# Critique on: Using the Combination of Cash Flow to Predict Financial Distress

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Good Point of the Paper

- The Basel II Effects (Credit Risk + Market Risk + Operation Risk)
- Cash is Verifiable
- Subject to the investigation of Auditor
- Less manipulation figure that profit

Overview of the Paper
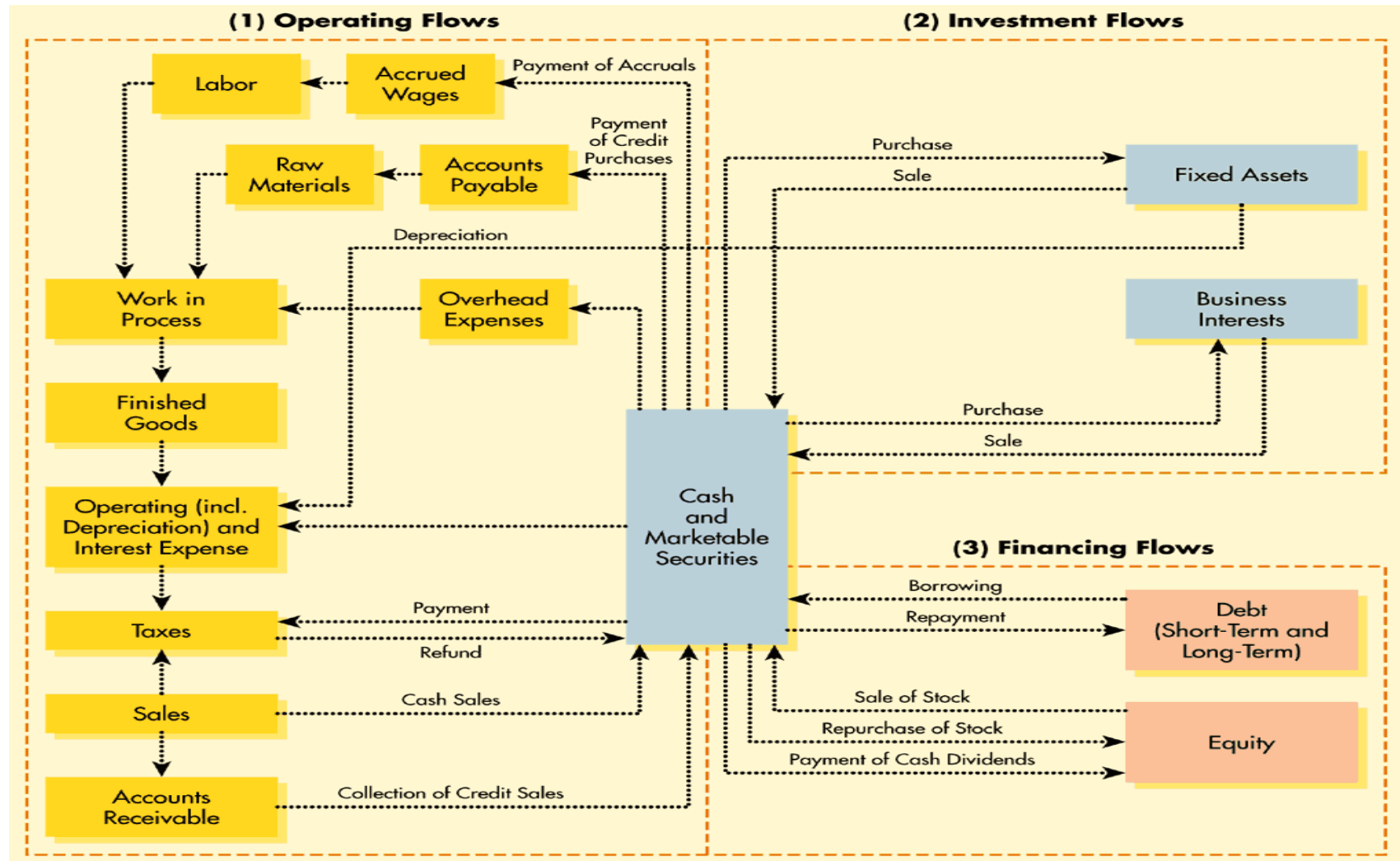
Overview of the Paper

- CFI $= (DI + SA) - (II + PA)$

- CFF = NIC + NDI + BL + DIV

- CFO $= IN + DEP - \Delta AR - \Delta INV + \Delta AP$

Theory Discussion

- If null hypothesis is unable to reject (undeniable), is it worth to do the test?
- Financial Distress and Type I errors (Actually Distressed Firms but Found Not Distressed)

Theory Discussion

- CFI and Tangible – Intangible Asset
- Transaction Definition:
  - Bank Over draft : SFAS 95 (U.S.) = CFF

    IAS 7 (EU) = CFO

  - Interest /Dividend Receive : SFAS 95 (U.S.) = CFO

    IAS 7 (EU) = CFI/CFO

- NOTE:

  SFAS 95 (U.S.): 1987 ; IAS 7 (EU): 1994

What's the Financial Distress?

- This paper is 4 events (p.3)
- Is it cover general term : *when firms cannot meet their financial obligations, the firms are said to have entered the state of financial distress.*

Model: Variable Specification

- Previous Studies: Control Variables
  - NITA + OCFTL + ICFTL + FCFTL
  - CACL
  - TLTA
  - Firm Size

- Variable Inclusion
  - CFC1, CFC2, CFC3,…,CFC8

? Predictive Power of each group due to theory related.

Model: Prediction Classification

Model category	Main Features
Statistical models	Focus on symptoms of failure Drawn mainly from company accounts Could be univariate or multivariate (more common) in nature Follow classical standard modeling procedures Focus on symptoms of failure
Artificially intelligent expert System models (AIES)	Drawn mainly from company accounts Usually, multivariate in nature Result of technological advancement and informational development Heavily depend on computer technology
Theoretical models	Focus on qualitative causes of failure Drawn mainly from information that could satisfy the theoretical Argument of firm failure proposed by the theory Multivariate in nature Usually employ a statistical technique to provide a quantitative support To the theoretical argument
Logit model (see Maddala, 1983; Theodossiou, 1991; Gujarati, 1998; Morris, 1998	Like LPM, logit also expresses the probability of failure of a firm as a dichotomous dependent variable that is a function of a vector of explanatory variables The dichotomous dependent variable of a logit model, however, is the logarithm of the odds (probability) that an event (fail/not-fail) will occur Such a transformation of LPM is accomplished by replacing the LPM distribution with a logistic cumulative distribution function In application to bankruptcy, a probability of 0.5 implies an equal chance of company failure or non-failure. Therefore, where 0 indicates bankruptcy, the closer the estimate is to 1 the less the chance of the firm becoming bankrupt

Model: Methodology

- [12] *Pearson correlations are modest (p.22)*
  - Systematic Errors ?
- May be VIF (Variance Inflation Factor) would enhance the conclusion.
- May be Principal Component Analysis would Help (Loading with Powerful Variables)
- Model may be retested by Discriminant Analysis (2 priori)

Sample Selection

- The terminal ratio is (1084+2798/89012) which equals to 4.36%

- Non Financial Firms are excluded.
  - How to deal with Foreign Firms (1997 – 1999)
  - How to deal with Utility Firms
  - How to deal with Commodity Firms

- Actually for total 3882 observations, how many firms are tested?

Sample Selection

- What's the effects of survival bias ?

- Control Period is 3 year lag, therefore 2001-3 = 1998, why 1995 is the beginning?

Outcome Discussion

- Distress Firms: CFC1, CFC2, CFC7
  - 1 year: Sig. All
  - 2 year: Sig. All
  - 3 year: Sig. All except CFC2
- Healthy Firms: CFC5, CFC6, CFC8
  - 1 year: Sig. All except CFC8
  - 2 year: Sig. All
  - 3 year: Sig. All except CFC5, CFC8

Outcome Discussion

- Control Variable (Parametric)
  - 1 year: Sig. All except ICFTL and TATL
  - 2 year: Sig. All except ICFTL and TATL
  - 3 year: Sig. All except TATL
- Control Variable (Non Parametric)
  - 1 year: Sig. All except ICFTL, CACL and TATL
  - 2 year: Sig. All except ICFTL and TATL
  - 3 year: Sig. All except ICFTL and TATL

Outcome Discussion

- Percentage Change of Odds Ratio in negative sign for CFC5 and CFC6 in 1 year lag

- Percentage Change of Odds Ratio in negative sign for some control variables in 1 year lag

- The sign change of Percentage Change of Odds Ratio from year 1 to 2 and 2 to 3.

Future Study

- Not Auditor Going Concern
- Predictive power for small sample if longitude and magnitude CF is applied.
- May be corporate governance variables satisfied ?

Application to Thai

•Debtor oriented (USA),corporate bankruptcy procedures encourage companies in financial difficulty to continue as going concerns (Franks et al., 1996). Therefore it is possible for companies that file for bankruptcy to reorganize and emerge from bankruptcy, of to merge with another entity as a going concern (Shultz, 1995).

• Creditor oriented countries (UK, Germany, Australia and New Zealand) liquidation is the most common outcome of corporat insolvency (Kaiser, 1996; Franks et al.,1996)

Worth to Do ?

- JP Morgan's CreditMetrics and Moody's KMV models rely on option pricing pricing theory

- CSFB's CreditRisk follows a framework of actuarial science in order to derive the loss distribution of a bond/loan portfolio where the default is assumed to follow an exogenous Poisson process.

- McKinsey's CreditPortfolio View model uses a macro – economic approach to risk measurement. Credit cycles follow business cycles closely, with the probability of default being a function of variables such as the unemployment rate, interest rates, interest rates, growth rate, government expense, foreign exchange rates, and aggregate savings, so that a worsening economy should followed by anincrease in the incidence of downgraded security rating and default.

Thank You