

DEFLATION, REAL COST OF DEBT & VALUATIONS

How to adjust DCF models

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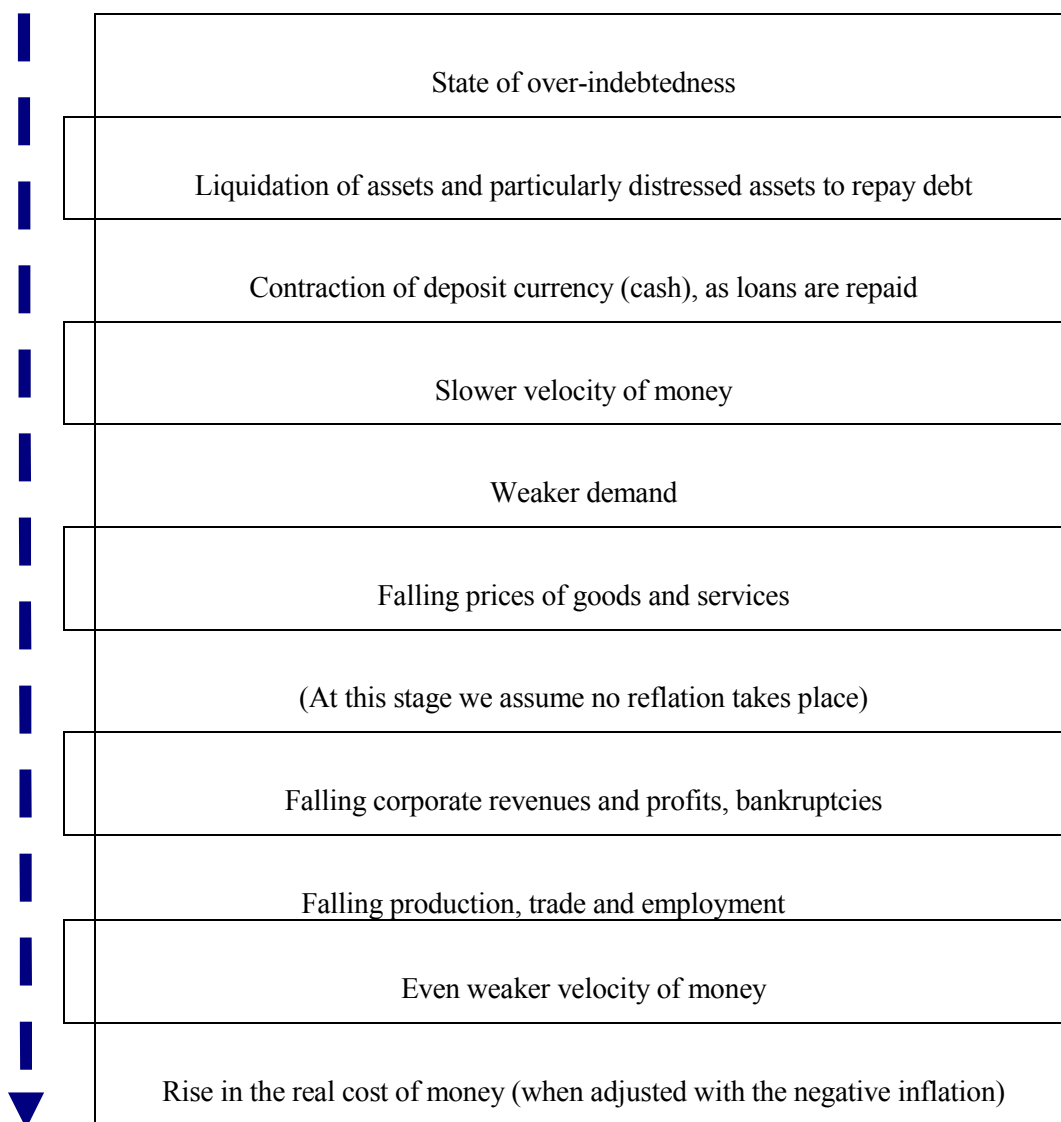
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Now that deflation is spreading across the US economy and the world markets have started experiencing similar effects, it is time to explore the implications of deflation on cost of debt, one of the assumptions needed to run equity valuation models.

As a first step, we should describe the current environment of falling prices across the board: Weak demand from consumers in combination with high inventory levels have put pressures on companies to sell their products at the lowest possible price level and have created the first signs of deflation. This case is evident despite the recent stimulus package released by the US government in an effort to boost consumption and aggregate demand. It seems that all recent initiatives by the US economic authorities to stimulate economy have so far failed to produce concrete results in demand for goods and services since people are still hesitant to spend money because they fear of a worse economic future. Consumers also have as top priority now to repay their loans and control their debt obligations before it is too late.

This mix of falling prices and high leverage is often called as deadly economic condition. It was initially analyzed by Irving Fisher (*), an American economist and professor, in his Debt-Deflation Theory of

Great Depressions (1933). This theory supports the view that conditions of debt and deflation in the economy tend to create a depressed environment for consumers and corporations alike. The main chain of effects according to Fisher's theory is presented below:



Taking into consideration the repercussions of debt deflation on the broader economy and particularly to companies of price sensitive sectors we should deduce that if such scenario arises in the following months the real cost of debt at the least for the explicit period in the DCF based valuation will tend to be higher.

| | 2008 | 2009 | 2010 | 2011 | 2012 | L-Term Assumptions |
|--|---------------|---------------|---------------|---------------|---------------|--------------------|
| ASSUMPTIONS | | | | | | |
| Growth Rate (Sales) | 8.00% | 236.40% | 62.52% | 23.89% | 8.69% | 1.50% |
| EBIT Margin | 1779.88% | 328.02% | 171.09% | 146.53% | 141.14% | 90.00% |
| Tax Rate | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% |
| Working Capital (% of sales) | -17.81% | 1.81% | -0.65% | 0.19% | -9.64% | 2.00% |
| Capex (% of sales) | 56.00% | -31.69% | 4.07% | -0.14% | -9.87% | 5.00% |
| Cost of Capital | 8.32% | 7.59% | 7.00% | 6.89% | 6.97% | 6.00% |
| Depreciation (% of sales) | 1.82% | 0.70% | 0.56% | 0.59% | 0.70% | 2.00% |
| Turnover | | | | | | |
| EBIT | 2,752 | 9,257 | 15,045 | 18,639 | 20,258 | 20,562 |
| Less: Adjusted Tax | 48,979 | 30,365 | 25,741 | 27,312 | 28,592 | 18,506 |
| Adjusted Operating Profit | 12,245 | 7,591 | 6,435 | 6,828 | 7,148 | 4,626 |
| Plus: Depreciation | 36,734 | 22,774 | 19,306 | 20,484 | 21,444 | 13,879 |
| Operating Cash Flow | 50 | 65 | 85 | 110 | 143 | 411 |
| Less: Change in Working Capital | 36,784 | 22,839 | 19,390 | 20,594 | 21,587 | 14,290 |
| Less: Capex | -490 | 167 | -98 | 35 | -1,952 | 411 |
| Cash Flow to the Firm (FCFF) | 62,230 | 56,064 | 17,624 | -27 | -2,000 | 1,028 |
| Discount Factor | 0.923 | 0.864 | 0.816 | 0.766 | 0.714 | 0.747 |
| Present Value of Cash Flows | -23,038 | -28,845 | 1,521 | 15,769 | 18,232 | |
| Accumulated Present Value | -23,038 | -51,883 | -50,362 | -34,593 | -16,361 | |
| Residual Value | | | | | | 285,580 |
| Present Value of Residual Value | | | | | | 213,402 |
| Value of Firm | 197,041 | | | | | |
| % Residual Value of Total | 108.30% | | | | | |

VALUATION

| | |
|------------------------------------|----------------|
| Present Value of Future Cash Flows | -16,361 |
| Present Value of Residual Value | 213,402 |
| Value of firm | 197,041 |
| Less: Net Debt | 89,566 |
| Value of firm | 107,475 |
| Outstanding number of shares (000) | 14,968 |
| Current Price | 5.12 |
| Value of share | 7.18 |
| % upside potential | 40.24% |

WACC CALCULATION

| | 2008 | 2009 | 2010 | 2011 | 2012 | |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
| Risk Free Rate | 4.5% | 4.5% | 4.5% | 4.5% | 4.5% | 4.5% |
| Beta Factor | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| Market risk Premium | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% |
| Cost of Equity | 10.5% | 10.5% | 10.5% | 10.5% | 10.5% | 10.5% |
| Debt / Debt + Equity | 36.3% | 48.4% | 58.3% | 60.2% | 56.8% | 75.0% |
| Cost of Debt | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% |
| Tax Rate | 25.0% | 25.0% | 25.0% | 25.0% | 25.0% | 25.0% |
| Weighted Average Cost of Capital | 8.32% | 7.59% | 7.00% | 6.89% | 6.97% | 6.00% |

Debt deflation conditions in the economy may imply an upward adjustment for cost of debt in the DCF based valuation model.

(*) Professor Fisher (1867-1947) was an early mathematical economist, specializing in monetary and financial economics. Fisher's contributions to the field of economics included the equation of exchange, the distinction between real and nominal interest rates, and an early analysis of inter-temporal allocation.



| | |
|---------------|---|
| Name | Irving Fisher |
| Birth | February 27, 1867 |
| Death | April 29, 1947 (aged 80) |
| Nationality | United States |
| Field | Mathematical economics |
| Influences | Willard Gibbs William Graham Sumner |
| Contributions | Fisher equation Equation of exchange Price index Phillips curve Money illusion Fisher separation theorem |

Source: http://en.wikipedia.org/wiki/Irving_Fisher

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