

Capital Structure

Subjects: [Economics](#) | [Business, Finance](#) | [Business](#)

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Capital structure is a firm's mix of debt and equity financing. It is one of the most controversial areas of finance. Many of the results obtained in capital structure theory over the last 50-60 years have been very influential and led their authors to great international recognition. Among the researchers who contributed significantly to capital structure theory, note Nobel Prize Award winners Franco Modigliani, Merton Miller, Joseph Stiglitz, and most recently Jean Tirole. More research and more results are expected in this area in near future.

capital structure

debt/equity ratio

Modigliani-Miller proposition

1. Modigliani-Miller Proposition: Starting Point of Modern Capital Structure Theory

Most experts agree that the starting point of modern theory of capital structure is the famous proposition (MM) of Nobel prize winners Franco Modigliani and Merton Miller published in 1958. This proposition simply suggests that capital structure does not matter (Modigliani and Miller (1958)^[1]). However, it is conditional on the assumptions underlying MM (so called perfect market assumptions). For last 50 -60 years many research show that empirical evidence supports the view that in contrast to MM, capital structure does matter. Also even small changes in the assumptions of MM lead to opposite conclusions. Nevertheless, MM continues to be a reference point for most of contemporary research on capital structure (it is the most cited paper in history of finance).

2. Empirical Evidence

In the real world, we find empirical evidence that contradicts the predictions of MM. For example, empirical evidence supports the view that the firm choice of its capital structure consistently depends on several factors. In a Modigliani-Miller world where the choice of capital structure is irrelevant one should not observe these patterns.

2.1. Company Size

Capital structure is related to company size. Many researchers find that corporate leverage is significantly and positively influenced by the firm size (see e.g. Rajan and Zingales (1995)^[2] and Frank and Goyal (2009)^[3]).

2.2. Share Price

Changes in capital structure affect firm share price. Usually leverage-decreasing transactions reduce firm share price while the price reaction on leverage-increasing transactions is either positive or neutral (Masulis and Korwar

(1986)^[4], Antweiler and Frank (2006)^[5].

2.3. Asset Tangibility

Firms with more tangible assets usually have higher debt/equity ratio. Most empirical studies observe a positive relationship between leverage and tangibility (for example Titman and Wessels (1988)^[6], Rajan and Zingales (1995)^[2], Frank and Goyal (2009)^[3]).

2.4. Profitability

Most empirical studies observe a negative relationship between leverage (debt/equity ratio) and profitability (Titman and Wessels (1988)^[6], Frank and Goyal (2009)^[3]).

2.5. Other Evidence

Among other evidence note the following. Firm growth potential is usually negatively correlated with debt/equity ratio. Firms with high expected bankruptcy costs usually have lower debt/equity ratio than other firms. For more examples see, among others, Frank and Goyal (2009)^[3].

2.6. Examples

In 2009, former Google CFO Patrick Pichette was asked by James Manyika from McKinsey consulting firm: “On that point, to what extent do considerations about capital structure factor into your thinking?” Mr. Pichette said that capital structure matters a lot. He also connected the problem of capital structure to the degree of business freedom: “If we could predict the strategic flexibility we’ll need in such an uncertain environment, we could optimize the balance sheet perfectly. But consider the constraints: leverage, dividends, and so on. Then call me the next day and say, “Hey, I need something. I’m inventing X.” But I can’t help—I don’t have the flexibility—and end up giving up what could be the most important asset the company needs in order to change over the next ten years. We believe there’s an opportunity cost of not having that flexibility...”^[7]. In fact, Mr. Pichette's ideas are closely related to relatively recent flexibility theory of capital structure. Usually it means keeping the amount of debt low.

On the other hand, another famous firm McDonald's uses debt quite actively. In July 2007, according to the article entitled “McDonald's reviews capital structure, CFO retiring”, McDonald's announced the retirement of CFO Mr. Paull and at the same time announced that they were issuing more debt. They argued that it will help increase the return to shareholders.^[8] Just recently, in 2015, McDonald's used a similar strategy.^[9] Unlike Google, McDonald's assets structure has a much higher fraction of tangible assets, which usually makes debt financing more affordable and meaningful (Miglo (2016)^[10]). McDonald's business relies significantly on franchising and a lot of their investments depend on their franchisees. They have a limited ability to raise equity capital and therefore debt financing is a logical choice. Using debt may also be related to the problem of providing additional financial discipline (Miglo (2016)^[10]).

3. Most Important Ideas of Capital Structure

3.1. Taxes

In most countries, the amount of interests that firms pay on their debts, can be used to reduce corporate income tax. So by increasing the amount of debt, the firm creates a tax shield that can increase its value. Faulkender and Smith (2016)^[11], for example, discuss tax strategies of international companies. It is mentioned that multinational groups are using significantly higher debt in high-tax jurisdictions, which is consistent with the tax shield idea.

3.2. Bankruptcy Cost

The bankruptcy cost idea points out that increasing debt in a firm's capital structure increases its probability of bankruptcy. Since bankruptcy is a very costly process, the incentive to increase debt should depend on potential future bankruptcy costs. A theory of capital structure that considers both tax idea and bankruptcy costs idea is called "trade-off theory of capital structure" (see, for example, Kraus and Litzenberger (1972)^[12] or Miglo (2011)^[13]).

3.3. Asymmetric Information

It has been recognized for over 40 years, since at least Akerloff's (1970)^[14] publication about the used car market, that asymmetric information plays a role in the market. The same is true in financial markets including firm securities sale that directly affects firm capital structure choice. Most existing theories in this area suggest that debt is better than equity under asymmetric information (see, for example, "pecking-order theory" by Myers and Majluff (1984)^[15] or Leland and Pyle (1977)^[16]). Empirically we know that equity is often issued by firms. For alternative theories see, among others, Miglo (2007^[17], 2012^[18]).

3.4. Agency Costs

Agency problems exist between shareholders and managers. In this relationship, shareholders are the principal and they do not have direct control over the managers' actions (agent). Similarly principal/agent can be applied to analyze shareholders/creditors relationship because creditors do not have full control over shareholders' actions who use funds received from creditors. Two kinds of distortions may arise from agency problems between creditors and shareholders including the shareholders' tendency to invest in very risky projects, or the situations when the shareholders–creditors conflict leads to underinvestment in good projects. Potential conflicts between creditors and shareholders explain many interesting phenomena in financial markets. One of them is called "credit rationing" (Stiglitz and Weiss (1981)^[19]). Because banks are not able to control or even monitor actions of firms especially small firms they often refuse to increase interest rates clearing the demand for loans, even when the demand is coming from firms with profitable projects. As a result small business are usually at disadvantage with regard to borrowing opportunities compared to large firms.

3.5. Other Ideas

It include behavioural finance, product market, control etc. For a literature review on capital structure see, for example, Harris and Raviv (1992)^[20], Klein et al (2002)^[21] or Miglo (2011)^[13]. Examples of recent research include Miglo (2017)^[22], 2019^[23].

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