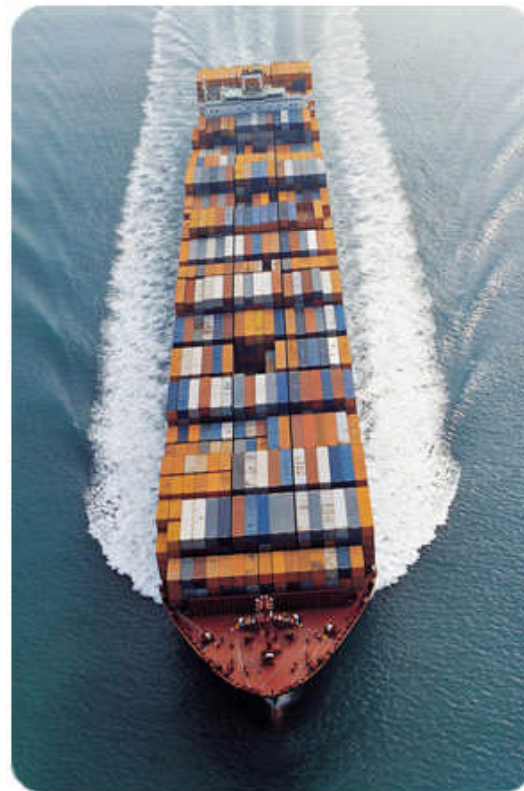




# Cargo Accumulation Introduction and Issues



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# Cargo Accumulation Introduction and Issues

- Agenda
  - Accumulation Defined
  - Underwriter Concerns
  - Why is it so difficult to estimate cargo accumulations?

# Cargo Accumulation

## Introduction and Issues

### ■ Accumulation Defined

**ac·cu·mu·late** [*uh-kyoo-myuh-leyt*]

**verb, -lat·ed, -lat·ing.**

**–verb (used with object)**

1. to gather or collect, often in gradual degrees; heap up: *to accumulate wealth.*

**–verb (used without object)**

2. to gather into a heap, mass, cover, etc.; form a steadily increasing quantity:  
*Snow accumulated in the driveway. His debts kept on accumulating.*

**Origin:** 1520–30; < L *accumulātus* heaped up (ptp. of *accumulāre*),  
equiv. to *ac-* ac- + *cumul(us)* heap + *-ātus* ate 1

**Related forms:**

**ac·cu·mu·la·ble, adjective; ac·cu·mu·la·tion, noun**

Source: Dictionary.com Unabridged

Based on the Random House Dictionary, © Random House, Inc. 2009.



## Underwriter Concerns

- Underwriters typically do not have access to timely shipment information for risks covered under their policies, therefore underwriters do not know their actual aggregate exposure on any single vessel or in any port.
- This lack of knowledge causes serious high-level concern with regard to sustainability and solvency. How can you manage an accumulation if you don't realistically know what it is?



## Underwriter Concerns

- Technological Advances and Increased Trade Leads to Larger Cargo Accumulations
  - Higher values of goods shipped
  - Higher number of container vessels
  - Increased size of container vessels
  - Shrinking number of major hub transshipment points increases portside and natural catastrophe exposures



# Underwriter Concerns

- Perils
  - Earthquake
  - Wind Storm
  - Flood
  - Fire
  - Perils of the Sea
  - Collision
  - Terrorism



# Underwriter Concerns Cargo Accumulation Examples





# Vessel Accumulations





## Bigger Ships = Bigger Risks



- Current generation of large container vessels = 10,000 TEU Capacity
- Next generation of container vessels
  - 12,000 - 18,000 TEU Capacity
  - 22-24 containers across
  - 60m across, 15-21m depth
- Vessel operation limited to small number of deep water ports – increased concentration of risk



# Bigger Ships = Bigger Risks

5,500 TEU  
Hyundai Fortune  
871 Containers  
\$200-\$300M Loss





# Bigger Ships = Bigger Risks

4038 TEU





# Port Accumulations





# Open Lot Car Storage





# Why is it so difficult to estimate cargo accumulations?





How much are the goods in one TEU worth?



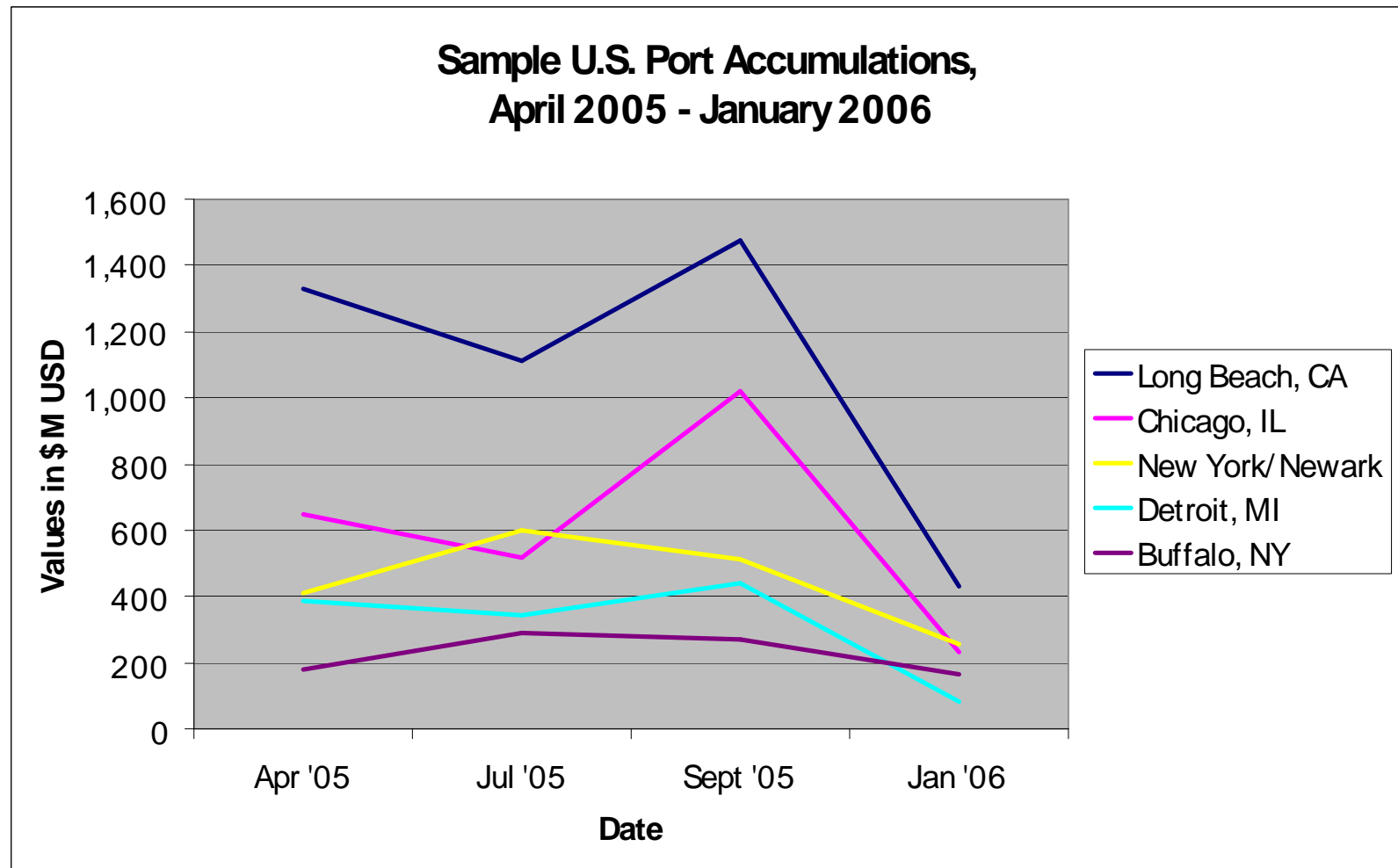


## How much are the goods in one TEU worth?

- Average TEU values fluctuate by route.
- Average TEU values fluctuate by goods shipped.
- Estimates range from \$20,000 per TEU to \$300,000 per TEU with considerable standard deviations.



# Seasonal Fluctuations





## Cargo Vessel Accumulation: Estimation Difficulties

- Open policies with a rate on annual turnover
  - No declaration of shipments in advance
- Can limit the exposure per vessel for each policy/client, but cannot limit the aggregation of clients per any one vessel
- Currently impossible to monitor the accumulation on board a vessel due to unavailability or difficulty in retrieving information:
  - Which clients have shipments on vessel?
  - The total value of those shipments?

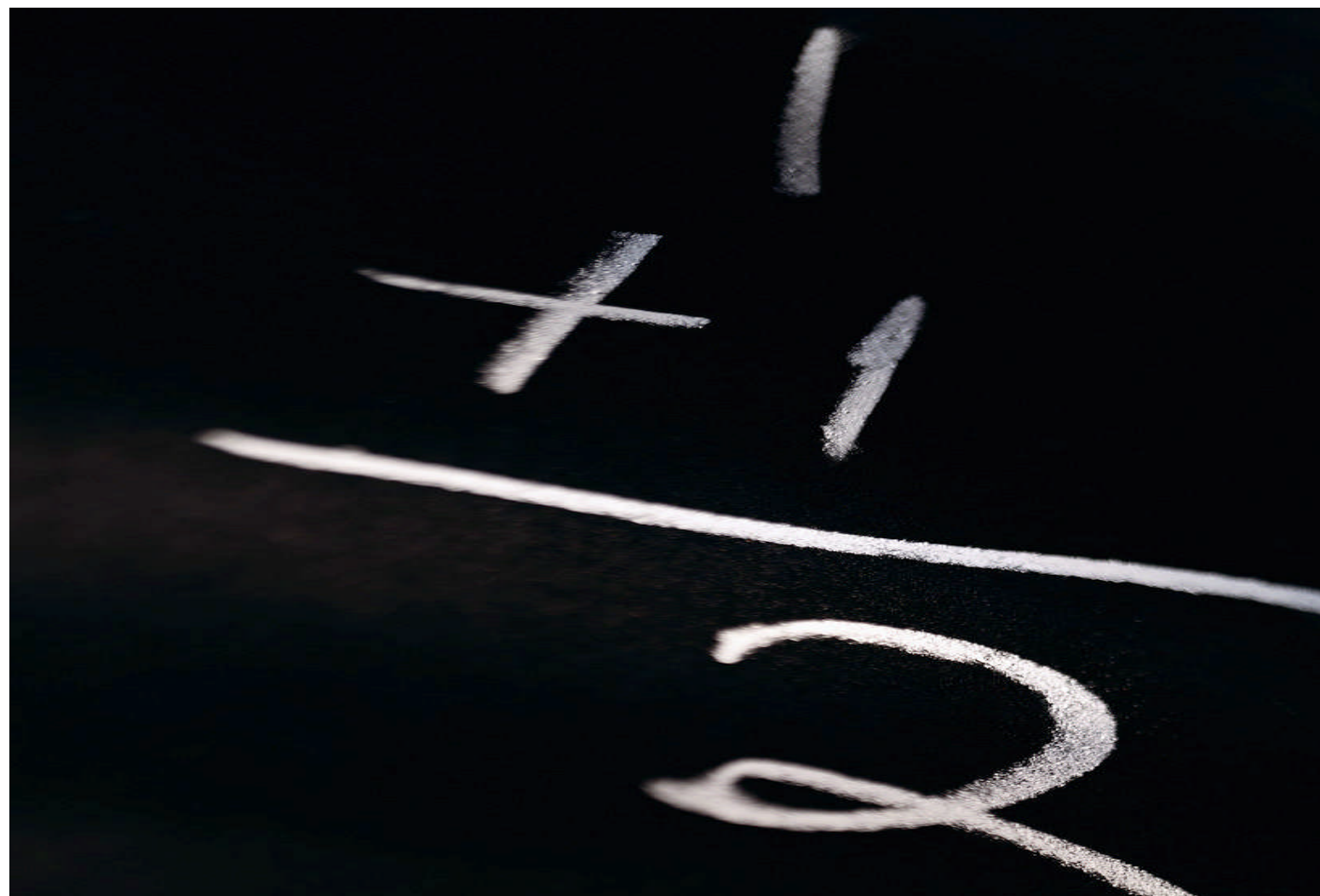


## Port Accumulation

- In addition to amounts in transit, insurers also need to consider the accumulation at a particular port.
  - Warehouse Exposure: Goods sitting in port
  - Container Traffic: Goods passing through port
- Main exposure is catastrophe, similar to a Property Contents exposure
- Insurers will sometimes overlook this exposure in their rating
- Here too, open type policies do not provide sufficient detail to calculate port accumulations (e.g. principle ports)



# Basic Cargo Accumulation Estimation Methods





## Typical Vessel Accumulation Estimation Method

- Select TEU Estimate
- Multiply X worst case maximum TEU per vessel
- Multiply X 2 for collision
- Multiply by insurer market share
- $\$100,000/\text{TEU} * 12,000 \text{ TEU} * 2 * 2\% = \$48,000,000$



## Typical Port Accumulation Estimation Method

- Container Volumes – Annual and daily throughput figures available on the Web and from industry sources
- Container Values – Average value of goods, same considerations as for Cargo accumulations above
- Average Time in Port – Assume some value, typically several days
- Need to consider seasonality
- Transshipment ports accumulate goods at higher values than direct import ports



## Typical Port Accumulation Estimation Method

- Select TEU Estimate
- Port turnover / 300 days \* 3 days avg stay
  - 200-250K TEU – Asian ports
  - 150K TEU – LA/Long Beach
  - 50-100K TEU – European ports
- Multiply by insurer market share
- $100,000 * 150,000 * 2\% = \$300,000,000$

Note: Port turnover estimates from Oceanwide



## Concerns with Typical Vessel / Port Accumulation Estimation

- Average TEU Value Estimates
  - Big variances in estimates
  - No weight given to commodity & route differences
- Market share assumptions
  - Can vary widely by port, route and commodity
- Vessel Worst Case assumes a collision with 2 totals – can you get a realistic PML for this?
- Seasonal fluctuations



## Cargo Accumulation – Final Thoughts

- A serious issue for marine insurance and reinsurance underwriters
- There is room for improvement in the ways we estimate our exposure to Cargo Accumulation
- The next two speakers will discuss ways in which we as an industry can manage this exposure better in the future.



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