The Governance Role of Accounting Information

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Chicago Booth

SWUFE Workshop

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A two-part final exam question

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Q2: which has a higher implied cost of capital?

a $\Delta_1 = \Delta_2$ correct regardless of moral hazard

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2. Concentrated idiosyncratic risk is useful for incentives but costly to the firm.
3. Systematic risk is filtered out for incentives and optimally shared in the market.
4. Implied CoC from traded shares v.s. the true financing cost to the firm.

Main results

1. Idio info reduces use of restricted shares and CoC.
2. Implied CoC systematically bias downward the true CoC.
3. Economy level idio info quality can increase CoC.

The model

A general equilibrium model with three sub-problems

- Moral hazard and optimal compensation contract within each firm

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- Moral hazard and optimal compensation contract within each firm
- Personal portfolio management of both managers and investors
- Investors' project selection decisions for each firm

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2. Each manager receives a contract, chooses an effort, and invests
3. Projects pay off and all consume.

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- contract: $\widetilde{w}_j \equiv v_j + b_j \tilde{Y}_j + s_j \tilde{G}_j$
- utility: $CE^i = E[\tilde{W}^i] - \frac{1}{2r_i} Var[\tilde{W}^i],\ i \in \{I, A\}$.

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$$+ \underbrace{b_j(1-s_j)\alpha_j\tilde{\varepsilon}_j}_{\substack{\text{Idiosyncratic}\\\text{Measurement error}}} + \underbrace{s_j\phi_j\tilde{\xi}_j}_{\substack{\text{Idiosyncratic}\\\text{Cash Flow Risk}}} + \underbrace{(s_j\gamma_j + z_j(Avg[\gamma] - Avg[rs]))\tilde{\eta}}_{\substack{\text{Systematic}\\\text{Cash Flow Risk}}}$$

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$$\underbrace{b_j + s_j(1 - b_j)}_{\substack{\text{Marginal Benefit} \\ \text{of Effort}}} - \underbrace{a_j c}_{\substack{\text{Marginal Cost} \\ \text{of Effort}}} = 0$$

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- Individual Rationality:

$$v_j = \underbrace{w_0 + \frac{c}{2}{a_j}^2 - (s_j + (1-s_j)b_j)a_j +}_{\substack{\text{Reimbursement for}\\ \text{Direct Cost}}} \underbrace{\frac{Avg[\gamma]}{\rho_E + \rho_A} s_j \gamma_j}_{\substack{\text{Compensation for}\\ \text{Systematic Risk}}} + \underbrace{\frac{s_j^2 \phi_j^2 + (1-s_j)^2 b_j^2 \alpha_j^2}{2\rho_A}}_{\substack{\text{Compensation for}\\ \text{Idiosyncratic Risk}}}$$

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- Manager's portfolio decision

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$$+2\mu(b_j + (1 - b_j)s_j - a_jc)$$

The main results

Main Result 1: Risk Premium of Idiosyncratic Risk

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4. All the effects of idiosyncratic risk on CoC are filtered out by the biased proxy of CoC.

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4. Other solutions that lead to concentration of idiosyncratic risk: Leland and Pyle (1977), blockholders, debt financing

Implication 1: remedies

- Look for the true CoC: Investment decisions

$$I_j \propto d - \Delta_j = \frac{1}{2c} - k_0 - w_0 - \frac{Avg[\gamma]}{\rho_I + \rho_A}\gamma_j - \frac{1}{2}\frac{1}{\rho_A(\frac{1}{\phi_j^2} + \frac{1}{\alpha_j^2}) + c}$$

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- Determinants of the bias:

$$A_j = \frac{1}{2}\frac{1}{\rho_A(\frac{1}{\phi_j^2} + \frac{1}{\alpha_j^2}) + c}$$

The general equilibrium effects

$$\alpha_j \equiv \lambda_j \alpha + \delta_j$$

- firm level quality: δ_j
- economy level quality: α

Main Result 2: General Equilibrium Effects of Accounting Quality

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$$Avg[\gamma] = \int_{\Delta_i < d} \gamma_i di$$

- CoC could increase or decrease and firms differ.

Proposition

As the quality of accounting information at the economy-level improves (α becomes smaller), for an individual firm:

1. *the quality of its accounting information improves;*
2. *the risk premium for its idiosyncratic risk decreases* $\left(\frac{\partial A_j}{\partial \alpha} > 0\right)$*;*
3. *the risk premium for its systematic risk (weakly) increases* $\left(\frac{\gamma_j}{r_I + r_A}\frac{\partial \Gamma}{\partial \alpha} < 0\right)$*; and*
4. *the risk premium it pays to finance its project could either increase or decrease, depending on its sensitivity to the economy-level factor α and its relative exposure to systematic and idiosyncratic risk. That is,* $\frac{\partial \Delta_j}{\partial \alpha} > 0$ *if and only if* $-\frac{\gamma_j}{r_I + r_A}\frac{\partial \Gamma}{\partial \alpha} < \frac{\lambda_j}{2}\frac{\partial A_j}{\partial \alpha_j}$.

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$$\Delta_2 = \frac{\frac{3}{2}\gamma_1}{\rho_I + \rho_A} * (3\gamma_1) > d;$$

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The first and second best cases do not subsume each other.

General Equilibrium Effect of Idiosyncratic Accounting Information

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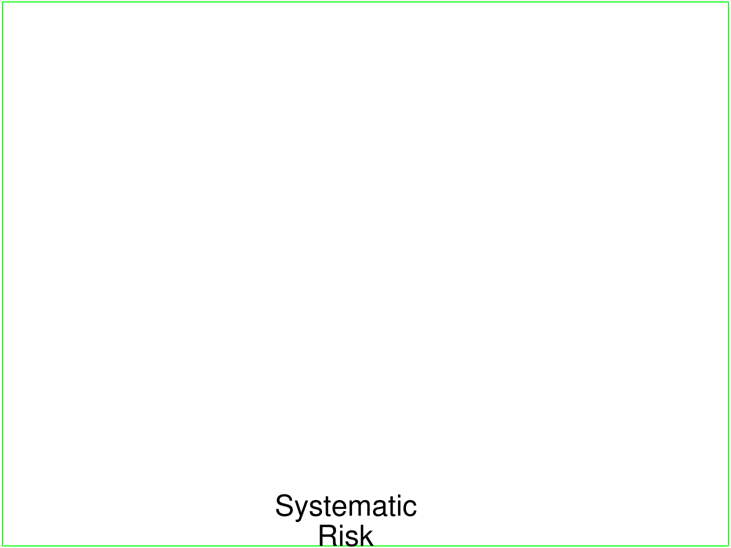
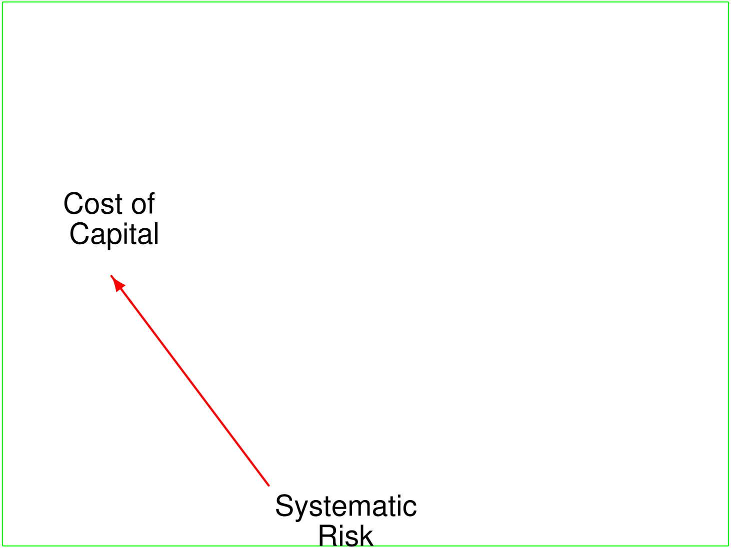


General Equilibrium Effect of Idiosyncratic Accounting Information



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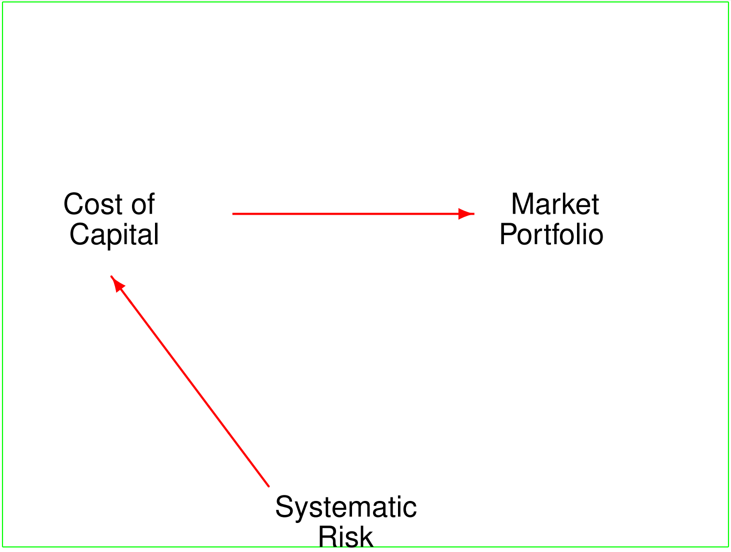

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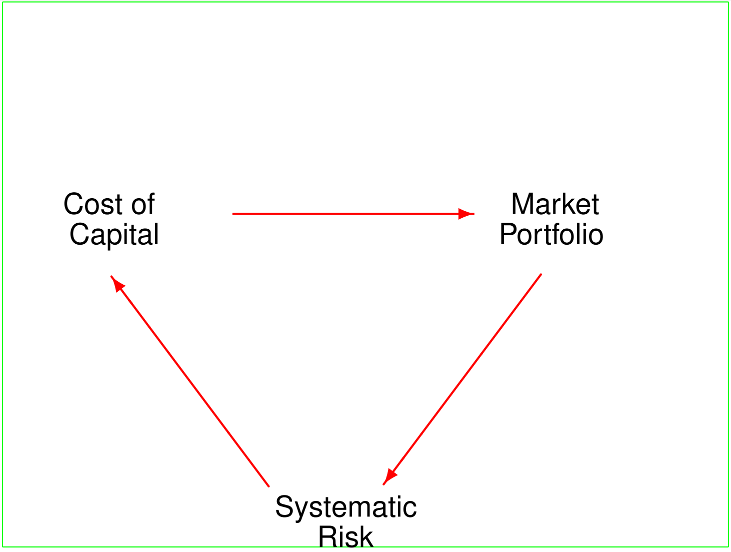

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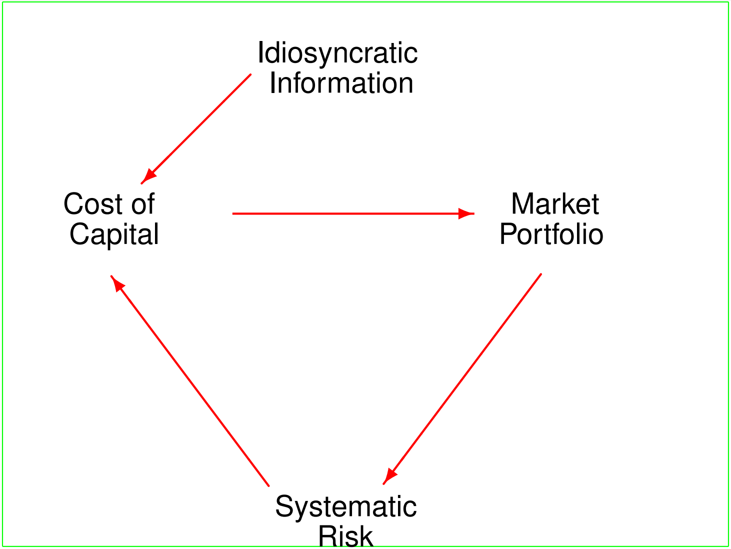

Implication 2: Accounting Quality is a "Factor"!

$$\Delta_j = \underbrace{\underbrace{\frac{\gamma_j}{Avg[\gamma]}}_{\substack{\text{Firm j's} \\ \text{CAPM Beta}}} \times \underbrace{\frac{Avg^2[\gamma]}{\rho_I + \rho_A}}_{\substack{\text{Risk Premium of} \\ \text{the Market Portfolio}}}}_{\text{CAPM Cost of Capital}} + \underbrace{A_j}_{\substack{\text{Risk Premium of} \\ \text{Idiosyncratic Risk}}}$$

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- Economy-wide accounting quality change has complicated general equilibrium effect.