

A Deterrence Stability Framework for the Evaluation of New Technologies



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PRESENTED BY

Steven Horowitz (6835)

With mentoring assistance from Eric
Wallace (6833)

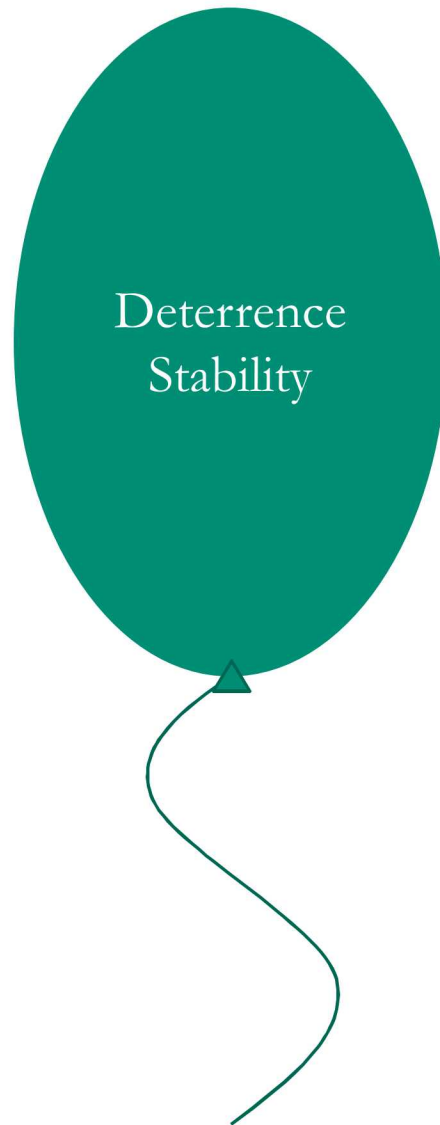


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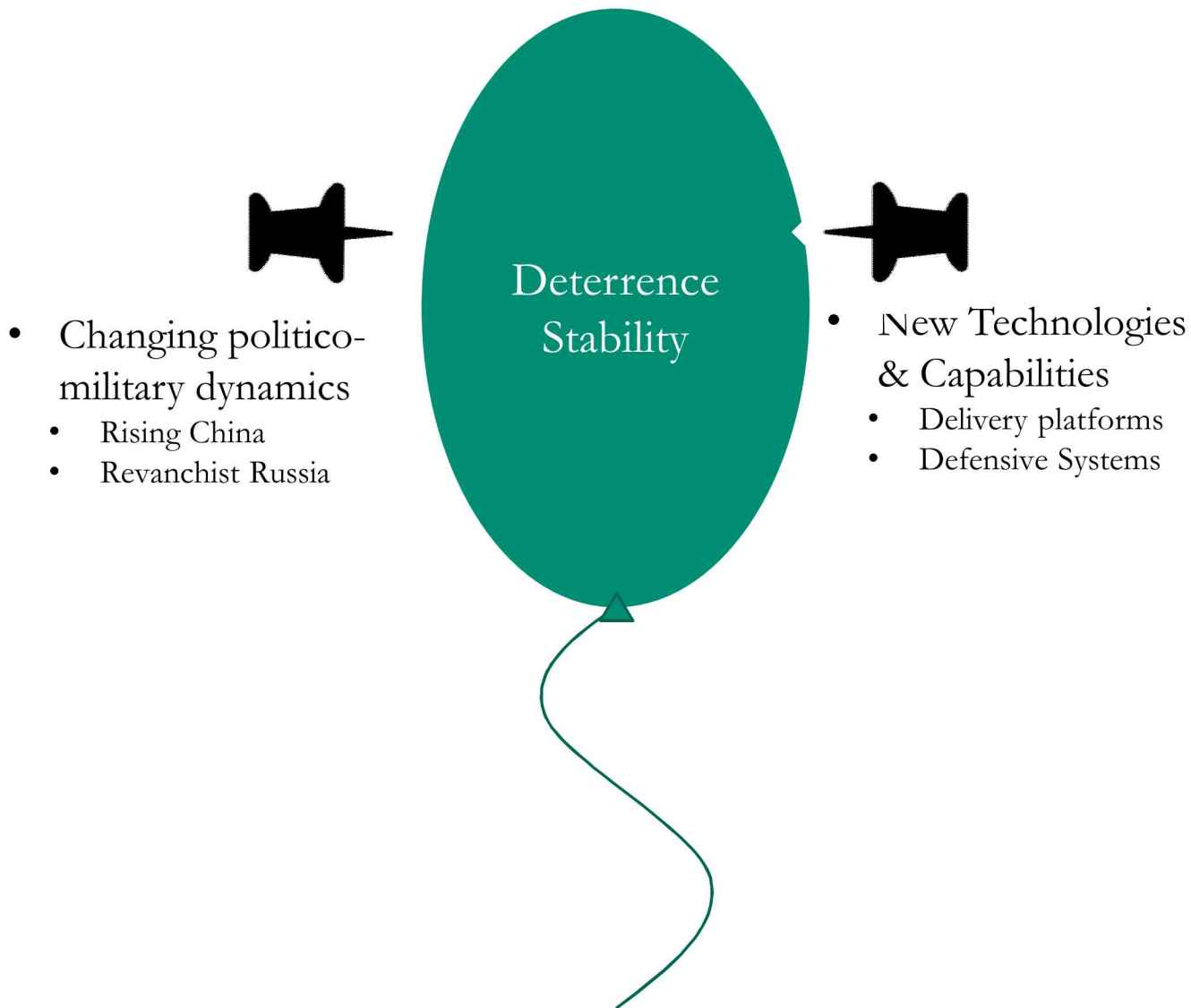
Outline

- International Situation
- Definitions, Scope, & Assumptions
- Framework
- Impact
- Applications



International Situation





Scope, Assumptions, & Definitions

- Not including political dynamics between states. We simply assume State A desires to attack State B
 - What does State B need given State A's capabilities?
- Two-Player System: *Central* Deterrence rather than *Extended*
- Both states possess nuclear weapons, i.e. no preventative war
- Mutual vulnerability (i.e. no perfect missile defense or damage limitation measures”

Shifting Factors in “Strategic” Deterrence Stability

Long-Term

Short-Term

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Long-Term

Military Balance, Politics (Foreign & Domestic), Economics, Social & Cultural Change

Arms Control

Arms Race/
Security
Dilemma

Alliances

Technology
Offense/
Defense
Balance

Short-
Term

Crisis
Stability

First-Strike
Stability from
Strategic Force
Structure

Imperfect
Information:
Emotions,
Ambiguous
Information,
Misperception

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Building a Framework: What Matters?



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- Posture and Doctrine
 - Force readiness level, deployment, leadership/command locations, etc.
 - Day-to-Day vs. Elevated
 - Second Strike vs. Launch on Warning

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- Command and Control



Relevant Features of Strategic Force Structure

State A: State to be Deterred

State B: The Deterring State

Relevant Features of Strategic Force Structure

State A: State to be Deterred

- Strategic Capabilities
- Command and Control
- Novel Weapon Capability[†]

[†]Could be a conventional weapon if it undermines concepts outlined here

State B: The Deterring State

- Survivability of Strategic Forces[‡]
- Command and Control
- Missile Defense

[‡]May also include Novel Weapon

Relevant Features of Strategic Force Structure

State A: State to be Deterred

- Strategic Capabilities
 - Delivery Systems & Warheads
 - Triad
 - Second Strike
 - Diversity & Flexibility
- Command and Control
- Novel Weapon Capability[†]
 - Speed
 - Accuracy
 - Numbers
 - Maneuverability
 - Counter-Defensive Measures

[†]Could be a conventional weapon if it undermines concepts outlined here

State B: The Deterring State

- Survivability of Strategic Forces[‡]
 - Hardening
 - Concealment
 - Diversity & Flexibility
 - Second Strike vs LUA
- Command and Control
 - Early Warning
 - Survivability
- Missile Defense

[‡]May also include Novel Weapon

Impact

	Novel Strategic System Properties				
Element of a State's Deterrent Posture	↑ Speed	↑ Accuracy	↑ Maneuverability	↑ Number	↑ Counter-Defensive Measures
Hardening					
Concealment					
Redundancy/ Diversity					
Second Strike					
LUA					
Early Warning					
C&C Survivability					
Missile Defense					

Impact

	Novel Strategic System Properties				
Element of a State's Deterrent Posture	↑ Speed	↑ Accuracy	↑ Maneuverability	↑ Number	↑ Counter-Defensive Measures
Hardening		↓		↓	
Concealment				↓	
Redundancy/ Diversity		↓		↓	
Second Strike					
LUA	↓		↓		↓
Early Warning	↓		↓		↓
C&C Survivability	↓	↓		↓	
Missile Defense	↓		↓	↓	↓

Test Case: Multiple Independently-Targetable Re-Entry Vehicles (MIRVs) with Penetration Aids

	Novel Strategic System Properties				
Element of a State's Deterrent Posture	↑ Speed	↑ Accuracy	↑ Maneuverability	↑ Number	↑ Counter-Defensive Measures
Hardening		↓		↓	
Concealment				↓	
Redundancy/ Diversity		↓		↓	
Second Strike					
LUA	↓		↓		↓
Early Warning	↓		↓		↓
C&C Survivability	↓	↓		↓	
Missile Defense	↓		↓	↓	↓

Applications - Future Direction

- New Capabilities
- India – Pakistan Standoff
- U.S. – Russia
- Central Deterrence vs. Extended Deterrence
- Other building blocks of “Strategic” Deterrence Stability
 - Arms control, psychology, etc.

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Thank You!

