Discussion of Stock or Options: Risk Choices and Compensation Design

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Carey-Sun: interesting paper with promising scope

- Numerous relationships to various streams of research (including my own)
- Practical relevance in terms of both implications and applications

Related Themes: incentives, compensation, "Risk-based leverage" and risk governance of financial institutions

- Banks
- Broker-dealers, specialist firms
- Proprietary trading firms (e.g. hedge funds)
- Derivative product companies, structured investment vehicles
- Insurers and Reinsurers (Life/Health/Annuity, Casualty, Financial, Reinsurance, Trade Credit etc)
- Pensions (and their sub-advisors)

A key context: uniqueness of financial intermediaries in producing non-redundant contingent commitments (Merton):

- Incomplete contracting (Grossman-Hart-Milgrom, Holmstrom)
- Imperfect information (Grossman-Stiglitz)

Two (Potential) Central Themes:

- Firm - /Sector-Specific Agency i.e. moral hazard, adverse selection (Williamson, Akerlof-Romer, Jensen….)
- Asset substitution, risk shifting behavior, predatory trading

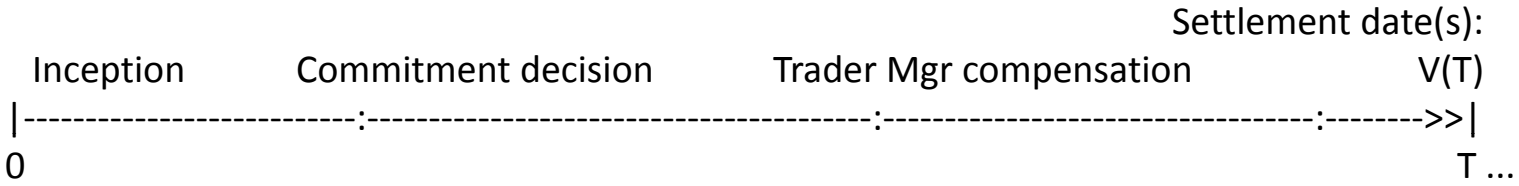
-----versus------

- Systemic coordination failure (Coase, Diamond-Dybvig, Myers-Rajan, Shleifer-Vishny, … many others)
- Bank runs, episodic liquidity, collateral cycles

Some related (complicating) factors for extension/expansion of the theory:

- Relative heterogeneity of firms (e.g. capital structure, hedges: term structure, i.e. timing disparity)
- Stochastic process x(t) with Poisson-distributed jumps (i.e. shocks) z(t)
- Also, perhaps state- or path- dependence resulting in non-stationarity

Some insight from actual experience (within a more dynamic framework):



$V((X)T) = Max\{F(t)(x,a)+E(T)[V(y)|x,a]\}$

q(t){Shock}
1-q(t){No Shock}

Solves dynamic program
(e.g. Miller-Modigliani)
Bellman Equation ~ Euler Equation
(i.e. Firm value ~ wealth)

Optimal Contract *
(i.e. a senior preference
on firm value ~ Trader/Mgr Wealth
asymmetric payoff: % of gain/loss)

*Inherent Optionality (Implicit risk-based leverage) in:

- Capital Structure**
- Cost Structure (i.e. hedging programs)**
- Assets (i.e. collateral, reserves) **
- Binding commitments (choice variable y(T-n) => Risk based leverage)
- Compensation contracts

Alignment of incentives via (real) managerial options:

- Prior literature focuses primarily on linear term structure of payoffs
- Carey-Sun focuses in discussing equity collar compensation primarily upon volatility (2nd order stochastic dominance)
- Lessons of the crisis teach us that there needs to be further focus as well on:
    - Skewness, Gamma (i.e. negative convexity), other Greeks ….
    "Sharpe ratio and VAR are insufficient !!!"

**Note: Ruin Probability must play a role (for the firm, but what about for the Manager or Trader?)

In dynamic setting, need to actively adjust payoffs based upon metrics ("residual Greeks")

This is extremely important!!! Asymmetric payoffs mean that:

- Not the magnitude but the timing and likelihood
- Of hitting the "Cap" (Max) vs "Floor" (Min) of the Collar

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