INTERNATIONAL TRADE AND FINANCE MASTERCLASS

PART 08 OF 25 · SECTION III: LOGISTICS RISK AND INSURANCE

PART 8

INTERNATIONAL SHIPPING INSURANCE AND SUPPLY CHAIN RISK

Marine cargo insurance, the general average principle, political risk coverage, supply chain disruption as a financial discipline, and how to build a resilient supply chain without sacrificing efficiency.

IN THIS PART

- Marine cargo insurance — Clauses A, B, and C explained
- General average — the 2,000-year-old principle
- The Ever Given case study in full
- Political risk insurance and when you need it
- Supply chain disruption — COVID, Suez, and Taiwan modeled
- Resilience versus efficiency — the financial tradeoff

CASE STUDIES

Each part includes fully worked case studies with detailed calculations, real-world context, and practical lessons for CFOs and finance leaders.

PROTECTING THE PHYSICAL JOURNEY

Why Cargo Insurance Is Not Optional

Every year, approximately six thousand containers fall off ships into the ocean. Approximately one cargo ship sinks or is lost every two weeks. Thousands of containers are damaged in storms, contaminated by co-loading with odorous cargo, pilfered at ports, or destroyed in warehouse fires. The ocean is not a safe place for goods, and the journey from a factory in one country to a warehouse in another exposes cargo to risks that most land-based businesspeople significantly underestimate.

Marine cargo insurance is the mechanism through which these risks are transferred to an insurer. It is one of the oldest forms of insurance in the world — underwriters at Lloyd's of London have been insuring cargo since the seventeenth century — and the basic principles have changed remarkably little. An insurer agrees to compensate the cargo owner for loss or damage to goods during transit in exchange for a premium. The key variables are: what perils are covered, what is excluded, how the insured value is calculated, and how claims are made and settled.

The Institute Cargo Clauses: A, B, and C

Marine cargo insurance is typically written on one of three sets of standard policy terms developed by the Institute of London Underwriters — called the Institute Cargo Clauses A, B, and C. The letter designates the breadth of coverage, with A being the broadest and C being the most restricted. Understanding the difference between them is fundamental to making an informed insurance decision.

Clause	Coverage Type	What Is Covered	What Is Excluded	Best For
Institute Cargo Clauses C	Named perils (minimum)	Fire, explosion, vessel stranding, collision, overturning of land conveyance, general average, jettison	Theft, pilferage, leakage, contamination, breakage, damage from bad weather, delay	Bulk commodities, low-value cargo, short routes with low risk
Institute Cargo Clauses B	Named perils (intermediate)	All C perils plus: washing overboard, sea/lake/river water entry into vessel, total loss of package, earthquake, volcanic eruption, lightning	Still excludes: theft, pilferage, leakage, ordinary breakage, contamination	Most standard commercial cargo where C is insufficient but A cost is prohibitive
Institute Cargo Clauses A	All risks (broadest)	All risks of physical loss or damage except those specifically excluded	Exclusions: deliberate damage, inherent vice, delay, inadequate packaging, war (unless war clauses added), nuclear risk, insolvency	Finished goods, electronics, pharmaceuticals, high-value cargo, any shipment where theft and breakage are material risks

Calculating the Correct Insured Value

One of the most important — and most frequently misunderstood — aspects of marine cargo insurance is the calculation of the insured value. Many companies insure their cargo at the invoice value. This is almost always incorrect and can result in significant undercompensation in a loss. The standard practice in international trade is to insure at the CIF value of the goods plus ten percent. The additional ten percent is intended to cover the anticipated profit on the goods — the financial benefit that the insured party has been deprived of by the loss.

◆ INSURED VALUE CALCULATION

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INSURED VALUE CALCULATION — CORRECT METHOD
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SHIPMENT: 500 units of consumer electronics, FOB Shenzhen
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FOB value (invoice price): $320,000
Ocean freight (Shenzhen to Los Angeles): $4,800
Marine insurance premium (not yet calculated): estimate
CIF value: FOB + freight + insurance = approx $325,000
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INCORRECT METHOD (insuring at invoice value only):
Insured value: $320,000
If total loss: receive $320,000
Actual cost to replace cargo (including freight, duties,
and lost profit): $320,000 + $4,800 + $28,800 duty + $60,000
expected profit = $413,600
UNDERINSURANCE GAP: $413,600 - $320,000 = $93,600
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CORRECT METHOD (CIF + 10%):
CIF value: $325,000
Add 10%: $325,000 x 1.10 = $357,500
Insured value: $357,500
Premium at 0.35% (Clause A): $357,500 x 0.35% = $1,251
If total loss: receive $357,500
Much closer to actual economic loss
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NOTE: Even $357,500 may not fully cover all losses.
For high-margin goods, insure at a higher CIF multiple.
Some insurers allow up to CIF + 20%.
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General Average: The Two-Thousand-Year-Old Maritime Principle

Of all the concepts in marine insurance, general average is perhaps the most counterintuitive to a modern businessperson. It is an ancient maritime principle with roots in Rhodian sea law, codified in the Lex Rhodia around 800 BC — more than two thousand years ago — and it remains part of international maritime law today, governing events on the world's most modern container ships.

The principle is this: when the master of a ship makes a voluntary sacrifice to save the ship and its cargo from a common peril — such as jettisoning some cargo overboard to prevent the ship from sinking, or flooding the cargo holds to extinguish a fire — the financial loss from that sacrifice should be shared proportionally by all parties who

benefited from the sacrifice. If the captain throws your container overboard to save the other two thousand containers on the ship, you bear the entire loss of your cargo, but the owners of every other container that was saved benefit from the sacrifice. General average requires them to contribute to your loss.

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CASE STUDY 1

The Ever Given — General Average in Practice

How a Six-Day Blockage Created a Financial Crisis for 18,000 Cargo Owners

Background

On March 23, 2021, the ultra-large container vessel Ever Given — carrying approximately eighteen thousand containers — ran aground in the Suez Canal and blocked one of the world's most important shipping lanes for six days. The vessel was refloated on March 29 and subsequently detained by the Suez Canal Authority pending resolution of a compensation claim. While the vessel was detained in the Great Bitter Lake, the shipowner declared general average — meaning that the extraordinary costs of refloating the vessel and the resulting losses would be shared among all cargo interests on board.

◆ EVER GIVEN — GENERAL AVERAGE IMPACT

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EVER GIVEN — GENERAL AVERAGE FINANCIAL IMPACT
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Vessel: Ever Given (operated by Evergreen Marine)
Containers on board: approximately 18,300 TEU
Estimated total cargo value: $3.5 - $4.0 billion
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GENERAL AVERAGE DECLARATION:
Refloating costs: approximately $80 million
Suez Canal Authority claim: $916 million (initial)
Settlement (reported): approximately $200 million
Additional salvage costs: $40-60 million
Estimated total GA fund: approximately $300-400 million
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IMPACT ON INDIVIDUAL CARGO OWNERS:
GA contribution rate: approx 5-7% of cargo value
Example: cargo worth $500,000
GA contribution required: $500,000 x 6% = $30,000
CARGO COULD NOT BE RELEASED until:
(a) GA contribution paid, OR
(b) GA security posted (cash deposit or bank guarantee)
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UNINSURED CARGO OWNER PROBLEM:
Must post cash security of $30,000 on $500K cargo
OR: cargo remains in port while dispute resolved
GA cases typically take 2-5 YEARS to fully resolve
Working capital tied up in GA security for years
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INSURED CARGO OWNER SOLUTION:
Cargo insurer immediately posts GA security
Cargo released promptly
Insurer handles all GA proceedings and negotiations
Cost to cargo owner: effectively zero (covered by policy)
LESSON: GA alone justifies marine cargo insurance
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CASE STUDY 2

NovaBright Consumer Goods

COVID Supply Chain Collapse — The $14M Emergency Air Freight Decision

Background

NovaBright Consumer Goods is a US company that imports seasonal home decor products — primarily from factories in Guangdong province, China. The company's entire fourth quarter selling season — representing sixty percent of annual revenue — depends on goods manufactured in China being delivered to US distribution centers by September fifteenth. In February and March 2020, COVID-19 shutdowns closed NovaBright's Chinese factories for eight weeks. When factories reopened, the global shipping system was overwhelmed. The company faced the most consequential financial decision of its history.

◆ **COVID SUPPLY CHAIN — AIR VS OCEAN DECISION**

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NOVABRIGHT — SUPPLY CHAIN CRISIS DECISION ANALYSIS
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Annual revenue: $85,000,000
Q4 revenue (critical season): $51,000,000 (60%)
Q4 gross margin: 42% => Q4 gross profit: $21,420,000
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OCEAN FREIGHT SCENARIO (delayed):
Ocean transit now: 45 days (vs. normal 28)
Port congestion delay: estimated additional 21 days
Total delay vs. normal: 38 days
Estimated arrival: October 28 (vs. Sept 15 needed)
Q4 selling days lost: 43 days
Estimated revenue at risk: 43/90 days x $51M = $24,367,000
Gross profit at risk: $24,367,000 x 42% = $10,234,000
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AIR FREIGHT SCENARIO:
Air transit: 5 days from factory to US
Customs and delivery: 4 days
Arrival: September 9 (ahead of Sept 15 deadline)
Revenue saved: $24,367,000
Gross profit saved: $10,234,000
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AIR FREIGHT COST PREMIUM:
Total shipment weight: 1,800,000 kg
Air freight cost: $8.50/kg = $15,300,000
Ocean freight cost (avoided): $0.14/kg = $252,000
Air premium vs. ocean: $15,300,000 - $252,000 = $15,048,000
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DECISION: Air freight premium > gross profit saved
BUT relationship and fixed cost factors changed decision:
Air freight only shipped highest-margin 40% of volume
FINAL: Air freight high-margin items ($6.2M value)
Air cost on 720,000 kg: $6,120,000
Gross profit saved: $6,400,000 — net benefit: $280,000
Plus: customer relationship preservation value
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CASE STUDY 3

Titan Electronics

Single-Source Risk — The Taiwan Strait Scenario and How to Model It

Background

Titan Electronics designs consumer electronics products and sources all of its custom semiconductor chips from a single foundry in Taiwan. The company's CFO was asked by the board to quantify the financial exposure from Taiwan Strait geopolitical risk and present a risk mitigation plan. The CFO built a scenario-based financial model.

◆ TAIWAN STRAIT RISK — SCENARIO ANALYSIS

TITAN — TAIWAN STRAIT RISK SCENARIO ANALYSIS

Annual revenue: $240,000,000

Taiwan chip dependency: 100% of proprietary chips

Chips as % of COGS: 38%

Annual chip spend: $240M x 60% COGS x 38% = $54,720,000

SCENARIO ANALYSIS:

SCENARIO A: TAIWAN STRAIT BLOCKADE (probability: 8%)

Duration: 6 months

Revenue impact: production halts after 90-day inventory

Lost revenue: $240M x (3/12) = $60,000,000

Emergency alternative sourcing premium: 35%

Alternative sourcing for remaining 3 months:

$54,720,000 x 50% x 135% = $36,936,000

Total Scenario A financial impact: $96,936,000

Probability-weighted: $96,936,000 x 8% = $7,754,880

SCENARIO B: CONFLICT AND EXTENDED DISRUPTION (probability: 3%)

Duration: 24+ months

Revenue impact years 1-2: $480,000,000

Company potentially unviable without alternative supply

Probability-weighted: $480M x 3% = $14,400,000

MITIGATION: DUAL-SOURCE PROGRAM

Qualify South Korean foundry for 30% of chip volume

Korean premium vs. Taiwan: +18%

Annual cost of dual-sourcing: $54,720,000 x 30% x 18% = $2,955

Annual dual-source premium: $2,955,000

Reduction in probability-weighted risk: approximately 65%

Annual cost: $2,955,000

Annual expected loss reduction: ($7,755K + $14,400K) x 65%

= $14,401,000

ROI of dual-sourcing: 14,401,000 / 2,955,000 = 4.87x