to quote Foucault (1998:78) attempts "to capture the exact essence of things…This search is directed to 'that which was already there', the image of a primordial truth fully adequate to its nature' which 'necessitates the removal of every mask to ultimately disclose an original identity".

'marginal utility' – usefulness and pleasure – and scarcity. For the purposes of this thesis, these discursive practices can be read as 'political moments' in the de-politicisation of the economy, that is, moments that bring 'about the forgetting of the political that installs politics' (Edkins, 1999:126). They are discursive sites that offer a vantage point to examine how historical processes, discourses, and actors are drawn together at a particular point in time, stabilised – often with degrees of tension – in a way that might have been assembled otherwise (Anderson *et al.,* 2012). In other words, the epistemological conditions that rendered certain statements about the economy possible, 'them and none other in their place' (Foucault, 1991:59).

The first section of this chapter explores the epistemological assumptions, theories, and methodologies through which the nineteenth-century marginal school articulated the economy into a mechanical structure, governed by natural laws that can be scientifically 'known' through mathematical calculus. The scientific portrayal and analysis of economic phenomena entailed a set of methodological assumptions and tools that enabled, in later years, the transformation of uncertainty into calculable risk. This transformation is couched in a theory of probability, the calculus of 'chance', that enables an inference 'from the known and examined to the unknown and unexamined' (Mackenzie, 1981:200). In other words, a theory that calculates the likelihood of a future event.

Classical probability theorists based this inference on the rational expectations of an elite group of men: *hommes éclairés.* In contrast, the frequentist school base their projections of the future by interrogating regularities that emerge, law-like, in statistical data (see Daston, 1981, 1988; Porter, 1986). The second section of this chapter provides an overview of classical and frequentist probability theory. I explore the statistical methods used in probability theory to measure the causality between two variables in a sample and the likelihood of their realisation in the future. However, statistical inferences, based on a theory of probability, is characteristically indeterminist, and economists were hesitant to adopt these methods to their analyses. Committed to the determinist programme, they expressed concerns about the temporality and non-homogeneity of economic data that contradict laws of probability, the difficulty of identifying variables and establishing parameters for forecasts, and the scientific validity of statistical methods (see Morgan, 1990). The third section of this chapter provides an overview of these debates as well as the discourses and methods through which statistical inference became condoned and accepted as a valid scientific method in economics. This chapter thus lays the groundwork for Chapter Three, which delves into the practice of risk modelling in financial economics by exposing the discursive strategies that 'yield justified truth claims' (Dreyfus & Rabinow, 1982:xx). The current chapter and Chapter Three get *inside* the construction of risk metrics, 'by developing an understanding of their normative assumptions, as well as a wider reading of the historical and institutional sedimentation that makes contestable numbers truth in the here and the now' (de Goede, 2006:7).

On the road to scientific status: the 1870 'Marginal Revolution' and the emergence of neo-classical economics

Pioneered by the works of Carl Menger, Leon Walras, William Stanley Jevons Alfred Marshall and Francis Ysidro Edgeworth, the scholars associated with the 1870 'Marginal Revolution' sought to expedite the advancement of economics as a deductive, scientific discipline.[7] They emphasised the importance of mathematics in this regard, arguing that calculus and algebra would lead to clarity and conciseness in the expression of theories and that this process of reasoning would make economic arguments more rigorous (Mirowski, 1989a, 1989b; Morgan, 1990:2; Porter, 1985; Schabas, 1989; Weintraub, 2002). This ambition should be read in the context of the Scientific Revolution and the belief in the scientific method as the only way to generate 'true' knowledge. In other words, the *episteme* of the period, the regimes of truth that govern acceptable and appropriate statements about the economy. The scientific method entails the search for universal laws through the empirical verification of logically deduced hypotheses. This method assumes that knowledge can be gained through supporting theories and operational measurements which are empirically replicated (Patton, 2002:92). Although these methods of knowledge acquisition primarily existed in mathematics and physics, the marginalists nevertheless incorporated them into their economic analyses to establish their discipline as a 'pure' science, a sphere of activities distinct from society and politics (Ménard, 1989; Porter, 1985). The use of analogies with the natural sciences, especially physics, enabled the interpretation of the economy as a mechanism that operates in close association with an alleged natural order. It is through these analogies that marginalists were able to not only articulate supposed causal laws at work in the economy but also justify the incorporation of mathematical calculus to the study of economics.

Analogies are heuristic devices that enable scientists to determine forms of interaction between diverse sets of disciplines or subjects (Cohen, 1994:12-15). These interactions are based on the

[7] One exception here is Carl Menger, who resisted the mathematisation of economics (Otte, 2014:23). He did however contribute to the neo-classical theory of value, as discussed later.

recognition that an idea, concept, theory, or method of investigation in one subject area functions in a similar way to some element in another, thus enabling it to be introduced to that other subject. Thus, contemporary understandings of, for instance, the law of supply and demand is based the assumption that economic phenomena – specifically price formation – operate analogously with physical laws of gravitation and energy (Le Gall, 2007:50). Although similar forms of equivalence in the production of economic knowledge would be questioned in modern times, the discursive contingency of these theories remain, by and large, unquestioned in IPE and financial economics. Without invalidating the scientific validity of these analogies, this chapter alludes to how they enabled the portrayal of the economy as a natural mechanism that can be scientifically known through methods of observation and experimentation. The following section explores how Jevons and Walras used analogies to investigate and scientifically validate the marginal theory of value, the measurement of utility through demand analysis and the theory of equilibrium price formation (see also Brush, 1967; Cohen, 1993; Ménard, 1989; Mirowski, 1990; Morgan, 1990; Porter, 1981).

Away with the political

Central to the task of establishing the scientific character of economics was renouncing the adjective 'political' to which the discipline had been appended since the seventeenth-century (Dobb, 1973; Köhn, 2017; Ménard, 1989:81; Milonakis & Fine, 2009:98; Otte, 2014). For example, in his *Elements of Pure Economics* (1954{1899}), Walras contested the interpretation of political economy by classical economists', claiming that their focus on aspects of distributive justice had led analyses in the 'wrong' direction. Walras (1954{1899):71) insists that economic theory is 'pure' science that resembles 'the physio-mathematical sciences in every respect'. Economics is therefore a science that 'deals with phenomena originating in the play of natural forces, the operations of which, being blind and ineluctable, are not amenable to anything else but observation, description and explanation' (Walras, 1954{1899}:62). Walras particularly criticised Adam Smith's articulation of political economy. Outlined in *The Wealth of Nations* (1776), Smith depicts political economy as a science that deals with the following two questions: first, how 'to provide a plentiful revenue or subsistence for the people' and second how 'to supply the state or commonwealth with a revenue sufficient for public services' (Smith, 2008{1776}:557). While acknowledging the importance of these concerns, Walras (1954{1899}:60) argue that they pertain to questions of 'right and justice and with fairness in the distribution of wealth'. As such, they belong to the moral sciences. To establish economics as a 'pure science,' it is necessary to restructure the focus of the discipline away from moral questions dealing with distributive justice toward analyses on the processes of exchange and the determination of prices (Ménard, 1989; Milonakis & Fine, 2009:98). Central to this demarcation of economic analyses is the development of the neo-classical theory of value and the determination of market prices, for which the Marginal Revolution is arguably most famous in economics (Blaug, 1985:299-327; Coats, 1972; Jaffé, 1976; Morgan, 1990:133-134; Murphy, 2016; Peart, 1996; Schabas, 1989;).

The classical theory of value, associated with Adam Smith, David Ricardo, as well as Karl Marx, equates the exchange value of a commodity to the amount of socially necessary labour costs in the production process. 'The real price of everything', according to Smith (2008{1776}:50) 'is the toil and trouble of acquiring it…[l]abour, therefore, is the real measure of the exchange value of all commodities.' Thus, insofar as prices reflect expressions of supply and demand mediated by the market, classical economists argue that it is supply factors (such as labour, technology or electricity) that ultimately enable products to be exchanged on the market. In other words, it is only when products are made available (supplied) on the market that demand can take place and market participants can negotiate value (price) (Blaug, 1985:328-370; Dobb, 1973; Eatwell *et al.*, 1990).

The neo-classical theory of value diverged from this interpretation and emphasised *marginal utility* as the primary determinant of value. From this perspective, the cost of a good or service reflects subjective assessments of utility, its usefulness or pleasure. Although the notion of utility is mainly attributed to Daniel Bernoulli, who introduced it as a solution to the notorious St. Petersburg paradox,[8] the utilitarian philosophy of Jeremy Bentham provided the theoretical groundwork for its consolidation in economics. Bentham's utilitarianism proclaimed that political decision-making should be based on an analysis of the utility or pleasure a certain policy could provide to the public (Köhn, 2017; Mitchell, 1918; Morgan, 2012:146; Peart,

[8] This paradox, originated by Daniel Bernoulli's brother Nicolaus in a letter to Pierre de Montmort, entails the following conundrum. Two players – in Nicolaus Bernoulli's letter, Pierre and Paul – engage in a coin toss game with a fair coin, playing until the coin lands on heads. If, in the first toss, the coin comes up heads, Pierre agrees to pay Paul \$1, if heads do not come up in the second toss, Paul receives \$2; if not until the third toss, \$4, and so on (Gigerenzer et al., 1989:14). The total number of flips, *n*, determines the prize, which equals $\$1^{n}$. Thus, if the coin lands on heads with the first toss, the prize money would be: $\$1^1 = \$1$ and the game ends (Martin, 2004). Alternatively, if it comes up heads in the fourth round, the prize is $\$1^4 = \$4$, and the game ends. This scenario conjured the following question: what would the rational price be for entering the game? Given that there is a small, yet finite chance that the play will produce an unbroken run of tails, and since the pay-offs increase in proportion to the decreasing probabilities of such an event (i.e., the probability of the coin never landing on tails), the expectation is, at least theoretically speaking, infinite (Gigerenzer et al., 1889:14; Martin, 2004). According to Nicolaus and other mathematicians at the time, no rational player will pay any price less than the expected payoff of \$1, hence the paradox. Daniel Bernoulli however, claimed that the decision-making behaviour of the player can be determined by referring to the utility function. In this sense, a rational player – depending on his or her wealth – will pay as much as the expected utility (satisfaction) the game may provide.

1996; Van der Pijl, 2009:30-58). With the ambition to become the 'Newton of the Moral World' (Mitchell, 1918), Bentham laboured over a method to measure utility, captured in his hedonic calculus (also called felicific calculus), which sought to compute the sum total of pleasure and pain produced by an activity (Köhn, 2017:22). According to Bentham, the laws governing human nature has subjugated humankind to 'the governance of two sovereign masters, *pain* and *pleasure'* (Bentham, 2000{1781}:14, emphasis in original). These two principles, 'govern us in all we do, in all we say, in all we think: every effort we can make to throw off our subjection, will serve but to demonstrate and confirm it' (Bentham, 2000{1781}:14).[9] By deducing human behaviour to psychological laws about human wants, that is, the pursuit of pleasure and avoidance of pain, Bentham's hedonic calculus set out to measure the quantities of pleasure and pain associated with certain activities (Stigler, 1950).[10] Pleasure, and the avoidance of pain, are thereby 'the *ends* that the legislator has in view; it behoves him therefore to understand their value' (Bentham, 2000 {1781}:31, emphasis in original).

The neo-classical movement was determined to consolidate Bentham's hedonic calculus with their theories of value (Bruni & Sugden, 2007:150). By doing so, they sought to move economics down the royal road of science and incorporated a variety of methods, theories, and instruments from the natural sciences to develop a mathematical calculus of utility (Ménard, 1989:81). They particularly drew on a combination of analogies of rational mechanics and doctrines of energy, which enabled them to interpret utility and value as energetic substances that govern economic relations in the same way that laws of gravity and motion control tides in the ocean, planets orbiting the sun, or the speed at which bodies of different weights fall (Cohen, 1994:17; Mirowski, 1989b:193-275; Schabas, 2005). Jevons (1881:50) for instance, explicitly wrote that '[T]he notion of value is to our science what that of energy is to mechanics'. Based on Bentham's utilitarian view of human nature as being governed by the two laws of 'pain and pleasure', Jevons emphasises that utility (the pursuit of pleasure and avoidance of pain) is the determining factor of value. As noted in his oft-cited quote, '[r]epeated reflection and inquiry has led me to the somewhat novel opinion, that *value entirely depends upon utility'* (Jevons, 1881:1-2, emphasis in original). To construct a 'satisfactory theory of exchange' – one that complies

[9] Bentham (2000{1781}:31) identified four dimensions of pain and pleasure that can be used to measure utility, namely (1) intensity, (2) duration, (3) certainty or uncertainty and (4) propinquity or remoteness.

[10] Bentham devoted a lengthy chapter in his *An Introduction to the Principles of Morals and Legislation* (2000{1781:42-60), to outline the 'Circumstances Influencing Sensibility', which listed approximately thirty-two circumstances (such as age, sex, education and religious association) that must be considered when calculating utility (Stigler, 1950:309).

with the rigorous scientific standards of rational mechanics – economists have to 'trace out carefully the natural laws of the variation of utility' (Jevons, 1881:1-2).

Jevons (1881) argued that it is the *quantity* of a commodity in our possession that influences its utility. In other words, *scarcity*, a condition of nature. Walras similarly placed value in relation to *raretés*, scarcity. Trained as an engineer, Walras displayed a great fascination with Newton's law of gravity, which also underpins his work on the causal relations governing scarcity, demand, and price formation. Broadly conceived, the Newtonian law says that the force of gravity between any two bodies is directly proportional to the product of the masses of the bodies and inversely proportional to the square distance between them (Cohen, 1993:17; Holzner, 2006:18). Thus, the higher the mass of the objects, the greater the gravitational attraction between them. In one of his early works, titled *The Application of Mathematics to Political Economy* (1860), Walras essayed the Newtonian law of economics, claiming that 'the price of things is in inverse ratio to the quantity offered and in direct ratio to the quantity demanded (Walras, as cited by Jaffé, 1973:126-127). Two natural forces, therefore, mediate value: the hedonistic psychology that governs human nature (pleasure, satisfaction) and scarcity.[11]

The analytical foundation of the neo-classical theory of value is the law of diminishing marginal utility, which argues that the amount of satisfaction derived from the consumption of every extra unit of the same good or service will decline (Rutherford, 2000; Otte, 2014:24). For instance, when going to a coffeeshop that serves bottomless coffee, the utility derived from the first cup of coffee will be higher compared to the fourth or fifth one. As such, the same commodities will vary in utility, depending on the amount we possess, and thus 'when a man has purchased enough, he would derive equal pleasure from the possession of a small quantity more as he would from the money price of it' (Jevons, 1881:13). Utility is, therefore, *circumstantial* rather than an inherent quality of a commodity. Here, demand becomes the driving force in economic relations rather than supply (Stigler, 1950). It is the demand for products (based on their utility) that regulate supply factors, which ultimately generates a state of equilibrium. To

[11] According to Cohen (1993:26-27), Newton's law of gravity appears as an analogy in the sense that gravitational forces exhibit the same importance for the functioning matter as scarcity, or marginal utility has for the functioning of commercial objects in a market. Here, the use of analogies serves, as Nagel (cited in Cohen, 1993:26-27) describes, a 'formal' function in the sense that it is based on a structure of abstract relationships rather than a 'more or less visualisable set of elements'. The formal function of an analogy is opposed to another, substantive function. A substantive analogy is one in which a theory is based on the model of another system that contains known laws. An example of this would be the kinetic theory of gases, which is patterned on the 'established' laws of the interaction of elastic spheres such as billiard balls (Cohen, 1994).

account for this position, Jevons and Walras again turned to the mechanics of energy for scientific validity.

The law of the conservation of energy, developed (separately) by Joseph-Louis Lagrange (1736-1813) and William Rowan Hamilton (1805-1865), proved particularly helpful for this task (see Cohen, 1993, 1994:55-90; Ingrao & Israel, 1990; Mirowski, 1989b; Ménard, 1989; Schabas, 1990:85-87). The law of the conservation of energy is a mathematical expression of the variations of energy involved in Newton's law, that is, the calculation of mass and velocity in the movement of objects (Allen, 2011:323-333; Mirowski, 1989b:11-98; Wulwick, 1990).[12] Here, energy refers to the ability of an object to perform work, derived from various sources such as motion, chemical reaction, heat, or light. Physicists are typically concerned with two sources of energy: *kinetic energy* and *potential energy.* The former refers to the energy of the mass of a system due to its motion, which stays the same for a constant speed and only alters when a change in velocity occurs. The latter is a measure of the energy stored in an object. For example, when we hold something that weighs two kilograms in the air, the potential energy stored in the object is the gravitational force acting on the mass multiplied by the height through which the object is travelling before reaching equilibrium (when the object reaches the floor) (Allen, 2011:323). This dialogue between gravity and the conservation of energy similarly appears in Jevon's account of value, which translates marginal utility into the law of demand as a force of energy:

> Utility only exists when there is on the one side the person wanting, and on the other the thing wanted…Just as the gravitating force of a material body depends not alone on the mass of that body, but upon the masses and relative positions and distances of the surrounding bodies, so utility is an attraction between a wanting being and what is wanted (Jevons, quoted in Mirowski, 1989b:219).

Both Jevons and Walras referred to the mechanical workings of a lever to explain how they assemble utility, scarcity, and demand into forces of energy. Jevons equates the ratios of marginal utility of two goods and their inverted trading ratio to the law of the lever where, in equilibrium, the point masses at each end are inversely proportional to the ratio of their respective distances from the fulcrum (Mirowski, 1989b:218). In a similar vein, Walras's depiction of equilibrium in exchange, that is, a position of balance in the economy that occurs

[12] This is a very rudimental account of both Newton's law of universal gravity and the principle of the conservation of energy as developed by Lagrange and Hamilton (for a more nuanced discussion, see Goldstein, 1950; Lanczos, 1949; Percival & Richards, 1982). Indeed, Hamilton's work on the conservation of energy principle is both a response to and an extension of that of Lagrange. However, since these theories and principles do not constitute the focus of my thesis, my aim is merely to highlight the resonances between these classical mechanics ideas and the nineteenth-century marginal utility account of value.

once all the 'forces' operating the economy 'balance out' in a final state, invokes the functioning of a lever where equilibrium is reached through the inverse proportionality of forces with respect to its arms (Black, 2011:133; Ingrao & Israel, 1990:4-5). The point of equilibrium in the economy, the final state, refers to a situation where forces of supply are balanced by forces of demand, reflected in the equilibrium price. Here, the image of the market as a 'self-correcting mechanism' governed by the laws of quantity and utility appears. If a market is not at equilibrium, market forces will drive the market toward equilibrium.[13] The analogy that underpins Walras's exposition of equilibrium in the economy conjures, as Ménard (1989) points out, the idea of accelerated motion in celestial mechanics, particularly the equation of constraint between mass and acceleration. He outlined this analogy in a letter to Henri Poincare, where he explained how, just as celestial bodies attract each other in direct proportion to their mass and inverse proportion to the square of their distances, goods tend to be exchanged one against the other in inverse proportion to their *raretés* (Ingrao & Israel, 1990:168).[14] Although Walras's equilibrium theory has been contested and adapted through time, it remains a prominent starting point for economists to analyse how the market mechanism operates, that is, price formation. As the following chapter illustrate, these analyses have significant implications for policymaking. For example, although Walras argued that equilibrium could be reached through a competitive, free-market economy, Keynesian-inspired econometricians sought to model a situation that justifies governmental intervention to ensure equilibrium (Morgan, 2008). In contrast, neoliberal economists such as Hayek used Walras's equilibrium theory to show that the presence of a central-planning agency like the State in the economy, mitigates the market mechanism's 'natural' equilibrating abilities, as it prevents the efficient allocation of resources and 'true' price formation.

Studying marginal utility: methodological implications of neo-classical economics

By making use of analogies, the marginalists aimed to establish the scientific character of their discipline by making the theory of exchange the primary focus of economic analysis. 'Pure economics', according to Walras (1954{1899}:40), 'is in essence the theory of the determination

[13] I am passing over a number of developments in equilibrium theory, for instance Nash equilibrium, Partial Equilibrium or Multiple Equilibrium (see Mirowski 2002). For the purposes of this discussion, I am less interested in the range of theories describing states of equilibrium in the economy, but rather to highlight how a position of balance in mechanics became adopted to describe the workings of the economy.

[14] Another prominent theorem derived from this analogy is known as the 'Walrasian demand function', which calculates market prices as the ratio between the sum total of demands posed by a number of individuals in a commodity market, at a particular point in time, and equating this amount to the quantities available (Davis, 2003:26; King & McLure, 2014; Morgan, 1990:133-134; Stigler, 1950).

of prices under the hypothetical regime of perfectly free competition.' Discarding concerns with distributive justice, the theory of exchange not only becomes the focus of attention but also the very template of the whole economic science:

> Every component in the field knows that the theory of exchange based on the proportionality of process to *intensities of the last wants satisfied*… which was evolved almost simultaneously by Jevons, Menger and myself, and which constitutes the very foundation of whole edifice of economics, has become an integral part of the science in England, Austria, the United States, and wherever pure economics is developed and taught (Walras, 1954{1899}:44, emphasis in original).

By focusing on value in exchange, the neo-classical theory of value de-emphasises the analytical concerns that face classical, cost-of-production approaches that necessitates a focus on the historical, social and environmental aspects involved in the production process. The neo-classical emphasis on demand, with a focus on 'what emerged from the production-line to contribute to the satisfaction of the desires, wants, [and] needs of consumers' (Dobb, 1973:167) is interested in present conditions alone: problems of scarcity and choice (Milonakis & Fine, 2009:97-98).

The neo-classical theory of value consolidated methodological individualism in economics, that is, a micro-theory of economic behaviour that explains macro phenomena (Davis, 2003; Dobb, 1973:167-168; Keen, 2001; Kirchgässner, 2008; Milonakis & Fine, 2009:97-98). Methodological individualism articulates economic phenomena in terms of the beliefs, attitudes, and decisions of individuals, i.e., *homo œconomicus* (Blaug, 1980:44; Dobb, 1973:168; Milonakis & Fine, 2009:98; Zouboulakis, 2002). *Homo œconomicus* has a long lineage in the history of political economy, and as a model of economic rationality, shares distinct similarities with Defoe's colonial gentleman (see Watson, 2018, 2018). In the works of Adam Smith (2008{1776}:25), *homo œconomicus* is a 'man of exchange', an economic animal with the inherent propensity to 'truck, barter and exchange one thing for another.'

> Whether this propensity be one of those original principles in human nature…or whether, as seems more probable, it be the necessary consequence of the faculties of reason and speech, it belongs not to our present subject to enquire. It is common to all men, and to be found in no other race of animals, which seem to know neither this nor any other species of contracts (Smith, 2007{1776}:25).

Thomas Malthus, while agreeing that *homo œconomicus* is 'rational' in the sense that he wishes to engage in commercial activities, argues that his proclivity to create children, his sexual desires, negate his 'reasoning power' (see Malthus 1798:03). John Stuart Mill (1836), on the other hand, claimed that man's rational motivation to generate wealth is overwhelmed by his dislike of work and love of luxuries:

> It makes entire abstraction of every other human passion or motive; except those which may be regarded as perpetually antagonising principles to the desire of wealth, namely, aversion to labour, and desire of the present enjoyment of costly indulgences. These it takes, to a certain extent, into its calculations, because these do not merely, like [our] other desires, occasionally conflict with the pursuit of wealth, but accompany it always as a drag, or impediment, and are therefore inseparably mixed up in the consideration of it (Mill, as quoted in Morgan, 2006:5).

In neo-classical economics, *homo œconomicus* assumes a specific form of 'psychological individualism' in which the individual becomes a rational economic agent driven by the utilitarian motive to maximise personal benefit under a set of constraints (Zoubouliakis, 2002:30). Committed to the goal of rendering economics a 'pure science', methodological individualism, under the neo-classical movement, necessitated the measurement of individuals' subjective experiences of pleasure and pain (Davis, 2003:27; Milonakis & Fine, 2009:97).[15] Despite the difficulties of such a task, Jevons, Walras and Marshall maintained that subjective feelings are measurable psychological quantities, much like an individual's weight and height. While acknowledging that feelings and motives cannot be measured directly, these economists argued that utility could be measured *indirectly*, for example by referring to the demand curve (see Jevons, 1881:11-12; Marshall, 1920:65).[16] To scientifically validate the measurement of utility, the marginalists, in a characteristic manner, resorted to the use of mechanical analogies. Jevons, for instance, used the Newtonian law of universal gravity not only to help explain the measurement of utility but also to make it seem 'reasonable':

> A unit of pleasure or of pain is difficult even to conceive; but it is the amount of these feelings which is continually prompting us to buying and selling, borrowing and lending, labouring and resting, producing and consuming, and *it is from the quantitative effects of the feelings that we must estimate their comparative amounts.* We can no more know nor measure gravity in its own nature than we can measure a feeling; but just as we measure gravity by its effects in the motion of a pendulum, so we may estimate the equality or inequality of feelings by the decisions of the mind. The will is our pendulum, and its oscillations are minutely registered in the price lists of the markets (Jevons, 1881:11-12, emphasis in original).

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[15] The measurement of utility they put forward is known today as the 'cardinal theory of utility', which entails the calculation of the amount/quantity of pleasure associated with a certain commodity and bringing this quantitative expression in ration to other commodities (Davis, 2003:27-28; Katouzan, 1980; Moscati, 2015). The cardinal measurement of utility seeks to enumerate just *how much* utility is derived from particular choices in specific contexts.

[16] A demand curve is a graphical illustration of the relation between the price of a certain commodity and the quantity demanded for a given time (Rutherford, 2002).

Marshall (1920:65) similarly explained in his *Principles of Economics,* that the subjective desires and wants of individuals could be measured indirectly, by analysing the 'outward phenomena to which they give rise', that is, 'the price which a person is willing to pay for the fulfilment or satisfaction of his desire'. Based on this explanation, prices congeal within them the quantitative magnitudes of utility associated with a particular good or service, which consequently enables the measurement of utility.[17] Both the conception and measurement of utility has been haphazardly applied and amended in recent decades. Yet, the significance of the marginalists' efforts lies in how they enabled the mathematisation of human behaviour in the market place. As captured by Jevons (1881:4):

> It is clear that Economics, if it is to be a science at all, must be a mathematical science…*our science must be mathematical, simply because it deals with quantities*…The ordinary laws of supply and demand treat entirely of quantities of commodity demanded or supplied, and express the manner in which the quantities vary in connection with the price. In consequence of this fact the laws are mathematical. If, then, in Economics, we have to deal with quantities and complicated relations of quantities, we must reason mathematically… (emphasis in original).

Thus, with the marginal revolution, the market becomes a delimited space that enables the attainment of equilibria through exchange. Here, prices are quantitative expressions of utilities – quantities of goods with a revealed ability to satisfy needs – and utility-maximisation a fact of common experience, congruent with the most casual introspection (Stigler, 1950:316).

Watson (2018) documents the resemblances between the individualism of neo-classical economics and Defoe's *Robinson Crusoe.* Indeed, many economists associated with the marginal revolution explained their theory of economic behaviour with reference to Crusoe's situation on the island. Here, the main character's skills for survival, which included his unquestioned ability to render Friday a slave, enabled the marginalists to portray the utility-maximising economistic tendency of individuals to seek embedded in human nature. Within this framework, Crusoe contracts Friday as a labourer on the island and their exchanges enable equilibrium price formation. This theory of market exchange is most famously associated with Francis Ysidro Edgeworth's 'Edgeworth Box' (Karagöz, 2014; Watson, 2018). Although, in this

[17] In the early twentieth-century however, the cardinal measurement of utility – especially its psychological undertones – became scrutinized by a number of economists, most notably Pareto (1971{1909}). Pareto de-emphasized the psychological dimensions of the cardinal approach and according to Dobb (1973:209), divorced the theory of demand from its hedonic roots by rearticulating utility as solely the 'desiredness' – the quality of being desired by a consumer. He initiated the ordinal measurement of utility, which maintains that individuals prefer one combination of goods to another, where 'prefer' in this sense do not denote to human psychology, but merely suggest the ranking of combinations of good in a nomological order (see Bruni, 2010; Bruni & Guala, 2001; Davis, 2003:28; Moscati, 2013, 2015). In other words, utility as a magnitude of pleasure and pain gets replaced by in the ordinal approach by a mathematical 'index of preferences' (Bruni & Guala, 2001:23)

story, Crusoe and Friday are portrayed as equals, assembled by market institutions, Watson (2018:550) cautions against such a conclusion. He alludes to the colonial imagination of Edgeworth's use of Crusoe and Friday to describe his theory of exchange when Edgeworth (cited in Watson, 2018:550) writes: 'The articles of contract: wages to be given by the white, labour to be given by the black.' In modern economic textbooks, the signifiers of Crusoe and Friday frame the abstract behaviour of *homo œconomicus*, who is without a history, defined solely by his individualist interest for utility maximisation. It is through this objective, apolitical, ahistorical portrayal, Watson (2018) argues, that macro-economic policies based on the theoretical behaviour of this rational agent becomes sedimented time and again.

The neo-classical portrayal of the economy is conceived in a methodological framework that interprets it as a mechanism that can be 'scientifically' known through the use of mathematical calculus (Reuten, 1996). To establish the scientific character of economics, the marginalists emphasised the importance of adopting a uniform method of investigation as the natural sciences, particularly axiomatic positivism (Dobb, 1973; Ménard, 1989; Milonakis & Fine, 2009; Schabas, 1990:80; Weintraub, 2002). Underpinning this methodological framework is an idiosyncratic worldview that conceives various kinds of natural and social phenomena as parts of a deterministic, unified paradigm (Le Gall, 2007:8). Axiomatic positivism enables the deterministic study of the economy by manipulating theoretical propositions through the rules of firstly, *formal logic* and secondly *hypothetic-deductive logic* (Lee, 1991). The former entails the scientific explanation of phenomena exemplified by formal propositions, especially the axiomatic systems of mathematics. This arithmetic language facilitates the application of rules of 'formal logic', that is, the generation of consequences based on logical deductions that are contained in the opening premises of the explanations. Thus, any proposition that cannot be logically deduced from a set of mathematical axioms would be exposed as 'groundless' (Hanson, cited in Lee, 1991:344). The latter, hypothetical-deductive logic, refers to the processes of relating theory to observable phenomena by applying the logic of syllogism. This typically involves starting from a major premise, like 'all men are mortal' to a minor premise, such as 'Socrates is a man,' to reach a conclusion which, in this case, would be: 'Socrates is a mortal being' (Lee, 1991:344-345).

The methodological consolidation of axiomatic positivism in economics assembles the economy into a 'mathematical structure' (Reuten, 1996; Weintraub, 2002:1-9, 110). According to the Bourbaki mathematicians, the axiomatic method is primarily a concern with 'structures': [18]

> […] to define a structure, one takes as given one or several relations, into which these elements enter… then one postulates that the given relation, or relations, satisfy certain conditions (which are explicitly stated and which are the axioms of the structure under consideration). To set up the axiomatic theory of a given structure, amounts to the deduction of the logical consequences of the axioms of the structure, excluding every other hypothesis on the elements under consideration… (quoted in Weintraub, 2002:109-110).

The composition of the economy as a structure in the sense described above implies the possibility of uncovering the natural 'laws' governing socio-economic phenomena that enables the quantification of uncertainty. Yet, as Jevons (1913:197-198) laments, it is impossible to have perfect knowledge about all the underlying causes in action. 'Perfect knowledge alone can give certainty', writes Jevons (1913:197), 'and in nature perfect knowledge would be infinite knowledge, which is clearly beyond our capacities.' This is where probability comes in.

Probability theory and rational action in conditions of uncertainty

According to Jevons (1913), any statement about the future, based on an observation of causal laws at work, rests 'upon the theory of probability'. Probability theory enables the measurement of uncertainty by calculating 'how much we do and do not know' (Jevons, 1913:199). Jevons for instance, though claiming that it is impossible to know for sure that *x* will follow *y*, envisions probability as a means of salvation to remedy man's imperfect knowledge about the causalities governing events. 'In nature', according to Jevons (1913:198), 'the happening of an event has been pre-determined from the first fashioning of the universe'. Here the idea of 'chance' is rejected; some underlying cause governs everything:

> [T]here is really no such thing as chance, regarded as producing and governing events…it is merely an expression, as Laplace remarked, for our ignorance of the causes in action, and our consequent inability to predict the result…In nature the happening of an event has been pre-determined from the first fashioning of the universe (Jevons, 1903:198).

Against the background of imperfect knowledge, Jevons insist that any prediction or inference based on probability theory is purely hypothetical knowledge that '*does not measure what belief is,*

[18] Bourbaki is a pseudonym chosen by a group of French mathematicians at the École Normale Supérieure in Paris during the 1930s. Bounded by their shared admiration for the German mathematician David Hilbert's application of the axiomatic method, Bourbaki was convinced that through axiomatization, they would be able to uncover the unchanging structure of mathematics (Buitenhuis, 2015; Weintraub, 2002:101-154).

but what it ought to be' (Jevons, 1913:199, emphasis in original). According to Schabas (1990:69-75), Jevons adopted this view of probability mainly because it enables the application of numbers to virtually everything, particularly beliefs and actions. As such, although we can never know for certain which combination of events will occur, we can assign a measure of rational expectation to the belief that a specific outcome will occur and utilise this information to guide future decisions (Schabas, 1990:69).

Modelling rationality: from homme éclairés to homme moyen

Jevons adopted the classical interpretation of probability that dates back to the Enlightenment (Daston, 1988). Here probability is a measurement of 'rational expectation' that 'teaches us to regulate our actions with regard to future events in a way which will, in the long run, lead to the least disappointment' (Jevons, 1913:200). The classical probability theory evolved from a branch of mathematics dating back to the seventeenth-century works of Blaise Pascal, Jakob Bernoulli and Pierre Simon Laplace. According to Daston (1988:xi), this calibre of mathematicians laboured over a model of rational decision-making, action and belief under conditions of uncertainty. They approached the calculation of uncertainty from diverse angles, and equate probability 'to the number of ways the event can occur to the total number of equipossible outcomes' (McGoun, 1995). In other words, the calculus of expectations (Daston, 1981:288; Gigerenzer et al., 1989:7; Gillies, 2000:16-17). Nearly all of the problems they addressed related in some way to the following questions: When is it rational to buy a lottery ticket? Accept a scientific hypothesis? Purchase an annuity? Believe the testimony of a witness? (Daston, 1988:xi; Gigerenzer *et al.,* 1989:17).

Underlying this set of questions was the Enlightenment goal of deriving guidelines for human conduct and social reform by drawing on scientific laws of nature, mechanics and especially mathematics (Daston, 1988:52-56, 1981; Desrosières, 1998:30, 53). Even intellectuals committed to the study of natural laws governing society, like the physiocrats, searched for these laws so that social organisation could be harmonised with the order of nature (Daston, 1988:55).[19] By drawing a parallel between natural reasoning and mathematical probability, classical theorists identified their theory with common sense (Gigerenzer *et al.,* 1989:9; Gillies, 2000:22; Hacking, 1975:176-185). As Laplace famously stated: 'the theory of probability is at bottom nothing more than good sense reduced to a calculus which evaluates that which good

[19] The Enlightenment fascination of codifying rational reasoning is also illustrated in the introduction of a moral sciences faculty at Cambridge University during the mid-nineteenth-century. Following the footsteps of a number of French universities at the time, the moral sciences faculty embraced economics, politics, psychology, metaphysics and ethics (Hacking, 1990:38).

minds know by a sort of instinct, without being able to explain how with precision' (cited in Daston, 1981:290). However, common sense was not inherent to all – an assumption that also resonates with Defoe's veneration of the gentility. Eighteenth-century probability theorists studied the behaviour of a select group of *hommes éclairés* (elite men), identified as 'rational' in the hopes of deriving a set of explicit rules to guide the *hoi polloi,* that were not so intuitively well endowed (Daston, 1981:289; Gigerenzer *et al.*, 1989:14-18; Hacking, 1990:38-4; Poovey, 1998:214-230; Porter, 1986:41; Shapiro, 1991:254). The *homme éclairé,* like Defoe's colonial gentleman, exemplifies the criteria of rational belief and action, which is codified in the definition and comparison of probabilistic expectations (Daston, 1988:385). As such, classical probability theory is typically associated with subjective probability, that is, our beliefs about things, and in the case of *homme éclairé,* the reason of an elite few (Hacking, 1975:13-15). Classic probability theory is, therefore, a description *and* prescription of common sense or reasonableness. By codifying the principles that guided the decision-making of elite men, classical probability theorists hoped to make good sense accessible to all.

However, alongside the social and political upheaval of the French Revolution, confidence in the common sense of the elite few deteriorated and classical probability theory came under attack (Daston, 1988; Porter, 1986). Cournot, for instance, argued that subjective probabilities are the 'cause of a crowd of equivocations [which] have falsified the idea that one ought to have the theory of chances and of mathematical probabilities' (cited in Daston, 1994b:21). Although Cournot did not argue for the abolishment of classical probability, he criticised how subjective probability varies from one intelligence to another. This debate is complex (see Baloglou, 2012; Blaug, 1985:299-308; Gillies, 2000:80-89; Jaffé, 1976; Mirowski, 1990, 1991). For this chapter, I focus how this polemic gave rise to the frequentist or 'objective' interpretation of probability theory, that is, the determination of likelihood based on statistical trends (see Daston, 1988:190-192, 1979; Gigerenzer *et al.*, 1989; Hacking, 1975; Porter, 1986).[20]

Several philosophers contributed to the frequentist interpretation, ranging from John Venn, Robert Leslie, Simeon-Denis Poisson, and Adolphe Quetelet. Frequentist interpretations underscore the importance of statistical data and argue that a model of rational behaviour can

[20] Although, in line with the theoretical lens of this thesis, a precise distinction between the subjective and objective is highly contested, it is nevertheless worthwhile to outline how these are distinguished and used by practitioners. According to McGoun (1995:512), subjective probability equates the probability of an event with the quantitative degree of an individual's belief in the event's occurrence. Hacking (2001) also terms this as *belief-type* probability. Objective probability, also known as *frequency-type probability* (Hacking, 2001:132-133), reflects the probability of an event based on observing a number of repeated trials, 'the ratio of the number of times the event has occurred to the number of trials' (McGoun, 1995:512).

only be derived by interrogating law-like regularities that emerge on a macroscopic level (Daston, 1981:289; Desrosières, 1998; Gigerenzer *et al.*, 1989; Porter, 1986). Here societies become coherent units instead of aggregates of individuals, as was the case with classical probability, and the likelihood of events calculated through an analysis of statistical regularities. This is because, as Venn (1866) argued, probability statements do not follow the same logic as do the hypothetical-deductive statements as mentioned earlier, namely the inference that because 'all men are mortal', 'Socrates is a mortal being.' Probability theory concerns less certain propositions. Take, for instance, the hypothesis that 'some men are mortal'. From this we cannot infer with complete certainty that one particular man is mortal. Whereas in classical probability theory, inference about the mortality of a specific being would be based on the reasoning of elite men, frequentists suggest we base our enumeration on statistics.

The unification between probability and statistics, according to Hacking (1990), should be read in the context of an 'avalanche of printed numbers' that occurred during the nineteenth and twentieth centuries in the US and Europe and marks the emergence of indeterminism. Although in the field of economics, the erosion of determinism came about only in the mid-twentieth century, in physics, biology and even astrophysics, scientists gradually came to realise that the past does not determine precisely what happens next (Porter, 1986:193-219). In other words, contrary to Jevons's determinism, indeterminism recognises the role of chance. This is not to suggest, as Hacking (1990) points out, an epochal transformation that led to some sort of decay in knowledge, disorder, and ignorance. On the contrary,

> […] the more indeterminism, the more control… William Wundt, one of the founding fathers of quantitative psychology, wrote as early as 1826: 'It is statistics that first demonstrate that love follows psychological laws'. Such social and personal laws were to be a matter of probabilities, of chances. Statistical in nature, these laws were nonetheless inexorable; they could even be self-regulating. People are normal if they conform to the central tendency of such laws, while those at the extremes are pathological. Few of us fancy being pathological, so 'most of us' try to make ourselves *normal*… (Hacking, 1990:2, emphasis added).

Here we see the emergence of a new form of government that seeks to govern uncertainty based on notions of statistical normalities. Deviance from this norm, as discussed in the previous chapter, is problematised through a language of risk that shapes and constrains actions in the present (Amoore 2013; Salter 2008). Causal determinism is subsequently replaced by statistical laws, expressed in terms of probabilities. The following section looks at the development of this epistemological framework by focusing on the contributions of Adolphe Quetelet, and specifically his *l'homme moyen* (Desrosières, 1998:67-102; Kwa, 2011:197; Mirowski, 1990; Mosselmans, 2005; Porter, 1986; Stigler, 1986:161-220).[21]

Indeterminism and probability: Quetelet's social statistics and the law of error

Quetelet's contribution to probability theory began with an 1827 publication of French judicial statistics in which he expressed his amazement at the regularities that prevailed even in terms of crimes and suicides (Quetelet, 1829:30-35). This stability of statistical aggregates was the foundation of the science of 'social physics' that Quetelet promulgated in 1831 (Gigerenzer *et al.,* 1989:42). Broadly described, Quetelet's 'social physics' was constructed on a scientific methodology that entails the application of statistical analysis to societal data in order to reveal certain laws about human nature (Daston, 1988:381-382; Hacking, 1990:104-114; Mosselmans, 2005; Porter, 1986:52; Quetelet, 1842{1835}; Stigler, 1986:161-169). This embodied Quetelet's unshakeable faith that regular patterns invisible at the individual level would emerge at the societal level (Daston, 1988:382). To him, the prevalence of mass regularity, 'teaches us that the action of man is restrained in such a circle, that the great laws of nature are forever exempted from his influence; it also shows that laws of conservation can exist in the moral world, just as they are found in the physical world' (Quetelet, cited in Porter, 1986:52).

Quetelet made the law of large numbers (LLN) the 'fundamental principle' of his social physics. First explained by Jakob Bernoulli (1654-1705), the LLN is a mathematical demonstration that the indefinite repetition of events must lead to stable mean values even if the underlying probabilities are allowed to fluctuate (Desrosières, 1998; Gigerenzer *et al.*, 1989:40; Stigler, 1986:65).[22] Bernoulli set out to determine the likelihood of a certain phenomenon a posteriori, 'for it should be presumed that a particular thing will occur or not occur in the future as many times as it has been observed, in similar circumstances, to have occurred or not occurred in the past' (Bernoulli, 1713:224; quoted in Stigler, 1986:65). Thus, the higher number of observations, the less the uncertainty (for a detailed history on the Bernoulli's theorem, see Daston, 1988; Desrosières, 1998; Hacking, 1990:98-104; Stigler, 1986). Poisson coined the term 'law of large numbers' in 1835 in his application of Bernoulli's theorem, which was later

[21] His full name was Lambert Adolphe Jacques Quetelet. The last name is often accented (Quètelet), which Hankins (as cited in Stigler, 1986:126*f1*) suggests originated with his Paris publishers.
[22] Bernoulli never referred to his theorem as the LLN; Poisson was the first to do so in 1835. Thus, most probability texts used the term Bernoulli's theorem to refer to the same idea. Bernoulli's theorem was discussed in his influential text, *Ars Conjectandi* (The Art of Conjecture), published posthumously in 1713.

adopted by Quetelet. Similar to Bernoulli, Poisson argued that the frequencies of events should, in the long run, conform to the mean of their probabilities when those probabilities fluctuate randomly around some fixed, underlying value (Porter, 1986:12). For example, in an *infinite* number of coin tosses, the empirical (observed) outcome of a probability and its theoretical (expected) outcome would converge due to a uniform, constant cause. Poisson (2013{1837}) extended Bernoulli's theorem to the whole of society: the birth rates of males to females, coin tosses, shipwrecks, tax revenues, molecular intervals and even crime rates.

However, contrary to his mentor Laplace, Poisson did not speculate on the nature of the causes that produce certain frequencies. His conception of the underlying causes generating frequencies in both natural and moral observations was agnostic (Daston, 1988:288,381). To him, the constancy of 'ratios between the number of times that an event had occurred and the very large number of trails…is a natural state of things belonging to physical and moral categories and maintains all by itself without any aid by some alien cause' (Poisson, 2013 {1837}:19). Laplace (1902{1894}) on the other hand, developed an elaborate analogy between the physical and moral realms. He envisioned the science of man as a kind of societal mechanics, in which causes governing the physical and moral realms are identical. Laplace used mechanical and dynamical metaphors in his moral and physical analogues:

> [H]esitation between opposed motives is an equilibrium of equal forces… An intense, continuous effort of attention exhausts the sensorium, as a long series of shocks exhausts a voltaic pile, or the electrical organ of a fish. Almost all of the comparisons which we draw from material objects to render intellectual things palpable are at bottom identities (Laplace, as quoted in Daston, 1988:381).

Quetelet's social physics unites Laplace's vision of societal mechanics with the featureless regularity of Poisson's LLN (Daston, 1988:381; Porter, 1986:52). This consolidation is personified in Quetelet's model of rational behaviour, namely *l'homme moyen* – the average man. *L'homme moyen* is a statistical composite of the physical, moral and intellectual traits of an entire society (Daston, 1988:384). According to Quetelet (1833:5-10), *l'homme moyen* could be read as the 'type' of the nation, the representative of a society in social science that parallels the centre of gravity in physics. As the axiom for his social physics, Quetelet (1833, 1835, 1846) used records of height, weight, education, mortality, marriage and suicide to construct *l'homme moyen,* endowing him with probabilistic tendencies to account for discrete acts like marriage and crime. He maintained that these figures are subject to gradual change, allowing the social physicist to calculate a trajectory over time, which Quetelet anticipated, would reveal simple laws of motion and the prediction of the future (Gigerenzer et al., 1989:41; Porter, 1985:64). A model of rational behaviour under conditions of uncertainty derives from the principle of statistical regularity, instead of a criterion of rational belief and action associated with a select minority, like *hommes éclairés*. Indeed, as mathematical portraits of rational behaviour, *l'homme éclairé* and *l'homme moyen* seem strikingly different: whereas the former exemplified a criterion of rational belief and action, codified in a comparison of probabilistic expectations, the latter personified the uniform, constant laws of society (Daston, 1988:385). Yet, *l'homme éclairé and l'homme moyen* are similar in the sense that they both embody a set of standards to be mathematically codified and enforced. These standards are codified in conceptions of rational behaviours which, in both cases, is a matter of calculation. In the case of *l'homme éclairé,* the individual constituted the proxy for calculation, whereas the enumeration of *l'homme moyen* referred to societies as a whole. Despite this divergence in foci, Daston (1988:385) points out that they nevertheless 'presupposed the stable, orderly phenomena that made calculation possible'. The depiction of society as an ordered stable domain resonate not only with Defoe's portrayal of finance, but also the marginalists' naturalistic representation of the economy and economic man, *homo œconomicus.*

Inspired by Victor Cousin's concept of *juste mileu,* Quetelet (1842{1835}:100) idealised the figure of the mean as the standard of beauty, goodness and intellect, claiming: 'an individual who should comprise in himself (in his own person), at a given period, all the qualities of the average man, would at the same time represent all which is grand, beautiful, and excellent'. Cousin's *juste mileu,* as Porter (1985:64, 1986:101) explains, was a symbol of Louis Philippe's July's monarchy, a caricature of the supremacy of the bourgeois class and constitutional monarchy: precariously placed between divine-right kingship and radical democracy. This in-betweenness embodied an ideal of moderation, especially in political behaviour, which appealed strongly to Quetelet's intellectual pursuits. Thus, Quetelet referred to *juste mileu* as a frame of reference to endow the average man with moral attributes and emphasised, in a similar fashion as Defoe, the eminence of moderateness. The average man's qualities, according to Quetelet (1842{1835}:100), 'were developed in due proportion, in perfect harmony, alike removed from excess and defect of every kind, so that, in the circumstances in which he is found, he should be considered as the type of all which is beautiful – of all which is good.'

From the above, the question of how Quetelet accounted for peculiarities or deviations becomes pertinent. The answer lies in his confidence in the principle of statistical regularity and the

LLN. To assemble *l'homme moyen statistically,* Quetelet (1842{1835}:5) argued it is necessary to view society as an entity in its own right, independent of the whims and peculiarities of its constituent individuals. Since individual peculiarities are infinite, a focus on the isolated individual would lead to a generalisation of what is entirely accidental (Mosselmans, 2005:567). As Quetelet (1842{1835}:96) argues in his *Treatise on man and the development of his faculties:*

> All observations tend likewise to confirm the truth of this proposition, which I long ago announced, that everything which pertains to the human species considered as a whole, belongs to the order of physical facts, the greater the number of individuals, the more does the influence of individual will disappear, leaving predominance to a series of general facts, dependent on causes by which society exists and is preserved.

Thus, when considering social phenomena *en masse,* deviations tend to balance themselves out and move closer to the norm. In cases where disparities persist, they should be regarded as dangerous monstrosities and eliminated to secure stability (Mosselmans, 2005). To account for deviations from the average or the true mean, Quetelet extended De Moivre and Laplace's notion of 'error law' (later known as 'normal law', the 'bell curve' or the 'Gaussian distribution').[23] De Moivre and Laplace first used error law to assess the precision of mean values to illustrate that in most cases, it is this law that governs the difference between a mean calculated from many independent trials and the true underlying value (Desrosières, 1998:76; Porter, 1985:66, 1986:76). For instance, following the LLN, in a trial of *finite* coin tosses, the likelihood of distribution in excess of heads over tails is higher. This distribution deviates from the true probability (i.e. 1/2). According to error law, in an *infinite* number of trials, this distribution would converge and become identical with its true probability.

When Quetelet incorporated error law to his program of social physics, he applied it to natural variation, making the 'error curve' an attribute of nature itself. As mentioned above, Quetelet (1835:100) idealised the mean (embodied in *l'homme moyen*) as the standard of beauty, intellect and goodness, thereby equating deviance from the mean as a product of error. 'Deviations more or less great from the mean constitute ugliness in the body, vice in morals, and a state of sickness with regard to the constitution' (Quetelet, 1833:16; quoted in Porter, 1985:65). To account for such a position, Quetelet (1845:133-138, 1846:205-286) distinguished between a

[23] Since these terms are used interchangeably in contemporary statistical practices, the term 'normal distribution' may be less confusing. Field (2009:880) defines normal distribution as a '*probability distribution* of a random variable that is known to have certain propensities. It is perfectly symmetrical…and has a *kurtosis* of 0' (emphasis in original). A *kurtosis* refers to the degree in which scores in a sample cluster around either the mean, or the tails. Whenever scores cluster around the tails, it is considered as an abnormal distribution. Within the logic of LLN, whenever a large number of samples are used, standard deviations would minimise and the scores would cluster around the mean, thus approximating a normal distribution (or bell curve) (Field, 2009:882; emphasis in original).

'true' and 'arithmetic' mean. The arithmetic mean refers to an average taken from the most disparate sets of objects, which reveals little or nothing about their collective character. However, when the variation of a set of measurements conforms to the law of errors, then the mean value (the most probable modal value) may be regarded as a 'true mean'. He explained this idea by referring to the example of measuring the average height of a miscellaneous assortment of houses on a given street. The result would be an arithmetic or fictional mean since the underlying distribution is unsystematic. However, should one measure a particular house an infinite number of times, to account for deviations (errors) from faulty measuring devices or inaccurate inferences from phenomena that occur in finite numbers, each measurement would approximate the law of errors (a normal distribution) (Desrosières, 1998:75-76; Porter, 1986:107, 1985:67). Thus, taking a multitude of observations has the effect of disposing of those circumstances due to chance (i.e. the variable or specific causes), and the statistical regularity that emerges from the mass of data verifies that a causal law (or constant cause) is at work (Morgan, 1990:8). Based on these observations, it becomes possible to determine the tendency of a particular phenomenon and measure the probability that it will occur in the future.

Quetelet's statistical method attracted a diverse academic audience, ranging from the social, natural, mathematical and eventually economic sciences. According to Mirowski (1991, 1994), one reason behind the widespread appraisal of Quetelet's work relates to his use of analogies between nature and society in his 'social physics', which rendered the statistical method extremely elastic. Émile Durkheim's first two books, *The Division of Labour in Society (1893)* and *The Rules of Sociological Method* (1894) uses the average statistical type to support the existence of a collective type external to individuals (Desrosières, 1998:98). Quetelet's assumption that statistical regularities confirm the existence of order in society in a way that parallels the natural, along with his application of error law to exalt the mean, laid the groundwork for James Clerk Maxwell's kinetic theory of gases (Gigerenzer *et al.*, 1989:62; Kwa, 2011:207; Porter, 1981). Maxwell portrayed the physical world as fledged together by molecules, rendering our knowledge of it as characteristically statistical. In his 1873 paper *Molecules,* he wrote: 'The data of the statistical method as applied to molecular science are the sums of large numbers of molecular quantities. In studying the relations between quantities of this kind, we meet with a new kind of regularity, the regularity of averages' (Maxwell, 1873:373-374). He conceived his kinetic gas theory through an analogy with social statistics. He went so far as to compare the laws of gases and the diffusion of heat with the uniformities of crime and suicide (Gigerenzer *et* *al.*, 1989:62). In the field of eugenics, Francis Galton transformed Quetelet's use of error law to give an economic expression of the variability in a population (Desrosières, 1998:112-121; Gigerenzer *et al.*, 1989:55; MacKenzie, 1981:51-72; Porter, 1985). Although Galton greatly admired Quetelet, he was less interested in studying regularities in society and focused on the differences between individuals and the variability of their attributes, which he later defined as natural aptitudes (Desrosières, 1998:113). He made extensive use of analogies in applying the error curve to investigate the heredity sources of intelligence, particularly pertaining to the fields of mathematics, science, statesmanship, law and religion. This enabled him to not only arrive at the method of correlation, which proved to be an extremely influential statistical technique in, amongst others, meteorology, education, biology, psychology, economics, and finance but also serves as a *substitute for explanation* (Gigerenzer *et al.*, 1989; MacKenzie, 1981; Porter, 1986:128-146; Stigler, 1986:266-299).

Debating indeterminism in economics: probability without statistics, statistics without probability

Despite the proliferation of Quetelet's statistical methods and the frequency interpretation of probability in both the natural and social sciences, economists were ambivalent about incorporating it into their work. Committed to the determinist programme, these economists rejected the role of chance. They claimed that it is possible, in principle, to measure the causalities at work in, for instance, the elasticity of demand,[24] business cycles or, as seen in Jevons's (1878:39) 'sun-spot theory',[25] the relations between commercial fluctuations in agricultural products and the 'varying power and character of the sun's rays' (see also Biddle, 2017; Desrosières, 1998:280-289; Louça, 2007:3; Mirowski, 1989a; Morgan, 1990:8, 10, 229-238). For the neo-classical economists of the early twentieth century, the measurement of uncertainty necessitated – as Desrosières (1998) points out – a methodological edifice that possesses both the logical consistency of the axiomatic method but also the ability to be amended and enriched indefinitely. In other words, an inference model that enables the

[24] Elasticity refers to the 'responsiveness of the value of an economic variable to a change in the value of another which is related to it' (Rutherford, 2002). In this sense, the 'elasticity of demand' entails the measurement of how a change in the price of a commodity affects the quantity demanded in a particular point in time and space. In general, when the price for a certain commodity rises whilst consumer income remains the same, there will be a decline in demand (Black et al., 2011). In this case, elasticity will be negative.

[25] Confident in the idea of causal determinism, Jevons sought to prove that 'commercial fluctuations must be governed by physical causes' and lamented the fact that 'no inquirer has been able to discover a clear periodic variation in the price of corn' (Jevons, 1878:35-36). Observing a time series of decennial crises, Jevons (1878:36) calculated the interval of the periodic commercial crises to be, on average, 10.466 years, and stated: 'I am perfectly convinced that these decennial crises do depend upon meteorological variations of like period, which again depend, in all probability, upon cosmological variations of which we have evidence in the frequency of sun-spots, auroras, and magnetic perturbations' (Jevons, 1879:588).

reduction, via the axiomatic method, of phenomena that are inherently contingent and complex into a small number of laws that can be applied universally.

The scepticism amongst economists towards the incorporation of probability theory in their work was therefore not rooted in doubts regarding the scientific validity of probability mathematics, but rather what Desrosières (1998:281) refers to as 'the problem of identification': how to scientifically establish a relationship between theoretical laws and observed data? On the one hand, economists such as Warren Persons and Oskar Morgenstern problematised the application of probability to economic data, since economic data did not conform to the laws of probability: data observations were not independent of each other, and the underlying conditions were not homogeneous throughout the time period (Desrosières, 1998:282; Morgan, 1990:237). Persons, founder of the Harvard Business Barometer, claimed for example that use of probability theory is a 'wholly untenable' method of analysis 'in the specific problem of forecasting economic conditions' (quoted in Morgan, 1990:235). Persons' concerns were not directed at probability theory *per se*, but rather the temporal dimension of economic data, i.e. that every observation is linked to a previous one. Morgenstern (1928), writing on the practice of business cycle forecasting, specified that in most cases, the forecasters have to deal with data collected under conditions that do not conform to scientific requirements to make adequate inferences. He stipulates that the underlying conditions in which data-collection takes place lack homogeneity; that time-series observations are non-independent and that the limited availability of data renders any forecast to be 'false' (Morgenstern, 1928; see also Marget, 1929:314-316).

Ragnar Frisch brings the problem of identification in dialogue with the use of statistical methods. He refers specifically to the use of probability theory to calculate 'probable errors' in statistical measures, for example the mean and the correlation coefficient (Keynes, 1921:371). Here, probability theory is applied to verify inferences generated from a statistical sample, that is, to calculate the plausibility of a hypothesis being tested (Biddle, 2017; Desrosières, 1998:282; Howie, 2004:33-51; Keuzenkamp, 2004; Morgan, 1990:237). Frisch argued that the standard method of regression assumed errors only in the dependent variable, without considering the possibility that all variables are measured with error. In contemporary predictive modelling practices, regression analysis is a method used to determine the relationship between a dependent (target) and independent variable (predictor) (Ray, 2015). For instance, to establish the relationship between a country's fiscal and monetary policy and its economic growth levels.

This technique is commonly used for forecasting, time series modelling and finding the causal effect relationship between variables, based on current and past information data sets. However, according to Frisch (1935:6),[26] the data driving analyses can be problematic, and in the case of social sciences, too many variables are at work that can influence the result:

> When several variates are included in the analyses, the situation becomes of course much more complex. We may here encounter a whole hierarchy where some of the variates may form a set where a regression equation has a meaning, and other forming sets where such equations have no meaning. The study of this hierarchy is what I call *confluence analysis*…data will frequently obey many more relations that those which the statistician happens to think of when he makes a regression study. If the statistician does not dispose of an adequate technique…he will run the risk of adding more and more variates in the study until he gets a set that is in fact multiple collinear and where his attempt to determine a regression equation is therefore absurd.

Frisch's concerns resonate with another strand of critique against the consolidation of probability and statistical theory to generate inferences about the future, especially the work of John Maynard Keynes. Alongside concerns about policymaking based on statistical inferences, discussed in the following chapter, Keynes also sympathised with the methodological problems raised by Frisch and Persons. For example, in one of his earliest manuscripts, *Treatise on Probability* (1921), Keynes distinguishes between two functions of statistics: descriptive and inductive. The descriptive function of statistics entails the use of numerical and diagrammatic methods to describe, measure and summarise the 'salient characteristics of large groups of phenomena' (Keynes, 1921:371). The inductive function 'seeks to extend its description of certain characteristics of observed events to the corresponding characteristics of other events that have not yet been observed' (Keynes, 1921:371). Keynes refers to this inductive function as the 'Theory of Statistical Inference…which is closely bound up with the theory of probability' and proceeds with a critical account of this union. He specifically argues that statistical inference generates a 'great deal of confusion' for two reasons. One, because statisticians struggle to 'discover the precise conditions in which a description can be legitimately extended by induction' (Keynes, 1921:372). Two, these modes of reduction, based

[26] Based on this concern, Frisch (1935:6-8) construes a model where all variables are composed of a systematic part plus a measurement error, and an 'exact' relationship is said to hold between systematic (i.e. natural, 'true') variables. His solution to the problem of measurement errors lay in the choice of weights for each variable in the relationship. By looking at the relative size of the variance of the measurement errors, it is possible to choose the correct weights for each variable and thus the measurement of the 'true' relationship of interest in each case (Morgan, 1990:234). Nevertheless, as the quote above indicates, Frisch maintains that this analysis is solely applicable in instances where data is generated from a controlled experiment, instead of complex socio-economic environments that are abound with an infinite number of dependent and independent variables that are impossible to statistically verify.

on material 'unanalysed in respect of the circumstances of its origin…can only lead to error and delusion' (Keynes, 1921:438).

Thus, despite the embrace of indeterminism in other sciences, including the natural sciences, economists remained extremely divided on the application of statistical inference to economic data. Although some economists such as Henry Moore, Wesley Mitchell and even Jevons made use of statistics in their empirical work, it was mainly for descriptive purposes. On the other hand, the so-called 'mathematical economists' argued that the compilation of statistics entails a process of 'jumbling together facts resulting from complex, unknown, and above all uncontrollable interactions' (Ménard, as cited in Desrosières, 1998:282). Here, Trygve Haavelmo's 'The probability Approach in Econometrics' (1944), which justifies the union between mathematics, probability theory and statistics in economics represent a crucial turning point in this debate.

The erosion of determinism: the future in probabilistic terms

Haavelmo (1944:iii) begins his defence of statistical inference by pointing out that probability is the body of theory behind statistical methods:[27]

> So far, the common procedure has been, first to construct an economic theory involving *exact* functional relationships, then to compare this theory with some actual measurements, and, finally, to 'judge' whether the correspondence is 'good' or 'bad'. Tools of statistical inference have been introduced, in some degree, to support such judgements, e.g., the calculation of a few standard errors and multiple-correlation coefficients. The application of such simple 'statistics' has been considered legitimate, while, at the same time, the adoption of definite probability models has been deemed a crime in economic research, a violation of the very nature of economic data. That is to say, it has been considered legitimate to use some of the *tools* developed in statistical theory *without* accepting the very *foundation* upon which statistical theory is built. For *no tool developed in the theory of statistics has any meaning* – except, perhaps, for descriptive purposes – *without being referred to some stochastic scheme* (emphasis in original).

As noted in the concerns raised by Morgenstern and Persons, amongst others, problems of non-homogeneous time periods and non-independence of observations were some of the main arguments used to oppose the incorporation of probability theory to economic data. Haavelmo (1944:iii) argued the opposite: these concerns were rooted in a very narrow conception of probability theory, which does not prevent its application to economic data:

[27] Due to reasons of space, I am passing over a number of theoretical developments in inference procedures: Tjalling Koopman's work on measurement errors, Frisch's 'rocking horse' model and Jan Tinbergen's econometric business cycle research to name but a few (see Howie, 2004; Louça, 2007; Morgan, 1990; Qin, 2013; Stigler, 1962).

> The reluctance among economists to accept probability models as a basis for economic research has, it seems, been founded upon a very narrow concept of probability and random variables. Probability schemes, it is held, apply only to such phenomena as lottery drawings, or, at best, to those series of observations where each observation may be considered as an independent drawing from one and the same "population." From this point of view it has been argued, e.g., that most economic time series do not conform well to any probability model, "because the successive observations are not independent." But it is *not* necessary that the observations should be independent and that they should all follow the same one-dimensional probability law. It is sufficient to assume that the *whole set* of, say *n,* observations may be considered as *one* observation of *n* variables (or a "sample point") following an *n*-dimensional *joint* probability law, the "existence" of which may be purely hypothetical. Then, one can test hypotheses regarding this joint probability law, and draw inference as to its possible form, by means of *one* sample point (in *n* dimensions) (emphasis in original).

Thus, as Morgan (1990:243) points out, Haavelmo effectively reversed the usual argument that probability theory has a very narrow domain of application. Instead, probability theory is generally very applicable if we conceive it as a way to make inferences that are not necessarily exact or 'true', 'but merely have a certain chance of being true' (Haavelmo, 1944:2). Here, Haavelmo's probability model takes on a distinctively indeterminist nature. Indeed, with regards to the 'problem of identification' referred to earlier, i.e., the determinist struggle to establish an 'exact' relationship between economic theory and observed data, Haavelmo (1944:1) argues that when a set of theoretical assumptions gets transferred to "facts, the question of 'right' or 'wrong' becomes more ambiguous." The gap between a theoretical model and a set of inferences generated from its application to data will usually, according to Haavelmo, be contradictory. One reason for this is that economists when dealing with issues like 'national income, output of certain commodities, imports, exports, etc.,' – notions that have a definite quantitative meaning and accurately measured – often do not have the financial means or time at their disposal 'to carry out the counting and measurement in a way we should really like to do it' (Haavelmo, 1944:5). As such, scientists working in the field of economic statistics continuously find themselves in a situation where 'we almost always know that we could do better, if we could only find the necessary time and money' (Haavelmo, 1944:5). Moreover, contrary to the scientific experiments conducted by physicists that take place in a controlled environment, economists have to be satisfied with results which, 'Nature has produced in all their complexity', laboured with the task of constructing 'models that explain what has been observed' (Haavelmo, 1944:7).

To remedy this uncertain state of affairs, Haavelmo develops his probability model as an alternative form of experimental design, in which economic theory could be constructed to meet the conditions of the data (Morgan, 1990:259). To recall, the deductive style of reasoning associated with the determinist programme, meant that in cases where the data did not confirm a set of axiomatic assumptions (theory), economists were forced to discard those observations (Daston, 1988; Mirowski, 1989a; Morgan, 1990). Indeed, the idea behind a scientific experiment is to reproduce the conditions required by a theory and then to manipulate the relevant variables in order to take measurements of a particular scientific parameter or to 'test the theory'. However, as many economists have pointed out, when the data is not collected in a controlled environment, the relationship between the observations and theoretical laws can neither be direct or clear cut. This was not only a problem in economic sciences, but as Mirowski (1989a) points out, even physicists' faith in the determinist programme started to erode. In 1926, Max Born interpreted the formalisms of the new quantum mechanics as explicitly and irreducibly stochastic. Haavelmo (1944:3) embraced this style of reasoning by encouraging economists to be sceptical about their theories, since "whatever 'explanations' we prefer, it is not to be forgotten that they are all our own artificial invention in a search for an understanding of real life; they are not hidden truths to be 'discovered'". Here, Haavelmo acknowledges that our understandings about how the economy works are based on theories constructed by economists themselves: they do not exist outside human actions. This liberates the economists from the deterministic programme and the axiomatic method and enables the interpretation of the relationship between economic theory and data in probabilistic terms. Within this framework, relations can be interpreted as 'statistical laws', that reflect 'average behaviour…descriptions of covariation without causal interpretation' (Morgan, 1990:260). According to De Marchi and Gilbert (1989:5), this framework has, at its core, the following elements:

(a) that the economy maybe be characterised as a set of autonomous and simultaneous behavioural (causal) relations with structural features captured by the parameters of these relations; and
(b) that these relations are essentially stochastic.

As such, Haavelmo's probability approach enabled the construction of the economy in a model form. [28] Models signify not only the embrace of indeterminism but also its corollary: techniques to manage uncertainty. As mentioned earlier, the fall of determinism did not lead to chaos: it opened the way to 'managing uncertainty' by expressing the future in statistical probabilities. Indeed, models enabled the preservation of the economy as a mathematical structure, as Jevons

[28] I am passing over a number of debates that ensued following Haavelmo's probability model. See Christ (1994), Epstein (1987) Louça (2007), Morgan (1990), Qin (2013).

and Walras intended. Model-making facilitated the use of their ideas in experiments to determine the socio-political conditions that enable, for instance, equilibrium in the market place, economic growth, or to consider the role of government vis-à-vis the market place. As Morgan (2012:2) observes, economics seminars in the twenty-first-century are characterised by how their attendees draw equations or diagrams to illustrate and explain a particular phenomenon in the economic world and, more importantly, generate a set of solutions based on these models. Indeed, models constitute the starting point for most economic research activities: they are used for theorising, hypothesis testing and are an essential input in simulation technologies that generate future scenarios (Baccini, 2001; Boumans, 2005; Mirowski, 2002; Morgan, 2012; Qin, 2013; Weintaurb, 2002). Models are therefore central to contemporary economic and financial risk analyses, as they enable the quantification of uncertainty into mathematical probabilities: risks. In this way, the concerns about the quality of data observations, assumptions, and analogies become obscured, which renders the modelled depiction of the economy certain, scientific, and transparent.

Conclusion

This chapter provided an analysis of the historical processes that de-politicised the economy and assembled it into a structure that can be 'scientifically' known through the appropriate methods. The goal was to interrogate the 'regimes of truth' that enabled the framing of the economy as a mechanism that operates analogously to laws of gravity and motion. I focused specifically on Jevons and Walras's use of analogies: discursive strategies that enabled them to represent the economy as a system that operates in the same way as the physics of energy. Although in the twentieth-century this deterministic view of the economy was replaced by a stochastic view, the mechanical framework through which economic phenomena is interpreted and analysed has remained intact. Indeed, the economy is now interpreted in the form of a model: 'small mathematical, statistical, graphical, diagrammatic…physical objects that can be manipulated in various different ways' (Morgan, 2012:2). Central to this process is the incorporation of probability theory and statistical methods to the investigation and portrayal of the economy. This chapter examined how probability theorists laboured over a model of rational behaviour in conditions of uncertainty in order to mitigate chaos or societal disorder. In the case of classical probability theorists, rational behaviour was based on the codification of 'reason' of *hommes éclairés*. Much like Defoe's conception of the English gentility, it was believed that these elite men are blessed with a type of intuition that is not accessible to others. Quetelet's *homme Moyenne* codifies rational behaviour on the basis of the statistical average, derived from a significant number of observations. The significance of Quetelet's statistical methods for the purposes of this thesis is not only the assumption that the statistical average reveals some truth about the causal laws governing phenomena, but also that this average can always be uncovered if the scientist has sufficient data to make mass observations. Here, Haavelmo's probability approach opened the way for economists to generate inferences about causal relations in instances where there is a lack of data. In other words, to *model* the real-world phenomena they are trying to investigate.

Chapter Three delves into the methodology of model-making in financial economics. This chapter discusses how models assemble the visions of the economy examined in this chapter, as well as the appropriate ways to study it, into an *ideal* form that can be used to inform socio-economic policymaking. I will focus on how this form of knowledge production brings various visions of the economy, society, individuals, discussed in this thesis so far, into a mediation with the future that shapes and constrains the actions of actors in the present. More importantly, the following chapter investigates the socio-economic and political 'ideals' that underpin the modelling of sovereign credit risk. Here, we see how the epistemological assumptions and methodological approaches associated with the scientific method and incorporated into economics laid the necessary groundwork for the authority of numbers is financial markets, and thus also the actors that produce them, like CRAs. To this end, modelling is a form of story-telling, a mediated discourse, that not purely descriptive or prescriptive, but one that forms part of the process it is claiming to describe and analyse. Narratives, stories, discourses, according to Koritz and Koritz (1999:346), 'is the most important tool we have for making sense of our experience; as such it not only represents reality, but also helps constitute it.'

Chapter Three

The economy in model form

In the previous chapter, I discussed how the erosion of determinism justified the incorporation of statistical inference to economic analyses as an appropriate, 'scientific' method through which probabilities can be assigned to future events. By acknowledging that economic phenomena are inherently stochastic, 'chance' became accepted as an explanatory force in itself (Hacking, 1990; Reddy, 1996:225). The embrace of indeterminism, however, did not abandon the nineteenth-century quest to solidify the scientific character of economics. Nor, as discussed in Chapter Two, did it lead to chaos. Instead, a range of methods and technologies developed through which uncertainty can be 'tamed'. Given the erosion of causal determinism and the growing popularity of Haavelmo's probability approach, economists began to ground their work on another foundation: small mathematical models that depict artificial worlds (Le Gall, 2007:17; Morgan, 2012).

Models are quasi-material objects that are independent of both theory and the real world (Morrison & Morgan, 1999:10-17). As such, they open up ways of mediating uncertainty, to construct 'artificial economic systems that can serve as laboratories in which policies that would be prohibitively expensive to experiment with in actual economies can be tested out at much lower cost' (Lucas, 1980:696). The goal of these experiments, according to Haavelmo, is to ultimately 'become the master of happenings of real life.' Adopting a governmentality analytic, this chapter explores how models enable the 'taming of uncertainty' in the global political economy. I will focus on the political rationalities of financial and economic modelling from the 1940s, mainly in Western 'spaces of hegemony' (Lee, 2011), particularly the universities of Cambridge and Chicago. Models have embedded in them a political rationality that not only describes how the economy works, but how it *should* work. Models are discursive devices that provide a 'domain for the formulation and justification of idealised schemata for representing reality, analysing it and rectifying it' (Miller & Rose, 2008:30; Rose & Miller, 1992:178). Contrary to their technical and objective appearance, this chapter illustrates the intimate connection between economic models and ideology. As mentioned, ideology refers less to the conscious distortion of truth to advance class interests. Ideology and discourse refer to similar aspects of social life: 'the idea that human individuals participate in forms of understanding, comprehension or consciousness of the relations and activities in which they are involved'

(Purvis & Hunt, 1993:474). Not only are ideas, knowledge, and theories of the economy discursively mediated, the realms of politics and economics are inherently discursive.

Furthermore, as mentioned in the introductory chapter, the government of uncertainty is not merely a matter of representation. It involves a distinct technical dimension as well. Economic and financial risk discourses need to be instrumentalised and made operable in a technical form. This is where models also become *technologies* of government. By mathematically representing phenomena, models render the economy knowable, in a calculative form, and problematised with a corresponding set of interventions (Miller & Rose, 2008:33). From the 1940s, these mathematical representations became tools through which economists provided policy advice to governments on how they should, firstly, 'spend' their way out of the Great Depression and then, in the 1960s, implement austerity measures to address stagflation (Louça, 2007; Morgan, 2008). In this sense, models hold out the promise of managing uncertainty by not only 'measuring' and producing knowledge about the economy, but also providing (and normalising) a particular way of acting in the present.

I will focus on two traditions of economic models—first, the Keynesian-inspired econometric models of the Cowles Commission. Second, the 'new-classical', rational, individualist models associated with the economic ideas of Milton Friedman and Robert Lucas. The goal here is to demonstrate the role of economic theory in the model-making process and how it influences fiscal and monetary policymaking. These 'new-classical' models are of particular interest for this thesis, specifically, in the ways they relate to the governmentality of sovereign credit ratings. In this sense, this chapter explores how new-classical economic models resonate with the governmentality of financial markets. This includes not only the regulatory activities of institutions traditionally associated with global governance like the IMF, World Bank or CRAs but rather an apparatus of heterogeneous elements, placed strategically, to manage uncertainty in financial markets (Foucault, 2007, 1980). The elements in an apparatus, according to Foucault (1980:194-195), are a diverse and multifaceted ensemble of discourses, institutions, regulatory decisions, laws, scientific statements, 'in short, the said as much as the unsaid'. This concept shares many similarities with Deleuze and Guattari's (1987) assemblage theory, as acknowledged by Deleuze himself (1992). However, for Foucault (1980:194-195) this apparatus is geared more towards security, 'a sort of – shall we say – formation which has as its major function at a given historical moment that of responding to an *urgent need.* The apparatus thus has a dominant strategic function' (emphasis in original). For this chapter, the concept of apparatus is specifically useful for an exegesis on how models fit into this arrangement, not only as instruments to 'explore' and 'know' the world, but also how these representations make spheres amendable to a particular kind of governance, based on notions of the norm (Salter, 2008). In this sense, they represent the stabilising forces in the sovereign creditworthiness assemblage.

The first section of this chapter provides a brief conceptual outline of models. Here the goal is to show how the process of model-making is not purely mechanical, logically driven but requires creativity and imagination in the selection and integration of a set of items that are considered relevant for a particular task. It shows the extent to which model-making depends on subjective assessments, which helps us re-politicise the discursive field of sovereign credit rating. The second section looks at the emergence of econometric model-making in the mid-twentieth century. Inspired by Keynes's *General Theory* (1936), economists associated with the Cowles Commission developed elaborate models to represent his ideas mathematically. The goal here was to provide sound policy advice to governments on how to spend their ways out of the depression (Morgan, 2008). By the 1960s however, the Keynesian economic system as well as the econometric models used to justify it came under attack. Pioneered by scholars associated with the Chicago School of Economics such as Milton Friedman, Robert Lucas and Edmund Phelps, Keynesian macro-economic models gave way to radically individualist models of the economy. The third section looks at how Chicago School economists revived the methodological and theoretical ideas of Jevons and Walras by re-centring *homo œconomicus* as the principle actor in the economy. These models of rational individual behaviour, equilibrium and efficient markets have come to dominate financial discourse and are central to the modern expansion of capital markets on a global scale. The final section discusses these developments in financial economics. It contextualises the historical and political events that led to not only the expansion of the credit rating industry, but also the political imagination of societies, markets and states embedded in sovereign ratings.

Models as mediators

A model is an experimental frame that enables scientists to conduct 'pen-and-paper experiments' (Le Gall, 2007:210; Morgan, 2002:43).[29] As forms of 'experimentation', models

[29] Here, 'experiment' refers 'to the combination of the external and internal dynamics, the activity of asking questions about a circumscribed and limited model world and deriving answers about that world. This is a process in which scientist and model are jointly active participants, neither is passive' (Morgan, 2002:43-44).

are formed in a probabilistic framework. They represent *artificial* worlds that can be controlled, manipulated and upon which model-makers can experiment. By creating, in the words of Lucas (1980:697) 'a mechanical, imitation economy', the model-maker explores the mechanisms (expressed mathematically) that relate a set of variables in a controlled environment, *ceteris paribus* (Le Gall, 2007:210). The model-maker can actively use and manipulate the relations and structure she designs, which enables her 'to answer some questions about the real world, about the world defined by the model, or about some aspects of the underlying economic theories' (Le Gall, 2007:211). As stated by Haavelmo (1944:14), models refer to "experiments that *we should like to make* to see if certain real economic phenomena – when *artificially isolated* from 'other influences' – would verify a certain hypothesis" (emphasis in original). Models are therefore not only instruments that can be used to represent and explain economic phenomena but are also methods of inquiry: autonomous agents that are partially independent of both theories and the real world (Morrison, 1999:40-65).

Models are *abstractions* and *idealisations* of economic processes (Hamminga & De Marchi, 1994; Morgan, 2006, 2012; Morrison, 1999:40-42). Abstraction refers to the selection of the most salient elements for study and creating a portrait based on these abstractions (Cartwright, 1989:187; Morgan, 2006:10). As a representation of economic phenomena, this portrait does not include all the real-life properties involved: it only embodies the features identified in the abstraction process. The selection of these features is based not only on economic theory but also an *idealisation* of economic processes (Morrison, 1999:38). Idealisation, according to Morgan (2006:10), involves a process of choosing and focusing on one idea or concept to create the most complete version of the object of study. This dimension of model-building is similar to Weber's (1949{1904}:89-90) notion of 'ideal types' – a frame of reference to define and comprehend economic realities (see Morgan, 2006:6-7). Weber (1949{1904}:89-90) depicts the free market economy as an embodiment of 'ideal type':

> It offers us an ideal picture of events on the commodity-market under conditions of a society organised on the principles of an exchange economy, free competition and rigorously rational conduct…Substantively, this construct in itself is like a *utopia* which has been arrived at by the analytical accentuation of certain elements of reality. (emphasis in original)

Weber (1949{1904}:90) argued that despite this utopian vision of the economy, which is at most based on a partial relation to reality, the concept of 'ideal types' could be useful in theorising and, though not directly applicable, provides a lens into the world of the model-maker (Morgan, 2006:7). In other words, 'ideal-types' enables an exploration into the political imagination of the model-maker, as it acts as an 'archetype' that allows a comparison and explanation of reality:

> The ideal typical concept will help to develop our skill in imputation in *research*: it is no "hypothesis" but it offers guidance to the construction of hypotheses. It is not a *description* of reality but it aims to give unambiguous means of expression to such a description…An ideal type is formed by the one-sided *accentuation* of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent *concrete individual* phenomena, which are arranged according to those one-sidedly emphasised viewpoints into a unified *analytical* construct (*Gedankenbild).* (Weber, 1949{1904}:90, emphasis in original).

Economists tend to obscure how these processes of abstraction and idealisation take place, as this would reveal the extent to which their models rely on subjective assessment. Yet, as the following discussions illustrate, these representations cannot be divorced from the regime of power and knowledge in which they are formed. They are discursive instruments based on a political imagination of society, individuals, and markets (Gibbard & Varian, 1978; Ingrao, 2001:7-40; McCloskey, 1990:59-73; Ménard, 1989). Model-making depends on what Heinzelman (1980:11-12) refers to as 'imaginative economics' which elucidates how "economic systems are structured, by means of imagination, upon what are essentially fictive concepts – including… 'the economy' itself".

Negotiating with Keynes, idealising equilibrium

This section looks at how model-makers identify and measure relations in the economy, and specifically the role that theory and 'ideal-types' play in this regard. The econometric work of the Cowles Commission, significantly influenced by Haavelmo's 'probability approach' provides an insightful starting point (Morgan, 2008, 1990). Econometrics is a branch of analysis that, in the words of an IMF economist, makes 'economic theory useful' (Ouliaris, 2017), because it enables the quantification of phenomena. The Cowles Commission was established in 1932 by Alfred Cowles with the following vision in mind: to 'advance the scientific study and development…of economic theory in its relations to mathematics and statistics' (Christ, 1994:31).[30] Many of the Cowles affiliates like Oskar Lange, Jakob Marschak and Tjaling Koopmans were European *émigrés* with left-wing tendencies and a strong training in mathematics and engineering. Their structural models sought to:

[30] The Cowles Commission was originally located in Colorado Springs and moved to the University of Chicago in 1939. However, due to growing methodological and political disagreements with economists associated with the then-emerging Chicago School, relocated to its current home at Yale University in 1955 (Madara & Adaman, 2014:699).

> [P]rovide accurate general economic forecasts and to guide government policies intended to control the business cycle…They held high hopes that similar aggregate linear difference equation models could be estimated to yield convincing scientific solutions to the difficult technical and political problems of devising actual economic policy (Epstein, 1987:9).

Writing in the midst of the Great Depression and the socio-economic problems facing governments during the interwar period, Keynes's *General Theory* (1936) significantly influenced these economists' research projects (Boumans, 2005; Epstein, 1987; Louça, 2007; Morgan, 2008).[31] Keynes himself vehemently opposed econometric modelling, claiming that 'mathematical economics is such risky stuff' with 'all kinds of unexpressed unavowed assumptions' (Keynes to Frisch, quoted in Louça, 2007:186). Yet, the Cowles econometricians argued that, in order to generate a sufficiently accurate representation of the economic world, primarily to provide sounder policy advice to governments, it is necessary to make use of statistics and mathematics in macro-economic modelling (Louça, 2007:188; Morgan, 2008:287). Many economists also viewed Keynes's *General Theory* (1936) as a complicated text and suggested that econometric models would provide an accessible framework into his macro-economic ideas (Morgan & Boumans, 2004). Marschak and Lange (1940:390) for instance, claimed that econometric modelling is the only way to develop a Keynesian programme:

> Since we are both in profound agreement with the economic theories of Mr. Keynes, we are anxious to prevent the readers of *EJ [Economic Journal]* getting from Mr. Keynes's review the impression that his theories are not capable of empirical and statistical verification.

Likewise, in Frisch's inaugural lecture at Oslo University, he emphasised the necessity of developing mathematical, scientific representations of the economy – perceived as the only way to provide sound policy advice to governments:

> quantitative formulation of laws and concepts is very nearly as important in economics…This can be seen most clearly if we consider the final goal of economic theory, which is to clarify the interrelationship between the various factors, and to do so in such a way as to secure a basis for evaluating what practical measures are most suitable to promote socio-economic aims (Frisch, as quoted in Louça, 2007:188).

To represent the 'interrelationship between the various factors', the Cowles econometricians made use of structural estimations to generate simultaneous equation models of the economy

[31] I am passing over an important debate that ensued between Keynes and Jan Tinbergen, which played a crucial role on the methodology of the Cowles Commission. For a detailed analysis, see Epstein (1987), Hendry and Morgan (1995), and Louça (2007).

(see Boumans, 2005; Christ, 1994; Epstein, 1987; Louça, 2007). Simultaneous equations are stochastic situations where relations between variates are expressed by a set of simultaneous equations containing them (Kendall & Buckland,1970:139). These equations estimate the relationships between phenomena (variables in the economy) such as foreign direct investment (FDI), technology, government spending and economic growth or between fiscal and monetary policy, aggregate demand, and economic development (for examples of structural equations models, see Fielding & Torres, 2006; Ford et al., 2010; Low & Meghir, 2017).

The selection of variables and the measurement between relations in the economy derives, especially in the case of structural equation models, from economic theory (Everitt, 2002; Ouliaris, 2011). Cowles econometricians especially drew on economic theories, which not only outlined the amount of the equations, but also:

> [...] what variables appear in each one, which variables are endogenous and which are exogenous, what lagged endogenous variables (if any) appear in the model, what is the form of each equation, and what is the form of the joint distribution of the disturbances (normality is often assumed, for example) (Christ, 1994:36). [32]

Economic theories, therefore, provide information about the potential causality between variables in the economy. This is also called a 'parametric hypothesis', i.e., an assumption or statement concerning the parameters of a distribution in a data sample (Everitt, 2002:2780).[33] A parameter describes the relationship between variables in a population – the collection of 'units' in a data sample. The next step in the modelling process is the specification of a statistical model that captures the essence of the hypothesis the model-maker is testing, which proposes a

[32] Endogenous (dependent) variables are those that from an inherent part of a system, whose value is determined by the states of other variables in the system. Exogenous (independent) variables are those that impinge on the system from the outside. The value of these variables are fixed or independent from the states of other variables (Wooldridge, 2003:802-803). Consider, for example, a causal system in the economy like aggregate demand, where the outcome we are interested in explaining (i.e. the endogenous variable) is the employment level. Here, cause can be conceived as 'a critical part of one of the possibly numerous alternative combinations of circumstances that imply an effect' (Hoover, 2008:298). In reduced-form or single-equation models, the employment rate will be determined by a selection of exogenous variables that causally interact with the dependent variable, such as literacy rates, population growth, labour regulations, wage levels, inflation, and technology. In mathematical form, the dependent variable (y) will be on the left side of the equation and independent variables (x) on the right. However, in simulation equation models, the demarcation between endogenous and exogenous variables are interpreted in a dynamic manner and additional dependent variables can form part of the independent variables identified (Baretto & Howland, 2010). For instance, a simultaneous-equations model of aggregate demand will not only take employment rate as an endogenous variable, but also its dynamic interaction with inflation, price levels or interest rates. In other words, simultaneous equation models utilise a data generation process that depends on more than one equation interacting together to produce the observed data (Baretto & Howland, 2010:730).

[33] I recognize that the descriptions on statistical inference methods and probability theory in this chapter do not fully capture all of the real-life processes and technologies involved in econometric modelling. However, the goal here is to emphasize the role that imagination, assumptions, and ideals play in the construction of econometric models. In other words, despite their technical appearance, the process of model-making is inherently political, that is, they are influenced by the subjectivities of their makers. These assumptions inform the model-maker of how economic phenomena operates, the variables in operation and the parameters between them, the measurement of these elements and their implications for policy making.

specific mathematical relationship between the different variables. What follows is the estimation of 'unknown parameters' of the model. Estimations are informed by economic data and in contemporary econometric modelling, software packages such as Eviews and Matlab. Finally, the parameter becomes estimated, which requires the model-maker to determine 'if the estimated model makes economic sense – that is, yield meaningful economic predictions?' (Aldrich, 1989; Boumans, 2005:51-73; Ouliaris, 2017). The answer to this question is inherently political and reflect the regimes of power and knowledge of the actors that produce these models.

In the case of the Cowles Commission, parameter estimations got integrated into structural models of the 'macro-economy', to justify expansionary fiscal policies. Most of their models presented an argument in favour of economic control and the necessary policies to alleviate the miseries caused by the Great Depression. Indeed, many of the early econometricians were convinced activists (Louça, 2007:188). Their ideas in favour of direct economic control, or a 'planned economy', derive from Keynes's *General Theory of Unemployment, Interest and Money* (1936), in which he postulated aggregate demand as driving force behind economic growth. Keynes's (1936) emphasis on demand however, did not share the methodological tendencies associated with the work of Jevons and Walras discussed in Chapter Two. Although he argued that a lack of demand, not supply, caused the depression, his analyses were neither based on the methodological individualism nor mathematical formalism of the 1870's Marginal Revolution. As mentioned, Keynes vehemently opposed the use of mathematics in economics and accused Jan Tinbergen's econometric modelling as a practice of 'black magic and alchemy' (see Keuzenkamp, 2004:vii).

Furthermore, contrary to Jevons and Walras's 'naturalistic' view of the economy as a self-correcting mechanism that always tends towards equilibrium, Keynes argued that *disequilibrium* is the norm. As such, the welfare of society cannot be left to the assumed self-equilibrating capacities of the market (Keynes, 1936:Chapter 23; Louça, 2007; Wunder, 2010). Central to this stance is Keynes's disdain towards the assumption that individuals in the market place act 'rationally'. Instead, Keynes (1936:161-162) insists that investors are driven by 'animal spirits': irreducibly psychological tendencies that shape their levels of confidence about business prospects. Economic activities are therefore based on decision-making processes that are inherently social and intersubjective, thus not amenable to prediction and calculation:

> Actually, however, we have, as a rule, only the vaguest idea of any but the most direct consequences of our acts […] By 'uncertain' knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable […] The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate on interest twenty years hence, or the obsolescence of a new invention, or the positions of private wealth-owners in the social system in 1970. About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know. Nevertheless, the necessity for action and for decision compels us as practical men to do our best to overlook this awkward fact and to behave exactly as we should if we had behind us a good Benthamite calculation of a series of prospective advantages and disadvantages, each multiplied by its appropriate probability, waiting to be summed (Keynes, 1937:213-214).

As such, governments should actively 'manage' the economy by stimulating aggregate demand through fiscal policy tools that increase the disposable income of individuals, such as tax cuts to induce investment and spending or direct increases in government spending (Black et al., 2011:338; Niggle, 2010:307:309).[34] This would generate a 'multiplier effect', whereby an increase in the disposable income of individuals leads to more spending, job creation to meet higher demand levels and thereby increase overall output (economic growth).

Despite Keynes's scepticism towards the Cowles Commission's methodologies, econometricians like Frisch, Marschak, Lange and Klein recognised the 'urgent need' to provide suitable economic advice amid economic crisis (Louça, 2007; Morgan, 2008). While conceding that disequilibrium is the central enigma for real-life economics, they were nevertheless driven by a desire to avoid such a state of affairs. As such, their models idealised equilibrium conditions (Louça, 2007:190). In particular, 'equilibrium' as defined by conditions of Pareto optimality. Pareto optimality refers to a situation in which one actor cannot increase its utility through further exchanges without making at least another actor worse off. Contrary to free-market economists, the Cowles econometricians argue that a socialist planned economy could reach as good an outcome as the free-market economy in terms of ensuring Pareto optimality (Morgan, 2008:292). By doing so, they sought to reclaim a space for Welfare Economics in their models, that is, the study of how economic activity affects the overall welfare of a society (Black et al., 2011:439).[35]

[34] This particular amalgamation of theory and methodology is commonly known as the 'neo-classical synthesis' and dominated economic and fiscal policymaking from the 1940s to the 1970s (Wunder, 2010)

[35] The first Theorem of Welfare Economics, typically associated with the work of Arrow and Debreu (1954), states that 'competitive equilibria are Pareto-optimal, if individual preferences are monotonic and if there are complete markets' (Baujard, 2013:7). The second theorem asserts 'that every Pareto-optimal allocation of resources is an equilibrium for a perfectly

A prominent model in this regard is the IS/LM (investment-savings and liquidity-money) model, developed by John Hicks. The IS/LM model demonstrates that when an increase in government spending occurs, aggregate demand rises in both commodity and money markets, stimulating economic growth. The IS curve stands for the combination of national income and interest rates that ensure equilibrium in a commodity market (the institution through which commodities are traded). The LM curve is the combination of national income and interest rates that ensure equilibrium in the money market (the market for short term loans). The intersection of IS and LM determines the simultaneous equilibrium in the product and money markets (Black et al., 2011:223; Niggle, 2010:307-309; Rutherford, 2002). To represent the interaction between government spending, economic growth, and aggregate demand, the IS/LM model incorporated the famous Phillip's curve, which expresses the inverse relationship between unemployment and wage levels in an economy (Rutherford, 2002). This curve is based on A.W.H. Phillips's hydraulic machine to explain the macro-economic work of Keynes (Boumans, 2005; Morgan & Boumans, 2004). In the design process, Phillips incorporated ideas and metaphors from other economists and brought them in dialogue with hydraulic principles. The goal was to 'represent the circular flow of national income, the relationships between elements in the economy, and stocks and flows in terms of the tanks of hydraulic fluid with in- and out-flows and governing valves' (Boumans, 2005:12). Consequently, the machine represents the aggregate economy and enable the modelling of Keynesian ideas about the economy.

Model-making is therefore more than a mechanical, 'scientific' exercise: it also requires creativity and imagination in the selection and integration of a set of items that are considered relevant for a particular task. Boumans (2005:4) compares the process of model-making to 'baking a cake without a recipe'. Without guidance on the ingredients required and the preparation process, how does one proceed in making a cake? Assuming that most people have some knowledge about, for example, making pancakes and the main ingredients that goes into it (flour, butter, sugar, baking powder), we have an *idea* of how to go ahead. Thus commences the trial-and-error process until the result approximates some form of a cake. Modelling similarly takes place (Boumans, 2005, 1999). The IS/LM model, for instance, integrated a set of theoretical ideas, policy views, some empirical evidence and a metaphor – Phillip's curve –

competitive economy, provided a redistribution of initial endowments and property rights is permitted' (Blaug, 2007:185). Echoing Keynes, the Cowles econometricians argued that this redistributive function cannot be left to the devices of the market and that governmental intervention, specifically via fiscal expansion, can ensure Pareto-optimal equilibrium.

which guided the way the model was conceived and assembled. Similar to a cake, when these elements are integrated into a mathematically expressed system (model) – the end product – it becomes difficult to distinguish the separate ingredients; 'they become blended and homogenous' (Boumans, 2005:5).

Model-based analyses of Keynes's work provided useable advice to governments on how to address social crises brought by the Great Depression and Second World War (Morgan, 2008:293). These approaches to economic governance also dominated the policies and programmes of the Bretton Woods Agreement, which saw the establishment of the IMF the World Bank.[36] Determined to stabilise the global financial system and prevent the disastrous effects of financial market instability brought by the Great Depression, the Bretton Woods conference laboured over the arrangement of a fixed-exchange-rate system. This system entailed that the US pegged its currency to the gold standard; all other states in the agreement fixed their parities in terms of dollars and intervene to monitor exchange rates within one per cent of parity with the dollar (Oliver, 2006:112).

Keynes was a prominent intellectual leader of this monetary arrangement, and also led the British delegate at the conference. His idea of a 'planned economy', underpinned many of the policy documents of the Bretton Woods institutions (Best, 2008; Reddy, 1996). Crucially, Keynes's emphasis on the social aspect of economic activity and his insistence that the future is radically indeterminate, enabled governments to 'manage their economy' and establish a set of mechanisms to protect citizens against the potentially destructive forces of the market. Keynes's emphasis on uncertainty resonates in the ambiguity of some of the trading agreements established at the Bretton Woods conference, which allows for discretionary policymaking, that is, when policy-makers decide on fiscal and monetary policy measures, their extent, and timing (Rivot, 2012). In contrast, rule-based policy making – discussed in the section below – necessitates states to follow a fixed set of rules in terms of monetary policymaking, to prevent government interference (Kydland & Prescott, 1977; Phelps, 1968; Sargent & Wallace, 1975).

Lucas and the revival of *homo œconomicus:* new-classical economics

Rule-based monetary policymaking became standardised in the late 1970s, as Keynes's economic programme and the modelling practices of the Cowles econometricians came under

[36] The Bretton Woods agreement was undertaken by 43 countries at the United Nations Monetary and Financial conference, which took place between the 1 – 22 July 1944, in Bretton Woods, New Hampshire.

attack (Morgan, 2008). The anti-Keynesian sentiments appeared as many countries who adopted Keynesian economic policies suffered from 'stagflation' – a combination of high price inflation, high unemployment, and low economic growth (Cerny *et al.*, 2005:13; Morgan, 2008:294; Rutherford, 2002). The problem prompted several diagnoses that developed into a paradigm called 'new-classical economics.' This paradigm is based on a vision of society, the economy, and individuals in the marketplace put forward by, amongst others, the political philosopher Friedrich Hayek (1944, see also Plehwe, 2009; Rankin, 2004).

Hayek developed his philosophy amid the events of the Second World War that revealed the 'intrinsic defects' of the State (Foucault, 2008:116). He likened a planned economy, that is, one that seeks to secure 'a common good' to a totalitarian exercise that aims 'to organise the whole of society and all its resources to this unitary end, and [refuses] to recognise autonomous spheres in which the ends of individuals are supreme' (Hayek, 1944:60). Planning suffers from a 'division of knowledge problem' (Hayek, 1944:52) that prevents the optimal allocation of resources. To know where resources should be directed the State, as a central planning agency, needs to know what goods individuals want to buy and the most efficient way for producing them. However, this knowledge only exists in the minds of individuals and businessmen and the only way for customers and firms to communicate this information to each other, is through a system of market-determined prices. In other words, like Jevons, Walras and Marshall discussed in Chapter Two, Hayek believed that prices provide information about the utility and quantity of a commodity in a market. The presence of a central planning agency, Hayek believes, cast doubt about the accuracy of the information congealed in a price, which leads to disequilibrium. Thus, equilibrium price formation can only take place in a regime of free competition, which 'enables entrepreneurs, by watching the movement of comparatively few prices…to adjust their activities to those of their fellows' (Hayek, 1944:52).

Yet, Hayek is not the only intellectual influence behind 'new-classical economics'. Instead, this paradigm signals an assemblage of economic methods, theories and assumptions discussed in the thesis so far. First, following the theories of classical economists like Adam Smith, Milton Friedman argued that Keynesian demand-side policies caused stagflation as they created a cycle of excessive wage demands and government spending that 'crowded out' private investment. These interventions contributed to the 'fiscal crisis of the State', a situation where the budgetary costs of social policies, public services, nationalised industries, and bureaucracies supposedly grew faster than the tax base (Langley, 2002:15). According to Friedman, money supply is the most important determinant of aggregate money income, something he believed demand-side economics neglect (Morgan, 2008:294). Instead of using fiscal and monetary tools to target aggregate demand, governments should instead focus on *sustaining* price stability, rather than restoring the economy to full employment (Clift & Tomlison, 2012:482). This policy measure is based on the monetarist assumption that in a stable, non-inflationary environment, the economy tends towards a 'natural' rate of employment and output, as discussed later (Epstein & Yeldan, 2008; Rutherford, 2002; Setterfield, 2006). To this end, Inflation Targeting (IT) became (and still is) a dominant monetary policy prescription in the international political economy. Inflation targeting entails the public announcement of an inflation target set by the central bank, coupled with a credible and accountable commitment on the part of government authorities to the achievement of these targets (Boughton, 2004; Clift & Tomlison, 2012). Moreover, when making these policies, states should follow a fixed set of rules, instead of exercising discretion as mentioned earlier. Rule-based policymaking limits government interference and secure market participants' trust in the ability of the financial system to secure equilibrium prices and, in the long run, prevent stagflation.

Second, while critiquing the Cowles Commission's econometric models, new-classical economists sustained the mathematisation of economics and also revived the methodological individualism of Jevons and Walras. According to Robert Lucas (1972a, 1972b, 1976), the structural econometric models of the Cowles Commission assumed causality between relations in the macro-economy, without taking into account non-observable variables such as *individual expectations* (Hoover, 2008:300). As such, the statistical relationships in these econometric models are not autonomous, i.e., the observed causality will not hold when relations alter (Aldrich, 1989; Hoover, 2008; Morgan, 1990:125). Based on the central assumption among new-classical economists – that individuals use all available information to make their decisions in the marketplace – Lucas (1976) argues that this invariance problem in econometric modelling will always persist (Hoover, 2008:300). Thus, influenced by Friedman's (1953) seminal paper on 'The Methodology of Positive Economics', Lucas (1980) claims that the ideal rational behaviour of *homo œconomicus* should inform macro-economic planning. Friedman's (1953:3) paper outlines the goal of positivist economics (the study of 'what is'), that is, 'to provide a system of generalisations that can be used to make correct predictions about the consequences of any change in circumstances.' Questions about the 'assumptions' of a theory, according to Friedman (1953:15), should not focus on "whether they are descriptively 'realistic', for they never are, *but whether they are sufficiently good approximations for the purpose in hand* (emphasis added)."

In other words, like Karl Popper's falsification standard, if the theory does not yield accurate predictions, the assumptions can be assumed false, and should be discarded (Blaug, 1992; MacKenzie, 2006).

Lucas (1980) similarly claimed that 'as if' assertions allows for counterfactual experiments and re-centred the neo-classical *homo œconomicus* as the principal actor in the economy (Alter, 1982; Baccini, 2001; Starmer, 2009). Since macro-economic models will always face the problem of non-invariance, mainly due to its inability to account for individual expectations, Lucas (1976) argue that reference to the behaviour of rational economic actors is the only way to explain the aggregate economy. This saw the revival of methodological individualism as discussed in Chapter Two, that is, the principle that 'explanations of social, political, or economic phenomena can only be regarded as adequate if they run in terms of the beliefs, attitudes, and decisions of individuals' (Blaug, 1992:44). From this, Lucas explained that stagflation occurred as a result of people getting used to the amount of inflation in the economy and modifying their behaviour based on an expected amount of inflation, which ended up worsening stagflation (Morgan, 2008:294). By implication, Keynesian demand-side policies caused the stagflation crisis by exacerbating the 'supply shock' spawned by the 1973 oil crisis. Labour regulations, wage demands, and uncontrolled inflation undermined private-sector investment, which led many business-owners to close their shops, causing unemployment to rise. This also generated significant uncertainty about the government's actions in the economy. As such, attempts to address stagflation through money supply worsened the problem, as increased spending did not stimulate productive investment, but instead prompted individuals to save their earnings (Morgan, 2008; Niggle, 2010; Vahaly, 2010). Hayek (1944:38) similarly claimed that attempts to control macro-economic functions limits the 'power of competition' to generate an efficient market as prices no longer 'register all the relevant changes in circumstances and no longer provide a reliable guide for the individual's actions'. Disequilibrium occurs as a result of governmental interference that produce uncertainty about whether or not prices accurately reflect market fundamentals (Best, 2008:366). Thus, as discussed in the following section, the macro-economy should be structured in a way that harnesses the rational decision making of individuals in the market.

The return of methodological individualism: Jevons and Walras in the twentieth century

Lucas's 'rational expectations hypothesis' (REH) builds on Friedman (1968, 1969) and Phelps's (1967, 1968) notion of 'adaptive expectations'. The idea of 'adaptive expectations' suggests that agents gradually adjust their current expectations of inflation based on past rates of *expected* and *actual* inflation (Keen, 2011:224). Friedman (1969) created a hypothetical scenario to illustrate the causality between expectations, the employment rate and inflation through an analogy that likens a helicopter throwing money on the ground with the FED's monetary policy during the Keynesian era. He then considered the consequences of this sudden increase in money supply for money prices:

> Let us suppose now that one day a helicopter flies over this community and drops an additional $1,000 in bills from the sky, which is, of course, hastily collected by members of the community. Let us suppose further that everyone is convinced that this a unique event which will never be repeated (Friedman, 1969:4-5).

Friedman concedes that this injection of money supply could have an impact on relative prices (value compared to other goods or services), employment and output-levels in the short-term. However, in the long run, it would only lead to an increase in nominal prices (value in terms of currency) (Friedman, 1969:6; Keen, 2011:244). Friedman extended the hypothetical situation to explain inflation rates by proposing that this 'helicopter drop' of money becomes a continuous process:

> Let us now complicate our example by supposing that the dropping of money, instead of being a unique, miraculous event, becomes a continuous process, which, perhaps after a lag, becomes fully anticipated by everyone. Money rains down from heaven at a rate which produces a steady increase in the quantity of money, let us say, of 10 per cent per year (Friedman, 1969:8).

The anticipation of money supply is what Friedman termed 'Adaptive Expectations'. By assuming that the 10 per cent per annum increase in money supply becomes a permanent situation, Friedman (1969:10) argues that the short-term consequences will dissipate into a long-run equilibrium where relative prices, output and employment are the same as before. This occurs not because markets are in disequilibrium with demand exceeding supply, but because of the expectations all agents have formed that prices will rise by 10 per cent annually (Keen, 2011:245). The assumption of long-run equilibrium stands in stark contrast to Keynes's (1923:80) argument that, '*In the long run we are all dead*'. Focusing on the short-term, Keynes's not only undermines the self-equilibrating abilities of the money market but also suggests that a long-run focus is useless during times of economic distress.

Nevertheless, the political moment of the 1970s was decidedly anti-Keynesian and the assumption of long-run equilibrium facilitated the development of the 'Natural Rate Hypothesis' (see Friedman, 1968; Phelps, 1968). This hypothesis assumes the existence of a 'natural rate of unemployment' which occurs when the labour market is in equilibrium: when market mechanisms have mediated real wages and when the aggregate supply of labour equals the aggregate demand for labour (Agarwal, 2017). The Natural Rate Hypothesis refutes the 'Phillip's curve trade-off' in Hick's IS/LM model, which posits a trade-off between inflation and unemployment along a negatively sloped curve that could be exploited by policymakers (Gordon, 2018:1). In other words, governments could 'manage' the unemployment rate by expansionary demand policy at the sacrifice of a finite and stable extra amount of inflation (Gordon, 2018; Keen, 2011:241). However, based on the causality between expectations and the inflation rate as outlined above, Friedman (1968) and Phelps (1968) argued that, in the long-run, no such trade-off exists as the economy has a natural rate of unemployment to which it tends. Any attempts at interference would only increase the rate of inflation, without altering employment.

Lucas (1972a, 1972b, 1973), together with Sargent and Wallace (1975) claimed to have overturned the short-run trade-off by arguing that expectations are 'rational'. Economic agents can anticipate in advance any demand expansion policy based on a predictable monetary rule. Within the 'adaptive expectations' framework, there exists the possibility that actual inflation (driven by the rate of money supply) might differ from expected inflation (based on agents' experience of past inflation that adjusted 'after a lag' to the current rate of inflation). For Lucas (1972b:53), this systematic error of agents is not compatible with the Natural Rate Hypothesis because a gap between actual and expected inflation would imply the possibility of controlling (planning) employment and output through 'a well-chosen inflationary policy.' In other words, 'adaptive expectations' could oppose the fundamental new-classical axiom of long-run equilibrium, as it undermines the rational behaviour of *homo œconomicus.* Indeed, Lucas's REH asserts that expected inflation will always equal actual inflation:

> […] the hypothesis of adaptive expectations was rejected as a component of the natural rate hypothesis on the grounds that, under some policy [the gap between actual and expected inflation] is non-zero. If the possibility of a non-zero…is taken as an essential feature of the natural rate theory, one is led simply to adding the assumption that [the

> gap between actual and expected inflation] is zero as an additional axiom […] (Lucas, 1972b:54, as quoted in Keen, 2011:247).

This portrayal of rationality derives from John Muth's (1961) theory of price movements. Contrary to the claim that the assumption of rationality in economics leads to theories that are inconsistent with observed phenomena, Muth's (1961:316) hypothesis assumes the opposite view, that is, 'that dynamic economic models do not assume enough rationality.' Information is scarce, and the economic system generally does not waste it. By implication, economic agents use all available information capable of maximising the accuracy of price forecasts. Speculators instantaneously incorporate information into their decisions, generating predictions and expectations that are 'rational' in this precise sense. This effectively dissolves *any* version of a trade-off between inflation and unemployment that can be exploited by policy-makers:

> […] economic agents form their expectations on the basis of exactly the same information that is available to policy makers, and, hence, act to neutralise every systematic attempt to intervene in the economy. In effect, economic agents mimic the market by forming forecasts of prices and hence expectations of price changes in the same way that the market determines actual prices (Blaug, 1985:687).

In other words, any policy that assumes knowledge of how the economy works and how the government can interfere in its workings, is entirely predictable and private economic agents will incorporate the effect of these policies into their pricing forecasts. Thus, when the policy becomes applied, it will have no impact on real variables because it will already have been discounted for and will merely appear as nominal adjustments to wages and prices (Blaug, 1985:868). The REH approach leads to the radical anti-Keynesian conclusion that any attempt from the government to manage demand via fiscal policy will ultimately not affect output and employment, leaving no scope whatsoever for countercyclical stabilisation policies.

This model of rationality resonates with Defoe's gentlemen, as well as *homme éclairé* and *homme moyen* in three important ways. First, the rationality of *homo œconomicus* relates to his calculative ability to use current information such as declared policy intentions, announcements of money growth targets, exchange rate movements to make his decisions in the market place. Second, this calculative ability illustrates his cognitive and technical skill to not only access relevant information, but also interpret it optimally. Third, 'rational expectations' re-inscribe Defoe's portrayal of finance in the image of the English gentleman which, much like *homme éclairé* and *l'homme moyen* presupposes 'the stable, orderly phenomena that [make] calculation possible' (Daston, 1988:385). Indeed, Muth (1961) 'rational expectations' hypothesis fuses the subjective-and objective theory of probability: "expectations of firms (or, more generally, the subjective probability distribution of outcomes) tend to be distributed, for the same information set, about the prediction of the theory (or the 'objective' probability distributions of outcomes)." As such, it becomes possible to eliminate almost all forms of uncertainty in the market place, by creating a policy-environment conducive to rational functioning of *homo œconomicus.*

Rational expectations and financial markets

The significance of these resonances, that is, between rationality, calculability and economic policy relates to how they enabled the triumph of risk over uncertainty in financial economics in the late 1960s (Köhn, 2017). Before this, economists primarily worked with Frank Knight's distinction between risk and uncertainty outlined in his seminal text, *Risk, Uncertainty and Profit* (Knight, 1921). Knight (1921:233) defines conditions of risk as 'measurable uncertainty', that is, situations where actors can calculate the probability of certain consequences following from their actions. In these situations, the decision-maker calculates expected outcomes (defined in a statistical sense) rather than outcomes *per se* (Carruthers, 2013:526). Uncertainty on the other hand is immeasurable, 'agents cannot anticipate the outcome of a decision and cannot assign probabilities to the outcome' (Beckert, 1996:804). Unlike risk, uncertainty is not quantifiable, 'because the situation being dealt with is in a high degree unique' (Knight, 1921:226).

The REH obscures this distinction by treating every situation as a form of measurable risk. Based on the assumption that individuals in the marketplace make decisions based on a cost-benefit analysis of utility – usefulness or pleasure – reflected in market prices, it becomes possible to assign probabilities to any scenario. The widespread adoption of Friedman's 'as-if' methodology especially aided the transformation of uncertainty into risk. This method, according to MacKenzie (2006:12), became consolidated as vital aspect of the 'epistemic culture' in modern 'financial economics', despite Friedman's doubts as to whether finance theory is a contribution to economics. Before the 1960s, finance was a mainstream subject located in the business schools of academic institutions; many economists viewed finance 'relatively unimportant' to their discipline (MacKenzie, 2006:5).[37] Indeed, elite students at the Harvard Business School shunned Wall Street, with only 3 per cent of them taking jobs there in the early 1950s. However, by the 1970s, financial economics emerged as a distinct academic

[37] For instance, in examining Harry Markowitz's PhD dissertation, which dealt with a topic that proved to be extremely influential in finance theory – portfolio selection – Friedman said to Markowitz: 'Well, Harry, I've read your dissertation and I don't find any mistakes in the math, but this isn't a dissertation on economics and we can't give a Ph.D. in economics for a dissertation that's not economics' (quoted in MacKenzie, 2006:50).

speciality which had, at its core, sophisticated mathematical models of markets. Many of these models are based on or are in some way affiliated with the REH (Köhn, 2017; MacKenzie, 2006). Eugene Fama's (1970) influential EMH shares many assumptions of the REH. To recall from Chapter One, the EMH states that financial markets are 'efficient', because prices always "'fully reflect' available information" (Fama, 1970:383). The EMH is an *application* of REH, as it assumes that market participants use all available and relevant information to make their decisions. The more accurate previous information records reflect current prices, the more efficient the market. Market efficiency varies between three different forms: weak, semi-strong and strong (Fama, 1970). Based on the level of efficiency, and the rational expectations of market actors, the EMH states that the current price of an asset allows for the best possible prediction of future values (Köhn, 2017:83). As such, it becomes possible apply probability mathematics to estimate the future value of a stock and potential return.

Although, according to Popper's falsification standard, most financial models should be rejected because their predictions are empirically false, financial economists did not discard them. Indeed, as Sargent (1986:76) notes, they continue to use REH not as a school of thought, but 'as a ubiquitous modelling technique'. Economists and financial scholars use this model of rational behaviour as an instrument to '*enquire into and enquire with'* (Morgan, 2012:137, emphasis in original). They enquire into these models 'to explore the content and full implications of their ideas about man's economic behaviour. They *explore with* these models of economic man…[how] his behaviour has all sorts of consequences in other economic models and thus the rest of economics' (Morgan, 2012:137, emphasis in original).

Models of rationality and efficient markets are also central to the rapid expansion of modern financial markets on a global scale, as they enable the identification, calculation, pricing, and packaging of risk (de Goede, 2004; Langley, 2013; Paudyn, 2014; Power, 2004). For example, the EMH informs many of the assumptions of the Capital-Asset Pricing Model (CAPM), which calculates the relationship between risk and return under conditions of market equilibrium (Köhn, 2017:89; O'Sullivan, 2018). Per the EMH and REH, the CAPM assumes that equilibrium prices reflect all available and relevant information and therefore incorporate risk and uncertainty correctly. Pioneered by William Sharpe and John Lintner, who built on Markowitz's (1952) seminal paper of portfolio selection, CAPM generates a set of predictions about the structure of returns in a portfolio, based on the market risk of underlying assets.[38] Market risk or systemic risk refers to the potential losses to a portfolio of assets due to the collapse of an entire system, as witnessed in the 2008/09 GFC (Black *et al.,* 2011:398). Market risk has a mutually constitutive and reinforcing relationship with credit and operational risk, despite being relegated into separate categories. Market risk is an aggregated measure of 'economic capital' (Mikes, 2011). Credit risk, as mentioned in earlier chapters, measures the probability that an issuer will default on its debt obligations at some point in the future. Operational risk refers to the risk of loss resulting from inadequate or failed international processes, people, systems or external events (Mikes, 2011:5). The consolidation of these separate categories into *economic capital* to price risk takes place through a model known as Value-at-Risk (VaR). VaR is rooted in the frequentist probability theory that shares Quetelet's belief in statistical regularities as indications of the 'natural laws' governing social phenomena.[39] As discussed in Chapter Two, Quetelet captured these regularities in a probability distribution termed 'error law', but which also became known as the Gaussian- or normal distribution, as seen in Figure 1 below:

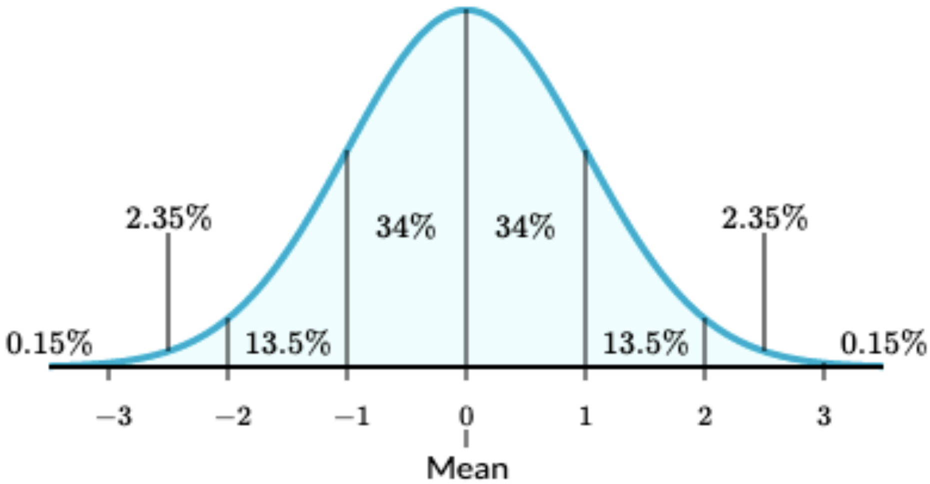
[38] The essential theoretical insight of CAPM can be expressed in the following equation. It assumes that a rational investor, when considering assets to buy in the process of portfolio choice will seek an expected return on an asset *a* defined as follows:

$$\mathrm{r}ae = \mathrm{r}f + \beta ae(\mathrm{r}me - \mathrm{r}f$$

where $\mathrm{r}ae$ equals the expected return on asset a, which determines the market price that the investor will be prepared to pay for the asset. $\mathrm{r}f$ equals the return on a risk free asset; $\boldsymbol{\beta}ae$ the expected potential volatility of the price of a in relation to the volatility of asset prices in the market as a whole; and $\mathrm{r}me$ the average overall expected return of the market as a whole (O'Sullivan, 2018:227).

[39] VaR is not the only model used to calculate potential loss, the other one being 'risk-adjusted return on capital' (RAROC) (see Dunbar, 2000:139). Like VaR, RAROC is a statistical analysis that compares returns on assets in a portfolio based on their exposure to risk and adjusting downwards the returns on riskier assets (Black et al., 2011:357). Nevertheless, VaR is by far the most used model, and one that has been incorporated into global financial regulatory frameworks like Basel Capital Accord, which determines the capital reserve requirements to be held by financial institutions like banks (de Goede, 2004). As such, this chapter concentrates on the use of VaR in financial risk modelling.

Figure 1: Normal Distribution



Source: Khan Academy (n.d.)

In financial markets, most banks and firms use VaR to measure the potential for loss in a certain entity and the probability of occurrence for the defined loss in a specific timeframe (Kenton, 2019). The VaR provides daily calculations of broad, aggregate figure of potential losses, and was first calculated by a team from the investment bank JP Morgan in reaction to the 1987 stock market crash. Calculating VaR entails assigning probabilities to future events, such as price changes and market fluctuations, as well as forecasting the volatility of the markets and the correlations between various financial instruments held by a firm (de Goede, 2004:210). In terms of the CAPM, VaR enables the calculation of an expected return on an asset, based on a given level of market risk (Chen, 2019). Particularly, VaR enables the calculation of *beta*, a measurement of a stock's relative volatility, that is, how much a stock jumps up and down compared to how much an entire stock market fluctuates (McClure, 2019).

The CAPM influenced several pricing models, most notably the Black-Scholes-Merton model for option pricing (Köhn, 2017; MacKenzie, 2005, 2001). An option is a contract between a buyer and a seller that gives the buyer the right, but not the obligation, to buy or sell an underlying asset in a particular period at a pre-determined price (Köhn, 2017:89, see also Bryan & Rafferty, 2006). Developed by Fisher Black, Myron Scholes and Robert Merton, the Black-Scholes-Merton equation is based on a model of equilibrium in financial markets with continuous trading (Black et al., 2011:37). In other words, prices can vary at every instant in time. The current market price of the underlying asset, the exercise price of the option, or the maturity date of the option can determine the pricing of an option. If the underlying asset follows a continuous-time random walk, then the pattern of returns on an option could be replicated exactly by a continuously adjusted portfolio of the asset and government bonds and/or cash (i.e. hedging) (Köhn, 2017:89-90). In an efficient market, the price of the option thus equals the cost of the replicating portfolio. If prices diverged, an arbitrage opportunity emerged: 'in other words, there was risk-free profit to be made by buying the cheaper and selling the dearer of the two' (MacKenzie, 2001:120). The model is central to derivatives trading, which allows a separation of the asset itself from volatility in that asset's price:

> […] it turns out the best way to deal with price risk is often not through actual ownership, but through a separate transaction – this is what derivatives are for. So if you what you want to address is the volatility of an asset price, why not acquire (or sell) products that directly address the volatility, rather than the underlying asset itself. Hence, in a volatile world, derivatives are useful: they are used to trade risk (Bryan & Rafferty, 2006:11).

Derivatives are complex and difficult to define. Broadly described, a derivative is a financial contract that derives value from an underlying asset, like agricultural commodities, currencies, or structured finance products like collateralised debt obligations (CDOs) (Amadeo, 2019). CDOs and mortgage-backed securities (MBS) are structured finance products. These products involve the pooling of economic assets like loans, mortgages, bonds, and the subsequent sale of a priorities structure of claims, also known as tranches, on the cash flows backed by these collateral pools (Coval *et al,* 2008; Fender & Mitchell, 2005). Tranches are the pieces, portions or slices of a financial product separated by their level of credit risk, assigned by CRAs. The 2008/09 GFC revealed exactly how pervasive derivatives trading is (see Lee *et al.* 2009; Lindo, 2017; LiPuma & Lee, 2004). Governments, international organisations like the IMF and World Bank, and activists blamed CRAs for assigning high investment ratings to toxic sub-prime backed securities. Mortgage bonds conventionally rated 'B' and 'C' were packaged into CDOs, which distorted the differentiation of their multiple tranches of risk valuations and facilitated 'the laundering of triple-B-rated binds into triple-A-rated bonds' (Langley, 2010:81; Lewis, 2010:69). As rising defaults in the US sub-prime mortgage market began to feed through international securities markets, the complex entanglements between a diverse constellation of actors (investors, governments, cities, banks and private financial institutions) became evident (Aalbers, 2009; French *et al.,* 2011; Knorr Cetina & Preda, 2012). Derivatives 'bind' the future to the present and 'blend' different forms of assets into a single measurement (Bryan & Rafferty, 2006:12). According to Lindo (2017:2), one barometer that measures the growth of only 'over-the-counter' (OTC) derivatives, namely the 'notional outstanding amount' grew from almost nothing in 1989 to over US$700 trillion in 2014. As such, derivatives feature prominently in the current bout of financialisation and the growing influence of capital markets, their intermediaries and processes in contemporary economic and political life (Pike & Pollard, 2010). Indeed, in theoretical terms, it seems almost implausible to separate the 'real' economy from the 'financial' economy (Clark et al., 2009:2). Public infrastructure, pension funds, health schemes, education, and the environment are incorporated into specialist investment portfolios and in some cases, traded on stock exchanges (Torrance, 2008). Models, by transforming uncertainty into risk, feature prominently in this regard. However, it is not only Friedman's as if methodology that led to the triumph of risk over uncertainty in financial economics. As the following section outlines, the historical and ideological context of the 1960s significantly facilitated the widespread adoption of models in financial markets. Here, the REH and EMF become more than just representations of ideal phenomena. Instead, as discussed earlier, they are form part of an apparatus of governing that aims to secure the rational, efficient functioning of global financial markets. Sovereign credit ratings, alongside the myriad of other financial risk instruments, hold out the promise of securing these ideals by not only 'informing' market participants of potential dangers. They also work through a range of mechanisms that create conditions that encourage, reinforce, and necessitate particular conducts by making them seem more normal than others (Joronen, 2013:362). Foucault (2007:20) distinguishes this form of government from other disciplinary mechanisms in three ways. First, as security apparatuses, risk inserts phenomena 'within a series of probable events'; second, that 'the reactions of power to this phenomenon are inserted in a calculation of cost'; and third, 'instead of a binary division between the permitted and the prohibited, one establishes an average *considered as optimal* on the one hand, and, on the other, a bandwidth of the acceptable that must not be exceeded' (Foucault, 2007:20-21, emphasis added). In this way, uncertainty – generated from distrust of information – becomes tamed by normalising a set of policy requirements conducive to the rational and efficient functioning of the marketplace.

Financialisation and new-classical economic models

Towards the end of the 1960s, the US government required an increasing amount of credit to fund Vietnam War operations and deficits in its current account. Printing more dollars at a time when the currency is pegged to the gold standard ($35 an ounce) rendered the perceived difference between the formal and substantive validity of the dollar to increase. In 1971, US President Richard Nixon suspended the convertibility of the dollar into gold (Langley, 2002:86; Oliver, 2006; Seabrooke, 2006a). During this time, Lucas and Friedman developed their attacks on the Keynesian economic system and its inability to address the problem of stagflation. These accounts served as the theoretical justification for the adoption of a floating exchange rate system, where national currencies 'float' against each other and their value determined by market forces (Peterson, 2003:114). Pioneered by the US (it became known as the 'Nixon shock') and backed by IFIs like the IMF and WB, a significant number of governments pursued macro-economic restructurings based on the micro-economic theory of behaviour embedded in the REH. These restructurings emphasised the importance of supply factors in the economy. They encouraged the deregulation of financial markets, minimal governmental interference in the economy, and the implementation of fiscal and monetary 'stabilisation policies' that target inflation, reduce government spending and budgetary deficits (Best, 2008; Cerny *et al.* 2005:13; Scholte, 1997). This was also accompanied by the disintermediation and securitisation of capital markets, supported by the US's desire to create credit through private US financial institutions operating in the Euromarkets.[40] Disintermediation replaces the use of traditional forms of lending like bank loans with the use of debt securities such as bonds and notes or investment in stocks (Seabrooke, 2006b:198-199). Relatedly, securitisation enables the packaging of debt instruments into 'bundles' and selling them to investors. As the discussion on derivatives indicates, securitisation turns notoriously illiquid bank loans into marketable securities. Instead of holding a loan until it reaches maturity, securitisation enables banks to pool loans together and sell them as 'new debt to a third party,' thus recovering capital (when securitised loans are sold) rather than later (when borrowers complete repayment) (Carruthers & Kim, 2011:243; Seabrooke, 2006a:155). Securitisation facilitates the transfer of risk by rendering future income streams into tradeable instruments.

The implementation of floating-exchange rates, the disintermediation and securitisation of capital, and the deregulation and liberalisation of financial markets enabled a massive expansion of private capital through credit creation, which became transferred unrestrictedly with the help of sophisticated information technologies (Kruck, 2011:32; Seabrooke, 2006; Sylla, 2002:34). Although this signals an increase in profit opportunities, it also intensifies uncertainty in financial markets. This sense of uncertainty has been met with a proliferation of

[40] Euromarkets are markets dealing in Eurobonds and Eurocurrencies, i.e. debt securities issued via an international syndicate of banks or securities firms in a currency other than the country in which the bond is issued (Seabrooke, 2001:234). The currency denomination of the bond is indicated by the name such as Eurodollars. These bonds are issued in bearer form, and the interest payments are free of withholding taxes, making them attractive to investors wishing to remain anonymous (Black *et al.*, 2012:136). During the 1960s, Euromarkets encouraged direct financing through the trading of a legion of dollar-denominated securities that could be customised to investors' needs, enabling the freedoms of low transaction fees and an immediate source of liquidity (Seabrooke, 2001:60). As stated by Susan Strange (as cited in Seabrooke, 2001:60) Eurocurrency transactions 'were untaxed, anonymous and profitable'.

risk instruments such as sovereign credit ratings to anticipate, prevent and mitigate danger in capital markets (Best, 2008; Kruck, 2011; Paudyn, 2014). In other words, apparatuses that aim to secure the rational and efficient functioning of market mechanisms; to secure the reputation of Lady Credit. According to neo-classical finance theory, informed by the EMH, credit ratings assumedly mitigate problems of 'information asymmetry' in capital markets (Kerwer, 2001; Kruck, 2011). This is a situation where some agents in a transaction have access to more relevant information than others, which can lead to adverse selection and moral hazard. Adverse selection refers to a situation where one party has more accurate and relevant information than the other party, which makes it difficult to efficiently price a commodity. For instance, if a government does not disclose important information regarding future monetary policy pursuits that could influence the profitability of an investment as it obscures the risks involved. Moral hazard on the other hand refers to a behavioural change of one party after a transaction has taken place in way that increases the risk of the transaction. This is particularly relevant in the insurance industry when, for example, a homeowner whose house is insured changes her behaviour after buying insurance. Before this, the homeowner was prudent and subscribed to a home security system that helps prevent burglaries. After her house is insured, she becomes less attentive, leave doors unlocked and cancels her home security system. Here, several risks face the insurance company that weren't calculated previously (Nickolas, 2019). Information asymmetry therefore reduces the efficiency of the market by undermining the ability of agents to make 'rational' expectations about the future, effectively price risk and ultimately promote the optical allocation of resources (Ross, 2009). As stated by S&P's (2019) a credit rating 'can help you gain knowledge of – and access to – new markets, enhance transparency, serve as a universal benchmark, and assess and demonstrate creditworthiness…Credit ratings hold the key to an *efficient capital marketplace'* (emphasis added). In order to comprehend how CRAs have come to occupy this position, the following section provides a brief historical overview on their emergence in IPE.

A brief history of ratings and CRAs in the global economy

Contrary to how creditworthiness was assessed in eighteenth century England, that is, via gentlemen's clubs that gathered in London's St. James area, ratings as we know them today are largely a US phenomenon that emerged alongside the country's rise to world hegemon. As such, akin to how Lady Credit is inseparable from the rise of the British Empire, the business model of contemporary credit ratings reflect the conditions and values that gave rise to them in the early twentieth century. First and foremost, unlike the personal knowledge and network connections of information sharing that constituted credit assessments via gentlemen's clubs, ratings are third-party providers of information. They transform data into a commodity that could be appraised, bought and sold to anyone willing to pay the agencies' prescription fees (Olegario, 2003:118; Poon, 2012; Sinclair, 2005:23; Sylla, 2002:22-23). By contrast, information sharing via London's gentlemen clubs was restricted to members and weren't sold for a profit.

Originally, ratings did not have a business decision built into them and fulfilled more of a *reporting* function instead of making a judgement about credit quality. One of the first reporting agencies is The Mercantile Agency, founded by Lewis Tappan in 1841.[41] As the name suggests, the purpose of credit reporting was to facilitate mercantile exchange – trade credit – rather than cash lending. At the time, trade credit was alarmingly unsecured: legally, their claims ranked behind those of banks and other secured lenders and were among the last to be paid in the event of legal proceedings (Olegario, 2006:9). It was therefore extremely important to carefully select one's trading partners before entering any mercantile exchange agreement. At first, letters of recommendation from someone known sufficed (Sylla, 2002:23). The recommender might be a character reference from previous transactions or a respected, well-known individual of the borrower's community like a banker or lawyer.

The information assembled in these credit reports reveals the sociality of financial transactions. Although payment histories were highly valued sources of information about a borrower's creditworthiness, they were difficult to obtain and often unreliable (Olegario, 2003:124-125). Credit reporters therefore obtained financial information by interviewing the individual in question, consulting newspapers and county and state tax and property records or through local gossip. Yet, these information sources provided limited financial data and as a proxy, reporters conveyed their assessments about a borrower's 'character' (Olegario, 2003:126). Here, character is linked to a borrower's willingness to repay debt and entailed the following characteristics: honesty (honour), punctuality, extravagance, energy, drinking and gambling habits, and ethnicity (Olegario, 2003:127).

The main purpose of credit reporting agencies like the Mercantile Agency was to amplify the amount of information to traders in an era of intensifying financial activities. Henry Varnum

[41] In 1859, Robert Graham Dun bought The Mercantile Agency and evolved the company, through a range of mergers and acquisitions, into what is known today as Dun & Bradstreet (Sylla, 2002:23).

Poor's *American Railroad Journal* appeared in the mid-1850s, followed by the *History of the Railroads and Canals of the United States of America* in 1860. The latter entails a detailed analysis of, inter alia, the length of railroads, enumerated investors' share capital and provided a record of the profits and loss of railroads (Sinclair, 2005:23). Among the names that survive today, John Moody (1868–1958) released *Moody's Manual of Industrial and Miscellaneous Securities* in 1900, which provided 'information and statistics on stocks and bonds of financial institutions, government agencies, manufacturing, mining, utilities, and food companies' (Moody's Corporation, 2017a). Similarly, Luther Lee Blake founded the Standard Statistics Bureau in 1906 which issued 5-by-7 inch cards with information on industrials beyond railroads, and John Knowles Fitch published *The Fitch Stock and Bond Manual* in 1913 (Poon, 2012:276; S&Ps, 2009).[42] According to Poon (2012:276), the statistics these agencies published involved descriptive data on companies instead of probabilistic predictions of their performance.

From reports to ratings

Sinclair (2005:24) positions the transition in issuing compendiums of information and officially making judgements about the creditworthiness of debtors between the 1907 financial crisis and the Pujo hearings of 1912. The 1907 financial crisis was initiated by a stock manipulation scheme to corner the market in United Copper stock, a copper mining business based in New Jersey and owned by mining magnate F. Augustus Heinze (Bruner & Carr, 2007:121). [43] The corner failed, as Otto Heinze (Augustus's brother) who proposed the corner, overestimated the family's share ownership – a miscalculation that eventually led to numerous runs on banks and trust companies (Bruner & Carr, 2007; Friedman & Schwartz, 1963:156; Tallman & Moen, 1990). Upon declaring the bankruptcy of United Copper, investigations into Heinze's financial interests revealed 'an intricate network of interlocking directorates across banks, brokerage houses, and trust companies in New York City' (Tallman & Moen, 1990:4). These investigations were known as the Pujo hearings and were commissioned by Congressman

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[42] In 1941, Standard Statistics Bureau merged with Poor's Publishing, forming what is known today as Standard & Poor's (S&Ps, 2009).

[43] Cornering markets was particularly common at the time. It involves the acquisition of a particular stock, commodity or asset, sufficient for the price to be manipulated (Black *et al.*, 2012:85). In October 1907, Otto Heinze devised a scheme to corner United Copper, his brother, Fritz Heinze's company. Otto was convinced that a considerate amount of Heinze's shares had been borrowed and sold short by speculators betting that the stock price would drop, which will enable them to repurchase the borrowed shares at a low price and pocket the difference (Bruner & Carr, 2007:121). Otto proposed a short squeeze, whereby the Heinze family would purchase as many shares as possible, and then force the short sellers to pay for their borrowed shares. The increasing amount of share purchases would drive up the share price and since the Heinze assumed they owned the majority of shares, the short sellers would have little option but to turn to the family to sell their shares. However, the Heinzes overestimated their control over the company's shares and the short sellers were able to sell United Copper shares to alternative sources, causing the share price to fall. Since many banks at the time used the stocks of copper industries as collateral, the corner brought down many banks and trusts at the same time (Sinclair, 2005:24; Tallman & Moen, 1990:1).

Arsene Pujo of Louisiana in 1912 to determine the existence of a money trust that allowed a group of Wall Street financiers and bankers to exert significant control over the country's financial resources. The crisis severely changed citizens' attitudes towards financiers and destroyed public confidence in how American finance was regulated, especially in a context where the rhetoric of fairness, transparency and opportunity became to characterise US politics – evinced by Woodrow Wilson's election for presidency in 1913 (Olegario, 2003:120; Sinclair, 2005:24).

In 1909, anticipating demands for more transparent information, John Moody published his *Analysis of Railroad Investments*, in which he introduced the mercantile credit rating schema modelled after R.G Dun and Company (Sinlcair, 2005:24). In contrast to credit reporting, that is, collecting information 'on the property, capitalisation and management of companies', his *Analysis of Railroad Investments* (1909) offered investors an analysis of security values. This publication offered concise conclusions about the relative investment quality of railroads and their outstanding securities, expressed in the letter grading scale (Aaa, Bbb, C, D) as we recognise them today (Moody's Corporation, 2017a). Following Moody's, Poor's Publishing Company issued their first rating in 1916, the Standard Statistics Company in 1922 and Fitch Publishing Company in 1924. According to Poon (2012:276), interagency emulation led to isomorphism in ratings. By 1930 for example, each CRA's rating symbol could be matched individually with that of another's (Partnoy, 2006:642).

For the first part of the twentieth century, sovereign credit ratings were a fledging activity. The Great War (1914-1918) played an important role in this regard, as it turned the US into the world's greatest creditor nation – the so-called 'banker of the victorious allies' (Sylla, 2002:34). The US's participation in the war led to massive amounts of public debt creation along with the mass-marketing of bonds to a growing class of investors. During the war, Great Britain lost nearly one quarter of their global investments, mainly those in the US, which they had to sell to buy war supplies; France about half of theirs due to a combination of revolution and European deterioration (Hobsbawn, 1994:97). Germain (1997:63) notes for example that between 1921 and 1924, the value of new issues in New York totalled $2, 373 million, compared to $917 million in London.

The institutionalisation of ratings in global financial governance

With the passing of the 1933 Glass-Steagall Act, which enforced a legal separation and institutionalisation of the securities business, credit ratings became a standard requirement for selling any issue in the US (Poon, 2012:277; Sinclair, 2005:26). The Office of the Comptroller of the Currency (OCC) pioneered the regulatory use of ratings by creating a distinction between investment and non-investment grade securities and, together with the Federal Reserve Board, prohibited banks from holding bonds not rated investment grade by at least two agencies (Poon, 2012:277; Sinclair, 2005:26). However, due to a host of European (including Germany, Greece, Hungary and the UK) and developing Latin American economies (i.e. Brazil, Columbia, Mexico) defaulting during the Great Depression of the 1930s; the ratings industry entered a period of rating conservatism (Sinclair, 2005:26; Toffler, 1990).

The dismantlement of the Bretton Woods monetary regime and the deregulation and disintermediation of capital markets generated a shift towards the market-based financing for states (Kruck, 2011:33). This is especially the case for emerging economies targeting global capital markets to finance their development needs, instead of relying on Official Development Assistance (ODA) or World Bank and IMF loans as they did during the 1970s and 1980s (Armijo, 1999:17). To this end, many governments have requested a rating to signal, on the one hand, their willingness to conform to a set of market standards that seek to secure the rational and efficient functioning of the global financial system. Consider for instance the following statement of a US state official, commenting on a credit rating initiative for sub-Saharan Africa, established by the United Nations Development Programme (UNDP) and S&Ps in 2003:

> With sovereign credit ratings, the governments of sub-Saharan Africa can signal to the international market their readiness to participate in the global economy by opening their books to public scrutiny, maintaining transparency, and adhering to liberalisation policies and reform efforts (US Department of State, 2007).

Thus, from the 1980s, the number of sovereign ratings skyrocketed. Before the 1980s for instance, Moody's produced around 10 sovereign credit ratings. By the turn of the twenty-first century, this number rose to above 110 and currently stands at 120 sovereign nations (Moody's Corporation, 2017b). A similar trend can be seen in the expansion of S&P's. By 1986, the agency had only 40 employees working in the industrials group. In 2017, S&P had 1700 credit analysts, employ nearly 10 000 people, maintain a presence in 28 countries and have produced 128 sovereign ratings – up from only 15 in the 1980s (Cantor & Packer, 1995; S&P's, 2017b). To obtain a favourable credit rating states, from the 1980s, are encouraged to pursue the necessary economic and political reforms that would secure the rational and efficient functioning of markets. Here, new-classical economic models act as a 'point of resonance' (Connolly, 2005) to determine the extent to which issuers deviate from the norm, that is, from the 'ideal' conduct that would ensure the optimal allocation of resources in global capital markets. These economic discourses, particularly the REH and EMH, play a crucial role in rationalising neoliberal government, that is, normalising the calculative behaviour of *homo œconomicus* as a model for governing human life and, by extension, the stability of the financial system. Here, the new-classical models of Friedman and Lucas serve as a regime of truth that informs how the global governance of financial markets could take place. As mentioned previously, this entails a set of techniques and programmes that ensures an optimal arrangement for the rational functioning of *homo œconomicus*. Amongst others, these arrangements include policies like inflation targeting to secure a stable monetary environment, trade liberalisation, the deregulation of financial markets and, if possible, the privatisation of public enterprises (Brenner & Theodore, 2001; Gane, 2012). This particular 'disposition of things', it is assumed, ensures a competitive, transparent and efficient market that produces all relevant information for market actors to choose among commodities or bundle of commodities which are perfectly divisible (see Fama, 1998). Here, social aggregates have no independent, ontological standing (Best, 2008:365). *Homo œconomicus,* as a model of rational individual behaviour, becomes extended to the realm of civil society in general. They are transactional realities, according to Foucault (2008:296):

> *Homo œconomicus* and civil society are therefore two inseparable elements. *Homo œconomicus,* is, if you like, the abstract, ideal, purely economic point that inhabits the dense, full and complex reality of civil society. Or alternatively, civil society is the concrete ensemble within which these ideal points, economic men, must be placed so that they can be appropriately managed.

By implication, the contemporary bout of financialisation did not imply a 'withering of the state' as many have put it (Ohmae, 1995; Strange, 1997). The State has to show 'permanent vigilance, activity, and intervention' through processes of surveillance, monitoring and audit to achieve legitimacy in the face of the market. Here, sovereign credit ratings are technologies of neoliberal government. On the one hand, as the following chapter discuss, their rating models have embedded in them a set of parameters that assumes a positive correlation between a neoliberal policies and the creditworthiness of a sovereign. Second, by transforming these judgements into an alphanumerical form via the rating scale, they provide a means of comparing performance over time and space. In the process, they help define the object of their calculation – the performance being monitored – and make such performance the object of scrutiny (Rydin, 2007:612). In this sense, sovereign credit ratings are both standardising and individualising. They are standardising in the sense that they codify and visualise a set of standards that states 'ought to' follow to secure their access to global capital markets (Fougner, 2008). Ratings are also individualising: by disciplining abhorrent behaviour, states that do not conform to the criteria of sovereign creditworthiness is given the means and tools for self-improvement. Thus, as technologies of government, the principal achievement of sovereign credit ratings is to link together responsibility and calculation: 'to create responsible and calculating' governments.

Conclusion

This chapter sought to explain how, with the embrace of indeterminism, models enable the 'taming of chance'. As quasi-material objects, partly independent from theory and the real world, models enable scientists to conduct experiments that estimate the causality between variables that govern real-world phenomena. These descriptions however, are not *atheoretical*, and this chapter aimed to illustrate the discursive, or ideological, aspect of model-making, especially in economics. Indeed, this chapter showed how models are descriptive *and* prescriptive. In this way, they hold out the promise of managing uncertainty through complex mathematical formalisms that calculates the relations between variables in the economy and the proper policy interventions for governments. For the Keynesian-inspired Cowles econometricians, an equilibrium between economic growth, employment and inflation can be reached through fiscal expansion policies that aim to stimulate aggregate demand.

On the contrary, new-classical economists, also associated with neoliberal thought, claims that the Keynesian, 'planned economy' fails to take into account the rational expectations of individuals in the economy. This generates uncertainty and negates the ability of the market mechanism to generate equilibrium prices due to the presence of a central planning agency. As such, it is only in a free, competitive system that market functions efficiently, information is transparent and resources optimally located. Despite numerous financial crises that may disprove these 'ideal' assumptions of the market and rational behaviour, they nevertheless remain the dominant governmentality in financial markets. This chapter briefly discussed how credit ratings feature in this apparatus of government that aims to *secure* the rational functioning of global finance. In the following chapter, I delve into more detail on the issue of sovereign credit rating by not only contextualising them within this apparatus, but also, by focusing on their rating models, 're-politicise' their technicist aura by considering how REH and EMH resonate in their risk judgements.

Chapter Four

Modelling sovereign creditworthiness: CRAs and the translation of risk

The previous chapter explored how, with the erosion of determinism in economics, models became tools to 'master the happenings of real life' (Haavelmo, 1944:14). As mediators – between theory, the real-world, and the future – models enable economists to translate the confusion of social phenomena into a written form and as such, gain some understanding of it (Boumans, 2005; Gibbard & Varian, 1978; Lucas, 1980; Morgan, 2012, 2002, 1990; Morgan & Morrison, 1999). This translation, according to Latour (2005:39), transforms and 'modify the meaning or the elements they are supposed to carry'. This is not to suggest that model-makers consciously distort the 'truth' to achieve some political end. Instead, translation aims to make a set of statements relevant – transferrable – from one domain to another. Translation establishes 'relationships of equivalence between ideas, objects, and materials that are otherwise different' (Best & Walters, 2013:333). It enables the transformation of data and information into knowledge – about the economy, community, firm, or, especially in financial markets, the future.

This chapter reveals how the translation of socio-economic and political phenomena into a sovereign credit rating assembles the histories, identities, spaces, imaginations, and governmentalities discussed in this thesis so far. It is necessary to position this translation in the discursive framework of the IFA, discussed in the introductory chapter. To recall, the IFA refers to the 'collective governance arrangements for promoting the stability of the international financial system' (Elson, 2010). These agreements tend to come into sharper focus amidst financial crises, whereby the 1997/98 Asian Financial Crisis and the 2008/09 GFC have particularly influenced its current form. In both cases, financial market instabilities were said to be caused by a lack of adequate and accurate information – a diagnosis that is clearly informed by new-classical depictions of the economy as an ensemble of *homo œconomicus,* using all information at their disposal to make rational, calculative decisions. Yet, in the case of the Asian financial crisis, the cause of inaccurate information was seen as a result of inefficient monetary policies that led to the misalignment of exchange rates pegged to the US dollar and enabled the irresponsible cronyism and corruption of Asian governments that prevented the discipline of market forces to determine efficient and productive development strategies (Kelly, 2000; Langley, 2004; Soederberg, 2005). The 'new' IFA (NIFA), launched in the aftermath of the Asian Crisis, entailed a series of initiatives, codes of conduct, standards, benchmarks of 'best practice' and observation committees to improve transparency in emerging markets (IMF, 2001; Langley, 2004; Soederberg, 2005). National economic policy is also central to transparency, and the NIFA encourages emerging markets to liberalise their capital accounts, implement floating exchange rates, stabilise inflation and minimise capital controls. These reforms, it is assumed, 'serve as a framework that can help focus policy decisions, highlight potential vulnerabilities, and provide information to enhance market discipline' (Nsouli & Le Gall, 2001:5). Especially in the case of 'less developed' countries, mostly located in Africa, measures to increase transparency will assumedly help African countries attract investment and reap the development benefits of globalisation. According to Nsouli and Le Gall (2001:2), African governments' excessive interference in their economies makes their integration into global capital markets problematic. Thus, for 'African countries to reach the standards and practices prevailing in the industrialised countries, they will need considerable amounts of technical assistance, both from the IMF and other bilateral and multilateral institutions' (Nsouli & Le Gall, 2001:12). By increasing transparency, market participants are better able to 'distinguish between competing opportunities, thereby contributing to better-informed investment and lending decisions. In this way, standards and codes serve to reduce the potential for market volatility' (Nsouli & Le Gall, 2001:5-6). Adherence to the standards and codes of conduct outlined in NIFA, and the transparency of state institutions themselves, are monitored by IFIs such as the IMF, World Bank, regional development banks and, importantly, private regulators like CRAs. On the other hand, in the case of the 2008/09 GFC, which originated in 'advanced markets', financial leaders recognised that risks to the stability of the financial system also lie within the credit practices of the global North (Best, 2010). Yet, this did not translate into a lack of trust in the assumption that greater transparency, better risk modelling, and improved regulations as the most appropriate response to the crisis.

Geared toward the prevention of crises, of which the production of transparent information is central, this chapter draws on Bueger's (2015) work on international knowledge creation and approach the IFA as an 'epistemic infrastructure' made up of different sites and practices of knowledge production, that is, 'epistemic practices' (Knorr-Cetina, 2007, 2001). It is an epistemic infrastructure in the sense that 'it rests on the architecture of observation rules and strategies, of the units that generate and process the observations (e.g. statistical offices, rating agencies, research departments of banks), and of the information flows that circulate between these units' (Knorr-Cetina, 2007:369). This infrastructure operates within a finance/security nexus through the deployment instruments – risk technologies, standards, 'best practices' – that work to tame the uncertain future by governing the present (de Goede, 2017b:166). At the same time, the focus on the prevention of crises is inseparable from the stable circulation of capital (profit). To this end, the epistemic infrastructure assembled through the IFA seeks to ensure the optimal arrangements for the circulation of financial capital, where circulation refers not only to 'this material network that allows the circulation of goods and possibly of men, but also the circulation itself…the set of regulations, constraints, and limits, or the facilities and encouragements that will allow the circulation of men and things' (Foucault, 2007:240). Social science work on 'infrastructure' enables us to investigate how circulation is discursively mediated; to explore how financial flows are based on forms of mobility and immobility and intricately linked to knowledge-power. Infrastructures 'are matter that enable the movement of other matter…They are the things and also the relation between things' (Larkin, 2013:329). Yet, in the same way public transport systems enable us to travel to a myriad of destinations, often at high speeds, infrastructures also define where it is possible to go (Edwards, 2003:191; Pickren, 2018).

Knorr-Cetina's (2007, 2001, 1996) work on epistemic practices and cultures enables a focus on the mundane, nebulous process of knowledge production in financial markets. As a form of knowledge creation, the rating of sovereign default risk does not exist in isolation. Epistemic practices exist within specific scientific communities and entail the socially organised 'ways that members of a group propose, communicate, evaluate, and legitimise knowledge claims' (Kelly & Licona, 2019:140). These practices, according to Knorr-Cetina (2007:362), have certain cultural specificities that are manifested in the arrangements and principles that not only serve knowledge but also 'unfold with its articulation'. An epistemic culture is the 'interiorised processes of knowledge creation…the sets of practices, arrangements and mechanisms bound together by necessity, affinity and historical coincidence which, in a given area of professional expertise, make up how we know what we know' (Knorr-Cetina, 2007:363). Here, 'culture' refers not to a general description of society, but rather the broader referential contexts of knowledge production. These contexts are temporal, ontological and spatial structures that come to define an epistemic culture with a 'tendency to impose and expand their own structures and concerns' (Knorr-Cetina, 2007:364).

In finance, geography plays a formative role in defining and linking cultures of knowledge production. This is evident not only in the dominance of Western 'regimes of truth' in the production of financial knowledge but also the discursive authority of 'spaces of hegemony' (Lee, 2011) like Wall Street and the City of London. Here, the significance of colonial discourses about race, irrationality, and backwardness and their connection to the reproduction of modern capital arrangements become clear. Not only are assumptions about creditworthiness and rational economic behaviour rooted in colonial, racist, and masculine imaginaries of the Other, but the global connections forged through colonialism significantly influence power relations between the global North and the global South. The de-politicisation of this history in economics and, to a large extent, IPE, has rendered invisible the racialised values embedded in modern capital flows. Former United States President Donald Trump's remarks about Mexican immigrants being 'rapists', for example, and Central America and African countries being 'shithole' countries have brought these racialised values in the global economy to the fore (Singh, 2021). Although Trump's statements have been quite explicit, they nevertheless have a long history that continues to play a significant role in shaping relations between the global North and global South.

This chapter shows how the epistemic practices of the Big Three CRAs stabilise the de-politicised discourses of financial and economic knowledge discussed in previous chapters. The first section explains how they function as 'macro-epistemic' institutions that create and warrant knowledge and are therefore crucial nodes within this infrastructure. The second section looks at the micro-processes of indicator production. Here, the goal is to explore, on the one hand, the multiple translations involved in the production of knowledge. On the other hand, to investigate the power regimes shaping the interests and agenda of individuals and institutions that execute epistemic practices. The third section looks at the series of translations involved in the rating of sovereign creditworthiness. Far from being objective, the production of credit ratings is a political process shaped by the subtle and unconscious assumptions, motivations, and concerns of those who carry them out (Merry, 2016a:20). I examine the rating methodologies of the 'Big Three' CRAs and consider the range of political considerations that shape the collection and presentation of data. The final section explains the performativity of ratings, which works through a mode of government that recast the subjectivities of market actors, particularly investors, CRAs themselves and governments in line with a particular conception of sovereign credit risk.

CRAs as macro-epistemic actors: power, agency, and the politics of translation

Given the centrality of information to the transparent, rational, and efficient functioning of financial markets, the problem of the quality and validity of knowledge gives rise to certain institutions which verify knowledge. By rating the creditworthiness of a government, municipality, corporation or individual, CRAs validate the knowledge that circulates about that entity (Knorr-Cetina, 2007:367). As macro-epistemic actors, they resemble what Latour (2005:178) refer to as 'centres of calculation', the 'nodal' or 'passage points' through which knowledge has to pass (Bueger, 2015:2). These centres 'exert control' and are crucial for maintaining the overall structure of an epistemic system. They exist in a space of density, 'characterised through multiple connections, groupings, and hybridisation of different understandings of the world and order' (Bueger, 2015:7-8). They are sites where information is created, collected, assembled, transcribed and translated: they render visible everything that should be considered relevant (Law, 2003:8). CRAs, for instance, assemble data and information from various sources: politicians themselves, investors, news media, governance indicators, and statistical datasets, translate these packets of knowledge into stylised objects that can travel. In this way, epistemic practices 'perform' new-classical theories of finance into being. Indeed, epistemic practices like risk and valuation metrics, stock indices, 'expert' commentaries and analyses, economic indicators, and other performance measures do not exist in addition to 'real' material financial and economic structures. They are precisely how financial markets materialise (de Goede, 2005:7). For instance, by downgrading a government's credit rating due to political interference in the economy which, based on new-classical economics, negates the transparency of information and efficiency of marketplace, CRAs 'perform' this depiction of finance into being. As central coordinating devices, the rating judgements of CRAs do more than just measure creditworthiness; they also determine what it should mean, how it should be interpreted and acted upon (Leyshon & Thrift, 1997:294). By implication, the 'rational expectation' that expansionary fiscal policies reduce market efficiency is not the product of 'natural' human instincts. Instead, it is the product of complex socio-technical and discursive practices that encourage, reinforce, and necessitate a particular set of conducts by making them appear more rational and normal than others (Joronen, 2013:362).

Keynes's (1936:chapter 12) beauty contest analogy similarly captures the discursivity of financial practices and the sociality of behaviour in the marketplace. The contest invited competitors to select the six prettiest faces from 100 photographs, the prize being awarded to the competitor whose selection approximates the average preferences of the competitors as a whole (Keynes, 1936:156). Keynes suggested that the choices here are not 'a case of choosing those which, to the best of one's judgement, are really the prettiest, nor even those which average opinion genuinely thinks is the prettiest.' Instead, the adaption of *what the average opinion expects the average opinion to be* drives decision-making behaviour in financial markets. This means that, although many investors might not agree with the judgements of CRAs, they assume that, on average, most market participants will consider their ratings and adjust their behaviour accordingly. The hegemony of particular meanings is therefore created and maintained through institutionalised practices that reiterate, re-establishes and sediments certain interpretations over others (Butler, 2010:152). Finance, in this sense, is not a technical system defined by undeniable economic realities. It is a discursive domain, made possible through performative practices that have to be articulated and rearticulated on a daily basis. Here, the concept of translation enables an interrogation into the processes, technologies, and series of interpretations through which data and information become transformed into a sovereign credit rating. This is a process of distortion: when data becomes transferred from one domain to another, 'they are not simply *moved* but also *modified:* they acquire new meanings, new combinations with other data, and new capabilities' (de Goede, 2017a:6). Translation moves beyond transfer, 'because it does not simply replicate its source, it does not just 'transport' meaning, but also creatively *produces* it, it rewrites, rearticulates, re-represents something in new terms' (Freeman, as stated by Stritzel, 2011:344).

In the following section, I analyse the series of translations involved in the production of sovereign risk ratings. Latour (1999) examined how the creation of scientific 'facts' takes place through a 'chain of translation'. In this chain, objects are identified, collected, registered, transferred, and interpreted in a scientific context (de Goede, 2017a). He followed a group of scientists in a research project that set out to determine whether the Amazonian forest is advancing or retreating. Inspired by de Goede's (2017a) appropriation of this chain, in this chapter, I investigate the series of translations through which the budgetary relations of a government becomes transformed into a calculation of credit risk. The production of knowledge, according to Latour, involves neither a flawless correspondence between the world and the word nor an unbridgeable gap of representation. Instead, the translation of the world into words is a practice of circulating reference (Latour, 1999). Each stage in the production of scientific 'facts' refers back to previous inscriptions: classifications, codes and meanings. Indeed, 'reference' comes from the Latin *referre,* which means 'to bring back' (Latour, 1999:32). Yet, contrary to the production of knowledge about epistemic objects like soil, the creation of financial knowledge is speculative (Knorr-Cetina, 2007). Although CRAs make their rating methodologies and decisions public, in an attempt to improve transparency and accountability, the translation process nevertheless involves a great deal of interpretation that is highly secretive. To this end, the construction of financial knowledge, in an attempt to secure the rational functioning of the market, is characterised by a 'lack of completeness': they are open, question-generating, and complex (Knorr-Cetina, 1996:190,193). Epistemic practices continuously unfold across time and space. The construction of objects like a rational market is never complete and requires ongoing maintenance through the reiteration of norms and practice to temporarily stabilise social structures of meaning (Bueger, 2015:4). The incomplete and transient ontology of epistemic objects, which 'have the capacity to unfold indefinitely' (Knorr-Cetina, 1996:190), can nevertheless be subjugated to epistemic practices that produce, albeit temporally, 'stable thinghood' (Knorr-Cetina, 1996:193; see also de Goede, 2017a).

Navigating the chain of translation in the calculation of sovereign credit risk

Although each rating agency deploys its methodology in rating sovereigns, there is nevertheless significant organisational isomorphism between the 'Big Three' CRAs (Paudyn, 2014; Poon, 2012:276). This is mainly a result of the shared historical context and institutional sites in which they emerged and continue to operate. They exist in the same epistemic community and culture in the production and justification of knowledge claims. In other words, they do not stand outside regimes of power-knowledge and governance but exist within them, both in their creation and ongoing functioning (Merry, 2016a:21). As mentioned in Chapter Three, for most of the twentieth century, sovereign rating coverage was limited to a small number of states. However, alongside the dismantlement of the Bretton Woods monetary regime associated reforms in the organisation of capital markets, which led to increased complexity and uncertainty, demand for sovereign ratings skyrocketed (Kruck, 2011). The ideological and historical forces that underpin these reforms significantly influenced the articulation and measurement of sovereign creditworthiness. These forces entailed the emergence and dominance of neoliberal discourse in the post-Cold War era, which replaced Keynesian economic programmes in the global political economy. Here, apart from factors like payment history and fiscal health, a 'creditworthy sovereign' is also one that is willing to adhere to free-market reforms like trade liberalisation, the deregulation of markets, privatisation, and monetary policies targeting inflation. These articulations furthermore took place in the context of 'financial globalisation'. Shared by politicians, multinational corporations and IFIs like the

Bank of International Settlements (BIS), IMF and World Bank, financial globalisation is understood as a teleological process that gradually evolved in the background of the world economy. However, as the Keynesian system became dismantled, the expansionary ambitions of the market accelerated financial globalisation and the political-economic and cultural integration of individuals, societies, and countries across the globe (Clark et al., 2009:3). 'Like a phoenix risen from the ashes,' Cohen's (1996) metaphor goes, 'global finance took flight and soared to new heights of power and influence in the affairs of nations'. This vision leaves little choice for states, societies, and firms but to conform and compete amidst the process of change that occurs above and beyond them, embracing convergent forms of organisation (Amoore & Langley, 2002:60). Attempts to resist 'integration into the global economy' writes Horst Köhler (2002), managing director of the IMF between 2000-2004, 'will not solve the problems of the world…globalisation requires cooperation, along with institutions to organise many of its forms'. Financial globalisation is depoliticised and cast as a process that responds to the objective workings of the market. The best way for governments to respond to this 'undeniable reality' of financial globalisation is to enable, not limit, the natural operation of the market by implementing new-classical economic reforms to promote transparency, equilibrium price formation and thus the efficient allocation of capital. As stated by Langley (2002:113), 'as a consequence of the claims to universalism made by neoliberalism, market institutions are deemed 'apolitical' and … the most appropriate loci for governance."

Thus, one of the most significant translations in the articulation and measurement of sovereign creditworthiness is the epistemic practices through which these discourses became 'fixed' and quantified into metrics of default risk. This took place through a network of experts that defined what sovereign creditworthiness should mean, and how it should be measured. These experts are individuals with connections to prominent universities located in the US and UK, revealing once again the centrality of geography in the configuration of power and knowledge (Merry, 2016a; Paudyn, 2014). Indeed, although the offices of the Big Three CRAs are scattered across the globe, the rating process is nevertheless marked by inequalities in power and expertise. Individuals and governments from the global South have been denied agency in both defining sovereign creditworthiness and how it should be measured (Lee, 2003, 2011; Leyshon & Thrift, 1997; Merry, 2016a, 2016b). Over time, as ratings became settled in the international financial architecture, they become less open to change (Merry, 2016a:7). Indeed, although their authority is often contested, especially in times of crises, they remain central coordinating devices in the marketplace. They are established indicators of, to borrow from Keynes's beauty contest analogy, what the average opinion expects the average opinion to be. Thus, while a change in circumstances may necessitate a revision in the measurement of sovereign creditworthiness, the underlying concepts and epistemic practices become gradually more established and certain (Merry, 2016a:8).

The translation of complex socio-economic phenomena into a single measurement requires a significant amount of interpretive work in the selection of data sources, categories, weightings and the use of proxies to measure a phenomenon when specific data are unavailable (Merry, 2016a:20). These interpretations and compromises reflect the social and cultural worlds of the rating agencies who create them and the regimes of power that create them. For example, CRA's decision to measure sovereign creditworthiness using probability models instead of ethnographic accounts reveals an epistemic culture that assumes the primacy of numbers in the acquisition and representation of 'the truth'. However, as I discuss in the following section, their alphanumerical appearance strips away complexities such as flawed or missing data, human error, inferences, and uncertainties that underpin their production. The resulting number appears objective and unambiguous. The following section re-politicises the production of knowledge in financial markets by exploring the series of translations involved in the production of ratings. The goal here is to problematise the use of indicators like Gross Domestic Product (GDP) estimates, 'good governance', and competitive indexes in the measurement of sovereign credit risk. In the case of sub-Saharan Africa, the statistical datasets embedded in indicators are often outdated and unreliable. Moreover, they are based on Western conceptions of what the economy is and what the economy is not, and proper methods for measuring the economy. In this way, they produce knowledge that is oversimplified, decontextualised and remote from local systems of meaning (Merry, 2016a:3). This not only normalises existing hierarchies of power and agency in the production of meaning but also produce potentially misleading knowledge.

The politics of translation: the messy world of data collection and interpretation

Ratings are typically requested and paid for by the issuer being rated, or in some cases by an outside institution (Mühlen-Schulte, 2009; S&P's Rating Services, 2014).[44] Moody's has rated 'without request' in the past, which led to an investigation by the US Justice Department

[44] For example, in 2003, the United Nations Development Programme (UNDP), partnering with S&P's, established a credit ratings initiative for sub-Saharan Africa that aims to assist countries to obtain a rating so as to boost foreign investment and get access to global capital markets (Mühlen-Schulte, 2009). In this case, the rating was paid for by the partnership.

(Sinclair, 2005:30). For first-time security issuers, rating officials typically arrange a meeting to with an issuer to discuss the agency's information requirements, although S&P's and Moody's organise public seminars with the same intent. This meeting takes place between the issuer and an analytical team appointed by the agency tasked with the research process. The information they require typically entails a mix of quantitative and qualitative data that may come from a variety of sources, including confidential information provided by the issuer (S&P's, 2019). S&P's (2019) includes in their analysis 'historical and projected financial information…economic data, peer comparisons, and details of planned financings', supported by a qualitative assessment of the institutional or governance framework, financial strategies and the credibility of government officials.

Quantitative data include GDP measures, economic growth measures, inflation trends and population size. Although each CRA use tests to determine the reliability of data sets, it is essential to point out that data are never complete and, in many cases, misleading (Mügge & Linsi, 2020). The collection of statistics is an expensive process, and many countries do not have the necessary resources to fund the operations of an official statistics office (Jerven, 2013). In sub-Saharan Africa, the economic crisis of the 1970s resulted in a stark discontinuity between colonial and post-colonial data collection (Jerven, 2013). By implication, statistical measures of GDP and economic growth rates are either outdated or based on significant guesswork (Beguy, 2016; Pilling, 2019). For instance, in 2014, Nigeria surpassed South Africa. It became Africa's biggest economy by changing the method of calculating GDP – rebasing – to include previously uncounted industries like telecoms, information technology, music, airlines and film production (Beguy, 2016). In general, these revisions should take place every three or five years, but in this case, rebasing has not been done for decades.

Furthermore, statistical datasets compiled by colonial governments are typically based on discriminate categories and estimates. For instance, when accounting for national income, the apartheid government used a classification system that provided different methods for estimation for the 'Bantu Homelands' and the 'Black States'. Creating these categories is a political process of deciding what gets to be counted, 'where to lump and split, what to include and what to leave out' (Merry, 2016a:14). Categories reflect the major preoccupations of a society at a particular point in time, which ultimately determines the outcome of their measurements. The re-use of these historical datasets thus becomes problematic, not only because they are misleading and unreliable, but also because they risk reproducing the racial and class discriminations embedded in them.

Additionally, much of the categories used in the collection of statistical data are based on Western concepts of the economy, production, and standards for estimating GDP (Jerven, 2013). National income and economic growth inform GDP measures. The central issue in national income accounting is deciding which economic activities and actors should be included in official accounts. This decision is based on a distinction between the 'formal' and 'informal' sector, recorded and unrecorded economic activity. In 'developed' economies, the informal economy refers to illicit economic activities and economic activities within the family household. In most African economies, however, the informal sector is so large and therefore so economically significant that its exclusion from national income accounts is problematic. The availability of data has constrained the inclusion of informal activities into national accounts. Apart from a lack of financial resources to fund statistical offices, the lack of available data in sub-Saharan Africa is also because individuals and businesses in these countries are less likely to be officially registered and keep formal records of their economic activities (Jerven, 2013). As such, there is little to no information on large shares of the economy, which means that the database for aggregating measures of income and growth is weak. Indicators such as national income are therefore based on a lot of guesswork and a range of discretionary and sometimes arbitrary decisions (Jerven, 2013:2-4,8). Once assembled into a numerical metric, the drawbacks and complexities in the data-collection process, the use of proxies, and the uncertainty of flawed or missing data become stripped away. Or, in cases where these concerns are recognised, typically relegated to carefully phrased caveats in footnotes (Espeland & Stevens, 2008; Jerven, 2013:8; Merry, 2016b).

Nevertheless, when the data-collection process comes to an end, the analytical team translate their findings into a report containing a rating recommendation and rationale (Sinclair, 2005:33). Here, the underlying assumptions, discretions, manipulations, and interpretive decisions made by the team during the data-collection process becomes stripped away. This results in what Espeland and Stevens (2008:421-422) refers to as 'uncertainty absorption: information appears more robust than it actually is…inferences are drawn from a body of evidence, and the inferences instead of the evidence itself, are then communicated.' Thus, as the task team present their findings to the rating committee – the senior officials in the agency who makes the final determination based on a majority of votes – the decision may seem more obvious than what it might have been otherwise. This decision is, however, highly secretive. Despite being criticised for being biased, unfair and fraudulent, CRAs justify the secrecy of their analytical determination as a way to retain their competitive edge in the rating industry (Mosely, 2003:137).

Moreover, this may reveal the extent to which informal and subjective assessments inform the rating process, thereby limiting the ability of CRAs hide behind the objectifying cloak of numbers to justify their decision to a potentially hostile public (Sinclair, 2005:34). In the following section, I look at the rating methodologies of the 'Big Three' CRAs. The goal is not to provide an empirical overview of the determinants influencing rating analyses, as this has been covered extensively (see Bhatia, 2002; Tennant & Tracey, 2016). Instead, building on the 'chain of translations', this discussion exposes the many informal judgments that go into ratings. Secondly, given the messy process of data-collection, I problematise how ratings quantify complex social phenomena into a single measure that can be ranked and compared. They are inevitably stripped of their context, history, and meaning, side-lining local vernacular knowledge in favour of more global, 'technical knowledge'.

Standard & Poor's Rating Analysis Methodology Profile (RAMP)

Standard & Poor's (2017:1) defines sovereign creditworthiness as the 'ability and willingness to service financial obligations to nonofficial (commercial) creditors' and seeks to estimate the probability of default (*p(d))* and not necessarily the severity of default. They also do not provide an assessment of the expected time of default, mode of default resolution, or recovery values (Bhatia, 2008:5). This definition furthermore excludes obligations to other governments like Paris Club debt or supranational institutions such as the IMF and World Bank. Moreover, sovereigns seldom fail at a higher incidence of corporates, but when they do face difficulties in servicing their debt obligations, this rarely entails completely reneging on all payments. Despite suffering severe humanitarian, political and economic crises, Venezuela's government is still paying out to several creditors. The government has made a point of servicing its debt to Russia and many key energy companies based in the US (Smith, 2019). S&P assigns 'selective default' (SD) in these cases.

In calculating a government's sovereign creditworthiness, S&P's (2017) disassemble nations into five analytical categories:

1) Institutional assessment, based on two analytical categories. First, the effectiveness, stability, and predictability of policymaking, political institutions and civil society. Second, the transparency and accountability of institutions, data, and processes.
2) Economic assessment, determined by income levels, growth prospects and economic diversity and volatility.
3) External assessment: the country's ability to obtain funds from abroad to meet its obligations to non-residents
4) Fiscal assessment, which determines the 'sustainability of a sovereign's deficits and its debt burden' (S&P's, 2017:18)
5) Monetary assessment: the monetary authority's ability to fulfil its mandate while sustaining a balanced economy and attenuating any significant economic or financial shocks.

The analytical team then grades each factor along a six-point numerical scale ranging from '1' (the best) to '6' (the weakest). The institutional and economic assessment is then combined and calculated from adding those respective scores. At the same time, the external, fiscal, and monetary estimates are combined to produce a 'flexibility and performance profile' (S&P's, 2017). These scores are based on a series of quantitative and qualitative assessments, which ultimately becomes translated into a forward-looking opinion (S&P's, 2009). Despite its technical, numeric appearance, qualitative analysis is central to the rating process. From assessing the 'transparency and accountability' of datasets to the selection of proxies in the case of missing data, subjective interpretations creep into the final product at each step along the way. Indeed, S&P's (2009) acknowledge that 'creditworthiness is a multi-dimensional phenomenon' and although 'quantitative measures and models are useful in assessing credit risk, we do not believe they capture all the nuances of the real world' (S&P's, 2010:4). It is, therefore, necessary 'to balance quantitative measures with qualitative analysis' instead of using 'a purely quantitative, automated or model-driven approach' (S&P's, 2010:4). How this synthesis between the qualitative and quantitative takes place is never revealed, erasing the inherent socio-political complexity of sovereign creditworthiness.

For the purposes of this discussion, it is the calculation of a sovereign's 'institutional and economic profile' that is of particular interest. This assessment seeks to determine 'how a government's institutions and policymaking affect its credit fundamentals' which is central to the sustainable delivery of 'public finances, promoting balanced economic growth, and responding to economic and political shocks' (S&P's, 2017:5). In other words, credit stability. Contrary to other factors in a sovereign's debt profile, this assessment involves socio-political factors that elude quantitative analysis. Here, S&P's (2009:7) criteria officers use hypothetical stress scenarios to determine the likelihood that an issuer will keep its credit quality during times of 'moderate stress'. Scenario analyses are narrative exercises, driven by 'what if' questions to determine the shock-absorbing capacity and resilience of a sovereign. This assessment both deploys and exceeds the formal logic of risk. It involves (though to a limited extent) the self-conscious deployment of creativity and imagination to translate past events into a narration of 'whether and *why* it may or may not happen again today' (Rebonato, 2010:28; see also de Goede, 2008). In the security industry, scenario planning emerged as a solution to the inability of VaR models to factor in the likelihood of extreme and unprecedented events. To recall, VaR models share Quetelet's belief that statistical averages reveal the causal laws governing events, which enables the prediction of the future (Gigerenzer et al., 1989:41). These statistical averages are expressed in a normal distribution (the bell curve) and are dependent on the input of historical datasets. Leaving aside concerns about the availability and validity of historical data, these models fail to consider scenarios associated with the tail end of the curve (de Goede, 2004; Langley, 2013; Rebonato, 2010). Stress-tests, therefore, accompany traditional risk models like VaR to account for unexpected events in the calculation of default probability. S&P's Rating Services (2014:2) use these stress scenarios as benchmarks for calibrating their criteria to further rating comparability. These scenarios are historical recessions and financial crises like bank panics, the Great Depression, World War One and Two, Oil crises and the Asian Financial Crisis, with each scenario corresponding to one of the rating categories 'AAA' through 'B'.

Frequently, especially in emerging markets, the assessment of credit quality would require 'greater adjustments…because such economies may experience pronounced swings in GDP and unemployment at fairly frequent intervals' (S&P's, 2009:14). Indeed, domestic socio-political elements such as the 'cohesiveness of civil society', 'social inclusion' and challenges to political institutions such as 'demands for increased political and economic participation' (S&P's, 2017:9) are crucial to a sovereign's credit quality. In many cases, especially in post-colonial states, patterns of social interaction and cohesion have been shaped by a violent history of exploitation, dispossession, and the systematic subordination of racial groups. South Africa being a prime example, as the following chapter also explores, neoliberal economic reforms in the post-apartheid era has, by and large, sedimented these power structures. CRAs have undoubtedly been central to the normalisation of new-classical economics, which limits the government's ability to address, via fiscal expansion, for instance, historical forms of social and spatial inequality. These realities are furthermore extremely complex, messy and unable to quantify, specifically in attempts to come to terms with the resilience of a sovereign 'to respond to societal properties' (S&P's, 2017a:6). Issues relating to social cohesion and domestic conflict are dynamic, spatially dispersed, uncountable, and unpredictable. As such, attempts to quantify and translate societal dynamics into statistical estimates are not only misleading, but also problematic, and tends to rework and realign social relations and identities in uneven and unequal ways.

Once an initial assessment on the institutional and economic profile of a sovereign has taken place, the score becomes adjusted based on 'sovereign debt payment culture' and exposure to 'external security risks'. This assessment considers the *willingness* of a sovereign to repay its debt, the likelihood of default even when a government 'possesses the capacity for timely debt service' (S&P's, 2017a:9). In the absence of a higher legal authority compelling payment, sovereigns can, and sometimes do choose to default on their obligations. Based on factors like a 'public discourse that questions the legitimacy of debt contracted by a previous administration', amongst other things, S&P's (2017a:9), cannot assign a score higher than '6' for institutional assessment. However, as is visible in South Africa and, as Paudyn (2014:124) also points out, the eurozone, citizens very often criticise (and protest) government policy and social burden of austerity.

Nevertheless, even if a government's debt payment culture, along with economic data indicates a robust debt-bearing capacity and a willingness to repay, governments can always choose to renege on their debt obligations. *Willingness,* contrary to *ability,* is thus considerably more uncertain, and its assessment involves attempts to come to terms with the trustworthiness of a government. This assessment is radically indeterminate and would require, to a certain extent, what Grusin (2004) terms 'premediation', to 'think the unthinkable'.

Premediation is driven by an anticipatory logic that seeks 'to imagine or map out as many possible futures as could plausibly be imagined' (Grusin, 2004:28). According to Amoore (2013:9), this logic is not focused on the *prevention* a particular course of action, but instead to '*pre-empt* an unfolding and emergent event in relation to an array of possible projected futures'. It is therefore not about 'getting the future right', but rather based on a constant readiness to identify 'the unthinkable' to enable action in the present (Anderson, 2010:782). Grusin (2004) draws attention to how the cultural work performed by news media and entertainment industries, specifically Hollywood disaster films, in the post 9/11 landscape premediated the 2003 US invasion of Iraq. A logic of premediating the next terrorist attack and a sense of inevitability that furnished the Bush administration's doctrine of pre-emptive warfare dominated these cultural representations. This is not to suggest some form of causation between Hollywood films and reality but, at least for this discussion, draws attention to how cultural narratives of uncertainty, threat, and disaster resonate with imaginations of the future. In other words, it enables us to consider how cultural narratives of African governments as corrupt and violent dictators, who subjugate their societies to war and famine in news media, American and European cinemas, and policy experts, mediate imaginations of trustworthiness and willingness to repay debt. Although the appraisal of willingness becomes factored into an aggregated grade, which is a highly secretive process, premediation nevertheless emphasises how financial risk assessments always involves some form of imagining the future to secure and make profitable the present.

Moody's Sovereign Rating Methodology: Key Factors and Steps

Whereas S&P's ratings reflect the probability of a default event, Moody's ratings are, as described by Tennant & Tracey (2016:17) 'a bit more involved' as they measure expected losses, which is a function of both the probability of default and the expected recovery rate after the default has occurred (Moody's, 2008, 2018:2). However, contrary to corporations and structured finance products, sovereigns have 'special' features that make the calculation of expected loss more difficult. These features include the ability to curb expenditures or modify the taxation regime to generate revenue to service outstanding debt; freedom from a higher authority to compel debt resolution; and the high probability of survival even after default – countries rarely disappear (Moody's, 2018:2). As such, Moody's (2008:5) concedes that:

> [I]t is difficult to deconstruct what is 'pure' probability of default and what is pure 'loss severity' at times of default. In fact, this is almost impossible for countries that are high in the rating spectrum (unless there is a clearly discernible, yet unlikely, default scenario).

As a result, Moody's (2008:5) explains that in some cases governments may remain in the low B range – above 'junk' – even though the likelihood of a credit event is high, based on their assessment that the 'loss-given-default will likely be mild'. Alternatively, in countries where the banking system is highly vulnerable to exchange rate devaluation, ratings will remain in a low B range even though, from a pure default risk perspective, they may warrant a higher rating based on the devasting impact of a default. From the outset, this appraisal would require extensive imagination to consider the adverse consequences of a default and how the expected loss affects the other components of the assessment (Paudyn, 2014:126). While the agency, similar to S&P's (2010), recognise that 'a mechanistic approach based on quantitative factors alone is unable to capture the complexity…between political, economic, financial and social factors that define the degree of danger…of a sovereign credit' (Moody's, 2008:1), they nevertheless use an Expected Default Frequency (EDF) to provide an 'objective, non-judgemental' forward-looking default prediction (Moody's, 2011). The EDF is an extension of the Black-Scholes-Merton model of credit risk, a structural credit risk model that measures default probability through a filtering technique that separates underlying credit components into quantitative variables. These components include market capitalisation, macro-economic volatility, and historical default data. A 'narrow rating range' is then compiled, which constitutes a starting point for the agency's analysis 'whereby national political economies are synchronically standardised through an ordinal ranking of credit risk and then compared' (Paudyn, 2014:126).

Like S&P's, Moody's has updated its sovereign rating methodology in the aftermath of the 2008/09 GFC, 'in response to market needs for clarity around the components of credit risk' (Moody's, 2019:2). This entailed a range of refinements to 'increase the transparency and forward-looking nature' of their approach, based on four factors: economic strength, institutional strength, and susceptibility to event risk (Moody's, 2012:1). The refinements entail an increase in 'the usage and collective weight of quantifiable sub-factors that drive each factor's scoring', reflected in a revised 'scorecard'. Scorecards are the reference tools through which factors and sub-factors are weighed in the effort to determine their importance for rating decisions (Moody's, 2019:31). Scorecards accompany an analytical framework and are 'based on expert judgement of our rating analysts and codified using techniques that standardise the analysis of individual factors' (Moody's Investors Service, n.d.). Of particular importance for this discussion is *Factor 4: Susceptibility to Event Risk*, as it is here where qualitative, socio-political factors – 'political risks' – are enumerated. This analysis seeks to measure the factors that may convince a government to renege on its debt obligations, that is, influence its willingness, and receives renewed attention in Moody's updated methodology.

In calculating 'political risk', Moody's focus on 'domestic political risk' and 'geopolitical risk'. Geopolitical risk is determined by 'an overall qualitative assessment of relevant circumstances affecting the country' (Moody's, 2018:24). Domestic political risk, which much more difficult to quantify, is based on two leading indicators: the World Bank's Voice and Accountability index, and GDP per capita, which serves 'as a proxy for the potential of low income-related social unrests' (Moody's, 2018:24). Yet, Moody's (2018:28) emphasise that these scores

> […] do not constitute an exhaustive treatment of all the considerations that are important for sovereign bond ratings… Ratings may consider additional factors that are difficult to measure or that have a meaningful effect in differentiating credit quality only in some, but not all cases. While these are important considerations, it is not possible to express them precisely in the rating methodology scorecard without making it excessively complex and significantly less transparent. Ratings may also reflect circumstances in which the weighting of a particular factor will be substantially different from the weighting suggested by the scorecard.

Thus, akin to S&P's, Moody's exercise a tremendous amount of discretion in assigning their ratings. Furthermore, disclosure of any kind is not necessary, as it is often based on 'confidential information that we cannot publish or otherwise disclose' (Moody's, 2018:28). This disclosure immunises CRAs and the rating process from public scrutiny and reform (Paudyn, 2018:162).

Yet, to address concerns of 'subjective biases' in rating decisions, levelled by the European Commission in the aftermath of the crisis, Moody's (2012:2) revised methodology claims to treat qualitative sub-factors 'more systematically' as 'adjustment factors' that can modify an assessment of each sub-factor upwards or downwards. In this way, qualitative factors can affect 'factor scores without unduly altering the balance between quantitative and qualitative elements' (Moody, 2012:2). Although Moody's never reveal how they achieve this balance, the agency nevertheless promises to integrate the quantitative and qualitative elements in a disciplined way so limit subjectivity (Moody's, 2008:2). To this end, Moody's rely extensively on governance indicators like the World Bank's *Worldwide Governance Indicators*, along with the World Economic Forum (WEF), the IMF, and BIS, specifically in their appraisal of *Factor 2: Institutional Strength*. This analysis overlaps significantly with political risks and considers whether a country's institutional features 'are conducive to supporting its ability and willingness to repay its debt' (Moody's, 2018:13). One such indicator is the World Bank's 'Government Effectiveness Index', which captures perceptions of the following factors: the quality of public services; the quality of the civil service and the degree of its independence from political pressures; the quality of policy formulation and implementation; and the credibility of the government's commitment to such policies (Kaufman et al., 2010). These perceptions are scored on an aggregate indicator, in units of standard normal distribution, i.e. the 'bell curve' and range from approximately -2.5 to 2.5. A prominent critique against this indicator, and many others in the World Bank's governance indicators series, is that they are based on a 'one-size-fits-all' conceptual definition that mostly favours Western perspectives (Iqbal & Shah, 2008). As such, they neglect local citizens' evaluations of governance outcomes reflecting impacts on the quality of life. Instead, development indices produce easily accessible country rankings. Although Moody's claim to incorporate expectations about future metrics and risk developments, the World Bank and IMF's normative (political) rationalities are nevertheless implicated in their ratings. Apart from issues concerning data availability and quality, as Jerven (2013) has made clear, the World Bank's governance indices are furthermore composite or 'mash-up' indicators, made up from a 'large number of moving parts' (Ravallion, 2010). They are composites of other indicators, a blending and weighting of established indicators into a new bundle (Merry, 2011:S86). A set of underlying theories and inferences about the parameters of the population distribution, including deviation (abnormality) are embedded in these indicators. Once compiled into an aggregate score to measure sovereign creditworthiness, these 'moving parts' and the political, cultural work embedded in their construction, along with complexities such data constraints and measurement errors are erased and merged into a single measure.

Finally, to secure 'Greater Granularity of Factors' Moody's use three additional gradients ('plus', 'neutral' or 'minus') for each of the five-factor scores ('Very Low', 'Low', 'Medium', 'High', 'Very High'). The reason for this refinement is that it increases the scope for analytical differentiation between sovereign credits, enabling a 'more refined determination of the scorecard-indicated rating' (Moody's, 2012:3). Yet, as Paudyn (2014:128) makes clear, greater granularity arguably complicates the rating process by making it much more dependent on individual discretion in differentiation between different degrees of separation in national political economies. Factor 4, 'Susceptibility to Event Risk', which concerns the complex socio-economic elements that influence a sovereign's *willingness* to pay, is the final step in the rating process and determines the 'government bond rating range'. It is here where geopolitical representations of 'emerging markets' factor into the analysis, as CRAs tend to assume an unwillingness to repay:

> Countries as diverse as Poland, Argentina, South Africa and the Philippines have defaulted on or have rescheduled their foreign debts to commercial banks for other than strictly economic or financial reasons. Very often, a mixture of political, social and cultural considerations – such as the inability to impose austerity, radical or political uprisings, or lack of public confidence in the central authorities – were at the root of a country's liquidity crisis (Moody's, as cited in Mosely, 2003:141).

Convinced that these defaults were a result of an unwillingness, rather than the ability to pay, Moody's recognise their significance by assigning them higher weight in determining a sovereign's bond rating range. Despite Moody's emphasis on the complexity of this analysis, this has not been accompanied by an enhanced conceptual clarification on what types of political and economic factors are privileged, why, and how they become incorporated into the final assessment. Furthermore, once assembled into a rating, the significance of this final assessment diminishes in visibility and reduces the explanatory burden of CRAs. It is this secretive element in the rating process that creates room for bias (Tennant & Tracey, 2016) and through which neoliberal rationalities of budgetary rectitude becomes translated and normalised.

Fitch's Sovereign Rating Methodology (SRM) and Qualitative Overlay (QO)

Like S&P's and Moody's, a 'synthesis of quantitative and qualitative judgements that capture the willingness as well as the capacity of the sovereign to meet its debt obligations' informs Fitch's sovereign ratings (Fitch, 2018a:1). Compiled into a forward-looking judgement, Fitch uses a hybrid approach by rating issuers on a default probability basis and differentiating based on expected recovery rates after default has occurred (Bhatia, 2002:4). Of all three the CRAs, Fitch relies extensively on quantitative indicators from the World Bank, IMF, and BIS in their SRM, which 'allows for very limited judgement analyst input…and aims to provide a transparent, coherent framework for comparing sovereigns across regions and through time' (Fitch, 2018a:7). The SRM is a multiple regression model, estimated from the application of Ordinary Least Squares (OLS). This probability model assumes a linear relationship between the rating (dependent variable) and explanatory variables (independent). Although the agency acknowledges that 'the evolution of default probabilities is thought to be non-linear' (Fitch, 2018a:36), the justification for the OLS is based on the 'Central Limit Theorem' – the law of large numbers. To recall from Chapter Two, this theory assumes that the distribution of errors will approximate normality in light of the large sample size (Fitch, 2018a:36). Alternatives to the OLS specification, according to Fitch (2018a:36) 'would lead to more subjectivity in the SRM' and as such, reduce the consistency and comparability of ratings as it would require a different specification for each country. This not only reflects an epistemological culture that is confident in the ability of statistical averages to reveal correlation but also draws attention to how ideological assumptions about the economy creeps into the selection of variables, weights accorded to each, and their influence on sovereign creditworthiness.

Four analytical pillars regulate Fitch's rating process:

1. Structural features of the economy that influences its resilience to withstand shocks, including financial, political and governance risks;
2. Macroeconomic performance, policies, and prospects, that is, growth prospects, economic stability and the coherence and credibility of policy
3. Public finances, including budgetary balances and the sustainability of public debt
4. External finances, like the sustainability of current account balances and capital flows and levels of external debt (Fitch, 2018a:1).

Structural features refer to those socio-political factors which, in general, elude quantitative analysis. Like Moody's, these are given the highest weight in the overall analysis. Structural features are furthermore divided into four criteria: governance quality; wealth and flexibility of economy; political risk; and banking sector. Here, it is the calculation of 'governance quality' and 'political risk' that requires problematisation.

Firstly, 'governance quality', which depends on an aggregation of World Bank Governance Indicators, seeks to capture the capacity and willingness of authorities to repay debt 'and the risk that this might be disrupted by civil unrest, political instability or conflict' (Fitch, 2018a:11). These indicators are supposed to serve as proxies for the many intangible factors that determine debt tolerance, or what S&P's calculate as 'debt payment culture'. Having discussed just how problematic these indicators are, not only in terms of data quality but also the Western-dominated conceptions of social organisation embedded in them, Fitch's (2018a:11) confidence in their 'comprehensiveness, methodological transparency…and completeness of coverage geographically' becomes alarming. Indeed, in terms of 'structural features,' this score carries the highest weight (19.6%) of the SRM variables. Yet, akin to their peers, Fitch (2018a:7)

> […] recognises that no model can fully capture all the relevant influences on sovereign creditworthiness [and as such] the agency also employs a QO designed to adjust for factors that are not reflected or not fully reflected in the SRM output for any individual rating. The QO is used to provide a subjective assessment, consistent with criteria, of key factors within these rating criteria that are not fully quantifiable…The QO is a formalisation of the qualitative elements that Fitch applies in assessing sovereign creditworthiness.

The analytical team tasked with the research process recommend these adjustments to the rating committee. To deliver on their promise to minimise 'subjective assessment', Fitch's notching range allows for two upward and downward notches to be applied, the overall maximum adjustment relative to the SRM output is capped at three (upward and downward). These measures enhance the oversimplification and homogenisation of ratings. Commensuration, as mentioned previously, 'transforms qualities into quantities, difference into magnitude. It is a way to reduce and simplify disparate information into numbers that can easily be compared' (Espeland & Stevens, 1998:316). However, by transforming the buzzing confusion of social life into neat countable categories that can be and compared, meaning, context, and history become stripped away. Fitch's (2018a) confidence in global governance indicators leaves little room to incorporate the complexities and concerns of the surrounding social structure that is being quantified.

Moreover, the measuring process ignores the political effects of methodological compromises, such as missing data or the use of proxies, which is so prevalent in sub-Saharan African development indices. Fitch's ratings, and the other CRAs in general, therefore suffers from what Merry (2016a) terms 'experience inertia' and 'data inertia'. The former refers to how the calculation of sovereign credit risk builds on existing models and approaches, which means that insiders with skills and experience – typically located in the 'spaces of hegemony' of global finance – has greater agency in determining how the different factors that make up sovereign creditworthiness are measured. For instance, in the measurement of perceptions of corruption, CRAs use existing World Bank indicators instead of collecting data from local populations. This problem also relates to 'data inertia', which draws attention to how the measurement of sovereign creditworthiness depends on existing datasets and inhibit new measurement approaches. Both forms of inertia tend to exclude inexperienced and resource-poor actors in deciding what and how something gets measured.

Yet, when it comes to more fluid, socio-economic elements, Fitch (2018a:13) argues that 'a country that is riven by divisions along the lines of income distribution, race, religion or regional differences' face higher political risks as the government's authority may encounter many challenges. Thus, while World Bank Governance Indicators reflect some of the quantitative variables included in the SRM, political risk factors can reduce a sovereign's administrative capacity and will to honour their debt obligations. Given the radical indeterminacy of *willingness*, Fitch (2018a, 2018b) follows S&P's and Moody's by measuring this analysis through the use of proxies that indicate a government's shock-absorbing capacity. Embedded in the selection of these proxies are neoliberal logics of economic growth, fiscal and monetary rectitude, and central bank autonomy. For instance, the QO stipulates that original SRM scores for structural features may be adapted based on an analysis of a country's 'business environment and economic flexibility' (Fitch, 2018a:13). This enumeration uses the World Bank's Ease of Doing Business Survey and the United Nations' Human Development Index to determine the relative strengths and weaknesses of the business environment and the quality of human capital. The quality of the business environment, according to Fitch (2018a:14), is paramount, and 'typically a prerequisite for sustainable economic growth'. To improve 'competitiveness', developing countries are particularly encouraged to 'open up' their domestic industries, deregulate their labour markets, and minimise 'red tape' (Collier & Benjamin, 2015:301). This assessment alludes to the tenuous relationship between sovereign and country risk, specifically in Fitch's case.

Despite being closely related, country risk refers to risks associated with doing business in a particular country, such as weak property rights, unpredictable tax and legal regimes as well as a volatile operating environment. One of the most specific country risks is transfer and convertibility (T&C) risk, that is, the 'risk of controls being imposed by sovereign authorities in the conversion of local into foreign currency and on its transfer abroad to meet external debt service obligations' (Fitch, 2018a:3). A product of Fitch's (2018b) Country Ceiling Model (CCM) country risk determines the highest credit rating achievable on a foreign-currency rating of entities operating in a particular sovereign's jurisdiction. The CCM assumes that countries 'that are open in terms of international trade and capital, including the absence of restrictions on trade and capital flows…with flexible exchange rate regimes' are less likely to impose capital control restrictions (Fitch, 2018b:2). Conversely 'closed, less developed economies' with fixed exchange rates, capital controls (protectionism, the opposite of trade liberalisation) and a record of high inflation (i.e. not pursuing an inflation targeting monetary policy) score poorly under the CCM model (Fitch, 2018b:4).

In the case of emerging market economies, the gap between country ceilings and sovereign risk is often narrow, as country risks come to dictate a government's capacity and willingness to repay its debt obligations (Paudyn, 2014:115). To recall, emerging markets like South Africa are typically framed as 'less efficient' in line with the EMH, which implies that they are characterised by unreliable information, potentially uncompetitive markets, and low liquidity. Additionally, systemic corruption, volatility, fragile currencies, social inequality, and the lack of transparent regulatory frameworks increases country risk. This increase occurs even though many of these markets, particularly China, India, and Brazil, have shown significant economic growth that diminishes the threat of a sovereign default. Moreover, as discussed below, this neoliberal programmatic embodied in ratings often worsens existing socio-economic inequalities. As 'macro-epistemic' institutions in the epistemic infrastructure of finance, CRAs translate these assessments of sovereign creditworthiness into knowledge-objects disposed of by market participants, including governments. They are therefore not only crucial nodes in this infrastructure, but also establish important links between the various actors, institutions, and place that constitute it, which coordinates market behaviour in a particular way.

The performativity of ratings

The performativity of ratings refers to how the rating judgements of CRAs not only describe a state of affairs but actively create the conditions for it to realise. In line with a Foucauldian perspective of power and agency, the performative agency of CRAs is based not on a restriction or coercion of certain activities, but rather a mode of government that works through processes of subjectivation and subjectification that recast the subjectivities of market actors so that they internalise a particular set of norms (see introductory chapter). As crucial nodes in the epistemic infrastructure that constitutes global financial flows, CRAs are linked to a range of discursive and material devices that create the conditions and subjectivities that help to validate the new-classical discourses and norms advanced through them.

This epistemic infrastructure engineer three principal subjectivities underpinning the performative agency of ratings, namely CRAs, investors, and governments. Firstly, the epistemic practices and cultures of knowledge communities in global finance tend to have self-generating/self-validating effects on CRAs. In general, CRAs use a 'through-the-cycle' (TTC) rating methodology when rating sovereigns. They model the parameters over a longer period that contains the entire business cycle, based on the assumption that it would produce less volatile estimates of risk measures over time (Haung *et al.,* 2016:2). The alternative is a 'point-in-time' (PIT) approach. This approach uses current information when computing the default risk metrics (Kiff et al., 2013). In recent years, the TTC has been attacked for its procyclical bias and weak default prediction as it does not capture the translation of political movements into credit risk adequately (Kiff et al., 2013; Paudyn, 2014:117; Varsanyi, 2007). The long-term horizon of TTC arguably suffers from a lag as it 'waits to detect whether the degradation is more permanent than temporary and larger than one notch' (IMF, 2010:xiii) which creates a procyclical effect by accentuating the already negative movement in credit quality. For example, as mentioned previously, during the 1997/98 Asian crisis, CRAs were criticised for being too slow initially to downgrade East Asian sovereigns, and only adjusted their credit scores once the downturn had already begun (IMF, 2010:105). As such, during economic 'booms', governments would increase their expenditures, banks would lower interest rates, and consumer spending would increase. The opposite of procyclicality is counter-cyclicality. That is, the Keynesian argument that during economic crises, governments should 'spend their way' out of recession by stimulating demand instead of saving or implementing budgetary cuts. The new-classical model of creditworthiness that underpins sovereign ratings intensifies their procyclicality by encouraging fiscal austerity to assure investors that a government will not default on its payments. This procyclicality tends to reinforce the self-validating effects for CRAs as downgrades, and 'negative outlooks' create the deteriorating conditions for further rating cuts, which is compounded by the feedback loops from market participants (Paudyn, 2014:71).

Thus, secondly, ratings have constitutive effects on investors in that they embody a prominent reference point 'to evaluate a security or issuer's potential eligibility for the inclusion of that investment in a portfolio' (BlackRock, as cited in Paudyn, 2014:160). These feedback loops from the investment community tend to enhance the self-fulfilling prophecies of risk ratings, thereby consolidating their discursive authority and underling rationalities in the face of a consistent stream of failures and lacklustre performance (Paudyn, 2014:149). This circulation and engagement with knowledge in financial markets is not a linear, one-sided affair. Instead, there is a circular flow out from the centre, according to Latour. This flow takes the form of commands or demands, and returns to the centre, in the form of representations and other returns. CRAs incorporate into their calculations the reactions of the investor community not only to their ratings, but also news media, commentaries, and stock indices. The infrastructure of flows emanating from centres of calculation assumes a star-like formation, where the offices of CRAs and Wall Street trading rooms,

> […] does connect to the 'whole world' through the tine but expeditious conduits of millions of bits of information per second, which, after having been digested by traders, are flashed back to the very same place by the Reuters or Bloomberg trading screens that register all of the transactions and are then wired to the 'rest of the (connected) world' to determine someone's net worth (Latour, 2005:178).

This continuous dialogue between CRAs and investors consolidates new-classical understandings of sovereign creditworthiness, which limits the possibilities of budgetary rectitude for national governments, specifically in a context of intensifying financialisation.

Especially in the case of emerging markets governments that have come to increasingly rely on liquid capital markets to fund their development projects, pressures to conform to this political economy of creditworthiness mounts. For the sake of their market credibility, and the better financing terms it affords them, governments submit to these risk measures (Paudyn, 2014:176). By opening themselves to forms of external scrutiny, governments signal their willingness to adhere to a prescribed set of standards and rules regulating financial flows, which may enhance their reputational capital and attract investment (Paudyn, 2014:176). The fact that states 'choose' to be rated illustrates how governmentality works to encourage particular forms of conduct that are, in this case, 'creditworthy'. Here, a credit downgrade gets defined as a negative outcome – an inevitable consequence of the inability of the State to perform in a creditworthy manner. Key to this portrayal is that the State is deemed responsible not only for the negative classification but also for future improvement (Löwenheim, 2008:259). Donzelot (as cited in Burchell, 1993:276) describe this technique of governing as a procedure of 'contractual implication'. This entails 'offering' states active involvement in action to resolve the problem of sovereign creditworthiness, instead of delegating this responsibility to an external agency. However, the price of participation is that states must assume active responsibility for the activities pertaining to their creditworthiness, both for carrying them out as well as for their outcomes. This is what Burchell (1993:276) refer to as the 'responsibilisation' of states in global government. Here, government takes place 'at a distance' by making use of various technologies to create locales, governments and individuals able to operate a regulated autonomy (Rose & Miller, 1992:184). Risk metrics, as technologies of the future, seeks to govern the actions of actors 'on the very basis of the imagination of those possibilities' (Amoore, 2013:9). Responsibility becomes linked to calculation: to affect the conduct of states in such a way that they act freely, yet following specified policy norms (Miller, 2001:380). This is a precarious achievement, contingent upon discursive practices that generate specific effects anew time and again (Butler, 2010:148). An investigation into the mundane and processual character of knowledge production enables us to consider the sites and practices through which particular meanings become normalised and the power regimes within they operate.

Conclusion

This chapter examined the regimes of power-knowledge and epistemic cultures involved in the translation of diverse socio-political phenomena into the rating of sovereign credit risk takes. This translation is marked by an unequal politics of power and agency for actors outside the global North to determine how sovereign creditworthiness should be defined and measured.

The politics of representation, 'is not only a matter of *speaking about* but also of *speaking for*. That is, it concerns politics and hegemony (and the limits of politics and hegemony)' (Beverly, 1999:3). Yet this chapter also revealed how an investigation into the micro-processes of indicator production enables a space for contesting their authority. Since their authority is intricately linked to an epistemic culture characterised by a large degree of trust in numbers, this chapter revealed not only that the datasets upon which CRAs depend are potentially extremely misleading, but also that ratings are based on a great amount of subjective judgements. Indeed, the rating of sovereign creditworthiness requires a large amount of interpretative work, which is inherently political. The selection of measurement approaches, the construction of categories, the use data sources and proxies to measure a concept when specific data are unavailable, 'are all matters of choice and interpretation' (Merry, 2016a:20). By navigating the sequence of translations involved in the rating of sovereign creditworthiness, this chapter revealed the messy world of financial knowledge production.

The following chapter considers how the materialisation of asymmetrical agency between the global North and global South tends to rework existing social relations and identities in highly unequal and uneven ways. Financial markets are therefore important sites where power relations between nations, individuals and societies are mediated. The uneven development of capital circulation reveals how, although formal, direct colonialism has come to an end, the 'post' in post-coloniality serves as a "salutary reminder of the persistent 'neo-colonial' relations within the 'new' world order and the multinational division of labour' (Bhabha, 1994:6). The 'post' in post-colonialism is not a dividing temporal marker, but an indication of continuity that seeks to capture the continuities and complexities of any historical period (Abrahamsen, 2007:114; Chowdry & Nair, 2002).

Chapter Five

The political economy of sovereign creditworthiness in South Africa

> *27 July 2011*
> The 27th, the day everyone has been waiting for. Hoping our lawyer Sheldon would at least get the judge to say we are allowed to put up a structure, but sadly that didn't happen.
> It has been 75 days. We survived rain, cold, wind and daily harassment of the police. Our structures and other possessions have been confiscated and many nights we have been forced to sleep in the open. But our spirit of defiance remains strong and we are determined not to be moved (Benson & Meyer, 2015a:72).

The above extract comes from the dairy of Faeza Meyer, who formed part of a group of backyard shack dwellers that occupied land in Tafelsig in the township of Mitchells Plain, Cape Town in May 2011.[45] [46] Starting at 5,000 people, the group dwindled to about 30 families who fought for their right to erect structures. To many, this was the only option. The accommodation provided by the City was a dumping ground located miles away from their families and support networks. Over 18 months, the group faced a series of raids, evictions, and court cases, which eventually led to a Constitutional Court judge reprimanding the City to devise a plan for the homeless. In October 2012, Faeza and the rest of the group were relocated to Siqalo in Mitchells Plain (Benson & Meyer, 2015a, 2015b).

Like most metropolitan areas in post-apartheid South Africa, the City of Cape Town faces a significant housing crisis. The official waiting list for low-cost housing is more than 450 000 families, while the City delivers about 11,000 units per year (Benson & Meyer, 2015a; Mongwe, 2010). This problem is undeniably a remnant of apartheid's socio-spatial engineering, which reserved city centres and the suburbs around them, as well as those close to major roads, for whites. As I discuss later, the apartheid era brought race, class, and space together in violent ways (Hunter, 2010:109). Despite numerous promises and attempts to undo these socio-spatial injustices, South Africa's urban areas remain highly segregated.

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[45] Shacks are informal housing structures built from sacks, wood, corrugated iron, and cardboard (Thompson, 2001:178). Linked to apartheid's segregated spatial planning, which reserved access to cities for the white population, informal settlements are built on the outskirts of urban areas, also known as townships. Approximately 14 per cent of South Africa's households live in informal dwellings and although townships are highly segmented spaces, with formal and informal housing arrangements, they have nevertheless almost always suffered from inadequate municipal service delivery, in particular water, sanitation, and garbage removal (see Hart, 2014; Hunter, 2010; Robins, 2014).

[46] In alliance with Koni Benson, a feminist historian and housing crisis ally, Meyer kept a diary of the events and her experiences on a computer. Benson tracked the unfolding of the events by piecing together chronologies, collecting newspaper articles, statistics, photos, flyers, letters and other resources documenting the struggle (Benson & Meyer, 2015b:104).

At the same time of their occupation in Tafelsig in 2011, community activists from the Khayelitsha informal settlement on the outskirts of Cape Town were throwing portable toilet containers filled with faeces onto the N2 highway, in the departures section of the Cape Town International Airport, and on the steps of the provincial legislature (Robins, 2014). Grievances with the City's provision of portable toilets to shack dwellers, rather than 'proper', permanent flush toilets, led to these protests. According to Sithembele Majova, leader of the protests, the portable toilets 'cause a smell in the houses. It's unhygienic to live with poo inside the house…It remains in that container and that's why it causes that smell' (quoted by Robins, 2014:1). He added that they wanted to show 'the people who are living in those nice [upper middle class] areas like Constantia to feel how poo can damage your life when it is next to you' (Majova, quoted in Robins, 2014:1). Here, the unequal politics of power inherent to infrastructures become apparent, as mentioned in Chapter Four. In wealthy neighbourhoods like Constantia, sanitation infrastructures are 'black-boxed' – part of an 'invisible background' that moves matter from one place to another (Bowker & Star, 2000; Edwards, 2003).[47] The modern porcelain flush toilet 'is a sign of modern citizenship in a democracy in which the disposal of human waste becomes the problem of state infrastructural systems; at the moment of flushing, shit then becomes matter out of sight and out of mind' (Robins, 2014:3).

Far from being invisible, infrastructure always foregrounds the lives of more precarious social groups (McFarlane & Rutherford, 2008:374). Approximately 2.8 per cent of South Africans use bucket toilets, which equates to 1.7 million individuals (Stats SA, 2019:50). Even more households (13.4 per cent) rely on unventilated pit latrines that are located outside houses and shared by others in a particular community (Stats SA, 2019:49). A report compiled by the South African Human Rights Commission (SAHRC) shows that these sanitation structures are often poorly maintained, unhygienic, poorly lit, and pose a significant safety risk to many women and girls, particularly at night (SAHRC, 2014).[48] In 2014, a five-year-old boy, Michael Komape, died when using the pit latrine at his school in Chebeng village in the Limpopo province. The

[47] Although, in terms of electricity provision or 'load shedding', in adequate water supply, and poor road conditions are shared by wealthy groups in South Africa as well. According to Graham (2010:9), this is the case for most parts of the global South, and have often prompted city boosters to invoke major infrastructural edifices and massive demolitions of informal settlements as they strive to overcome infrastructural disruptions and so become 'more global'.

[48] The SAHRC (2014) investigation was dedicated to Michael Komape and several other children who died as a result of unsafe sanitation structures at their schools. These include six-year-old Siyamthanda Mtuni, who died on the 11th of September 2007, when the walls of his school toilet collapsed on him at Dalasile Primary School in the Eastern Cape. In March 2013, seven-year-old Lister Mgongwa died in a similar way, and in 2018, five-year-old Lumka Mketwa fell into a pit latrine at her school in the Eastern Cape and drowned (Africa Check, 2019a; Saba et al., 2018).

dilapidated structure atop the pit toilet could not hold the weight of his body, and he fell in and drowned in human waste (Rabkin, 2019).

These are not isolated cases: the stories of Faeza Meyer, the 'poo protesters', and Michael Komape capture the social realities of millions in post-apartheid South Africa. Twenty-six years after the official abolishment of apartheid, these forms of socio-spatial injustice remain predominantly racial (Hunter, 2010; Samara, 2010; Van Riet, 2020). In her ethnographic study in the informal settlement Chris Nissen Park (The Park) in Cape Town, Fiona Ross (2005, 2015) describes everyday life in such contexts as '*rou*' (Afrikaans for raw), which 'denotes a form of exposure to life's violence and pain' (Ross, 2015:S98). Raw life is precarious, incomplete, humiliating and characterised by a daily struggle for survival amidst extremely harsh conditions (Ross, 2005, 2010).[49] The opposite of raw life, for residents in The Park, is '*ordentelikheid*' (decency, respectability), where access to decent housing and sanitation offers a sense of privacy, and therefore, dignity:

> In particular, people spoke about their hopes that the new houses might restore some dignity to daily lives too often undermined by poverty, violence, mobility and everyday humiliations, allowing them to become '*ordentlike mense*' (respectable people) (Ross, 2005:633).

The concept of *ordentlikheid*, Ross (2015:S101) argues, offers a way of critiquing the erosions of dignity by interrogating the historical processes and practices that give rise to the production of social life in contemporary South Africa.

This chapter explores how Lady Credit, Defoe's rational gentleman, apartheid and the sovereign credit ratings are *entangled* in the rawness of everyday life for many South Africans in the post-apartheid era. Entanglement is a complicated situation, a set of social relationships 'in a tangle', with intricate overlaps between the past, present, and future. The 'post' in post-apartheid is not a dividing temporal marker but draws attention to the continued relevance of historical structures and relations of power (Chowdry & Nair, 2002). This means that

[49] The conceptual lineage of 'Raw Life' can be traced to Agamben's (1998) seminal work on two forms of life in ancient Greece, *zoé* and *bios* (Ross, 2010:5). *Zoé* is bare life, biological life common to animals and humans, it is life itself. Sovereign power, according to Agamben, is constituted through the production of a political order based on the *exclusion* of bare life. The sovereign enacts an exception in which the legal status of human beings is stripped away. Bare life is without rights. By contrast, *bios* is political life; a life shaped by and recognised politically, 'a qualified form of life' (Agamben, 1998:1). Despite obvious similarities between 'raw life' and 'bare life', Ross (2015) explains that in the context of post-apartheid reforms, many residents in Chris Niessen Park have used their political rights to resist forms of state abandonment. This enables them to attract and receive state care, especially in the form of state-sponsored housing grants, and access to life-saving medicines like anti-retroviral (ARVs). Raw life therefore captures the agency of residents to challenge modalities of abandonment in post-apartheid South Africa, which complicates the binary distinction between zoe and bios as depicted by Agamben.

meaningful, large-scale social change that was promised in the democratic transition has yet to be produced for many South Africans that suffered under apartheid. Indeed, as I will show in this chapter, should one remove the date from Faeza Meyer's diary entry, one could be forgiven for thinking this story took place during apartheid's forced removals. This is not to suggest a direct continuity with the past; far from it. Nevertheless, apart from a small group of black elites with close connections to the ANC, there are numerous continuities and new modes of suffering that gets transferred over generations. The goal of this chapter is to provide an overview of the political economy of South Africa: the complex realities that gets stripped away during the rating process. This background is particularly necessary for an analysis of how sovereign ratings are entangled in the erosion of *ordentelikheid* for many South Africans. Of course, there is a myriad of reasons beyond the sovereign creditworthiness assemblage that stymies meaningful social change in post-apartheid South Africa, most notably weak political leadership. For the purposes of this thesis however, I am focusing on how governing practices enacted in the name of sovereign creditworthiness reinforce historical inequalities in South Africa.

The first section of this chapter looks at the historical erosions of *ordentelikheid* through colonisation and apartheid. In order to capture the delicate and intricate emotions that accompany the humiliation associated with raw life, I draw on a number of literary works produced by South African writers and film makers. These works function as a 'midwife' or *entre-deux* according to Prieto (2007), in that their freedom from the scientific test of falsifiability enables us to document the intimate experiences and forms of being in certain places. Given that inequality in South Africa is characteristically spatial, works of literature and films enhance our understanding of life in contexts of raw life by granting us access to the 'intimate familiarity of the insider' (Prieto, 2007:9). Akin to Feaza Meyer's diary entry, these literatures enable us to draw 'everyday life' into analyses of IPE, especially in post-colonial spaces as important site of power and resistance in the global political economy (Davies, 2006). Although this chapter approaches the site of everyday life as a critique of how colonial and apartheid histories of violence have transformed everyday life, it is important to recognise how actors like Feaza Meyer respond to 'global processes' and how these interactions have the potential to generate change in the global economy. Yet, such a focus is beyond the scope of this project and for the purposes of this chapter, my analysis of 'everyday life' seeks to map out the different ways in which South Africa's history of colonialism and apartheid becomes entangled in the governmentality of sovereign creditworthiness. The second section of this chapter shows how the neo-classical assumptions that inform sovereign credit ratings enable an erasure of this violent history in the assessment of a government's creditworthiness. Indeed, the dominance of rule-based monetary policy-making enables CRAs to discard questions of economic injustice and historical violence to their assessments of creditworthiness. This erasure sediments the discursive boundaries defining sovereign creditworthiness, that is, it limits possibilities of broadening the democratic content of ratings in line with the socio-economic needs of a society.

Geographies of history: raw life, and erosions of *ordentelikheid*

Although apartheid became officially institutionalised from 1948, modalities of racial subjugation, exploitation and land dispossession can be traced back much further (Schultz & Van Riet, 2018). The first form of 'official colonisation' dates back to the seventeenth-century when Dutch employees of the then 'largest trading enterprise', the Vereenigde Oostindische Compagnie (VOC) established a refreshment station at Table Bay, located at the Northern end of the Cape Peninsula (Oliver & Oliver, 2017). In 1652, upon realising the fertility of the land, Dutch navigator and commander Jan Van Riebeeck released some of the employees from their contracts. The company gave them land with the status of 'free burghers' to start full-time farming to the eastern side of Table Mountain (Thompson, 2001). Within a decade, the Cape Colony became a complex, racially stratified society. There was a great deal of sexual activity across status and colour lines, especially between European men and slave women. As a result, the 'black' population of the colony became considerably lighter, and the 'white' population darker (Thompson, 2001). Today, this population is known as Coloureds (of mixed race), a racial category formalised during apartheid. They make up nearly 10 per cent of the population and constitute the majority of Afrikaans speakers (Khan, 2009). The company imported slaves from Asia, Madagascar, and Mozambique. It used the labour of indigenous pastoralists, whom they had deprived of their land and livestock and who had been decimated by smallpox. The linguistic mixture of this environment – Dutch, Portuguese, Khoikhoi, and Malay – developed into a language called Afrikaans, one of post-apartheid South Africa's official languages.[50] As the colonisers expanded north and east of the Cape region, they destabilised indigenous pastoral and mixed-farming communities, using their labour for hunting, herding of livestock, domestic chores, and slave work. To the east, however, they entered Xhosa chiefdoms and came into numerous battles, the results of which were indecisive. By the end of the eighteenth-

[50] It is a simplified form of Dutch, also called 'Kitchen Dutch', which had dropped certain inflections and vocabulary items, incorporated loan words from other languages and modified many vowel sounds (Thompson, 2001:52). There is a large degree of mutual intelligibility with standard Dutch – with approximately 95 per cent of the vocabulary having Dutch origin. It is the first language for an estimated 7 million South Afrikaans, and is widely spoken and understood as a second or third language.

century, the solvency issues facing the VOC signalled the rise of Britain as the new imperial power. Britain founded the British East Company and decided to take control of the Cape as a halfway station to the East (Lowe et al., 2020; Thompson, 2001).

Initially, South Africa was of little interest to the British government. Until the country's vast mineral wealth was revealed in the late 1860s, main exports included wine, wool, and elephant ivory. Between 1806 and 1819, the British troops, assisted by colonial commandos and Khoikhoi units, ruthlessly expelled Xhosa inhabitants from their land. In 1820, the British government sent nearly four thousand Britons to occupy and cultivate farmland in the Cape region, land that was owned by Xhosa communities. Unlike the Dutch settlers, social mixing was rare amongst British immigrants, who referred to the former as Boers with stark derogatory overtones. Conflicts with the British colonists and Xhosa kingdoms prompted the Boers to migrate to the country's interior in a movement that came to be known as the 'Great Trek'. Facing unprofitable conflicts with the Boers and land disputes with the Basotho, Britain granted independence to the Boers, which established the Orange Free State and Transvaal at the Sand River and Bloemfontein conventions in 1852 and 1854, respectively. Both conventions prohibited slavery, which the Boers did not observe. Additionally, earlier British treaties with African chiefdoms that protected their lands were cancelled, creating an enabling environment for the Boers to carry out the conquest of the Southern African interior (Thompson, 2001:31-69).

With the discovery of diamonds in Kimberley and gold on the Witwatersrand in the late 1860s, South Africa transformed from being a geopolitical asset for British colonialists into a lucrative source of capital expansion. However, these areas were part of the Boer republics and conflict for control of the area led to the Anglo Boer War (1899-1902), which Britain eventually won. To consolidate British rule in Southern Africa, the high commissioner to the region, conservative leader Sir Alfred Milner, drafted the terms of what became known as the Peace of Vereeniging, which detailed the conditions under which the region could become a self-governing dominion. Milner looked to de-nationalise the Boers (hereafter Afrikaners). The treaty, therefore, included no concessions to Afrikaner demands that might undermine his plans. However, the Peace of Vereeniging included one major concession to Afrikaner and British colonial sentiment: 'The question of granting the franchise to natives will not be decided until after the introduction of self-government' (Milner, as cited in Thompson, 2001:144). White inhabitants of the Transvaal and the Orange River Colony were themselves to decide whether to enfranchise the black fellow subjects, which decided to do. Especially in the gold-mining industry, which Milner nourished as a magnet for white immigration and a source of profit, he tightened the pass laws to restrict the mobility of African labourers. At the same time, the mining companies cut Africans' wages by importing labourers from China. By 1910, with the formation of the Union of South Africa, Whites had conquered the indigenous inhabitants of South Africa. During the ensuing years, the new state implemented a comprehensive program of racial segregation and discrimination and gained control over the African peasantry (Schultz & Van Riet, 2018). One significant event in this regard was the passing of the Natives Land Act in 1913, which prohibited Africans from buying or leasing land outside the reserves from people who were not Africans. The goal was to transform tenants into wage workers, by forcing African families – formerly independent farmers on sharecropped land – to accept wage labour and give up their equipment (Mbongwa et al., 1996:43). In an attempt to ensure sufficient labour for the emerging mining industry, the Act also limited the area where blacks could establish farming operations to the reserves which, in 1936 when it was passed, totalled a mere 13 per cent of the country's area (Alden & Anseneeuw, 2009:78). Additionally, the Act prohibited blacks from sharecropping, cash rentals, and buying land from whites.

Volkekunde, Segregation and apartheid

The significance of the 1913 Natives Land Act in terms of consolidating racial and spatial segregation was that it laid the work for the apartheid government's Bantu Authorities Act of 1951. According to Greenberg (2003), the Act eliminated agricultural competition from black farmers. It consolidated a system of migrant labour that forced the black rural population to live in racially defined areas and migrate to white-owned farms, mines and industrial areas for employment. The Native Authorities Act of 1951 and the Bantu Self-government Act No. 46 of 1959 established 10 'independent' homelands/Bantustans, namely: Bophuthatswana, Ciskei, Gazankulu, KaNgwane, KwaNdebele, KwaZulu, Lebowa, Qwaqwa, Transkei and Venda (Cahoon 2015). These boundaries were confined to the land allocated to Africans by the 1913 Natives Land Act and aimed to promote 'self-determination' and 'independence' (Wolpe 1972).

Intellectually, this form of spatial governance hinged on a particular brand of applied anthropology, namely *Volkekunde* (which roughly translates into the study of 'a people' or volk). *Volkekunde* is rooted in Ethnos Theory and the assumption that humankind is divided into *volke* (nations, people), each with its own particular culture, which may change but remains authentic to the group in question (Sharp, 1981). As such, with their own biological and cultural traits, ethnic groups should have the space to flourish 'in its own way' (Van Riet, 2014:118). These anthropologists were mainly based at Afrikaans-speaking universities which, along with the findings of various commissions of inquiry, sought to justify the state's socio-spatial governance. In this sense the central tenet of *Volkekunde* was not Ethnos Theory, but instead *Volksdiens* (service to the Afrikaner volk). This included, amongst others, addressing the *Arm Blanke Vraagstuk* (The Poor White Problem) in the form of the Carnegie Commission of 1932.

The *Arm Blanke Vraagstuk* appeared for the first time in the late nineteenth-century, as many of the Afrikaner population were dispossessed of their land, especially in the Cape and Transvaal (Freund, 2011). This led to forms of racial integration in urban areas, which attracted concern amongst the political elite. In the 1870s, a colonial visitor to Grahamstown wrote that 'miscellaneous herds of whites and blacks lived together in the most promiscuous manner imaginable' (Roos, 2003:646). Likewise, in 1893, the Cape Labour Commission reported with distinct alarm that whites were increasingly 'mixing with coloureds, marrying coloured women and assimilating more to the black race' (Roos, 2003:646). This spurred fears that poor whites would form alliances with poor blacks and undermine the foundations of the colonial order. As the majority of poor whites were Afrikaners, social scientists like G.D. Scholtz expressed concerns that 'multi-racial slums' could threaten the future of the Afrikanerdom and white rule itself. In his book, *Het die Afrikaanse Volk 'n Toekoms?* (1954) (Is there a future for the Afrikaner nation?) Scholtz notes that racial mixing would *'foster social intimacy and eventually limit race consciousness'* (cited in Roos, 2003:648).

As a response, the state embarked on a series of social protection mechanisms to tackle the multiple dimensions of white poverty. The Carnegie Commission report was hugely influential in this regard. Although the report did not make a case for white superiority,[51] some argue that it laid the platform for apartheid by maintaining discourses such as 'separate but equal' and 'social scientific practices' like *Volkekunde* (Van Riet, 2014:119, f43). The report asserted that industrial expansion, rather than 'back to the land' ideals, considered 'anti-modern', is necessary to lift poor whites out of poverty. A recurring theme in commission reports was that Africans are rooted in rural, collectivist lifestyles, and seek 'the bare requirements of the necessities of life as understood by barbarous and undeveloped peoples' (Hertzog, as cited by

[51] On the contrary. The commission was saturated with eugenic reasoning that described the economic situation of poor whites as a result of genetic factors. The report cautioned against the extension of social welfare, because there are some 'psychological traits' and a 'type of mentality' among poor whites that would intensify dependence on the state (Bottomley, 2016; Seekings, 2006). Although the state chose to ignore these conclusions, the commission described poor whites as having an inherent tendency to be 'lazy, untidy' and elderly people spend their old-age pension on alcohol or callous children (Seekings, 2006).

Thompson, 2001:168). Whites, by contrast, are civilised people, 'whose standard of living conforms to the standard generally recognised as tolerable from the usual European standpoint' (Hertzog, as cited by Thompson, 2001:168). This provided a 'scheme of legitimation' for the Civilised Labour policy, which required industries, specifically mining and public works to not only give preference to whites but also pay them higher wages. The state furthermore implemented substantial tariff protections for manufacturing industries, provided that they maintained a satisfactory ratio between 'civilised' and 'uncivilised' workers. By 1939, well over 100 000 whites found sheltered employment and earned 5.3 times as much as African workers in the manufacturing and construction industries (Bottomley, 2016; Roos, 2003; Thompson, 2001).

As the Second World War broke out, anti-British sentiments mobilised a plethora of Afrikaner nationalist organisations that sought to secure the 'purity' of the Boerevolk at all costs. In his *Rasse en Rassevermenging* (Races and Race Mixing), G. Eloff resorted to Ethnos Theory and emphasised the urgency to preserve 'the pure race tradition of the Boerevolk…as a holy pledge entrusted to us by our ancestors as part of God's plan with our People' (cited in Thompson, 2001:184). Likewise, Afrikaner Nationalist and sociologist, Geoffrey Cronjé, deemed the racial-mixing between blacks and whites as the biggest threat to the Afrikaner *nageslag* (descendants), as this will produce a *bastervolk* (a population of bastards) (Coetzee, 1991:7; see also Hyslop, 1995). Looking at Cronje's work, Nobel laureate J.M. Coetzee argues that this obsession with racial mixing was emblematic of apartheid's collective insanity.

> Around *mixture* his mind obsessively turns. What is *mixture?* [...] It is mixture and the desire for mixture that is the secret enemy of Geoffrey Cronjé and the knights of apartheid, the baffling force that must be thwarted, imprisoned, shut away. *Apartheid is many things, a mixture of things; one of the things it is is a scheme to make it impossible for the desire to mix to find fulfilment* (Coetzee, 1991:3, my emphasis).

Here, the racial mixing and sexual activities between the VOC employees and the native population is conveniently obscured. This was the case with most *Volkekundiges*, who saw it as their duty to preserve the *volk*, instead of asking uncomfortable questions.[52]

[52] Yet, it is estimated that approximately 6 per cent of modern Afrikaner genes originated outside Europe, and that this occurred mostly during the company period (Hesse, 1971). These forms of racial mixing and hybrid communities of the Afrikaner's ancestors symbolise what Noel Mostert (1993:237) calls 'a lost route of Afrikaner history'. Referring to Coenraad de Buys and his descendants, Mostert notes: 'on the one hand he represented the interracial intimacy and familiarity, on the other the ruthless self-interest, peremptory will and desire and brutality, of relations between those forerunning Boers and the indigenous inhabitants' (Mostert, as cited in Nuttall, 2010:27).

Apartheid's dream geographies

Dedicated to preserving the 'purity' of the white race, and particularly the Afrikaner volk, apartheid's engineers saw it imperative to segregate races in South Africa. To this end, the apartheid government implemented the Immorality Act of 1927 and the Prohibition of Mixed Marriages Act of 1949. These two pieces of legislation made it illegal for whites to get married or have sexual intercourse with non-whites. This legislative space was accompanied by a state apparatus that socialised white and black South Africans into believing that they were fundamentally different. Amongst others, the idea of racial purity inherent to Afrikaner nationalism was propagated by Afrikaans-language schools and universities, Dutch Reformed church, books, radio, television, and newspapers (Thompson, 2001; Van Riet, 2014). Not only did this political mythology made whites believe that they are superior to the black race, but the socio-economic consequences that accompanied the institutionalisation of apartheid performed this racial hierarchy into being. The materialisation of racist discourse took place through, among others, 'petty apartheid'. Petty apartheid refers to the racist laws that governed the daily lives of South Africans in racially segregated offices, businesses, schools, beaches, restrooms, park benches, restaurants, theatres, and sports fields (Beck, 2000:125-126). The country was riddled with plaques in public spaces that read: Whites Only.

This obsession with mixture – specifically managing desires to mix – became institutionalised through numerous pieces of legislation that separated South Africa's population into four races: Whites, Coloureds, Indians, and Africans. These include the Group Areas Act of 1950 which, as mentioned, consolidated the spatial segregation set out by the 1913 Native Land Act, by assigning racial groups to different residential and business sections in urban areas. Should non-whites travel to white spaces, the Pass Laws Act of 1952 required them to carry a passbook at all times. The book held personal details and the name of the individual's white employer and the duration of his/her employment, which served as a valid reason for being in the white area (Van Riet, 2014:122). Additionally, the Bantu Homelands Citizenship Act of 1970 determined that black Africans were no longer South African citizens, but rather citizens of 'their' 'independent' homelands which, not surprisingly, the international community never recognised. Rationalised through the quasi-scientific principles of Volkekunde, the apartheid government described these segregation policies as 'good neighbourliness'. According to Hendrik Verwoerd, widely referred to as the mastermind of apartheid, good neighbourliness entails the acceptance 'that there are differences between people…and you have to acknowledge them, at the same time you can live together, aide one another' (Verwoed, 1961, cited in Burgett, 2015). Yet, differentiation between white and black, as mentioned throughout this thesis, does not entail a 'peaceful coexistence of a *vis-à-vis*, but rather…a violent hierarchy. One of the two terms governs the other…or has the upper hand' (Derrida, 1981:4).

Far from being biologically or culturally determined, the apartheid state (and colonial governments before it) brought racial differences into being through a rigid form of spatial governance that limited the areas where blacks, coloureds and Indians can live, work, or obtain an education. Under the Group Areas Act (1950) and its subsequent amendments, the zoning exercises that identified certain urban spaces to whites in many cases included areas that had previously been occupied by Blacks (Beck, 2000:127; Thompson, 2001:193). These zoning exercises led to numerous forced removals, even in cases where Africans owned land before the Urban Areas Act of 1923 put an end to African purchases. Some of the notorious examples include Sophiatown, located approximately 10 kilometres from Johannesburg's city centre and District Six, adjacent to the centre of Cape Town. Entire communities were forcibly relocated to achieve the idealised apartheid urban geography. These forced removals were not confined to urban areas alone. In rural areas, forced resettlements also became known as the clearing of 'blackspots' or fertile land occupied by blacks for use by whites in rural areas (Lipton, 1985:74). Forced removals formed part of the government's attempt to relocate the 'surplus' natives to homelands. According to the Surplus People Project, approximately 3.5 million people were forcibly resettled between 1960 and 1980 (Mbonwa et al., 1996:53). In a short time, Homeland areas became extremely overcrowded, making Africans dependent on the labour needs of farmers, or migrant work in urban areas. In cities located outside Homelands, the government transferred large numbers of Coloureds, Indians, and Africans from the land they previously occupied to new segregated satellite townships. These informal settlements served, and continue to serve, as labour dormitories to meet the labour requirements of the town (Bezuidenhout & Buhlungu, 2015). As the stories of Faeza Meyer and the poo protesters illustrate, the apartheid and post-apartheid governing of spaces reiterate inequalities by keeping 'raw lives' out of sight and mind. In his denunciation of apartheid's political geography, Coetzee's essay *Into the Dark Chamber: the writer and the South African State* (1986b) provides a glimpse into this spatial governmentality:

> If people are starving, let them starve far away in the bush, where their thin bodies will not be a reproach. If they have no work, if they migrate to the cities, let there be roadblocks, let there be curfews, let there be laws against vagrancy, begging, and squatting, and let the offenders be locked away so that no one has to hear or see them. If the black townships are in flames, let the cameras be banned from them…Certainly there

are many lands where prisons are used as dumping-places for people who smell wrong and look unsightly and do not have the decency to hide themselves. In South Africa the law sees to it as far as it can that not only such people, but also the prisons in which they are held, become invisible (Coetzee, 1986b).

South African writers have captured the consequences of apartheid's spatial governing in ways that reveal the delicate and intricate meanings and emotions accompanying these forms of exclusion, oppression, and humiliation. One such example can be found in Adam Small's *Kanna hy kô hystoe*[53] (Small, 1999 edition), a play that deals with the misfortunes of being coloured in apartheid South Africa. The play's main character, Kanna, is expected to return home after many years abroad, and during much of the play, it is unclear when and if he returns. He does eventually return, but only to attend the funeral of his adopted mother, Makiet, and returns to his overseas home shortly after the funeral. This sense of an unfinished journey resonates with the incompleteness of raw life: the constant threat of displacement, of being placeless, of trying to carve out a sense of *ordentelikheid* amidst the harshness of everyday life. Having once lived in District Six, Kanna's story captures the socio-economic and emotional impact of forced resettlements. Victims always conveyed a devastating sense of loss to the researchers of the Surplus People's Project (Platzky & Walker, 1985). This entailed depictions such as leading 'the life of a bird' and never being able to get used to one place. One study reports on how resettled communities lamented the fact that the apartheid policies prevented them from living like 'men with souls' (Barnard, 2007:73; Desmond, 1971).

Recognising Kanna's intellectual potential at an early age, Makiet sought to enhance his chances for professional success by spending much of her family's limited income on his education. This success he did achieve, overseas, where he became an engineer. Having spent time away from the modes of social life apartheid produce, Kanna develops a growing consciousness of his own and his family's marginalisation due to their race and the associated forms of humiliation this brings about. These emotions get illustrated in the following scene early in the play (Small, 1999:24)

Kanna: *Hy het op die reling gaan sit* (he went to sit against the rails)
Armoede en euwels. (poverty and evils).
Dag in, dag uit. (Day in, day out).
Jaar in, jaar uit die vernedering. (Year in, year out the humiliation).

[53] This is a particular dialect of Afrikaans, spoken mainly by Coloureds, but also other communities living in the Western Cape. The history of what has been termed 'Afrikaaps' reveals the mutual entanglements between white Afrikaners and the non-white population. It is this history that has been strategically overlooked by the Afrikaner nationalists to differentiate themselves from the Other. An insistence on uniqueness, according to Nuttall, represses 'precisely what draws together, what links, the oppressor and the oppressed, black, white and coloured' (2010:28).

Geslag op geslag. (Generation after generation).

This scene is followed by a series of recollections of instances of torment. One such instance is the scene where Diekie, Kanna's younger brother, is brought in front of a magistrate as he is sentenced to death by hanging, for taking revenge upon his sister Kietie's husband, Poena, who sold her into prostitution. Kietie has been raped multiple times, the first time when she was seven. The first rape was a gang rape that dislocated her hip and left her crippled. During another rape, Kietie falls pregnant and conceives a child, which drives her to insanity. It was during this second pregnancy when Poena, under the influence of drugs, slashed Kietie's stomach with an axe, hit her over the head, and kills her. Diekie sees this and decides to take revenge, an act for which he gets hanged. It is the death of both Kietie and Diekie that eventually kills Makiet. The theme of death emerges early on in the play when Makiet says to Kanna, '*Alles waai hier doot, Kanna'* (everything is blown to death here, Kanna; Small, 1999:11). Although the wind in Cape Town does kill much of the plant life, Makiet here draws attention to the precarity of life in these settings. Commenting on the play, Adam Small (1976) explains that Kietie's story reveals the fate of many people living in townships, who continuously deal with a sense of purposelessness and entrapment. When the judge reads Diekie's sentence, the line '*as hulle vir Dieke versagting gevind het, moet hulle vir duisende versagting vind'* (if they found mitigating circumstances for Diekie, they would have to find mitigating circumstances for thousands), is subsequently repeated (Small, 1999:57). Here, the judge recognises that Diekie's behaviour is a symptom of his social circumstances, where the socialisation into a violent and uncertain existence often force people 'to adopt violent measures as a matter of survival, and in the process, losing their sense of right and wrong' (Wilson & Ramphele, 1988:51).

Ellen- Die Storie van Ellen Pakkies (Ellen – The Story of Ellen Pakkies, Joshua, 2018) illustrates the alarming continuities in the modes of suffering we see in *Kanna,* years after the play was written. Based on real-life events, this film reveals how the production of raw life creates a breeding ground for substance abuse and gangsterism as an alternative form of social security in a context of limited employment opportunities. As Ross (2010:7) notes in her study of residents in The Park, one of the ways in which people deal with the humiliations associated with raw life is through drug use and alcohol dependence (Ross, 2010:7). In the Cape Flats region, the use of crystal methamphetamine – locally known as 'tik' – has increased significantly from the mid-2000s (Goga, 2014). This is a highly addictive psychostimulant that is relatively easy and inexpensive to manufacture. The drug produces an extreme dopamine boost that generates feelings of euphoria and happiness. Long-term usage destroys the brain's ability to naturally produce dopamine, often causing memory loss, psychotic behaviour, and aggression (Masters, 2017). It is these behavioural changes that led Ellen Pakkies to strangle her tik-addicted son, Abie, to death in 2007. Like Kietie, Ellen Pakkies has been a victim of rape in the Cape Flats since she was four years old, and during one rape as an adult, she fell pregnant with Abie. She tried to carve out a decent living for him and her family in the Cape Flats, but Abie struggled to deal with the fact that he was born out of such an atrocity and gives into tik. Like many others, he started engaging in criminal behaviour to pay for his next fix, stealing from his mother numerous times. During withdrawal episodes, he assaults his mother and tries to burn down her house (see McKaiser, 2018). When Ellen Pakkies stood trial for the murder of her son, the reasoning for her actions reveal the stark similarities to Kanna's (Small, 1999:24) observations of life in the Cape Flats, cited above. She explains to the prosecution that she wanted to escape fear and evil: '*Net vir een dag, wou ek nie vir my lewe gevrees het nie. Nie elke dag te* worry *oor watse* evil *ek nou weer gaan sien nie. U verstaan nie daai vrees nie'* (Just for one day, I didn't want to fear for my life. Not worry about what evil I'll see today. You don't understand that fear) (*Ellen- Die Storie van Ellen Pakkies,* 2018). She explained to the prosecution that she tried alternative avenues: she got an interdict against Abie, tried to take him back to school, approached doctors and rehabilitation centres, but was unable to get the help she needed (for coverage of the court case, see Jones, 2008a, 2008b; Samodien, 2008). In reading her sentence, the magistrate presiding over the case, Amanda von Leeven (much like the magistrate sentencing Diekie), notes that her circumstances drove her to take her son's life and decides to give her a three-year suspended sentence and 280 hours of community service (Valentine, 2018).[54]

> I don't believe the accused is aggressive, or violent, by nature. I also believe that she pursued every avenue available to her. In this regard, the state, as well as her community, failed her. This is a tragedy that didn't need to happen…I don't believe imprisonment is appropriate here. The system has failed your Mrs. Pakkies (*Ellen- Die Storie van Ellen Pakkies,* 2018).[55]

Another literary work that captured the unjust nature of apartheid – a story with stark similarities to Faeza Meyer's struggle to find permanent housing – is Elsa Joubert's *Die Swerfjare van Poppie Nongena* (The Wandering Years of Poppie Nongena), first published in 1978. Based

[54] In 2012, it was reported that Ellen Pakkies lost her grandson to tik and a gang-related shootout, and that she is battling with her eldest son who also fell victim to the drug (Prince, 2012).
[55] This passage is taken from the film, *Ellen – Die Storie van Ellen Pakkies* (2018), but the real life reading is very much the same (see Jones, 2008a, 2008b; de Klerk, 2019; Holm, 2017:75-77).

on true-life events, this book tells the story of an Afrikaans-speaking Xhosa woman born in the Northern Cape in 1936. Married at the age of 16, she and her husband start a family; however, as the apartheid government's *Volkekunde*-inspired policies became enforced in the 1950s, she and all other African women are forced to leave the area. They relocate to the Nyanga township in Cape Town, but struggle to find accommodation and waged employment. In fact, like many others, Poppie gets sent from pillar to post by the apartheid bureaucracy and finds herself in a constant struggle to obtain permission to stay, moving from house to house, applying for permits, monthly extensions of permits, fortnightly extensions of extensions (Dyer, 1980). This trapped her in a state of liminality, resonating with the depiction of a 'life as a bird', mentioned earlier. Neither she, nor her children, were able to escape the modalities of raw life apartheid produced, and this sense of entrapment – unemployment and a lack of opportunity to carve out a decent living (ordentelikheid) – remains a reality for many South Africans even after 1994, as the stories of Ellen Pakkies and Faeza Meyer attest.

Raw life in democratic South Africa: the governmentality of credit ratings

The systemic violence of apartheid makes the task of distributive justice in democratic South Africa an extremely complicated one.[56] As the preceding sections made clear, there are many continuities in the forms of suffering produced by apartheid. This is not to suggest, as is often the case, a direct continuity with the past. Indeed, the political elite of contemporary South Africa has arguably never been more diverse, specifically in terms of race, gender, and ethnicity. In 2010, South Africa's black middle class, for example, emerged for the first time as larger than its white middle class, a statistic that contests a stasis in the social structure of the country (Brulliard, 2010; Nuttall, 2010:2). Instead, post-apartheid South Africa is an age that encloses multiple *durées*. It is 'made of discontinuities, reversals, inertias, and swings that overlay one another…envelope one another: an *entanglement*' (Mbembe, 2001:14, original emphasis).

The governmentality of sovereign credit ratings entangles South Africa's violent past with the post-apartheid present in two important ways. First, categorised as an emerging market with a potentially fragile, uncertain, and volatile economy, the post-apartheid government has been encouraged to act in a 'creditworthy' way through the adoption of neo-classical policies like central bank autonomy, inflation targeting, and the removal of trade barriers (Aguir, 2018;

[56] I recognize that concepts such as redistributive justice and democracy has a lot of conceptual baggage (Hamilton, 2019). Due to space and time constraints, I will not delve into these debates. For the purposes of this discussion, what I mean here is that the question of how to deal with the socio-economic and racial hierarchy left by this violent past in a representative democracy is extremely complicated and a cause of frequent debate (see Habib, 2013; Hamilton, 2014b).

Grabel, 2000). These policies have enabled the financialisation of South Africa's economy and, in particular, the transition away from a Fordist regime to a service-based economy, with financial services becoming increasingly important (Makhulu, 2017). However, the dominant sectors in a service-based economy – finance, insurance, and real estate – produce little material value in terms of job opportunities as they depend more on speculation and the potential of capital and credit in circulation real productive sectors. As such, South Africa has experienced 'jobless growth' in the late 1990s and early 2000s as job shedding shrank agricultural, manufacturing and mining industries. Second, the financialisation of South Africa's economy has been accompanied by new forms of precarious labour, informal livelihoods, and often high levels of individual indebtedness (Makhulu, 2017). These changes have often been explained as the result of the ANC's embrace of neoliberalism and policies like the privatisation of public goods, fiscal austerity, and trade liberalisation (Bond, 2002; Marais, 2011). Yet, one should be careful not to fall prey to polemic generalisations of neoliberal projects that provide a singular, universalising account of governance arrangements (Barnett, 2005:9). Instead, it is necessary to build a nuanced account of how neoliberalism as a logic of governing migrates and is selectively taken up in diverse political contexts. For instance, although the ANC has stringently adhered to prescriptions like inflation targeting and central bank autonomy, it nevertheless spends a significant amount of its budget on social protection (Ferguson, 2009). Indeed, the country has the largest unconditional grant transfer programme on the continent and also provides public health care and has progressive labour laws (Devereux, 2011).

However, these social protection mechanisms are by and large inadequate to prevent the intergenerational transmission of poverty. To a large extent, as the following chapter also explains, the governmentality of sovereign creditworthiness limits the redistributive capacity of the post-apartheid government, as deficit spending in the short-term inevitably leads to inflation, uncertainty, and economic collapse in the long-term. This entrenches, on the one hand, the public transmission of poverty, which occurs when there is a lack of transfer of resources from one generation to the next through, for example, non-inclusive economic growth policies that reduce the ability of one generation to support the education of the youngest (Harper, et al., 2003:536). However, the intergenerational transmission of poverty also has a 'private' dimension, which occurs between older generations of individuals and families to younger generations. As the rest of this chapter shows, the intergenerational transmission of poverty significantly entangles the post-apartheid present to the colonial histories of European expansion.

The political economy of post-apartheid South Africa: exploring the continued relevance of history in contemporary inequalities

By any measure, South Africa is the most unequal society on the globe. Consider, for instance, the May 13, 2019, international cover of *TIME* magazine, which examined South Africa as 'the world's most unequal society' (Pomerantz, 2019). The cover photo, which compares two adjacent areas in Johannesburg, was taken by Johnny Miller as part of his 'Unequal Scenes' project that utilises drone footage to visualise inequality. This image captures the extent of inequality in South Africa. On the left, in the Primrose suburb, properties have ample green space, swimming pools, and houses/office parks are much larger than the structures on the right, in Makause. Here, roads are untarred, houses are built very close to each other and with very limited green space, if any at all. These areas are also much more likely to struggle with poor service delivery such as water and sanitation infrastructure, electricity, and refuse disposal (Hart, 2014; Hunter, 2010).

South Africa has more luxury-car dealers than any country outside the industrialised north (Marais, 2011:1), yet 30 per cent of its working-age population cannot find waged work (Stats SA, 2020). Despite significant progress, many households in townships do not have access to safe drinking water and sanitation, which often cause diarrhoea, anaemia, and other nutrition requirements. Approximately 27 per cent of children under five years of age are stunted (Mboweni, 2019). The cognitive damages of stunting are irrecoverable, which puts millions of children at a disadvantage when it comes to learning. What complicates this situation is that the post-apartheid South Africa education system is characterised by stark inequalities, undoubtedly rooted in the legacy of apartheid, as well as the continued failure by the current government to address these inequalities (Amnesty International, 2020; Hunter, 2010:105-129). The apartheid government's Bantu education policy provided different forms of education to students according to their separate cultural identities. For Whites, this meant compulsory attendance at public schools, but optional for Coloureds and Indians in their schools. Until 1953, African schools fell under the Department of Education but were run by church missions (Beck, 2000:132). This troubled the apartheid state, as it feared that the mission schools could disseminate 'false' ideas about equality, human and civil rights. In a notorious speech, Verwoerd made clear that the education of Africans

> […] should have its roots entirely in the Native areas and in the Native environment and Native community…The Bantu must be guided to serve his own community in all

> respects. There is no place for him in the European community above the level of certain forms of labour…For that reason it is of no avail for him to receive training which has as its aim absorption in the European community while he cannot and will not be absorbed there (Verwoerd, as seen on SAHO, 2016).

In other words, Africans should not be educated for jobs they will never be able to hold in White-ruled South Africa. Nkondo's (1979) comparison between Bantu and white syllabi shows the immense differences of depth, time allocation and resourcing. The government spent nearly ten times as much per capita on white students as on African students, while African classes were more than twice the size white ones were. Teachers in white schools were far more qualified than African schools, who were paid less, and had to teach schoolchildren from textbooks that expressed the government's racial views.

These material disparities, despite some progress, persist. Many schools catering for households in township areas lack basic facilities like electricity, sanitation facilities, libraries, and sports facilities (Amnesty International, 2020). A study conducted by Amnesty International (2020) on the state of education in South Africa showed that township schools in Gauteng and the Eastern Cape, attended solely by black Africans from low-income households, were in a severe state. School buildings are poorly maintained and put the safety and security of learners at risk; classes are often overcrowded and without basic equipment such as furniture and textbooks. Learners in these schools are much more likely to drop out from Grade 6. Out of 100 learners, 50 to 60 would reach Grade 12 and only 40 to 50 learners will pass, while 14 would go to university (Amnesty International, 2020:32). Reasons for dropping out include a lack of financial resources, poor academic performance, and family commitments (i.e. getting married, caring for children, and teenage pregnancy) (Stats SA, 2019:14). This diminishes the likelihood of enrolling into university and finding employment in the formal sector. In cases where students from low-income, black households enrol into university, they tend to drop out at a much higher rate, with 32.1 per cent leaving their first year (Gumede, 2017). The 2015/2016 #feesmustfall protests, which brought South African universities to a standstill, drew attention to how the fee structure of tertiary institutions prohibits many families – predominantly black African – to obtain a degree.

By contrast, formerly classified 'white' schools in wealthy suburban areas, apart from state funding, have income streams that are unavailable to township schools. These include high school fees that many low-income households cannot afford and fund-raising campaigns where wealthy parents donate funds and other school materials, such as computers, printers, laboratory resources – including sufficient financial resources to hire additional teachers (Ndimande, 2016). As a result, these schools tend to produce better academic results, with more students completing high school with a 'bachelor's entry' that allows them to go to university. Upper-middle-class households, or particularly gifted children, have access to elite private schools. These schools often have exorbitant fee structures that are out of reach for most South Africans.[57]

The post-apartheid government's 'willing buyer willing seller' policy to redistribute land has undermined attempts to address the socio-spatial injustices of apartheid. Although the constitution allows for expropriation without compensation, the government has been reluctant to use this principle in its land reform programmes (see Borras, 2003; Hall, 2004). Instead, it has often paid exorbitant prices for agricultural land, the redistribution of which has been slow, and seems to favour applicants who want to engage in commercial farming (Lahiff, 2007). This approach to land reform has also complicated urban housing delivery, as Faeza Meyer's story shows. The ANC's commitment to building thousands of low-cost houses has been rolled out through the colloquialism of 'RDP houses', named after the party's flagship Reconstruction and Development Programme. Yet, with a few exceptions, these housing projects work *through* apartheid's geography rather than providing a basis for its transformation (Hunter, 2010:110). The market mechanism for delivering RDP houses means that many are still on the outskirts of towns, where land is cheaper. Despite having a new house, many Africans continue to have limited access to the urban labour market.

Residents in the middle- and upper-class residential areas near city centres often oppose low-income housing delivery near their neighbourhoods, raising concerns about the market value of their properties and fears of crime and other social ills (Mongwe, 2010; Samara, 2010; Van Riet, 2014:130). In fact, with a few exceptions, white-only neighbourhoods are still racially exclusive, often gated and social interaction among different race and ethnic groups are alarmingly limited (Goebel, 2007). There is a myriad of reasons for why apartheid's spatial inequalities, as depicted in the images above, persist in democratic South Africa. These range from economic policy and financialisation processes (discussed in Chapter Six), poor and

[57] Hilton College in Kwa-Zulu Natal cost R321,890 (€16,126) per student, followed by Michealhouse, R303,600 (€15,210). On the list of top ten most expensive schools, the least expensive one was St. Alban's college, with R264, 900 (€13,271) annual tuition fees (de Villiers, 2020). In comparison, semi-state public high schools cost R29,500 (€1477) ("Top private and public schools in South Africa", 2018) per student per year, while state-only funded schools are free. Some of the benefits of private schools include the teacher-to-student ratio, which is 1:15, compared to 1:30, and even higher in public schools; highly qualified staff, professional sport academies, libraries, and music education. Most matriculants pass with a 'bachelor's entry' (88 per cent in 2017) that allows them to go to university. Conversions completed on 9 September 2020.

exclusive economic growth accompanied by high rates of unemployment and underemployment, and limited opportunities for historically disadvantaged groups to break the intergenerational transfer of poverty (Hunter, 2010; Van Riet, 2017). The situation is worsened by weak political leadership that undermines policy implementation (Habib, 2013). While recognising that the ANC – or any political party stepping into power after apartheid – faced an enormously difficult task, the governing party has been racked by corruption scandals with limited accountability for those that have been found guilty (Corruption Watch, 2020; Gevisser, 2019; Hamilton, 2014b). In fact, it is difficult to keep track of these scandals, let alone determine just how much they have taken from South Africans. Nevertheless, coupled with a dysfunctional state bureaucracy, it is safe to say that large sums of money have been lost to corrupt dealings meant to improve the lives of South Africa's poor; the impact of corruption is indeed significant (Lowman, 2017).

The combination of these factors enabled the formation of a security infrastructure that has furthermore entrenched historical spatial inequalities. This infrastructure consists of private security companies (PSCs) and their 24-hour armed response services, alarm systems, surveillance cameras, neighbourhood watches and Facebook and Whatsapp 'crime watch' groups (Van Riet, 2020). These security practices emerged alongside growing fears amongst white South Africans that the relaxation of influx control measures will lead to an increase in crime. Although crime did indeed grow, this security infrastructure and its accompanying anxieties facilitate a mode of spatial governing that reiterate apartheid geographies (Anciano & Piper, 2019; Robins, 2002; Samara, 2010; Spinks, 2001; Van Riet, 2020). For instance, Samara (2010) documents how, in the City of Cape Town, policing practices by a PSC sought to secure the inner-city by taking care of potential crime elements. The targets here are generally street children, unemployed/homeless persons, street vendors and informal workers, as well as unlicensed performers. They are virtually all black and coloured men, women, and youth from the townships or migrants and refugees from neighbouring states. Akin to Faeza Meyer's struggle to secure a place to sleep without coming into conflict with law enforcement, the policing practices in Cape Town's inner city had striking similarities with apartheid's spatial governance. Some of these activities were characterised by violent beatings and harassments, mainly of street children. According to one respondent, the police has 'had reports of children being picked up by security firms in Cape Town and dumped in Camps Bay and then being picked up in Camps Bay by police there and then being dumped back in town' (Jackson as cited by Samara, 2010:648). Similar stories have been reported elsewhere in the country (Anciano &

Piper, 2019; Buur, 2008; Van Riet, 2020). Even in the midst of the COVID-19 pandemic, despite the state's issuing of a moratorium on evictions, the City of Cape Town's Anti-Land Invasion Unit (ALIU) continued evicting people occupying unused urban land or buildings (EWN, 2020). This occurred at a time when many households not only saw their incomes shrink due to COVID-19 mitigation measures but also extremely harsh winter conditions (Kiewiet, 2020). Although the Western Cape High Court found these actions illegal in a context of a national state of disaster, such forms of spatial governing are otherwise legally allowed, which reveals the problematic legal apparatus governing spaces in post-apartheid South Africa.

Moreover, as Ellen Pakkies's testimony demonstrates, fear is something that most South Africans experience, especially women and girls. Limited employment opportunities, coupled with high levels of poverty and inequality, have created a breeding ground for crime. In 2018/19, a total of 2,771 women were murdered in South Africa, which means that a woman is murdered every three hours. South Africa also has the highest cases of rape per 100,000 citizens which is at 132,4. In 2018/19, the total cases of *reported* rape were 41,583 (AfricaCheck, 2019; World Population Review, 2020). There is also a proliferation of gang activity, organised crime, and drug trafficking, particularly in the Cape Flats region on the outskirts of the City of Cape Town. The Cape Flats region is mainly inhabited by Coloured and African households – a relic of apartheid's forced removals – where gangsterism and drug trafficking foregrounds the lives of residents. For many (especially young males, often as young as nine years of age), gang membership presents a source of protection, income (from drug sales) and self-esteem (Dziewanski, 2020). At the same time, gangsterism puts the safety of millions of South Africans at risk: gang initiations, for instance, often require prospective members to rape and/or murder innocent civilians, conduct armed robberies, housebreakings or other forms of theft (Cooper, 2009; see also Rossouw, 2019). The proliferation of gangs is accompanied by 'turf wars', and stray bullets have killed many children and residents in shootouts. In 2019, these turf wars killed an unprecedented number of people, amongst others, a 30-year old pregnant woman and a seven-year-old boy, named Emaan Solomons (Fisher, 2019). By June, more than 900 people were killed in gang-related wars in the Cape Flats region alone, prompting the government to deploy the South African National Defence Force (SANDF) to help provincial police officers address gang-related crime and violence in the area (Davis, 2019). These SANDF troops patrolled the area for three months, the success of which is yet to be determined.

Just a few kilometres away, in the wealthy suburbs of Hout Bay, Rondebosch, and Bishop's Court, one is confronted with a strikingly different reality. Although the threat of violent crime persists, it is not nearly as high or as violent as in township areas. For instance, between 2013-2017, in the Delft neighbourhood of the Cape Flats, there were 446 murders per 100,000 residents, compared to 72 per 100,000 in the neighbouring, affluent, Camps Bay (Bax et al., 2019). At the same time, in 2018, Delft, had 169 police officers per 100, 000 people. By comparison, the wealthy suburb of Rondebosch had 556 police officers per 100,00 people (Payne, 2018). As such, those who reside in townships are primarily left to their own devices in dealing with their security. Police stations servicing wealthy suburbs are more resourced, albeit still inadequately so, and cater to a smaller population (Van Riet, 2020).

Frustrations with the government's failure to address the many injustices of apartheid manifest in frequent, and often violent protests across South Africa. Mostly directed at municipal government, these protests typically deal with a lack of service delivery in terms of water and sanitation, housing, safety, electricity, and refuse disposal (Hamilton, 2014b; see also Marais, 2011). Local government, as Hart (2014:5) explains, has become *the* key site of contradictions in post-apartheid South Africa. It has become 'the official terrain of official efforts to manage poverty and deprivation in a racially inflected capitalist society marked by massive inequalities and increasingly precarious livelihoods for the large majority of the population' (Hart, 2014:5). Although protests are complex and eclectic phenomena, at the very least, they have bundled into them numerous grievances that symbolise the ANC's failure to deliver on its promises during the democratic transition (Marais, 2011:458).

Disillusioned with the promise of democracy, South Africa's traumatic past remains intricately entangled in its present. A pivotal event that captured the violent entanglement between the past and present is the Marikana Massacre of 16 August 2012. Amidst escalating violence between striking mineworkers and security officers at a Lonmin platinum mine in the North West province of South Africa, in a reportedly calculated move, the South African Police Force (SAPS) opened fire and killed 34 mineworkers (Bruce, 2016:7). This event evokes images and memories of police brutality in the 1960 Sharpeville massacre and 1976 Soweto Uprising, when the apartheid police force fired on a crowd of people protesting against the apartheid system (Hart, 2014:2). Whereas the latter massacres sought to protect a racist system, the Marikana Massacre occurred against a backdrop of eroding investor confidence, prompting authorities to restore stability (profitability) at the Lonmin mine. This event, alongside others discussed throughout this chapter, can be thought of as apartheid's 'ghosts', sites of memory that 'resist a complete erasure of the past' (Segall, 2005:42).

Conclusion: South Africa as a haunted society

This chapter sought to contextualise the socio-economic and political histories that are stripped away in sovereign credit ratings. By drawing on Ross's (2015, 2010, 2005) notion of 'raw life', this chapter interrogated how South Africa's traumatic past continues the haunt the present. Through the use of novels and films, this chapter exposes the many ways in which the intergenerational transmission of poverty takes place in post-apartheid South Africa. This takes place on both a private and public level, that is, on a household level and through the inability of the state substantially address historical injustices through, for instance, the provision of adequate housing, water, education, and nutrition.

In the following chapter, I consider how the sovereign creditworthiness assemblage interacts with apartheid's ghosts, that is, how it complicates the task of 'putting these ghosts to rest' through large-scale social change. The governmentality of sovereign creditworthiness interacts with local social histories in complex and contradictory ways. From an assemblage framework, Chapter Six shows how sovereign credit ratings bring together the ideas, histories, methods, models, and technologies discussed in the previous chapters, and how this assemblage unfolds in the governing of spaces and people in post-apartheid South Africa.

Chapter Six

Assembling the creditworthy sovereign

On the 27th of March 2020, Moody's downgraded South Africa's sovereign creditworthiness to Ba1 from Baa3 (Moody's, 2020a). Thus, more than two years after both S&P's and Fitch rated the government's debt as 'junk', Moody's finally followed suit. The key driver behind the downgrade, according to the agency, is the 'continuing deterioration in fiscal strength and structurally very weak growth', both outcomes reflecting 'weaker economic and fiscal policy effectiveness' (Moody's, 2020a). This downgrade had been anticipated for months (see Brand & Naidoo, 2019; Tayob, 2020). In November of 2019, the agency changed South Africa's outlook to negative from stable, suggesting that unless the Minister of Finance, Tito Mboweni, presents a 'credible fiscal strategy to contain the rise in debt' in the 2020 budget speech, a downgrade is inevitable (Moody's, 2019). The Budget Speech, which took place on the 26th of February 2020, sought to convince the agency of the government's commitment 'to fiscal discipline' with 'prudent fiscal policy' measures (Mbonweni, 2020). This entailed several spending cuts to areas such as education, much needed human settlements development, and municipal infrastructure, amongst others (National Treasury, 2020:50). Although the agency welcomed these reforms, one day into the nationwide lockdown, Moody's proceeded with the much anticipated downgrade, followed by further downgrades in November. Many governments across the globe took this decision: by April 2020, around half of the world's population was in some form of lockdown (Sanford, 2020). According to World Bank (2020) projections, these measures are expected to plunge the global economy into the deepest recession since World War II.

Acting in a characteristically procyclical manner, Moody's has released several issuer comments that express concern about the government's creditworthiness, mainly rising debt levels. In particular, the agency cautioned that the government's COVID-19 support programme would not only prevent a sharp economic contraction, but also weaken the country's public finances (Moody's, 2020b). On the 9th of September 2020, Moody's released another issuer comment that cast a dark shadow on the country's future: according to Moody's, the economy will not return to pre-COVID-19 levels before 2023 (Moody's, 2020c).

South Africa's relationship with CRAs captures a controversial aspect of macro-economic policymaking in the post-apartheid era, that is, to stringently adhere to the criteria of policy credibility laid out by new-classical economics (see Grabel, 2000). First, the ANC government agreed to settle billions of dollars of foreign debt incurred by the apartheid state. Second, instead of refinancing existing debt with more debt from international institutions to address urgent issues of wealth redistribution and economic transformation, it adopted an austere fiscal programme to reduce public debt (Hamilton & Viegi, 2009). This policy approach differed significantly from the socialist-democratic ideals set out in the ANC's Freedom Charter, which entailed the nationalisation of key industries – including land – to create jobs and promote social equality (Nattrass, 1994). Even the Reconstruction and Development Programme (RDP), a Keynesian, basic-needs programme that the ANC adopted shortly before the 1994 election entailed many compromises on socially progressive macro-economic policy (Marais, 2011). The ANC sought to portray an image of sound fiscal management to potential creditors, which would make it less expensive for them to finance the transformation of the economy (Hamilton & Viegi, 2009). However, as Chapter Five revealed, post-apartheid South Africa has yet to be substantially transformed: the ghosts of apartheid stubbornly haunts the present. How are sovereign credit ratings implicated in this story?

The goal of this chapter is to examine how the sovereign creditworthiness assemblage governs macro-economic policymaking in South Africa, and the political economic implications thereof. Building on previous chapters, I approach the governing powers of the sovereign creditworthiness assemblage through the concept of governmentality. This concept is particularly suited to analyse the sovereign creditworthiness assemblage, as it enables an investigation of the governing powers of ratings beyond their institutional form. Governmentality, as mentioned throughout this thesis, does not see power as a commodity owned by one entity to exercise *over* another. Instead, the governing power of sovereign credit ratings is based on an assemblage of discourses, datasets, technologies, vocabularies, expert opinions, and modes of assessments that establish a space of normal budgetary conduct for states. These policy norms are typically described as 'neoliberal' by critics, that is, an ideology that serves the interest of the capitalist class at the expense of the poor (Bond, 2013; Fine, 2013; Soederberg, 2013). The ANC's abandonment of its socialist-democratic principles has similarly been framed as the party's 'embrace of neoliberalism', and the main reason for persisting racial and class inequalities (Bond, 2005; Magubane, 2004; Narsiah, 2002; Williams & Taylor, 2000). These analyses often impose the following conclusion according to Ferguson (2009:166):

‘neoliberalism is bad for poor and working class people, therefore we must oppose it.’ Ferguson (2009) terms such accounts of neoliberalism as a kind of ‘anti’ politics that solely generates denunciatory analyses of government. Instead, a progressive politics, according to Ferguson (2009:167), must ask: ‘what do we want’? This is a different question than: ‘what are we against?’ and demands a nuanced account of how neoliberalism as a logic of governing migrates and is selectively taken up in diverse political contexts.

As outlined in the introductory chapter, in this thesis I draw on Foucault’s explanation of neoliberalism as an ‘art of government’, or political rationality, which seeks to govern not through command or control, but the calculative choice of ‘free’ actors. In this final chapter, I consider how the neoliberal governmentality of sovereign credit ratings unfolds in post-apartheid South Africa. As I will show, the governing powers of this assemblage fails to secure a ‘creditworthy sovereign’, as it creates and, in many ways, punctuates ‘historically entrenched configurations of uneven spatial development’ (McFarlane, 2011a:381). This leads to frequent and often violent instances of social unrest, coupled with widening poverty and inequality that continuously undermine the creditworthiness of South Africa, rendering the servicing of public debt expensive (Hamilton & Viegi, 2009).

The first section of this chapter explores the neoliberal (global) governmentality of sovereign credit ratings and how it is implicated in the making of post-apartheid macro-economic policy. This section reveals the centrality of ‘expert advice’, scenario planning and scientific evidence played in the ANC’s decision to abandon the Keynesian, state-led policy recommendations of Macro Economic Research Group (MERG). The second section looks at key changes in South Africa’s sovereign credit rating over the past 26 years alongside macro-economic growth trends. Here the goal is to explore the socio-economic consequences of the sovereign creditworthiness assemblage by focusing on how the governmentality of ratings intensifies the financialisation of the economy. To this end, I focus on the Marikana Massacre and the financialisation of mining conglomerates in the post-apartheid era. Lastly, this chapter concludes by revealing how the neoliberal governmentality of sovereign creditworthiness fails, that is, how this rationality in many ways undermines the government’s creditworthiness by facilitating economic conditions that lead to social unrest and capital flight.

Neoliberalism and the State: a governmentality approach

In Chapter Three, I briefly outlined Foucault's explanation of neoliberalism as a rationality of government that saw the question of state-formation as a 'commercial opening'. Compared to the role of the State vis-à-vis the market in Classical Liberalism, where the State assumed a regulatory position to ensure the legitimacy of the market, in neoliberalism it is the market that produces legitimacy for the state (Foucault, 2008:120; Gane, 2012). Here, as Chapter Four made clear, CRAs occupy an important role. As 'centres of calculation' in an epistemic infrastructure of financial knowledge flows, their rating judgements validate the knowledge that circulates about a sovereign government and a country's economy. This validation, in the form of a risk rating or 'issuer comment' signals the extent to which a government conforms to this rationality. Conformity here refers to the adoption of 'rationalist' new-classical economic policies that aim to create an optimal space for *homo œconomicus* and ensure market efficiency and transparency. To recall, the EMH assumes that the market is made up of rational economic agents that use all available information when forming expectations about the future. Amongst other things, these agents assess the credibility of an announced policy when forming expectations, the effectiveness of the policy, policy-makers' commitment to sustaining it and, therefore, the likelihood of reversal or collapse (Gabriel, 2000:3). These questions are especially pertinent for emerging markets: as modern incarnations of Lady Credit, they generate significant uncertainty for potential creditors. In order to garner trust among rational agents, it is necessary to insulate financial policy from the vagaries of political processes where short-term political goals dominate (Aguir, 2018; Gabriel, 2000:5).

Discussed in Chapter Three, this entails the adoption of rule-based-policy making, granting autonomous powers to the central bank, and the adoption of anti-inflationary policies. In South Africa, financial policy credibility was furthermore sought through the 'importation' of outside experts including the World Bank, IMF, as well as domestic academics, corporate leaders, and public intellectuals (see Davie, 2015; Peet, 2002). Indeed, the idea that knowledge is somehow necessarily to be found outside of the State remains a central feature of neoliberal governing in post-apartheid South Africa. This creates an authoritative space for what Peet (2002) terms an academic-institutional-media (AIM) complex. Akin to the epistemic infrastructure of knowledge production discussed in Chapter Four, Peet (2002) explains that the AIM governing post-apartheid macro-economic policy is made up of discourses and theories elaborated by academics in elite institutions, usually leading universities in 'spaces of hegemony'. These ideas get translated into policy prescriptions, position papers, press releases, commentaries in prominent business newspapers, expert interviews, programmes, books, and research reports. It is the functioning of this AIM, according to Peet (2002), that disciplined the ANC's macro-economic policy ambitions in accordance with hegemonic new-classical prescriptions.

Peet's (2002) article is one of many documenting South Africa's macro-economic policy during the transition period (Adelzadeh, 1996; Habib, 2004, 2013; Marais, 2011; Nattrass, 1994; Padayachee & Sherbut, 2007). A prominent theme in this research is accounting for the processes, actors, and influences behind the ANC's decision to abandon its leftist policy ideals. Authors like Terreblanche (2002, 2012) and Esterhuyse (2012) refer to numerous secret meetings between ANC leaders and influential corporate figures such as Harry Oppenheimer, Chairman of Anglo-American as well as *verligte* (enlightened) Afrikaner academics from the University of Stellenbosch. Other secret meetings over economic policy involved US and British ambassadors, the National Party (NP), the IMF and World Bank at the Development Bank of South Africa (DBSA), often during nights (Marais, 2011; Padayachee, 2013). It was during these behind-the-scenes talks where an 'elite compromise' was brokered (see Bond, 2005; Terreblanche, 2002).

The ANC decided to reject the recommendations of its research group, MERG, which consisted of international and domestic economists and funded by Scandinavian, European and the US governments. The MERG report, *Making Democracy Work* (1993), presents a Keynesian-inspired model that saw the reconstruction of the labour market (improved training, education, and skills-building and higher wages) as a central pillar for economic growth and transformation. In other words, 'growth through redistribution'. The report centred on a two-phase growth plan, comprising of a 'public-led phase' and a 'sustained-growth phase' that reserves a robust role for the state, including:

> State intervention in output and pricing decisions in the minerals sector; regulation of the housing and building supplies market; tightening and extending controls on mergers and acquisitions; monitoring the behaviour of participants in oligopolistic markets; and creating supervisory boards […] for larger companies, and developing greater decision-making power from powerful shareholders to managers and workers (Nattrass, 1994:525).

On the 3rd of December 1993, at the Rosebank Hotel, the ANC decided to dump the MERG report and a few days later, approached the IMF for a US$850 million five-year loan to be spent on balance-of-payment issues. When negotiations for the democratic transition started in the early 1990s, the economy was in a deep recession. The apartheid state was an extravagant one, with fourteen departments of education, health, and welfare, large military establishments, and financially dependent Homelands. Isolated by sanctions, high inflation rates and growing unemployment, the economy was inefficient. Although, as mentioned, the ANC did not have to take responsibility for odious apartheid debt, it feared that defaulting would undermine their creditworthiness and investment attractiveness (Kremer & Jayachandran, 2003). The 'letter of intent' for the loan, akin to the notorious Structural Adjustment Programmes (SAP's), entailed conditions that prohibit "increases in real wages…and stressed the need to control inflation, promised monetary targeting, trade and industrial liberation and repeatedly espoused the virtues of 'market forces' over 'regulatory interventions'' (Padayachee as cited in Marais, 2011:87). It is this policy-shift, according to Bond (2005) that enabled an 'elite transition' where, despite the change in government, society remains divided among racial and class lines.

Other scholars such as Marais (2011) argues that it was the ANC's lack of economic expertise that left the ANC vulnerable to 'neoliberal orthodoxy'. When the negotiations commenced in the early 1990s, the Cold War was unravelling. The Soviet Union has collapsed and Francis Fukuyama (1992) famously proclaimed it the 'end of history'. Fukuyama's thesis takes the demise of the Soviet Union as a confirmation that humankind has reached its 'ideal state' and a particular form of political economy, namely free-market capitalism. Fukuyama's thesis particularly celebrates the 'triumph of the West, of the Western idea', evinced 'in the total exhaustion of viable systematic alternatives' (Fukuyama, 1992). Here, the econometric models of new-classical economics, as discussed in Chapter Three, plays an important role in the triumph of neoliberal policies, despite often being overlooked. In particular, new-classial econometric models that developed as a critique of the then-dominant Keynesian programme, created a 'scientific' argument in favour of free-market economics. This numerical representation of the market-place as an ensemble of rational agents creates an aura of objectivity whereby certain courses of action seem more 'natural' and rational than others. In other words, new-classical economists' methodologies enabled the de-politicisation of neoliberal ideas. In his obituary of Nelson Mandela, J.M. Coetzee (2014) laments how much this thesis weighed in the making of post-apartheid macro-economic policy:

> By the time he became president in his own right, he was already an old man. His failure to throw himself more energetically into the urgent business of the day – the creation of a just economic order – was understandable if unfortunate. Like the rest of the leadership of the ANC, he was blindsided by the collapse of socialism worldwide; the party had no philosophical resistance to put up against a new, predatory economic rationalism.

Attempts to 'rationalise' new-classical economic policies entailed, among others, the use of modelling and scenario exercises. These exercises exemplify attempts to manage uncertainty through risk, as discussed throughout this thesis. Risk technologies in this case followed an anticipatory logic that created a set of 'as if' scenarios about economic growth, employment, inequality, and poverty following different macro-economic pathways. Based on speculative knowledge, risk became reoriented 'to action on the very basis of the imagination of those possibilities' (Amoore, 2013:9).

The first modelling exercise took place in 1992, shortly after the release of Nelson Mandela, and was organised by two companies: Nedcor (from 2003, Nedbank) and Old Mutual. *Prospects for Successful Transition* (Tucker & Scott, 1992), asked forty senior executives to describe the future of the South African economy. The worst nightmare for these participants was 'African socialism', followed by economic Armageddon. Contrary to subsequent scenario exercises, they could not envision a successful growth path. Based on this pessimism, the report called for 'a shift away from reliance on South Africa's traditional areas of comparative advantage (minerals and mineral beneficiation) and towards exploiting market opportunities' particularly export-based manufacturing (Tucker and Scott, as cited Davie, 2015:244). While encouraging the post-apartheid government to participate in the globalising economy, the report criticised the idea that 'equality of opportunity' would suffice in uprooting poverty. By doing so, it conceded that some form of state intervention would be necessary to address the legacy of apartheid.

The IMF (Lachman et al., 1992) and World Bank (1994) modelling exercises in subsequent years prioritised investor confidence over basic needs. While recognising that redistribution would be central for democracy, these modelling exercises nevertheless called for a gradual approach to transform the quality of life to groups disadvantaged by the apartheid system. The 'social backlogs' left by apartheid could be financed through private-sector-led investment, but this would require some socially progressive compromises in the short-term to enable long-term equilibrium (Lachman et al., 1992:1).

The home-grown Mont Fleur scenarios were, arguably, the most influential modelling exercise (Davie, 2015:245). Organised by Pieter le Roux, then Professor at the University of the Western Cape and funded by Shell Oil and other corporations, this scenario exercise included ANC leaders such as Tito Mboweni and newly appointed head of the party's Department of Economic Policy (DEP), Trevor Manuel, as well as business and labour leaders. Although the discussions started at around thirty possible futures, participants soon agreed that there were only two paths open to South Africa (Davie, 2015:245). The first, captured in the scenario 'The Flight of the Flamingos' is where 'an initially slow but sustainable economic and social take-off becomes possible' (Le Roux et al., 1996). Akin to the scenarios of the IMF and World Bank, the creation of confidence in the economy would be key, which entails the adoption of 'sound social and economic policies and …macro-economic constraints' (Le Roux et al., 1996). Amongst other things, fiscal and monetary discipline was listed as a prerequisite for the attainment of this scenario, which would enable economic growth, access to world markets, create conditions for good governance, and inclusive democracy. Although long waited promises will not be delivered immediately in this scenario, 'once people are convinced that there is light at the end of the tunnel, their demands become tempered with reason' (Maphai, as cited in Le Roux et al., 1996:19). Here, the idea of market interaction facilitating the rationality of less civilised people becomes evident. First, individuals are thought to be governed by the reactions of those with whom they interact, or at least in 'established' liberal democracies these interactions are expected to be peaceful – the market itself being the most obvious example. Second, it is assumed that in the long term these interactions will influence the internal standards, 'subjectivities' that shape individual behaviour, for example by influencing their sense of good and bad, rational or irrational and so forth. At this level, market interaction can inculcate the 'rational' virtues embodied, for instance, in Defoe's colonial gentleman:

> […] prudence, diligence, punctuality, self-control, and so on. This view suggests that, if only suitable forms of property can be set securely in place and nonmarket forms of economic activity reduced to a minimum, then market interaction itself may function as a means of improving the character of less civilised peoples (Hindness, 2005:396).

This governmentality underpin the Mont Fleur scenarios exercises and particularly the rationalisation of the Flight of the Flamingos narrative. For instance, this scenario was contrasted with Icarus, the Greek mythological figure who escaped from prison by flying with wings his father, Daedalus, made from wax and feathers (de Vries, 2019). His father told him not to fly too close to the sun, as this would cause the wax would melt. He also cautioned against flying too low, as the feathers would get wet in the sea. Yet, Icarus got intoxicated by the experience of flying and went higher and higher, causing his wings to melt and tumbling in the sea where he drowned. This nightmarish image of the future was likened with large-scale state intervention to transform the material lives of the poor. Echoing both Lucas and Friedman's exegeses of the stagflation problem in the 1960s, the Icarus scenario depicts the following:

> The government embarks on a massive spending spree to meet all the backlogs inherited from the past. It implements food subsidies, price and exchange controls, and institutes

> other 'quick fix' policies…after a year or two the programme runs into budgetary, monetary, and balance of payments constraints. The budget deficit well exceeds 10 per cent. Depreciations, inflation, economic uncertainty, and collapse follow (Le Roux et al., 1996).

This story is accompanied by references and comparisons to similar pathways and failures followed in Latin American countries, suggesting that South Africa's experience would inevitably mirror these countries experiences with nationalisation. These comparisons fulfil a similar function as Jevons and Walras's analogies with physics and rational mechanics, which enabled the rational, scientific portrayal of their economic ideas. Yet, this portrayal assumes relations of equivalence between these diverse spaces and societies that imply a particular unfolding of events in the future. As such, the Mont Fleur scenario exercises enabled the portrayal of the 'The Flight of the Flamingos' the only 'rational' pathway for South Africa. Those involved in these practices convinced many members in the ANC against the dangers of 'macro-economic populism' associated with the policy recommendations of MERG. Thus, days after the 1994 election, Nelson Mandela assured investors that 'not a single reference to things like nationalisation' remained in ANC economic policies, which have been cleansed of anything 'that will connect us with any Marxist ideology' (quoted in Marais, 2011:78).

Towards the end of the 1990s, the policy prescriptions of new-classical economics became furthermore enshrined in post-apartheid macro-economics. Central bank independence was granted in the 1996 Constitution, against the recommendations of MERG, which suggested that the South African Reserve Bank (SARB) be made subordinate to the National Treasury (Padayachee, 2016). This would have enabled a type of discretionary policymaking as discussed in Chapter Three, which allows the government to use fiscal tools to stimulate aggregate demand and address under-full-employment (Padayachee, 2019). Mandela justified this policy move on the basis that it would illustrate the ANC's commitment to sound economic management of the country and 'send out a strong signal to the international and local business and financial communities that we are serious about this commitment' (cited in Marais, 2011:105). To further demonstrate its commitment to financial policy credibility, the ANC in 1996 adopted a new fiscally conservative and 'business-friendly' framework: Growth, Employment and Redistribution (GEAR). Crafted in private by Nelson Mandela's successor, Thabo Mbeki and then Minister of Finance, Trevor Manuel, GEAR placed government policy between stringent policy prescriptions (Marais, 2011:114). This growth plan hinged on significant increases in private investment and non-gold exports and was coupled by policy measures such as strict fiscal austerity (evinced in a determination to drive the budget deficit down to 3 per cent of GDP by the year 200); the liberalisation of financial controls and eventually, the complete removal of all obstacles to the free flow of capital; privatising 'non-essential' state enterprises; keeping the exchange rate stable and at a 'competitive' level; inflation targeting; tax incentives to stimulate new investment (Marais, 2011:113-114). GEAR was opposed by many within the tripartite alliance, which consists of the ANC, the Congress of South African Trade Unions (COSATU), and the South African Communist Party (SACP) (Davie, 2015:258; Gevisser, 2009:250). COSATU leaders complained that they had not been adequately consulted. One senior bureaucrat claimed that people were frightened into compliance: 'Don't forget how intimidating economists can be…If Thabo, Trevor, and Alec agree on something to do with economics nobody argues' (cited in Davie, 2015:258). Mbeki identified potential critics of GEAR and sought to sway them with 'reason' and 'back-of-the-envelope calculations' during 'under the tree' meetings about the dangers of deficit spending (Davie, 2015:258). Kgalema Motlanthe, who would become interim president after Mbeki's resignation in 2008, recalls that 'Mbeki did the sums for us, he used logic to convince us, and it worked. Once I listened to him, my position changed. And I was not the only one' (cited in Gevisser, 2009:251).

GEAR was furthermore accompanied by an export-led economic growth model, instead of inward industrialisation as recommended by MERG. This growth strategy became popular in the 1970s alongside the demise of Keynesian economics in the global political economy. It represents a development strategy that aims to grow the productive capacity of a certain sector in the economy by focusing on foreign markets (Palley, 2011). Export-led economic growth requires trade liberalisation and capital market openness which, according to orthodox economists, generates a 'win-win' outcome for developing countries. Not only would trade openness encourage technology diffusion and knowledge spillovers, productivity will also be boosted by encouraging best practice adoption, promoting product development, and exposing firms to competition (Palley, 2011). Here the success of the four East Asian Tiger economics (South Korea, Hong Kong, Singapore, and Taiwan) often appear as empirical evidence to support these assumptions. Yet, as Marais (2011:93) makes clear, contrary to the Asian Tigers, post-apartheid South Africa did not have the authoritarian regime able to suppress labour, but instead a comparatively powerful labour movement. It also does not have a homogeneous population, but a highly diverse, separated, and unequal one. In other words, in terms of labour competitiveness, South Africa lags behind many countries. As discussed later, the adoption of an export-oriented growth strategy, coupled with new-classical policy prescriptions came at the cost countless labour-intensive, low-skilled jobs, and also make the South African economy more vulnerable to global economic slowdowns that reduce demand (Hirsch, 2005).

Although GEAR has formally been scrapped, the main tenets of this framework remain in place, especially with regards to financial policy. This has rendered, according to Ansari (2016), the National Treasury dependent on portfolio inflows as a means to stabilise long-term government bond prices above a certain threshold in order to access capital on favourable terms. The financialisation of the domestic economy, coupled with global liquidity, is a crucial driver of South Africa's current account, as the export sector also depends on portfolio capital to purchase vital imports, where the depreciation of the currency has emerged as an important generator of trade surpluses. Finally, the inflation-targeting regime appeases investors' fears of inflationary outbreaks, which is intricately linked to the geopolitical imagination of emerging markets as 'ideological hotbeds' as mentioned in Chapter One (Ansari, 2016). The adoption of heterodox policies that involve deficit spending will prompt asset managers and bond traders to reallocate their portfolio assets or charge a higher yield on long-term government bonds. This siphons away state funds that could otherwise be channelled into productive activities or social welfare programmes, such as housing, health care, and education. Indeed, the government's 'junk' status has significantly increased costs of borrowing, and according to Ramaphosa, mean that debt repayments could exceed the government's spending on healthcare (Magubane, 2020).

The rise and fall of South Africa's sovereign creditworthiness

The ANC received its first credit rating in 1994, from Fitch, which placed the government's debt on level 'BB' (two notches below investment grade) whereas Moody's rated the government's debt at 'BBB-' (just above investment grade). Standard & Poor's (S&P's), like Fitch, placed the government's debt below investment grade at 'BB+' (one notch into junk status) (see Anon, 2019). This situation remained unchanged for much of post-1994. The economy grew substantially during Mandela's presidential term, especially in comparison with the extremely low levels at the end of apartheid. In 1994, GDP grew at 3.2 per cent, 3.1. per cent in 1995, and 4.3 per cent in 1996 (World Bank, 2018). However, the 1997/98 Asian Financial Crisis caused GDP to plummet, and the economy only started to grow at the turn of the new millennium. From 1999 to 2006, GDP grew significantly, and nearly reached its aim of 6 per cent (Applebaum & Bernstein, 2014). Much of the growth during this period took place on the back of a global commodity boom, especially in platinum, driven by a demand for industrial metals generated by Chinese industrialisation (see Schultz, 2020). South Africa's Bushveld Igneous Complex (BIC) in Rustenburg, in the North-West province is home to the world's largest concentration of Platinum Group Metals (PGM). During this time, export-led growth proved to be working, in the sense that it created employment, attracted capital inflows, and reduced the number of people living on less than US$2 per day (Bhorat et al., 2016). Between 2001 and 2008, South Africa's sovereign credit rating was upgraded to investment grade by all three the CRAs, and up to three notches above junk (Anon, 2019). The agencies especially lauded the government's progress in consolidating government debt, keeping inflation on target, growing the economy, and undertaking financial and trade reforms (Moody's, 2004). This revealed the government's commitment to 'strengthen its track record of sound economic management' which, especially during the Mbeki-led era, generated certainty that the ANC will not 'deviate from its course of orthodox economic policies' (Reuss, as cited in S&P's, 2002). Although CRAs recognise the need for the South African government to address historical socio-economic inequalities, they caution that state-led, Keynesian programmes would 'crowd out' private sector investment, increase public debt, and undermine the government's ability to repay its debt obligations (see Davie, 2015).

Yet, when the 2007/08 GFC pushed the global economy into recession, the precarity of this surge of growth, and the employment it created, became exposed. The ANC's GEAR policies intensified the financialisation of the South African economy and its largest conglomerates, specifically in the mineral-energy complex (MEC) (Fine & Rustomjee, 1996). To recall from previous chapters, financialisation entails the growing influence of capital markets, their intermediaries, and processes in contemporary economic and political life (Pike & Pollard, 2010). Literature on this topic is diverse, but can nevertheless be divided along three recurrent themes (see French et al., 2011; Pike & Pollard, 2010). Critical accounting perspectives explore how financialisation has been accompanied by a new regime of capital accumulation, driven by speculative practices in the market. The hypermobility of money puts pressure on governments, municipalities, and firms to meet the demands of institutional investors in order to avoid their assets being devalued (Froud et al., 2000). The ease in which shareholders are able to withdraw their money from investments has engendered uncertainty and volatility within the economic geographies of the financial system (Aitken, 2013; Pike & Pollard, 2010). This hypermobility has been aided by sophisticated communication technologies, which feeds the voracious appetite of market actors in search for profit. Socio-cultural accounts of financialisation emphasise the malleability of finance capital, which can be packaged into complex financial instruments that have come to permeate our daily lives like pension schemes, mortgages, public transport and services, bank accounts and savings (Langley, 2008). These accounts explore how the retreat of Keynesian welfare policies have reconfigured people's positions, practices, and articulation within the financial system by forcing them 'to accept risks into their homes that were hitherto the provenance of the professional' (Martin, 2002:12). Finally financialisation tends to rework and realign existing socio-spatial relations and identities in highly unequal and uneven ways (Ashman & Fine, 2013; Bateman, 2019; James & Rajak, 2014; Langley, 2008).

The financialisation of mining conglomerates towards the turn of the millennium has been accompanied by the emergence of a corporate governance strategy, known as 'shareholder value' capitalism (Lazonick & O'Sullivan, 2000). Contrary to the 'retain and reinvest' corporate strategy, associated with Fordist-Keynesian capitalism, the rise of shareholder value in the 1980s entailed a shift towards the 'downsize and distribute' logic. The goal behind this logic is to discipline corporate managers who allocate company resources and returns for their own benefit, or at least to pursue objectives that were contrary to shareholder interests. Shareholder value encourages managers of diversified conglomerates, the dominant form of twentieth-century capitalism, to downsize and restructure their corporations, with a specific emphasis on cutting the size of the labour forces they employ to increase return on equity (Lazonic & O'Sullivan, 2000). In 2012, for instance, nearly a third of Lonmin's workforce was employed through contract labour, which implies not only lower wages, but also no access social security benefits required by law for full-time employees (Forslund, 2015). Shareholder value therefore takes the maximisation of profit as the *raison d'etre* for managers, both through dividends paid and the appreciation in the value of the shares, with managerial remuneration schemes being structured accordingly to reflect their ability to achieve these goals (French et al., 2011:803). In the mining industry especially, this governance strategy has prompted many companies to hold on to large amounts of cash on their balance sheets instead of investing them into productive industries (Karwowski, 2015). This is called over-capitalisation, when a company issues more debt and equity than its assets are worth (Kenton, 2020). The rationale here is to hedge against uncertainty by enhancing liquidity and ensuring a continuous return to shareholders. According to Karwowski (2015:16), 14 out of the top 20 over-capitalised firms listed on the Johannesburg Stock Exchange (JSE) during the period 1994-2013 were engaged in mining. These cash volumes are held within the financial system of a country, generating liabilities on the balance sheets of banks and other financial institutions. This led banks to extend more credit, backed by corporate deposits held in South African bank accounts. However, because these cash holds were used as a source of liquidity instead of being reinvested into the economy, an unsustainable credit-financed consumption boom developed between 2000-2008, followed by a severe tightening of monetary policy and the loss of nearly one million jobs (Karwowski 2015:25-27). Furthermore, especially when it comes to 'risky' emerging markets, investment strategies are increasingly short-termist, which means that governments, corporate managers, and organisations are pressured to deliver value over a short time horizon (Bowman, 2018). According to one analyst, the majority of PGM investors are geared towards a three-month view, except for a marginal few holding assets for three years or more (ING Fin Markets, cited in Bowman, 2018:396). Thus, the hope for an influx of capital investment that the ANC pinned its hopes on largely failed to arrive, and when it did, it was short-term and volatile. In fact, the removal of capital controls towards at the turn of the millennium enabled mining conglomerates (amongst others) to move their primary listings to the London Stock Exchange (LSE), presenting an extraordinary case of capital strike (Bond, 2013:576). Vast amounts of wealth became transferred out of the economy, engendering the government's reliance on mobile finance capital to fund its growth strategy.

South Africa's GDP in 2008 contracted by 1.5 percentage points, exports fell by 24 per cent in the first quarter of 2009, as demand dried up and commodity prices fell. This added pressure on the current-account deficit, which swelled to 9 per cent of GDP in early 2009. Output in the mining sector shrank by 33 per cent and 22 per cent in the manufacturing sector (Marais, 2011:146). The government, this time headed by Jacob Zuma, responded by expanding the public-works programme, interest-rate cuts, and emergency food and other relief for distressed households. Zuma also made modifications to the GEAR plan, by expanding public-infrastructure investments to create jobs. Though GEAR's main tenets remain unchanged, Zuma's Accelerated and Shared Growth Initiative for South Africa (AsgiSA) and the National Development Plan (NDP) carved a way for greater state intervention. However, with a presidency racked with scandals and an increasingly unaccountable bureaucracy, many of these projects were compromised and the social development benefits have, by and large, yet to accrue. In addition, with waning trust in government authorities, the government's credit rating was downgraded in 2012 amidst the labour unrest at Lonmin's Marikana mine in Rustenburg. The financialisation of the mining industry is intricately linked to these unrests, which reveals the contradictory ways in which the governmentality of sovereign credit ratings actively undermine the ANC's creditworthiness by limiting large-scale economic transformation through the adoption of heterodox policies.

First, as mentioned, shareholder value capitalism pressured mining conglomerates such as Lonmin and Anglo-American to reduce its workforce and close its most labour-intensive shafts in order to deliver returns to shareholders (Bowman, 2018; Forslund, 2015). Amongst other things, mining companies made use of contract labour, as mentioned earlier, to reduce their operating costs, which introduced a new form of precarity reminiscent of historical erosions of dignity and raw life associated within the compound.[58] Second, rising unemployment has increased the burden on mineworkers to support their families in labour-sending areas through remittances (Makgetla & Levin, 2016:35). Evidence has shown for instance that each wage-earning miner is supporting a wider range of kinsmen than previously, meaning that salaries must stretch further (James and Rajak, 2014). These household pressures occurred alongside an exponential proliferation of credit sources and hence a sharp increase in the indebtedness of mineworkers taking up loans (Bateman, 2019; James, 2014; James & Rajak, 2014). As the PGM mining boom took shape, the government embraced a market-driven microcredit initiative (MCI), which sought to provide lines of credit to previously disadvantaged communities in order to spur economic development (Aitken, 2013; Bateman, 2019; James, 2014). Such loans are unsecured, meaning they are granted without a form of collateral that provides the lender a lien for capital recovery in the event of default. In order to hedge against default risk, unsecured loans are typically charged at high interest rates.

The MCI was embraced by financial institutions in the formal and informal sector (Bateman, 2019; Bond, 2013; James & Rajak, 2014). Presented as a 'development model', these loans often form part of micro-credit investment vehicles (MIV), that link investors with investment opportunities in the global South through, for instance, fixed income mutual funds, blended value funds or private equities (Aitken, 2013:487). While this may seem promising, the

[58] Also termed mining hostels, compounds emerged as a solution to the housing and control of black workers following the discovery of diamonds in Kimberley in 1867 and gold in Johannesburg in 1886 (Turrell as cited in Bezuidenhout and Buhlungu 2010:244). Constructed for low paid employees, compounds are single-sex dormitories and highly regimented spaces, located close to mine shafts and often fenced off from neighbouring townships (Crush, 1994). Men had to leave their families and travel to mining centres and their movements were tightly controlled by the pass system. Mining companies also restricted visits from family members, including dependants and wives; controlled miners' intake of food, alcohol, and forms of association (Badenhorst & Mathers 1997). Although mine managers were not allowed to forbid mineworkers to visit neighbouring areas, with the exception of 'white' commercial and residential spaces, they nevertheless aimed to incarcerate workers for the entire period of a contract in order to deliver a disciplined workforce for greater efficiency (Bezuidenhout & Buhlungu 2010).

financialisation of micro-credit integrates individuals into volatile and uncertain markets that often intensify their already precarious economic position. South Africa's largest banks offered lines of unsecured credit in the form of credit cards, house loans, vehicle finance, mobile money transactions and retail cards for clothing and food to individuals that were previously denied these facilities (James, 2014:20). Another form of unsecured lending came from registered microlenders, mostly run by Afrikaans-speaking former civil servants who invested their redundancy packages in these businesses. Finally, *mashonisas* or 'loan sharks', translated from Zulu as 'one who impoverishes' (Krige as cited in James, 2014:20), are unregistered lenders, which means that they can charge interest rates well above the official rate set by the National Credit Act (NCA), namely 44 per cent. Indeed, informal loans are notoriously expensive: mashonisas often charge up to 50 per cent per loan, regardless of the term of the loan (Wonga Finance SA, 2017). The MCI therefore enabled a process of 'banking the unbanked', creating bank accounts for members of society historically prevented from gaining access to financial markets (see James, 2014). Yet, in a context of poor economic growth and growing unemployment, bank accounts have also reiterated older forms of economic inequalities. First, they create a surveillance platform for the collection of credit scores, which exclude many low-income households, predominantly black Africans, from getting the necessary financing to buy a house outside the township (Migozzi, 2020). Second, as discussed below, they enable lenders to extort borrowers through exorbitant interest rates and aggressive debt collection practices.

Two principle technologies of debt-collection exist amongst microlenders. The first, used by banks and registered microlenders entails the use of garnishee or emoluments attachment orders (EMOs). Granted by a magistrate, EMOs are legal notices that allow the creditor to collect his/her money from the debtor's wages, bank account or other people who owe the debtor money (James & Rajak, 2014:455). The second system, used by informal moneylenders, involves keeping borrowers' ATM cards to withdraw money owed to them plus interest at month-end before returning them to their owners (James, 2014). A study conducted by the SAHRC (2017:21) on the impact of debt collection practices in South Africa, pointed out that the mining sector constitutes the highest percentage of employees with garnishee orders attached to their salaries. Indeed, miners have especially been targeted by formal and informal lenders, as they are comparatively well paid, often displaced from their families and have few social connections on a local level (Bateman 2019). This is evinced in the number of 'Cash Loans' and other microlenders in the Marikana area and the mine premises itself (Bond, 2013). African Bank, for instance, had the highest number of branches in the Rustenburg area – four of them located on the Marikana mining complex. Similar trends can be seen for Capitec, Nedbank and Stanbank, each having at least one branch operating on the mine's premises (Citi Bank Research, 2012). The official trade union for mineworkers, the National Union of Mineworkers (NUM) is also implicated in this story. In its joint venture with the Chamber of Mines – Ubank – NUM leveraged its proximity to, and knowledge of, individual constituents in a way that transformed members into clients/customers (James & Rajak 2014:459). This gave credence to the Association of Mineworkers Union's (AMCU) narrative amid the Marikana strike that the NUM abandoned workers' interests in favour of their own capitalist interests, which intensified the militance amongst striking mineworkers (Harvey, 2013).

Alongside many South Africans plunging deeper into debt, Marikana mineworkers' actual monthly pay began to decline precipitously as a percentage of the total salary earned in any month (Bateman, 2019; Bond, 2013). As such, many mineworkers took on multiple loans, paid back to a series of creditors as soon as payday arrives, which typically left them impoverished for the rest of the month (James & Rajak, 2014). This sense of over-indebtedness, combined with other forms of economic inequalities and frustrations, set in motion the destabilisation of sovereign creditworthiness assemblage that centred around the mine. The massacre resulted not only in over 100 casualties, of which 34 mineworkers were dead and 78 wounded, but also large-scale wildcat strikes that unfolded across the country, resulting in a prolonged slump in the mining industry (Schultz, 2020). Here the financialisation of the economy, which forms part of the government's efforts to improve its creditworthiness, coupled with attempts to stabilise labour unrest at the Marikana Mine to secure confidence in the eyes of investors, ironically created the conditions for the deterioration in creditworthiness.

In the aftermath of the Marikana Massacre, Moody's downgraded the country's credit rating from A3 to BAA1 in September 2012, based on the agency's 'view of the South African authorities' reduced capacity to handle the current political and economic situation' (Bond, 2013:572). Just a few days earlier, as business confidence started to dwindle, Moody's threated to downgrade not only the government but also the big mining houses' credit ratings:

> If the [Lonmin wage raise] agreement were to spur calls for similar wage hikes at other mines, it would be credit-negative for rated miners with exposure to South Africa, that are facing other event risks, including potential increased taxes as an alternative political response to calls for nationalisation and ongoing exposure to lawsuits arising from medical claims (quoted in Bond, 2013:572).

In October of 2012, S&P's followed suit, and in January the next year, Fitch downgraded South Africa, citing weak economic growth, as a result of 'structural rigidities, declining competitiveness, policy uncertainty and labour unrest' (Anon, 2013). This was followed by consecutive downgrades in years to come, a massive decline in foreign direct investment (FDI) between 2012-2017, a recession in the first quarter of 2018, and a continuous increase in the government debt to GDP ratio (Leon, 2013; Trading Economics, 2019). Although this by no means suggests some form of linear causality between Moody's downgrade in 2012 and the adverse economic consequences that followed, it did act as a 'catalyst' that created deteriorating procyclical conditions for further rating cuts, which is furthermore empowered by the feedback loops from market participants (Paudyn, 2014:71). By the end of 2017, both S&P's and Fitch had downgraded South Africa to 'junk', with Moody's following suit earlier this year (World Government Bonds, 2020).

Conclusion

Akin to the modelling exercises during the transition period, amidst the COVID-19 pandemic, a public policy firm called Eunomix warned that South Africa would become a 'failed state' by 2030 if the government does not address economic decline 'immediately' (Sguazzin, 2020). While recognising the necessity of harnessing domestic manufacture industries, similar to the MERG's import-led industrialisation, Eunomix emphasises the need to generate a favourable investment environment and prioritising 'economic restructuring that ensures socioeconomic and political stability rather than abrupt, painful reform…even if growth remains slow initially' (Bisseker, 2020). Although, in this scenario forecast, a 'middle way' for the state is envisioned, the influential role of financial capital markets remains unchallenged. In other words, the stringent criteria of financial policy credibility – inflation targeting, rule-based monetary policy making and capital account liberalisation – is still likely to influence macro-economic policymaking. Central to the continued dominance of these policy ideas, as this chapter and thesis in general sought to illustrate, is the scientism of new-classical economics that de-politicises neoliberal rationalities of macro-economic policy making. The mathematical formalism of these models obscures analyses of how they enable the reiteration of austere fiscal politics, especially for emerging market governments. For instance, regardless of the continued failure of new-classical macro-economics to stimulate redistribution through economic growth, the government's recent 'letter of intent' for an IMF loan amidst the COVID-19 pandemic includes spending cuts in key areas mentioned in the introduction, coupled with prudent fiscal management (see IMF, 2020). Without suggesting that a Keynesian economic programme would necessarily lead to more inclusive economic growth, the unquestioned authority of new-classical policy prescriptions cements the authority of financial market actors in determining the 'legitimacy' of emerging market governments in the market place. This reinscribes volatility and fragility into lives of many precarious communities, again opening the space for apartheid ghosts to haunt the present.

The goal of this chapter was to reveal how the neoliberal governmentality of sovereign credit ratings is entangled in post-apartheid South Africa's macro-economic policymaking. Here the scientism of new-classical economics, coupled with modelling exercises and 'expert advice' played a crucial role in rationalising (normalising) policies such as inflation targeting, central bank autonomy, and fiscal consolidation instead of redistribution. These processes have intensified the financialisation of the economy, as discussed in the second section, which has introduced new forms of labour precarity and economic inequality for many South Africans that suffered under apartheid. Taking the Marikana Massacre as an example, this section sought to reveal how the sovereign creditworthiness assemblage exceeds beyond its technical form and is entangled in macro- and micro-processes of financialisation. This, in turn, creates conditions for its own demise. By intensifying the economy and society's integration into the logics of financial markets, the government's ability to embark on state-led programmes to transform the socio-economic legacy of apartheid remains limited. The 'postponed' transformation engenders frustration and unrest in civil society which, ironically, alienates investors and reduces the government's ability to repay its debt obligations. Here Deleuze and Guattarri's (1987) exegesis of assemblages as temporal, contingent, and unstable becomes pertinent. This assemblage exercises power at multiple sites and through diverse elements: transnational laws, institutions, investment vehicles, communication technologies, and comparative indices, domestic policies and, as Faeza Meyer's story made clear, law enforcement. This chapter revealed how the territories the sovereign creditworthiness assemblage created in South Africa encountered historical assemblages of economic, social, spatial, and racial inequality that continuously creates the conditions for its own demise. Yet, as Deleuze and Guattari (1987) points out, these lines of flight in a rhizome might signify a rupture in an assemblage, they nevertheless always tie back to each other:

> You may make a rupture, draw a line of flight, yet there is still a danger that you will reencounter organisations that restratify everything, formations that restore power to a signifier, attributions that reconstitute a subject […] (Deleuze & Guattari, 1987:10).

The re-territorialisation of an assemblage therefore does not necessarily entail a complete transformation of the status quo. Instead, as the South African government's response to recent downgrades – which entails severe budgetary cuts attest – the sovereign creditworthiness assemblage constantly finds ways to stabilise itself. In the conclusion chapter, I outline three ways in which the re-politicisation of sovereign credit ratings offers ways of resisting the authority of this discourse.

Chapter 7

Conclusion: Re-politicising sovereign credit risk

The aim of this thesis was to re-politicise the discourse and rating of sovereign credit risk. This entailed, firstly, a genealogy of the knowledges, theories and methodologies that underpin both the conceptualisation and measurement of government default risk. Second, this thesis considered how the governmentality of sovereign creditworthiness spatialises in the political economy of South Africa. Influenced by Deleuze and Guattari's (1987) philosophic description of the relations between diverse things – knowledge, objects, events, spatial-formations, histories – as rhizomic, this thesis explored how the governmentality of sovereign credit ratings are *entangled* in the political economy of South Africa. This was not to argue that sovereign credit ratings are *the* determining cause driving the government's macro-economic policy decisions and, by implication, the reason why historical forms of suffering persist. This is the claim made by a number of structural Marxist scholars in IPE, who ground their analyses on a linear causal assumption that neoliberal economic policies, such as privatisation, trade liberalisation or monetarism always lead to growing inequality and poverty (see Bond, 2012; Fine, 2013; Soederberg, 2005). It was not the imperative of this thesis to disprove this argument with 'better' and more 'scientific' evidence, but to unpack the political and ideological tenants underpinning rational economic discourses.

Chapter One analysed the gendered, colonial imagination of rational finance that emerged in eighteenth-century England. The chapter then explored the lines of resonance between these gendered representations of rationality/irrationality and modern geographical imaginations of emerging and frontier markets. These resonances are bound up in a violent history of colonial conquest and slave trade, which were funded by the institutionalisation of credit instruments as we know them today, including national debt. Chapter Two examined how Defoe's portrayal of the rationality in the image of the English gentleman, who bases his actions on knowledge derived from the scientific method, became absorbed in the field of economics associated with the 1870 Marginal Revolution. This chapter maps out how economists such as Jevons, Walras, and Marshall sought to de-politicise their discipline via the adoption of methods used in the natural sciences. Chapter Three explored the world of model-making in economics and finance. It showed that modelling is not a technical, mechanical exercise, but depend significantly on the political imagination and creativity of the model-maker. This chapter also revealed how models emerged as tools through which economists could advise governments on how to manage their economies in the aftermath of the Great Depression and the fiscal crisis of the State in the 1960s. Chapter Four navigated 'the chain of translation' involved in the production of sovereign credit ratings. Akin to Laclau's explanation of sedimented knowledges, this chapter examined how the histories, theories, methods, and Western-centred epistemic cultures discussed in the previous chapters unfold in the rating of sovereign credit risk. Chapter Five spatialises the governmentality of sovereign credit ratings in South Africa by examining the historical and political processes involved in the production of raw life. These processes include the colonial conquests conducted by European powers via joint-stock companies such as Holland's VOC in the seventeenth century and Britain's East India Company in the eighteenth century. This was accompanied by not only large scale dispossession, but also, especially in the case of Britain, the introduction of racist scientific reasoning that played an influential role in apartheid ideology. This reveals close entanglements between Lady Credit, the colonial gentleman, and the post-apartheid present. Chapter Six examines how the governmentality of sovereign credit ratings unfolded the making of South Africa's macro-economic policies post-1994. This entailed the use of scenario planning exercises that worked to rationalise new-classical policy prescriptions, such as inflation targeting, austerity, and central bank autonomy. The remainder of this chapter considers how the analyses of de-politicisation conducted in this thesis enable us to challenge the authority of sovereign credit ratings by re-politicising the stabilised knowledges contingent in their production.

From a governmentality framework, these re-politicising moves can be thought of as 'counter-conducts', that is, a 'struggle against the prosses implemented for conducting others' (Foucault, 1978:268). This understanding of resistance differs markedly from Marxist or structural traditions grounded in a binary between the rulers and the ruled. Here, resistance tends to be primarily located in the poor, the working class, the ruled and the governed, who oppose power through revolutions, counter-capitalist struggles, or numerous acts of foot-dragging opposition (Death, 2008:47-48). Bond (2012, 2001), for instance, argues that resistance to the hegemony of neoliberal financialisation in South Africa which, according to him, was single-handedly enabled by former finance minister Trevor Manual, is primarily located in labour unions, social movements, and political leaders that are authentically leftist and opposed to capitalism. The task for critics of financialisation, according to Bond (2012:131), 'is to prepare the ground with sound analysis that stretches as far as does the problem – i.e., far beyond Johannesburg bank headquarters, to the core dynamic of world capitalism.' A Foucauldian governmentality perspective destabilises the binary between power and freedom that Bond's project of resistance relies on in two important ways. The first has to do with the idea that a single 'pure' form of resistance can exist, or that there is a theoretical basis for the notion of complete liberation. As Foucault (1984:282) explains in an interview when asked about processes of liberation:

> I have always been somewhat suspicious of the notion of liberation, because if it is not treated with precautions and within certain limits, one runs the risk of falling back on the idea that there exists a human nature or base that, as a consequence of historical, economic, and social processes, has been concealed, alienated, or imprisoned in and by mechanisms of repression. According to this hypothesis, all that is required is to break these repressive deadlocks and man will be reconciled with himself, rediscover his nature or regain contact with his origin, and reestablish a full and positive relationship with himself.

Here, Foucault calls into question the assumption made by Bond that, when financial capitalism becomes abolished, the oppressed will be liberated from capitalist structures of domination. To recall from the introductory chapter, no subject escapes the workings of power. Power has an omnipresent character that circulates through a net-like organisation where individuals function as the vehicles of power, producing new subject and simultaneously, new power relations (Foucault, 1980:98). As such, broad-scale emancipation from a single form of domination – capitalism – has no place within a Foucauldian approach. This is because power exists in a network: 'there is no single locus of great refusal, no soul of revolt, source of all rebellions, or pure law of the revolutionary' (Foucault, 1978:95-96). Yet, this does not mean that resistance is impossible, on the contrary. 'Where there is power, there is resistance', according to Foucault (1978:95), emphasising that resistance does not exist outside power relations. Power works through freedom, and this freedom includes the agency to resist, to counter-conduct, to be governed otherwise. Opposing a binary view of politics as either domination or resistance captures the messiness and complexity of contemporary politics. Amoore and Langley (2004) for instance reveals the contradictions, ironies and limitations of the emancipatory/transformative aspirations coupled with resistance movements of global civil society. Here, Foucault's assertion that resistance is 'never in a position of exteriority in relation to power' enables us to think about:

> […] the individual who is a member of Amnesty International while simultaneously holding portfolio investments in a number of large multinational corporations; the alliance between the United Nations World Food Programme and Benetton's advertising campaigns; the Visa cardholder who joins Reclaim the Streets; or the report from the Seattle protests that asked: 'did the protester who was filmed kicking lumps off the Nike sign while wearing Nike shoes see the irone?' (Amoore & Langley, 2004:106).

Instead of seeing these contradictions as lapses in acts of authentic resistance, they reflect the unescapable status of resistance within governmentality where power operates through freedom and at a distance. Thus, instead of looking for acts of absolute resistance and revolution, a governmentality analysis enables us to focus on how practices of NGOs, social movements, and states are simultaneously both expressions of power and resistance (Death, 2008:48). Given that power exits in a network or assemblage of relationships, multiple points of resistance exist, 'each of them a special case: resistances that are possible, necessary, improbable; others that are spontaneous, savage, solitary, concerted, rampant, or violent…' (Foucault, 1987:96).

A second way in which a Foucauldian approach differs from Marxist traditions is its emphasis on discourses as sites of resistance. Discourses produce power relationships, yet these systems of meaning are socially and historically contingent, ambiguous, and fragile. They are unstable grids that require work to 'articulate' and 'rearticulate' their knowledges, and it is through this reiteration that meanings become sedimented and structures appear stable. Instead of the market behaving 'rationally' for instance, it is an assemblage of regulations, risk analysts, index trackers, price models, news media, academic curricula, and governments that perform normalised ideas of rational conduct into being. Thus, as Butler (1997:17) points out: 'If a structure is dependent upon its enunciation for its continuation, then it is at the site of enunciation that the question of its continuity is to be posed.' In other words, by interrogating the gaps, flaws and inconsistencies of a discourse, it becomes possible to expose the vulnerability of certain statements and their claims to truth that are grounded in, for instance, 'what if' simulations and questionable datasets. Based on this formulation, I will discuss three avenues for re-politicisation and resistance against the authority of sovereign credit ratings: genealogy, the radical indeterminacy of the future, and the politics of everyday life as a site of resistance.

Genealogy: interrogating the fragility of rational financial economics

This thesis investigated the phenomenon of sovereign credit risk by adopting a genealogical analysis. As discussed in the introductory chapter, a genealogy entails a historical investigation into the uncertainties, contestations, and ambiguities that accompany the rational, stable, and unproblematic representation of phenomena. To this end, I investigated the 'epistemological field' that have rendered certain discourses about sovereign credit risk possible and focused on finding the insecurities and uncertainties underlying the certain, and scientific appearance of ratings. Chapter One for instance revealed how the articulation of 'rational' finance took place through a process of other that identified irrationality in the form of not only a female, but also the Colonial Other. This articulation of rationality was modelled on the image of the English gentleman, endowed with virtues of knowledge, self-discipline, and honesty in the acquisition of scientific truth. The goal was to create a moral space for finance in British society, which entailed that Lady Credit should only be engaged with rational, disciplined gentlemen. However, the quest to secure the rational and stable functioning of finance is far from being achieved, and the chapter showed how the masculine, colonial imagination of rationality informs contemporary representations of spaces and peoples located outside the horizon of the West as uncertain, volatile, and mysteriously attractive. This is accompanied by a plethora of risk instruments – of which sovereign credit ratings occupy a prominent role – global governance indicators and regulatory bodies such as the FSB and BIS which, through their surveillance, seek to modify the behaviour of global South governments through the articulation of norms and standards of rational financial conduct. The lines of resonance between, for instance, Defoe's depiction of Lady Credit and the geopolitical imagination of the global South should not be seen as being solely a textual representation. Instead, as mentioned, the institutionalisation of finance in eighteenth-century England enabled the state to fund war efforts and conduct colonial conquest and profit from the 'virgin' territories located beyond the European continent. These imperial encounters constitute a critical historical juncture in which post-colonial national identities are defined in opposition to European ones (Chowdhry & Nair, 2002:2).

Focusing on South Africa, this thesis argued that the governmentality of sovereign credit ratings is entangled in webs of power and knowledge that accompany this imperial encounter by attaching their discourse to a regime of truth that rationalises a particular politics of fiscal rectitude. Yet, I also argued that this discourse of sovereign credit risk is performative, which means that the authoritative capacity of CRAs in the marketplace is not based on their ability to reveal the 'truth' about a government's fiscal profligacy. Instead, the authority of this discourse is constituted through the institutionalised practices of investors, governments and IFIs that act upon rating judgments and thereby reinforce and re-establish the conditions for it to materialise (Butler, 2010:152). By approaching sovereign credit risk as a performative practice, contingent upon the 'mundane and repeated acts of delimitation that seek to maintain a separation among economic, social and political spheres' (Butler, 2010:150), it becomes possible to observe flaws or tears in the fabric of financial authority.

In the rating space, this occurs on a regular basis, and increasingly among traditional proponents of austere fiscal politics. Paudyn (2014:180) refers to how the economic struggles caused by the European Sovereign Debt Crisis for the Netherlands 'tested the resiliency of its prudent fiscal culture which…helped facilitate its adherence to such policies; plus promote them across Europe'. Alongside increasing unemployment and pressure from Brussels to decrease its fiscal deficit destroyed the country's 'social accord' and led to growing discontent with the European project. Although resistance if often ephemeral and extremely costly for countries who choose to defy the expectations and demands of financial markets, especially for the global South, signs of growing antagonism with CRAs are showing. These criticisms are not only coming from Europe. In 2016, Indian Prime Minister Narenda Modi criticised Moody's ratings and methods for assigning the government's debt rating (Kalra & Singh, 2016). The ministry of finance wrote a series of letters and emails to Moody's, asking the agency why it failed to account for a decline in the country's debt burden since 2004. Moody's dismissed this observation, claiming that the country's debt situation was not as rosy as the finance ministry thought, due to limited revenue collection. The finance ministry dismissed these concerns as 'unwarranted' and launched another attack on the agency's assessment of 'political risk', asking Moody's 'for a better appreciation for the factual position' (Kalra & Singh, 2016). India has criticised the Big Three CRAs' rating decisions on emerging market debt on a number of occasions and have been one of the main proponents for the formation of an alternative, BRICS rating agency that is 'unbiased' towards the developing world (Klomegah, 2018). Other voices of dissent include Nigeria, Zambia, Tanzania and South Africa. In 2017, the Nigerian government pointed out that CRAs contradicted their previous rating rationale which highlighted certain areas in the government's budget that needs improvement. Despite addressing these concerns, which included the return of business confidence, reaching economic growth targets and inflation continuing to trend downwards, Moody's nevertheless downgraded the countries debt rating (Anon, 2017). Zambia's government called on investors and the public to ignore Moody's credit downgrade in 2015, 'because the grading is unsolicited and against best practice' (Anon, 2015). Likewise, South Africa's former minister of finance, Pravin Gordhan criticised CRAs for treating Africa as a country, echoing concerns expressed by policy-makers in other parts of the global South (Gumede, 2014). Most recently, amidst the COVID-19 pandemic, the UN criticised Moody's decision to put five countries on review for a downgrade that formed part of a G20-backed debt suspension scheme (Hodgson, 2020). Moody's justified their rating decision on the basis that 'debt standstills' qualify as default, and therefore pose a risk to private investors. The UN's response exposes how CRA's authority in the market-place is based not on their ability to reveal the truth about a government's budgetary realities, but the performative effect of their speech acts. The UN contested Moody's claim: the scheme should improve countries' debt sustainability, not undermine it. This contestation also reveals the normativity and value judgements embedded in ratings. Whereas CRAs articulate participation in the scheme, although doing so in the context of a pandemic-induced financial crisis, as a credit risk, the UN sees it as precisely the opposite.

While it is unlikely that these criticisms would radically challenge the epistemic authority of the Big Three CRAs, they nevertheless provide a small tear in the performance of CRA's authority. These sources of dissent enable counter-conducts that could lead to incremental rather than revolutionary change. Foucault's formulation of counter-conducts, for instance, derives from his historical analysis resistances towards pastoral power during the Middle Ages which, over a long period of time resulted in new forms of governing. These acts of resistance emerged in relation to various tactics and arts governance. Counter-conducts were not necessarily a 'face-off by the opposite affirmation', but instead revolved around the following questions in the search for ways to govern:

> […] "how not to be governed *like that*, by that, in the name of those principles, with such and such objective in mind and by means of such procedures, not like that, not for that, not by them" (Foucault, 2007:44, original emphasis).

Over a long period of time, Foucault (2009:271-275) observes, counter-conducts to pastoral power, which entailed new forms of self-government to salvage one's soul for Christ, instead of placing that power in the hands of a pastor through submission and obedience a new 'way of doing things and being…relating to God' emerged.

However, CRAs and the discourse of sovereign creditworthiness do not exist in isolation, and the abovementioned forms of dissent are not the only possible sites of resistance. This thesis revealed that the articulation and rating of sovereign credit risk takes place through an epistemic culture that has been defined by the regimes of knowledge and truth, history, and experiences of the global North. Here, the de-politicisation of economics in the nineteenth century played an important part in establishing their discourse as rational, stable, and 'true'. This de-politicisation hinged upon the use of mechanical analogies to explain the workings of value exchange (price formation) – positioned as the sole purpose of inquiry for economists – in mathematical terms. Walras's equilibrium model, for instance, is based on an analogy of a mechanical lever that naturally 'balances itself out'. My goal here is not to question the validity of this specific analogy, but rather to reveal how contemporary understandings of the economy and the market hinge on analogies with astrophysics and rational mechanics, seen as the most objective form of knowledge. The mathematisation of these theories, enabled by the proliferation of modelling, has erased the analogies, metaphors, and philosophies embedded in them. Here, genealogy enables an investigation into the historical, socio-cultural, and institutional context inscribed in financial and economic models and indicators. This opens a space for political conversation and alternative ways for imagining how the economy works, and should work. In other words, to broaden the democratic content of economic and financial discourse. At this point, I want to return to J.M. Coetzee's letter to Paul Auster presented in the beginning of this thesis.

To recall, Coetzee asks why we accept and act upon a specific set of financial numbers, implying that their political economic constitution can be altered so that the arrangement of markets align with the social welfare and just needs of society (Auster & Coetzee, 2012:21). Coetzee recalls how his suggestion that we replace numbers with better ones have been considered 'naïve', based on his limited understanding of how the system works. Coetzee then proceeds with an analogy that highlights how contemporary injustices are rooted in modalities that limit investigations into how the economy could be structured otherwise:

> In Book 7 of *The Republic* Plato asks us to imagine a society in which people spend their waking hours sitting in rows inside a dark cave, staring at screens on which various flickerings are taking place. None of them have ever been outside the cave, none of them are acquainted with anything beyond the flickerings on their screens. All accept without question that what they see on the screens is all there is to see.
> One day one of these people happens to get up and stagger outdoors. His eyes, unused to the light, are blinded, but he does catch glimpses of trees, flowers, and a multiplicity of other forms that do not in the slightest resemble the flickerings he is used to.
> Shielding his eyes, he returns to his fellows. This place where we live is actually a cave, he says, and the cave has an outside, and outside the cave it is quite different from inside. There is real life going on out there.
> His fellows snigger. You poor fool, they say, don't you recognise a dream when you see one? This is what is real (they gesture toward the screens) (Auster & Coetzee, 2012:21-22).

My thesis sought to investigate how the myopia of mainstream economics is produced through rationalist discourses and scientific methods that enable particular interpretations at a particular point in time while excluding others. Through the use of genealogy, the goal was to show that these rationalist discourses are instead uncertain, fragile, and ambiguous. By exposing the central aspects of the authority of numbers, alternative ways of representation becomes possible.

Merry (2016a) for instance, conducts a genealogical investigation into the production of indicators that measure human rights, gender violence, and sex trafficking. She investigated how these indicators developed, the actors involved, who financed it, and the regime of power and knowledge in which it is formed. This analysis revealed how global indicators are shaped by inequalities in power and expertise, whereby experts in the global North have been able to define the phenomenon in question, but also how it should be measured. However, this is not a straight-forward process. Creators of indicators grapple with questions on how to translate broad terms of a standard in global governance into a series of measurable and named phenomena. Measurement typically builds on existing models and approaches, thereby reinscribing and sedimenting their built-in assumptions of objectivity. Ultimately, this is a political, interpretive process that involves the creation and naming of categories, determining the data-collection necessary for measurement, and the weights that will be accorded to different categories. Merry (2016a) reveals how this form of quantitative knowledge is not only built on questionable data-collection practices, but that they are extremely misleading. By excluding local, vernacular knowledge, they produce knowledge that is ignorant of context. As such, she calls democratic indicator creation, the incorporation of qualitative knowledge into indicator production, and increasing indicator literacy to de-mystify the aura of objectivity of quantitative numbers (Merry, 2016a, 2011). This would also open a space for those who were have been denied agency to participate in the production of knowledge that affect them.

The radical indeterminacy of the future

This thesis has shown that the authority of ratings is particularly rooted in their assumed ability to transform the unknowable future into calculative risk. Chapter Two and Three examined how the use of models in economics and finance, particularly aided by Haavelmo's probability approach and Friedman's 'as if' methodology, enabled the quantification of almost everything. These methodological devices however, obscure the extent to which they are based on speculative knowledge: simulations, hypotheses, theory, and limited statistical datasets. Yet, once they are assembled into a single numerical form, they generate the idea of having uncovered an exogeneous truth about the likelihood of an event occurring at some point in the future. The triumph of risk over uncertainty in modern finance is rooted in the mathematisation of rational choice and efficient markets, as Chapter Three of this thesis shows. This, however, has subjugated governments, corporations, and societies to the epistemic governance of numbers, enabled by what has been termed 'indicator culture' (Merry, 2016a). In finance, this culture entails:

> […]a body of technocratic expertise that places a high value on numerical data as a form of knowledge and as a basis for decision making. Its characteristics are trust in technical rationality, in the legibility of the social world through measurement and statistics, and in the capacity of numbers to render different social worlds commensurable…It assumes that all things can be measured and that those measures provide an ideal guide to decision making.

Numbers give the impression of being devoid of idiosyncrasies such as human discretion or subjective bias. As such, they appear as the epitome of technical, disinterested analyses: objective facts that cannot be disputed. Yet, the frequency in which CRAs, for instance, fail to either predict financial crises or act procyclical once a downturn has started, exemplifies the radical indeterminacy of knowledge. Unfortunately, in the aftermath of these rating failures, critique has focused on enhancing the regulation of the rating industry, promoting competition in the rating space (Pollock, 2005), or the lack of transparency in rating decisions (White, 2010). There are also an array of financial economists scrutinising the methodologies, timing, and business model of CRAs (Cantor & Packer, 1995; Lowe, 2002; Partnoy, 2001). These analyses criticise the credit risk models CRAs use (Kiff et al., 2013; Lowe, 2005); the timing and accuracy of sovereign credit rating actions (Pennartz & Snoeij, 2012); the problem of conflict of interest in the issuer-pay model (Krall, 2016), and document why ratings are procyclical (Ferri et al., 1999). While asking some important questions, these analyses nevertheless assume that financial markets, and the economy in general, are pre-existing material realities that exist outside or prior to their representations. By implication, sovereign credit risk is an exogenous reality that can be unearthed with the proper – typically quantitative – methods and improved regulation to limit rating failures (Paudyn, 2014:7). This not only reifies the idea that what we know about financial markets and the economy is based on unambiguous accumulation of knowledge, that can only be improved with the correct methods, but also leaves the assumptions and theories of sovereign credit risk unquestioned.

Moreover, calls for greater regulation of the rating industry in many ways enable the further de-politicisation of the discourse of sovereign credit risk. Mennillo and Sinclair (2019) argues for instance that the intensification of regulatory oversight in the rating space post-2008/09 GFC has been central to the reproduction of its authority. This is because regulation removes questions dealing with the legitimacy of CRAs outside a terrain of contestation by creating a moral and legal space for them to proliferate (de Goede, 2005:123). Amtenbrink and Heine (2013) refer to how the regulatory initiatives to counter the authority of CRAs appeal to psychological aspects of making rational, responsible decisions that are based on the advice of outside experts. This entails an emotional 'offloading' whereby 'investors of debt securities may rely overconfidently on credit ratings because they have a better emotional feeling, if they can share responsibility' (Amtenbrink & Heine, 2013:5). Overconfidence or trust in the ability of CRAs to render investors safe against the uncertain future is rooted, as mentioned, in an epistemic culture that places significant trust in numbers to render the world knowable.

There is a plethora of works that undermine the rationalist assumptions of REH and EMH upon which calculable uncertainty is based. Sen's (1977) 'Rational Fools' for instance, questions the self-interested assumptions of REH, showing that the entire hypothesis falls apart when considering the sociality of decision-making. Likewise, as mentioned in Chapter Two and Three, Keynes also emphasise the radical uncertainty of knowledge. Not only was Keynes opposed to the use of mathematics to study economics, given 'all kinds of unexpressed unavowed assumptions' (cited in Louça, 2007:186), but also the idea that individuals behave rationally in the marketplace positions investors' behaviour at the centre of this theory and specifies that any attempts at stabilisation should come to terms with the fact that human behaviour in the market place is radically uncertain and indeterminable (Reddy, 1996:228-230). This emphasis on the uncertainty of knowledge, as Best (2008:365) shows, enabled the formation of Bretton Woods agreements that were markedly ambiguous. For example, the term 'fundamental disequilibrium', which outlined the conditions under which a state could alter its pegged exchange rate, was never fully defined in the IMF's articles of agreement. Not only did these ambiguities enable the international financial system to negotiate and adapt to unanticipated conditions, but also created more room for states to pursue their own 'favourite experiments' and control capital movements (Best, 2008, 2005). In other words, the recognition of uncertainty as an indispensable reality of economic activity opened the space of "the indeterminate future to be transformed into an open political domain, rather than existing as an undemocratically and scientistically defined and 'mapped out' horizon of alternatives" (Reddy, 1996:228).

The politics of everyday life in IPE

This thesis aimed to show how the rating of sovereign credit risk assembles complex histories of colonial conquest, rational economics, geographical imaginations of risk and uncertainty, space, place, and financial markets. The goal was to show the entanglement of everyday life with wider connections, spaces, and histories of accumulation and dispossession. Entanglement, as Nuttall (2010:20) points out, 'draw into our analyses critical attention to those sites and spaces in which what was once thought of as separate – identities, spaces, histories – come together or find points of intersection in unexpected ways.' Here, a genealogical reading of the present reveals how European colonialism, scientific rationalism, and the governmentality of sovereign credit risk unfold in the production of 'raw life' in post-apartheid South Africa. Post-colonial scholars explain show how imperial encounters enables the denial of effective agency to the South. Here, the site of 'everyday life' writes Davies (2006), can be an important site of resistance in IPE by prompting an investigation into how Western narratives and political projects have been contested 'on the ground.' One such example can be found in Louw (2019, 2017), who provides an account on the history of underground gambling practices in South Africa. Before commencing, it is important to point out the historical and conceptual entanglements between finance and gambling, as both being strategies of confronting chance and uncertainty.

In early modern Europe, there was no conceptual difference between financial activities and gambling and it was only through prolonged political, cultural and legal struggles in which the meaning and boundaries of 'the financial sphere' and the character and behaviour of 'financial man' were debated, that a separation between gambling and finance were made possible (de Goede, 2005:chapter 3). One instance that exemplifies this struggle is war against bucketshops in New York and Chicago. These institutions were betting shops where it was possible to bet on the movement of stock prices without actually purchasing a stock. Bucketshops deployed all the paraphernalia associated with established exchanges and established themselves in major cities all over the US. They accepted small bets on the movements of prices that were much smaller than the minimum investments required by the exchanges, but mostly did not execute their' client's orders on the exchanges. Instead, much like derivative trading, they took the opposite position to their customer's bets, sometimes hedging their positions on the exchanges (de Goede, 2005:68). Given their similarities with exchanges, bucketshops associated financial trading with gambling. In order to secure the legitimacy of their profession, amidst growing opposition to their practices, the exchanges in Chicago and New York sought to distance themselves from gambling by taking legal action against bucket shops. The problem however, was that up to that point there was no legal separation between gambling and financial speculation. In 1901, resuming a prolonged legal battle lodged by the Chicago Board of trade

(CBoT) against a bucketshop called Christie Grain and Stock Company, the CBoT lost, based on Christie's defence that there was no essential difference between its practices and those of the CBoT. The court argued that:

> It is thus proven beyond all reasonable question that the Chicago Board of Trade…members…engage in making and carrying through deals in grains and provisions, in which it is not intended to make a future delivery of the article dealt in, but which are to be settle by payment of money only according to the fluctuations of the market and which are in all essentials gambling transactions…*the Board of Trade does not come with clean hands, nor for a lawful purpose* (cited in de Goede, 2005:71, emphasis original).

The CBoT appealed in 1905 and the case got referred to the US Supreme Court, whereby the CBoT's activities became codified in legal terms, based on the moral justification that trading is a rational, calculative action instead of relying solely on chance (de Goede, 2005:77). It is the gamblers, Defoe argued, that pose the most serious threat to Lady Credit as they cannot restrain their desires and give into 'Luxury, Sloath, Pride'. As he put it in '*The True-Born Englishman*' (Defoe, quoted in Richetti, 2005:144)

> The lab'ring poor, in spite of double pay,
> Are saucy, mutinous, and beggarly:
> So lavish of their money and time,
> That want of forecast is the nation's crime.
> Good drunken company is their delight;
> And what they get by day, they spend by night.

Defoe continues to argue that ruin will be the effect of 'Luxury, Gaming, Lewdness and all sorts of Vices' (quoted in de Goede, 2000:67). Stockjobbers (stock brokers), who sold credit certificates for gambling purposes were common offenders in this regard, as they displayed an unrestrained lust for wealth. It is in this context of moral ambiguity and class conflict where Louw (2019, 2017) provides interesting examples of how illicit gambling activities serve as spaces of resistance against an historically exclusive financial system. He explores the history of an illegal Chinese-run numbers game called *fahfee* and its underground development in South Africa (Louw, 2019). The spread of *fahfee* in South Africa is associated with the influx of Chinese settlers from the late nineteenth century. It became an extremely popular leisure activity for Chinese immigrant communities and helped them mitigate the harsh realities of the exclusionary racial-capitalist context. Recreational demand amongst South Africans grew significantly, which served as an entrepreneurial opportunity for Chinese communities to make a living outside the formal white-controlled economy. Not only did *fahfee* provide an illicit accumulation strategy, but gambling operations also served as a space where racial mixing was deemed socially acceptable. The games were run by individual families and involved them travelling alongside fixed routes, stopping at particular places to collect bets from runners and announcing winning numbers. Although, with the passing of the Group Areas Act in 1950, the game lost much of its allure, it remains an extremely popular and an integral feature of everyday life for many low-income, black women in South Africa. In another analysis, Louw (2017) explores *fahfee* contemporary South Africa, focusing particularly on the subjective moral universe of the game. Contrary to other forms of illegal gambling that tend to be controversial, Louw (2017:19-20) observes that *fahfee* is widely tolerated and helps cultivate a sense of moral community amongst players. Furthermore, contrary to claims that *fahfee* is played solely for money as a form of 'speculative accumulation' due to limited livelihood strategies, the game represents 'a form of conspicuous decadency, a small but measured act of defiance against the requirements of pecuniary responsibility' (Louw, 2017:19-20). These acts of resistance that exist at the site of the everyday exemplifies how modalities of counter-conduct takes place on a microlevel in a way that contests the assumed morality of finance, based on claims of rational calculation, and the immorality of gambling that is associated with usury, avarice, or drinking.

Conclusion

This chapter examined how the analyses conducted in this thesis, which focused on the historical processes that have de-politicised the discourse of sovereign credit risk, opens up possibilities of resistance and re-politicisation. Given the plurality of relations of power and knowledge that have shape and continues to shape the authority of sovereign credit risk, this chapter revealed the multiple entries for critique. The first deals with exposing the fragility of stabilised, rationalised portrayals of sovereign credit risk. Referring back to Defoe's ambition to create a rational space for finance, contemporary efforts that seek to limit the risk posed by emerging markets it becomes clear that the mastery of Lady Credit is never complete. Here, the multiple instances of dissent expressed among leaders of the global South on the validity of CRAs methodologies – the core of their objective truth claims – becomes important counter-conducts that tear into their authority. Likewise, a genealogy of indicator production, as Merry (2016a) shows, enables further sites of resistance by exposing the uncertainty of data and the large amount of interpretive work that goes into their making. Given the arithmetic appearance of financial practices in contemporary life, and the ability of statistics to de-politicise issues that are inherently social and political, these critiques have the potential to significantly disrupt the regimes of truth attached to ratings. At the same time, by exposing the limits of numerical knowledge, it becomes possible to move away from the overconfidence in mathematical probability to accurately model the future and allow more room for democratic debate and the possibility for a plurality of agency in the making of financial numbers (de Goede, 2001:290). Finally, Louw's (2019, 2017) analysis of illegal gambling practices in South Africa provides an example of how the site of the 'every day' is an important space of thinking about resistance in IPE. It enables a way to question ideas of morality and rationality through which modern credit practices have been defined, often through a play of differentiation from the European gentleman. Instead of focusing on large-scale political revolutions, Louw's analysis show how agency can be reclaimed through investigations from the 'ground up'. *Fahfee*, which has always been illegal, continues to be played by low-income, mainly black women and contrary to long-standing moral concerns about gambling, the meaning and value of the game has been rearticulated as something that in fact cultivates a sense of moral community amongst players.

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