UNIT 2 · WHAT'S WRONG AND WHAT TO MEASURE

# Midterm Examination

Session 10 · Closed book · 75 minutes · Sessions 1-9 coverage

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Primary Text: Liquidity Illusion (Forthcoming, 2026)

Graduate Finance Course · Spring 2027 · Session 10 of 32

# What we'll cover today

1. **Examination logistics**
   Format · materials · time · grading
2. **Coverage map**
   What's testable · what's not
3. **Sample question types**
   Three formats illustrated
4. **Time management**
   Recommended pacing
5. **Permitted reference sheet**
   What you can bring
6. **After the exam**
   When grades return · regrade policy

# Examination logistics

*75 minutes total. Closed book. Pre-printed reference sheet permitted (see slide 8).*

### Time

75 minutes from instructor's start signal

### Materials

Calculator, pen/pencil, course-supplied reference sheet ONLY

### Cell phones

Off and away. Use as calculator: forbidden.

### Restroom breaks

One break allowed; clock continues running

### Submission

Hand in physical exam booklet at end

### Late arrival

Up to 15 min late acceptable; 15+ min: rescheduled with -10% penalty

# Coverage map · weights by topic

*Sessions 1-9 are testable. Sessions 10-32 are not.*

| Topic | Sessions | Weight |
|---|---|---|
| **DCF and its failures** | 1, 2 | 15% |
| **Liquidity illusion · secondary market** | 3 | 10% |
| **OU process intuition** | 4 | 15% |
| **Term structure π(L,T)** | 5 | 10% |
| **IRR · TVPI · DPI biases** | 6 | 15% |
| **PME · LA-IRR · LA-PME** | 7 | 15% |
| **What a correct theory delivers** | 8 | 10% |
| **Midterm review and synthesis** | 9 | 10% |

*Total: 100%. Question types proportional to weights.*

# Question types · Type A: short answer

*Definitional or one-step calculation. 5-8 minutes each. ~6 questions on the exam.*

### Example A1

Define liquidity illusion in one sentence and give a quantitative example.

### Example A2

Compute the half-life for an OU process with $\kappa = 0.3/\text{yr}$

### Example A3

State two reasons IRR systematically overstates skill

### Example A4

Compute LA-IRR adjustment factor given $L = -0.5$, $T = 5$ yrs

### Example A5

Compare McKean-Vlasov vs. partial equilibrium in one paragraph

### Grading

Full credit / partial / zero. Show work for partial credit.

# Question types · Type B: numerical computation

*Multi-step problem requiring calibration and computation. 15-20 minutes each. 2-3 questions.*

### Example B1

Calibrate OU κ given empirical half-life of 1.5 yrs; then compute stationary std given σ=0.32

### Example B2

Given fund cash flows table, compute IRR, TVPI, DPI, PME, and LA-PME

### Example B3

Compute Jensen bias for an asset with T=10, Var(r)=0.0025

### Grading

Process credit (60%) + answer credit (40%). Show all steps clearly.

# Question types · Type C: short essay

*Conceptual argument requiring synthesis. 15-20 minutes each. 1-2 questions.*

### Example C1

Argue: 'DCF is not just inaccurate but structurally wrong for private capital.'

### Example C2

Explain why the secondary market is the natural test bed for the illiquidity premium.

### Example C3

Compare and contrast: Acharya-Pedersen LA-CAPM vs. GE-LAV's collective dynamics.

### Grading

Argument structure (50%) + evidence (30%) + writing (20%)

# Permitted reference sheet (course-supplied)

*One double-sided 8.5×11 sheet distributed at exam start. Contents:*

### Side 1

Key equations: OU SDE, stationary dist, term structure π(L,T), Jensen bias, IRR/PME definitions

### Side 2

Calibrated parameters table: κ, σ, $\bar{L}$, asset-class Jensen biases, regime statistics

### What's NOT included

Worked examples · proofs · derivations · session-specific case data

### Why this matters

You should memorize concepts and definitions. Sheet supports calculation, not concepts.

# Time management · recommended pacing

*Total time: 75 minutes. Suggested allocation:*

**0-5 min**

Read the entire exam first. Mark questions you'll answer last.

**5-35 min**

Type A (short answer): all 6 questions, ~5 min each

**35-60 min**

Type B (numerical): ~12 min each for 2 questions

**60-75 min**

Type C (essay): ~15 min one essay

**Save 5 min**

Buffer for review and clarifications

**If running long**

Move on; come back. Partial credit > zero credit.

# After the exam · what to expect

*Logistics for grading, returns, and regrade requests.*

### Grading turnaround

Within 7 days of exam

### Solutions posted

On course site immediately after grading complete

### Distribution

Histogram (anonymous) posted; mean and std published

### Regrade policy

Submit within 5 days of return; specific question and reason

### Score impact

Midterm is 30% of course grade

### Below 60%

Trigger a 1-on-1 with instructor; not punitive, course-correction

# Stress management · practical tips

*The exam is hard but designed to be doable in 75 min.*

### Sleep

8+ hours night before. Performance falls sharply below 6 hrs.

### Calories

Eat 2-3 hours before. Stable blood sugar matters.

### Hydration

Water yes; coffee moderate. Avoid energy drinks (crash).

### Arrival

Arrive 10 min early; settle in. Anxiety drops by ~30% with extra time.

### During

Stuck? Move on. The first answer is rarely the best — return with fresh eyes.

### Mindset

This is a snapshot, not a verdict. The course grade is 70% other components.

# Sample reference sheet preview · Side 1

*Key equations (will be on the supplied sheet):*

### OU SDE

$dL = \kappa(\bar{L} - L)dt + \sigma\, dW$

### Stationary distribution

$L \sim N(\bar{L}, \sigma^2/(2\kappa))$

### Half-life

$\ln(2)/\kappa$

### Term structure

$\pi(L,T) = \alpha(T) + \beta(T)\cdot L + \gamma(T)\cdot L^2$

### Jensen bias (approx)

$\tfrac{1}{2}\, T^2 \cdot \mathrm{Var}(r) \cdot e^{\{-E[r]T\}}$

### LA-IRR

IRR with cash flows adjusted by $\pi(L_t, T_t)$

# Sample reference sheet preview · Side 2

*Calibrated parameters (will be on the supplied sheet):*

### OU calibration

$\kappa = 0.45/yr \cdot \bar{L} = 1.0 \cdot \sigma = 0.32 \cdot$ stationary std = 0.337

### π(L) formula

$\pi(L) = 0.045 - 0.025 \cdot L + 0.021 \cdot L^2$

### Asset-class Jensen

VC 3.6% · Growth 2.4% · Buyout 1.6% · Infra 1.4% · RE 1.2% · Credit 0.8%

### Regime statistics

Boom: π=3-6% · Normal: 8% · Multi-shock: 12-18% · GFC: 35-50%

### Crisis amplification

4.31× DCF at L=-1.5 (full GE-LAV)

### Welfare gap

2.3%/yr · ~$300B/yr at $13T global AUM

# What's NOT on the exam

*Save your study time. The exam covers Sessions 1-9 concepts only.*

### Sessions 10-32 material

Not testable on midterm

### Project-specific data

Your project is separate; not on exam

### Track-specific content

Sessions 25-31 split-track material is post-midterm

### Master equation, FP, HJB derivations

Track 2 only; not on midterm

### Software/coding

No programming questions on this exam

### Reading list ancillary

Karatzas-Shreve, Carmona-Delarue not testable

# Session 10 summary · pre-exam

## What we accomplished today

1. 75 minutes, closed book, course-supplied reference sheet permitted
2. Sessions 1-9 coverage; weights aligned with topic emphasis
3. Three question types: short answer, numerical, short essay
4. Pacing: 5 + 30 + 25 + 15 minutes; save 5 for review



**Next session**

Session 11: Exit timing · the trapped investor problem (Unit 3 begins)