

Assumptions, strengths and weaknesses of structural and reduced form model	Structural model		Reduced form model	
	Assumptions	- Company's assets are traded @ frictionless arbitrage-free market, with value at time T has a lognormal distribution - asset return volatility is assumed to be constant - Constant risk free rate - BS structure has only 1 class of simple zero-coupon debt	- Company has zero-coupon bond liability that trades in frictionless and arbitrage-free market. No restriction for other liabilities of the Company - risk-free rate is stochastic (varies randomly) - State of economy is stochastic, depends on non-constant macroeconomic variables - Recovery rate is stochastic, depend on the state of the economy - Probability of default depends on the state of the economic, and is not constant - Whether a particular company defaults depends only on company-specific considerations	
	Strengths	- Allow to use option pricing theory to understand a company's probability of default and loss given default - Can be estimated using current market prices	- Model inputs are observable → historical estimation procedures can be used - Allow fluctuate with business cycle - Do not require specification of BS	
	Weaknesses	- BS can't be modeled realistically with a single zero-coupon bond → inaccurate recovery rate and default probabilities - Company assets are not actually traded → value is not directly observable → rely on implicit estimation procedures for model inputs → inaccuracy - Do not consider business cycle	- Hazard rate estimation procedures may not be valid unless model has been formulated and backtested properly	
Comparison different approaches	Least accurate : credit ratings (tend to be relatively stable and lag the market) Most accurate : Reduced form models (due to flexibility of the hazard rate estimation procedures)			
Term structure of credit spread	Term structure of credit spread : relationship of credit spreads to debt maturity Method for estimation : bootstrap spot rates using coupon bond prices for both risky bonds and risk-free bonds			
Calculating PV of expected loss from credit spread	$PV \text{ of expected loss} = PV_{risky} - PV_{risk \text{ free}}$ $PV = FV \times e^{-r \times T}$			
Compare asset-backed security and corporate debt	Main difference : CF when the issuer default - Corporate debt : when issuer default, CF cease, and there is terminal CF (based on recovery rate) - ABS : issuer default, ABS does not default. Terminal CF was distributed to holder of different ABS based on pre-specified distribution waterfall			

Preview from Notesale.co.uk
Page 7 of 8