Business Failure Modeling

A Research Initiative of

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Business failures classification

Level 0 : Short term Cash crunch of a profitable firm
Level 1 : Zero Profit and hence no return on investment
to shareholders
Level 2 : Loss to the extent of depreciation charges not covered
Level 3 : Loss to the extent of defaulting on (long term) debt repayments
Level 4 : Insufficient assets to cover all liabilities; Bankruptcy

We assume that a profitable firm would be able to arrange for short term loans to tide over difficulties.

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Business failures classification

We assume that a profitable firm would be able to arrange for short term loans to tide over the cash crunch scenario. The borrowing rate will be as dictated by the market place and the credit rating of the borrowing firm. Any volatility seen in its income or perceived increase in liabilities will result in its credit rating being lowered. The consequence of which would be to increase the cost of borrowing to the firm.

A firm with zero profit is perceived to be at a higher level of challenges. It is able to meet all its obligations except giving a fair return on investment to its shareholders. The disgruntled shareholders will work with the management for a while before pulling the plug.

The firm faces complex issues when it has not earned enough to cover the depreciation charges. It means that the firm would not be in a position to replace aging or obsolete machinery. Hence its losses are bound to increase over the years due to higher maintenance charges for capital equipment. In general it is a clear indication of an unviable business model. If the situation continues, the firm is likely to go out of business soon.

The issues are severely compounded when the unprofitable firm can not meet its loan repayment obligations. It has to either find lenders who are likely to charge more , sell some assets or raise more equity. A distress sale of assets always fetches a lower price. Even equity investors would bargain hard.

When the liabilites exceed the firm's assets, it results in complete loss of confidence of all lenders and investors. The firm can not raise additional capital and it would declare bankruptcy.

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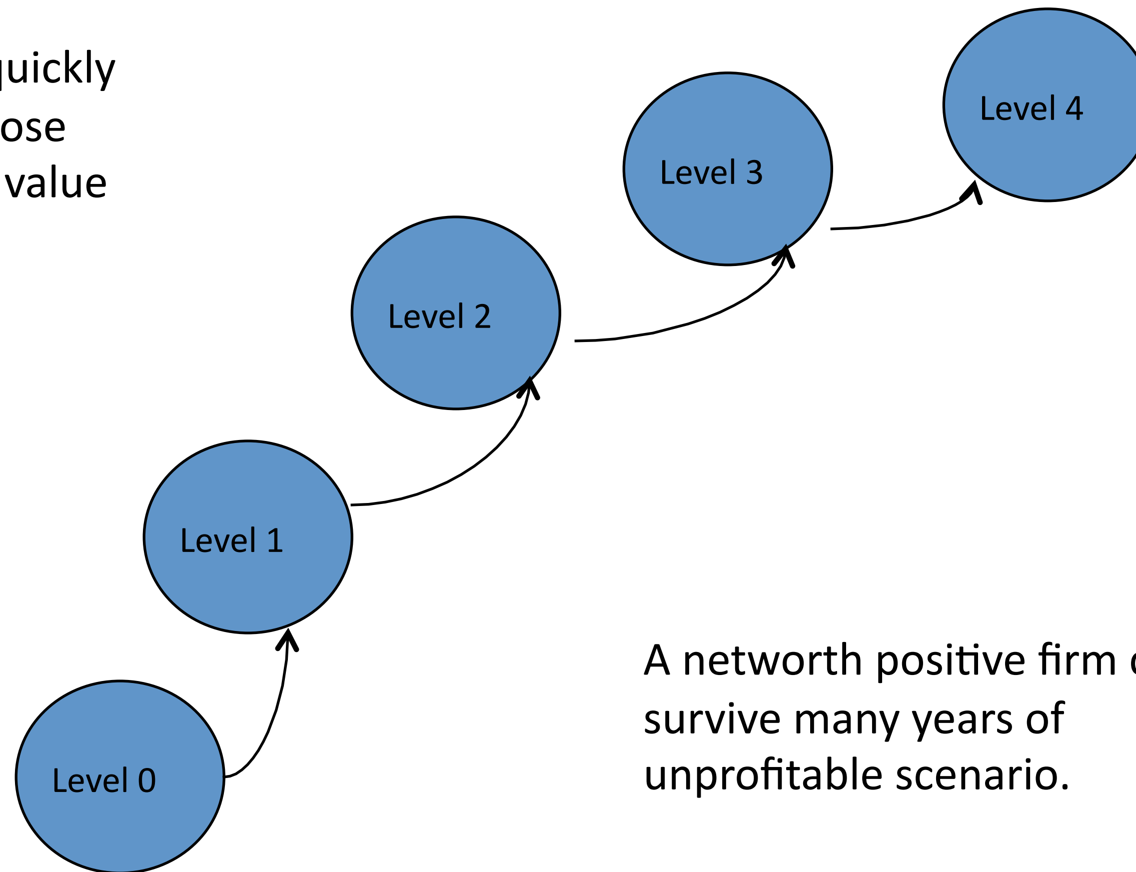
Business failures classification

A firm can jump levels quickly if its long term assets loose value or liabilities gain value in short time periods.



A networth positive firm can survive many years of unprofitable scenario.

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Business failures classification

There are inherent differences between Manufacturing / Non financial Services firms[MSF] and Financial Services firms[FSF]. The former usually have a lower Debt to Equity ratio compared to the latter. Hence the latter are known as highly leveraged firms. It is also likely that the former are highly capital intensive.

MSF have high depreciation charges compared to loan servicing costs and it is vice versa for the FSF.
Consequently MSFs , if they are adequately capitalized can survive for a long period.
FSFSs on the other hand will jump from State 1 to State 3 quickly.

FSFs have much higher level of volatility in their earnings, value of assets and liabilities.

MSFs are in a Supply Chain scenario with closer ties between vendors while the FSFs are in a Supply Network Scenario with arms length relationship between many of them.

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