



Universiteit
Leiden

The Netherlands

Understanding coercive nuclear reversal dynamics: a comparative case study of US coercive diplomacy against the nuclear programs of Iran, Libya, and South Africa

Ndzana Ndzana, J.Y.

Citation

Ndzana Ndzana, J. Y. (2024, April 25). *Understanding coercive nuclear reversal dynamics: a comparative case study of US coercive diplomacy against the nuclear programs of Iran, Libya, and South Africa*. Retrieved from <https://hdl.handle.net/1887/3748164>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3748164>

Note: To cite this publication please use the final published version (if applicable).

UNDERSTANDING COERCIVE NUCLEAR REVERSAL DYNAMICS. A COMPARATIVE CASE STUDY OF US COERCIVE DIPLOMACY AGAINST THE NUCLEAR PROGRAMS OF IRAN, LIBYA, AND SOUTH AFRICA.

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus Prof.dr.ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op donderdag 25 April 2024 klokke 11:15

door

Jean Yves Ndzana Ndzana
Geboren te Yaoundé, Kameroen
op 4 april 1993

PROMOTORS

Prof. dr. R. De Wijk

Dr. M. Dechesne

DOCTORATE COMMITTEE

Prof. mr. dr. E. R. Muller, Chair of the Doctorate committee

Prof. dr. ir. B. Rietjens, Secretary of the Doctorate committee

Prof. dr. M. O. Hosli

Prof. dr. J. Melissen (University of Antwerp)

Dr. T. Sweijs (The Hague Center for Strategic Studies)

ISBN: 978-94-6473-456-0

© 2024 J.Y. Ndzana Ndzana

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the author, except in the case of brief quotations embodied in critical reviews, academia, and other non-commercial uses permitted by copyright law.

Covert page: Georges Henri Fouda Lobé

Interior layout: Anne Merveille Nna

Printer: Ipskamp Printing



**Universiteit
Leiden**
The Netherlands

PhD THESIS

TOPIC:

**UNDERSTANDING COERCIVE NUCLEAR REVERSAL
DYNAMICS. A COMPARATIVE CASE STUDY OF US
COERCIVE DIPLOMACY AGAINST THE NUCLEAR
PROGRAMS OF IRAN, LIBYA, AND SOUTH AFRICA.**

Candidate: Jean Yves Ndzana Ndzana

Academic Year 2023-2024

TABLE OF CONTENT

1 INTRODUCTION..... 24

1.1 Background of the study.24

1.2 Research puzzle.....25

1.3 Research goal, question, and argument of the thesis.27

1.4 Research gap and added value of the thesis.28

1.5 Structure of the thesis.30

2 CHAPTER II- LITERATURE REVIEW: WHAT DO WE KNOW ABOUT THEORIES OF COERCIVE DIPLOMACY AND NUCLEAR REVERSALS?..... 34

2.1 SECTION I - COERCION: STRATEGIES, INSTRUMENTS, MECHANISMS AND THEORIES.34

2.1.1 Coercion: strategies, instruments, and mechanisms. 34

2.1.1.1 Coercive strategies..... 34

2.1.1.1.1 Punishment-based coercive strategy..... 34

2.1.1.1.2 Denial-based strategy..... 35

2.1.1.1.3 Risk-based strategy. 37

2.1.1.1.4 Decapitation coercive strategies..... 38

2.1.1.2 Coercive instruments..... 40

2.1.1.3 Coercive mechanisms 40

2.1.1.3.1 Power-base erosion. 40

2.1.1.3.2 Unrest..... 40

2.1.1.3.3 Decapitation 41

2.1.1.3.4 Weakening/incapacitation 41

2.1.1.3.5 Denial 41

2.1.2 Theories of the successful conditions of a coercive strategy. 42

2.1.2.1 The pioneers of coercive diplomacy. 42

2.1.2.1.1 Sun Tzu 42

2.1.2.1.2 Carl Von Clausewitz..... 43

2.1.2.1.3 Thomas Schelling 45

2.1.2.2 General theories of diplomatic coercion 47

2.1.2.2.1 Alexander George and William Simons 47

2.1.2.2.1.1 The contextual variables. 47

2.1.2.2.1.2 The operational conditions for an effective coercive strategy. 49

2.1.2.2.2 Peter Jakobsen Viggo 53

2.1.2.2.3 Bruce Jentleson and Christopher Whytock: “know your enemy.” 58

2.1.2.3 Theories of general coercion based on the typology of coercive strategies..... 60

2.1.2.3.1 Military-based coercion 60

2.1.2.3.1.1 Rob de Wijk	60
2.1.2.3.1.1.1 The successful application of force.....	61
2.1.2.3.1.1.2 The operational challenges to the implementation of a coercive military strategy.....	61
2.1.2.3.1.1.3 The political preconditions to a military coercion campaign. 62	
2.1.2.3.1.1.4 Concept of operations and the balance of means and ends. 63	
2.1.2.3.1.2 Robert Pape and the coercive use of air power.....	64
2.1.2.3.1.2.1 Pape's propositions regarding the success of a coercive strategy. 64	
2.1.2.3.1.2.2 The coercive strategies of Robert Pape on air power.....	65
2.1.2.3.1.3 Coercive use of cyber capabilities.	66
2.1.2.3.2 Economic-based coercion.	67
2.1.2.3.2.1 The instruments	67
2.1.2.3.2.1.1 Foreign aid	68
2.1.2.3.2.1.2 Monetary power	69
2.1.2.3.2.1.3 Financial power	69
2.1.2.3.2.1.4 Trade	69
2.1.2.3.2.2 Conditions of success of coercive economic strategies.....	69
2.1.2.3.3 Political-based coercion	71
2.2 SECTION II - THE NOTION OF NUCLEAR REVERSAL IN PROLIFERATION STUDIES.	73
2.2.1 Definitions of the notion of nuclear reversal	74
2.2.2 The theoretical models of nuclear reversal	75
2.2.2.1 The security model of nuclear reversal	75
2.2.2.2 The domestic model of nuclear reversal.....	76
2.2.2.2.1 Jacques Hymans and his National Identity Conception.	76
2.2.2.2.2 Etel Solingen and the importance of the political regimes.....	77
2.2.2.3 The cooperative approach to nuclear reversal.	78
2.2.2.4 The coercive approach of nuclear reversal.....	80
3 CHAPTER III- THEORETICAL FRAMEWORK AND METHODOLOGY.	86
3.1 SECTION I - THEORETICAL FRAMEWORK.	86
3.1.1 Explaining the research question and hypotheses.....	98
3.1.2 Neoclassical realism as our theoretical framework.....	102
3.1.2.1 The philosophical assumptions.....	102
3.1.2.2 The concept of strategic culture and its importance in a State's decision- making.....	106
3.1.2.3 The practical applications of the theory.....	110
3.1.3 Neoclassical realism and coercive diplomacy.....	112
3.2 SECTION II - METHODOLOGY	115

3.2.1	Case study as our research strategy: what it is.	116
3.2.1.1	Why is the case study approach relevant for this thesis?.....	117
3.2.1.2	Case study as a research strategy: strengths and weaknesses.	117
3.2.1.3	Types of case studies	120
3.2.1.4	Case study and the choice of the US as the main coercer, with Iran, Libya, and South Africa as the main targets.	122
3.2.1.4.1	Why the US as the main coercer?	122
3.2.1.4.2	Why Iran, Libya, and South Africa as the targets?.....	123
3.2.2	The research design of the thesis	124
3.2.3	The Structured-focused comparison method	125
3.2.4	The process-tracing method: what it is.	127
3.2.4.1	Process tracing and coercive diplomacy	129
3.2.5	Collection and analysis of the research data.	130
3.2.5.1	Data collection	130
3.2.5.2	Analysis of the data.....	132
4	CHAPTER IV – THE US AGAINST IRAN	136
4.1	SECTION I – A SHORT HISTORY OF IRAN’S RELATIONSHIP WITH THE GREAT POWERS.	137
4.2	SECTION II – THE EMERGENCE OF THE IRANIAN NUCLEAR PROGRAM: ORIGINS, RATIONALE, AND REGIONAL IMPLICATIONS.	143
4.2.1	Iran’s nuclear program: origins and rationale.....	143
4.2.2	The implications of the Iranian nuclear program for the Middle East and the United States.	153
4.3	SECTION III- THE CHARACTERISTICS OF THE IRANIAN DECISION-MAKING SYSTEM	158
4.4	SECTION IV- THE COERCIVE DYNAMICS BETWEEN THE US AND IRAN. ...	161
4.4.1	George Bush’s foreign policy: beliefs and actions.	162
4.4.2	Mahmoud Ahmadinejad’s foreign policy: beliefs and actions.	166
4.4.3	The nuclear negotiations between the EU and the Iranians (2002-2006). 169	
4.4.4	The nuclear negotiations between US (E3+3 group) and Iran. (2006-2013). 176	
4.4.5	President Obama’s foreign policy: actions and beliefs.	194
4.5	SECTION V – THEORETICAL LESSONS FROM THE COERCIVE DYNAMICS BETWEEN THE US AND IRAN.	215
5	CHAPTER V – THE US AGAINST LIBYA	224
5.1	SECTION I – A SHORT HISTORY OF THE RELATIONS BETWEEN LIBYA AND THE GREAT POWERS.	225
5.2	SECTION II – THE EMERGENCE OF THE LIBYAN NUCLEAR PROGRAM: ORIGINS, RATIONALE, AND REGIONAL IMPLICATIONS.	230

5.3 SECTION III – THE CHARACTERISTICS OF THE LIBYAN POLITICAL SYSTEM.	238
5.3.1 The Characteristics of the Libyan polity.....	238
5.3.2 The Characteristics of the foreign policymaking of Libya under Qaddafi..	241
5.4 SECTION IV – THE COERCIVE DYNAMICS BETWEEN THE US AND LIBYA.	243
5.4.1 Muammar Khadafi’s foreign policy: ideas and beliefs.	245
5.4.2 The coercive nuclear dynamics between the US and Libya.....	247
5.5 SECTION V – LESSONS FROM THE COERCIVE NUCLEAR DYNAMICS BETWEEN THE US AND LIBYA.	285
6 CHAPTER VI – THE US AGAINST SOUTH AFRICA.	296
6.1 SECTION I – A SHORT HISTORY OF THE RELATIONS BETWEEN SOUTH AFRICA AND THE GREAT POWERS.	297
6.2 SECTION II – THE EMERGENCE OF THE SOUTH AFRICAN NUCLEAR PROGRAM: ORIGINS, RATIONALE, AND REGIONAL IMPLICATIONS.	304
6.3 SECTION III – THE CHARACTERISTICS OF THE SOUTH AFRICAN POLITICAL SYSTEM.	313
6.3.1 The features of the South African political system under the Apartheid regime.	313
6.3.2 The characteristics of South African foreign policymaking.....	315
6.4 SECTION IV – THE COERCIVE DYNAMICS BETWEEN THE US AND SOUTH AFRICA.	318
6.4.1 During the Mandate of Hendrick Verwoerd.	319
6.4.1.1 Hendrick Verwoerd’s foreign policy: ideas and beliefs.....	319
6.4.1.2 The coercive dynamics between South Africa and the Great Powers under Hendrick Verwoerd. (1958-1966).	320
6.4.2 During the Mandate of John Vorster.	323
6.4.2.1 John Vorster’s foreign policy: ideas and beliefs.	323
6.4.2.2 The coercive dynamics between South Africa and the Great Powers under John Vorster. (1966-1978).	324
6.4.3 During the Mandate of Pieter Botha.....	332
6.4.3.1 Botha’s foreign policy: ideas and beliefs.	332
6.4.3.2 The coercive dynamics between South Africa and the Great Powers under P. W. Botha (1978-1989).....	335
6.4.4 The EU’s actions against the Apartheid regime.	338
6.4.5 During the Mandate of Frederick De Klerk.	357
6.4.5.1 Frederick De Klerk’s foreign and domestic policy: ideas and beliefs..	357
6.4.5.2 The International dynamics between the Great Powers and South Africa under Frederick W. De Klerk (1989-1994).....	358
6.5 SECTION V – THEORETICAL LESSONS FROM THE COERCIVE NUCLEAR DYNAMICS BETWEEN THE US AND SOUTH AFRICA.	361
7 CHAPTER VII- CONCLUSION	370

7.1 SECTION I- THEORETICAL ANSWERS TO THE RESEARCH QUESTION.....	370
7.1.1 Presentation of the results of the empirical investigation.	370
7.1.2 Unfolding the coercive causal mechanisms and describing the causal process: the strategic role of neoclassical realism and process tracing.....	372
7.1.2.1 Discussion of the findings: a theoretical perspective of coercive diplomacy.....	373
7.1.2.1.1 What did we learn from our case studies?	373
7.1.2.1.2 From the theoretical and practical perspective, why do the lessons from our case studies matter for a substantial understanding of a nuclear-oriented coercive diplomacy strategy?.....	374
7.1.2.2 Limitations of thesis.....	379
7.2 SECTION II- CONTRIBUTIONS OF THE THESIS.	380
7.2.1 Theoretical and methodological contributions of the thesis to coercion studies.....	381
7.2.1.1 The theoretical contribution of the study.....	381
7.2.1.1.1 The merits of Christopher Whytock and Bruce Jentleson's theoretical model.....	383
7.2.1.2 The methodological contribution of the thesis.	384
7.2.2 Potential avenues for further research.....	385
7.2.3 Policy recommendations for decision-makers.....	386

LIST OF ACRONYMS

AEB	Atomic Energy Board
AECA	Arms Export Control Act
AEOI	Atomic Energy Organization of Iran
ANC	African National Congress
ANO	Abu Nidal Organization
BPD	Barrels per Day
CAAA	Comprehensive Anti-Apartheid Act
CFSP	Common Foreign and Security Policy.
CISADA	Comprehensive Iran Sanctions, Accountability, and Divestment Act
DIO	Defense Industries Organization
EGOMA	Experts Group of Multilateral Approaches
EO	Executive Order
EU	European Union
FEP	Fuel Enrichment Plant
FNLA	National Front for the Liberation of Angola.
FPA	Foreign Policy Analysis
FRELIMO	Liberation Front of Mozambique
GDP	Growth Domestic Product
IEEPA	International Emergency Economic Powers Act
ILSA	Iran Libya Sanction Act
IR	International Relations
IRA	Irish Republican Army
IRGC	Islamic Revolutionary Guard Corps

KEC	Kalaye Electric Company
LEU	Low Enriched Uranium
MCSUASCA	Montreal Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation
MEC	Mesbah Energy Company:
MENA	Middle East and North Africa
MIT	Massachusset Institute of Technology
MODAFL	Ministry of Defense and Arms Forces Logistics
MoU	Memorandum of Understanding
MPLA	Popular Movement for the Liberation of Angola
MWe	Mega Watt Electrical
NAM	Non-Aligned Movement
NATO	North Atlantic Treaty Organization
NCRI	National Council of Resistance of Iran
NFC	Nuclear Fuel Cycle
NIC	National Identity Conception
NIE	National Intelligence Estimate
NPT	Non-Proliferation Treaty
NSCWMD	National Strategy to Combat Weapons of Mass Destruction
NSS	National Security Strategy
NWS	Nuclear Weaponized States
OPEC	Organization of the Petroleum Exporting Countries
PAC	Pan-Africanist Congress of Azania
PFLP	Palestinian Front for the Liberation of Palestine
PM	Prime Minister
PNE	Peaceful Nuclear Explosive
PSI	Proliferation Security Initiative
PT	Process tracing
RCC	Revolutionary Command Council
S.A.	South Africa
SAA	South African Act
SADF	South African Defense Force
SBIG	Shahid Bagheri Industrial Group
SHIG	Shahid Hemmat Industrial Group
SMP	Single-Member Plurality
SNSC	Supreme National Security Council
SSC	State Security Council
SWAPO	South West Africa People's Organization
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TNRC	Tajoura Nuclear Research Center
TRR	Tehran Research Reactor

TUT	Third Universal Theory
UK	United Kingdom
UN	United Nations
UNGA	United Nations General Assembly
UNITA	National Union for the Total Independence of Angola.
UNSC	United Nations Security Council
US	United States
USSR	Union of Soviet Socialist Republics
VOC	Vereenigde Oostindische Compagnie
WMD	Weapons of Mass Destruction
WTO	World Trade Organization
WWII	World War II

LIST OF FIGURES

Figure 1: Clausewitzian compellence model from Micheal T. Plehn	44
Figure 2: The nuclear development process. Squares indicate phases in the process and arrows define possible transitions.	79
Figure 3: Type III neoclassical realist model.....	112
Figure 4: Three different variants of process tracing and their analytical purposes.....	128
Figure 5: Structure of Iran’s nuclear decision-making.	160
Figure 6: Arak nuclear complex. Source: Nuclear Threat Initiative: Arak nuclear complex. Source: Nuclear Threat Initiative.....	181
Figure 7: Israel’s plans of attack against Iran’s nuclear facilities.....	214
Figure 8: The Tajoura Nuclear Research Centre.....	257
Figure 9: Koeberg pressurized water nuclear reactor.....	345
Figure 10: RSA-3 -- South Africa missile.....	346
Figure 11: South Africa nuclear weapons.....	356

LIST OF TABLES

Table 1: Robert Pape's coercive air strategies.....	39
Table 2: Peter Viggo Jakobsen's measuring success of coercive diplomacy.	93
Table 3: Iran's unemployment rate. Source: Macrotrends -World Bank. Erreur ! Signet non défini.	
Table 4: Iran's GDP rate. Source: Macrotrends - World Bank.....	186
Table 5: Iran's inflation rate from 2006 to 2013.....	193
Table 6: Evolution of Libya's annual GDP.....	266
Table 7: Libya unemployment rate 1992-2004, Macrotrends - World Bank.	268
Table8: US economic relations with South Africa (exports, imports, and direct investment), 1950–1990.	303
Table 9: South Africa's three-phased nuclear deterrent strategy.....	312
Table 10: South Africa's National Security Management under PM Botha.	333
Table 11: U.S. economic relations with South Africa (exports, imports, and direct investment), 1950–1990.	339
Table 12: Arrests and protests in the US, 1955-1992.....	341
Table 13: Detentions and protests in the US, 1970-1986.	342
Table 14: South Africa's GDP from 1960 till 1990.....	349
Table 15: South Africa's military spending/defense budget.	356
Table 16: Findings of the coercive dynamics between the US and Iran.	250
Table 17: Findings of the coercive dynamics between the US and Lybia.....	329
Table 18: Findings of the coercive dynamics between the US and South Africa.....	409