The Application of FRICTO Analysis to Making Financing Decisions in Practice: Two Case Examples in Australia

George W. Kester, Washington and Lee University
Jamie Mckellar, Thiess Pty Ltd
Jeremiah Mulcahy, BHP Billiton Ltd

This paper describes the use of the FRICTO analytical framework for comparing financing alternatives and making financing decisions. Two case examples in Australia are presented to illustrate how two former investment bankers have used the FRICTO framework to help clients make financing decisions that take into account flexibility, risk, income, control, timing and other considerations. They have found the analytical framework prompts decision-makers to consider other important issues beyond risk and the effect on earnings per share that reflect a company's unique and often complicated circumstances.

INTRODUCTION

Modigliani and Miller (1958) advanced the proposition that based upon several simplifying assumptions, capital structure has no effect on the value of a firm. However, recognizing the impact of taxes, bankruptcy, agency costs, and asymmetric information, capital structure theory has evolved to acknowledge that the use of debt does affect the value of a firm. Modern theories of capital structure can be classified into two categories: “static tradeoff models” and the “pecking order hypothesis.” Static tradeoff models imply an optimal debt-equity mix which is determined by a tradeoff between the benefits and costs of debt (i.e., balancing the tax advantages of debt against the risk of bankruptcy and agency costs). The pecking order hypothesis implies a hierarchy in raising funds, in which the firm prefers internal to external financing and, if it obtains external funds, debt to equity. This empirically motivated hypothesis, which has been theoretically justified on the basis of asymmetric information by Myers (1984) and Myers and Majluf (1984), is consistent with Donaldson's (1961) classic description of actual financing practices in which he observed that firms prefer internal financing and have an aversion to issuing common stock.¹

In a survey of 176 Fortune 500 firms in the United States (U.S.), Pinegar and Wilbricht (1989) found that the financing hierarchy implied by pecking order hypothesis is more descriptive of actual practice than the static tradeoff model. Kester, Chang, Echanis, Mansor, Skully, Soedigno and Tsui (1998) also found a preference for following a financing hierarchy in their surveys of listed firms in Australia, Hong Kong, Indonesia, Malaysia, the Philippines, and Singapore. Adhering to a target capital structure was preferred only by Australian executives. They also found that capital structure policy is less binding than either the firm's investment decisions or dividend policy, a result also consistent with the U.S. survey findings of Pinegar and Wilbricht (1989) and Pruitt and Gitman (1991).
Since capital structure theory has not progressed to the point of providing an unambiguous optimal debt-equity mix for a given firm, decision makers must systematically evaluate a variety of factors and trade-offs relevant to the firm and its financing situation.

**FRICTO ANALYSIS**

One popular analytical framework for teaching debt-versus-equity decisions and comparing financing alternatives is FRICTO analysis.\(^2\) Developed in the 1960’s at the Harvard Business School, FRICTO analysis helps both students and financial practitioners systematically focus upon the various elements relevant to making financing decisions. Like static tradeoff models, FRICTO involves tradeoffs that must be evaluated. FRICTO analysis framework is also consistent with the pecking order hypothesis.\(^3\) If a firm obtains external financing, the alternative that results in the highest earnings per share or return on equity (usually debt) is preferred, unless other considerations such as risk, financial flexibility, or other factors suggest otherwise.

The acronym “FRICTO” simply represents the following six elements that are relevant for financing decisions: flexibility, risk, income, control, timing and (to make FRICTO all-inclusive) other.

**Flexibility** refers to leaving the firm’s financing options open. For example, if debt is issued this year, it may use up the firm’s debt capacity, thus precluding debt as a financing option in future years to meet the firm’s anticipated future financing requirements. Sometimes the need for additional capital in the future is for unforeseen reasons, such as a sudden investment opportunity or a financial crisis due to a severe economic downturn. Sometimes the need for additional capital in the future is foreseen, but other factors are not, such as the price of the company’s common stock. If in the future the firm needs to raise capital, but its stock price is depressed (perceived to be undervalued), the company may have little choice but to issue common stock unless adequate debt capacity is “kept in reserve.”

**Risk** refers to the ability of the firm to meet its fixed financial obligations (i.e., interest, principal repayment, lease payments, preferred dividends, etc.) even in adverse circumstances. The more uncertain a firm’s operating cash flows, the more uncertainty there is about its ability to meet its obligations and the less debt the firm can handle.

**Income** pertains to the impact of the different financing alternatives on returns to shareholders as measured by earnings per share (EPS) or return on equity (ROE). Because no additional interest is paid, common stock financing always produces higher earnings after taxes than debt. However, debt financing usually (although not always under all conditions) produces higher ROE and EPS.

**Control** pertains to how different financing alternatives affect the ownership control of the firm. If management has voting control of the firm’s common stock, it may choose debt over new common equity. Control can also refer to restrictions placed on the activities of the firm by restrictive covenants in loan agreements.

**Timing** focuses upon the current economic and capital market environment. For example, common stock may be the preferred financing alternative due to the perceived riskiness of issuing new debt, but not at the current low share price. In another situation, debt may be the preferred financing alternative, but interest rates may be high. Timing can also refer to the sequencing of financial alternatives (current and future) based upon expectations regarding the future capital market environment and the firm’s performance.
Other refers to anything else that is relevant to the financing decision, issues specific to the firm’s unique situation. How quickly are funds needed? Should the market for the company’s common stock be broadened? If bonds are issued, must they be subordinated? What is management’s (and the Board’s) attitude toward debt?

FRICTO analysis usually begins with the classic trade-off between income (return) and risk which will lead to a tentative choice of debt or equity. However, consideration of the other elements of FRICTO -- flexibility, control, timing and other factors -- may lead to consideration of other financing choices such as preferred stock or convertibles. The relative importance of each of the FRICTO elements varies according to the firm and its unique circumstances and financial situation.

The FRICTO analysis framework is an effective way to help students understand how to systematically evaluate the various factors and trade-offs that need to be considered when making financing decisions. FRICTO analysis is an especially effective teaching tool when using the case method of instruction. Cases provide an organizational frame of reference and help students develop the skills needed to handle new and unstructured problems and make situational decisions. They provide the background facts and data that students can organize into a systematic evaluation of financing alternatives using FRICTO analysis.

Kester and Hoover (2004) developed a decision tree to present the elements of FRICTO analysis in a way that illustrates how they can be incorporated into the decision-making process. Although not intended to encompass all of the factors and details that must be addressed when making financing decisions, the diagram is intended to impart to students a flavor of how FRICTO analysis can be used to systematically make debt-versus-equity decisions and evaluate financing alternatives.

Over the years, one of the authors of this paper has presented FRICTO analysis in a variety of settings, including undergraduate and postgraduate classrooms and executive seminars. These activities have resulted in various forms of feedback from former students and seminar participants who have used FRICTO in practice. This feedback has included the following two case examples resulting from the use of FRICTO analysis by two former investment bankers in Australia as a framework for working with clients to make financing decisions.

CASE 1: A MINING SERVICES PROVIDER

The Company we were advising is a mining services provider, with operations predominately in Queensland, Australia. Its client base comprised some of the world’s largest miners and contracted miners. Through these relationships, the Company had been asked by several leading mining firms to assist in developing several mining deposits around Australia. The Company operates a “build, own and operate” business model and therefore is quite capital intensive. Most of its competitors are either operators or pure builders.

The Company floated its common stock on the Australian Securities Exchange (ASX) at the beginning of 2007 on a 13 times FY2007 price-to-earnings (P/E) multiple. The proceeds of the initial public offering (IPO) were used to recapitalise the balance sheet, as the Company had reached its lending limits with its bank. The IPO was well received and the Company was quickly trading on a 26 times FY2007 P/E multiple.

By the end of calendar 2007 and beginning of 2008, talks with several mining firms were heating up and the Company was looking at ways it could fund the anticipated expansion
of its operations. The Company’s additional capital requirements were indicated to be about A$30 to A$60 million. Internal free cash flows were strong, but the Company needed to be in a position to react quickly to its clients needs.

At the time, the Company had an unused long-term revolving credit debt facility of approximately A$100 million with one of Australia’s leading banking groups. During the marketing of the IPO and subsequent presentations to the investment community, the Company’s management continuously highlighted the Company’s bank facility and its intended use as the Company’s key funding source in the short to medium term. Furthermore, research analysts following the Company had highlighted this strategy extensively to the market. In addition, it was our conclusion that the momentum behind the Company’s share price at the time was, in part, due to this facility and debt funding strategy.

Using the FRICTO framework, the following analysis was undertaken:

**Income**

A financial model was built. However, given the Company’s high P/E trading multiple at the time, it was obvious even before any numbers were produced that equity was the preferred funding option and result in higher EPS than debt.\(^4\) *Conclusion: equity*

**Risk**

The Company had yet to develop an internal debt target level for its business, therefore the following target levels regarding leverage were proposed for discussion:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Company’s Banking Covenants</th>
<th>Target Debt Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Debt / Equity</td>
<td>100%</td>
<td>50% to 70%</td>
</tr>
<tr>
<td>Interest Coverage (EBIT)</td>
<td>4.0 x</td>
<td>6.0 x to 8.0 x</td>
</tr>
<tr>
<td>Net Debt / EBITDA</td>
<td>2.5 x</td>
<td>1.5 x to 2.0 x</td>
</tr>
</tbody>
</table>

These recommended criteria were developed taking into consideration the following items:
1. A peer group of similar type of service companies;
2. The nature of the Company’s contracted revenue and assets to be used as potential collateral;
3. The Company’s financial banking covenants;
4. The credit climate at the time (six months into the global financial crisis);
5. Sensitivity analysis undertaken using the financial model to examine the Company’s cash flow coverage of its fixed obligations if debt was utilized; and
6. Statistics relating to leverage levels of investment grade companies published by Standard & Poor’s (S&P).

At the time, 60% of the Company’s revenue was subject to 3 to 5 year rolling “take or pay” contracts, with the projects under consideration being subject to similar terms.\(^5\) Furthermore, the counter parties to these contracts were large mining companies and the Company had a policy of servicing only bulk commodity mines (i.e., coking coal and iron ore mines). The new projects under proposal were also consistent with this policy.
The services provided by the Company required the construction of semi-portable facilities at or near the mines, with a proportion of the infrastructure constructed unable to be recovered if the facilities had to be relocated. The minimum cost of building the required facilities was approximately A$30 million.

Taking into consideration the above criteria, it was determined that the Company could easily service the resulting financial obligations if the capital requirement was funded entirely by debt. Conclusion: debt or equity.

**Flexibility**

Our risk analysis indicated that any capital requirement exceeding A$60 million would ultimately limit the Company’s ability to undertake new projects and pursue other opportunities without an equity injection in the future (given the minimum cost of the required facilities to service a mine being approximately A$30 million). Therefore, we recommended that once the construction of the respective facilities was completed and operating, the Company should seek to reduce its debt exposure via an equity offering. Conclusion: debt followed by equity once the facilities were constructed and operating.

**Control**

Upon listing, the Company’s free float (unrestricted shares of a public company not held by large shareholders) was approximately 35%, with the balance of the shares held by the founder of the business. The founder also held the position of Managing Director and Executive Chairman. Therefore, voting control was naturally a key issue.

On several occasions following the float, the CFO of the Company had highlighted that he was keen to increase the Company’s free float and was looking at various strategies to do so, in particular via the underwriting of the Company’s dividend reinvestment plan.

Though the free float was not ideal, institutional investors had not indicated this to be an issue. Furthermore, we believed that the founder should only dilute its interest on the back of a company making share-for-share acquisitions, instead of dribbling shares to the market. (It should be noted that we were also playing to the founder’s vanity when expressing this view.) Conclusion: debt

**Timing**

The Company found itself in a unique situation where the demand for its goods and services had never been stronger, even though economies and capital markets around the world were under considerable strain as the result of the “global financial crisis.” At the time, capital markets in Australia were still open to well performing companies and companies which operated in sectors yet to experience a downturn in demand. Although the Company was the beneficiary of a strong share price and P/E multiple, which made issuing common stock very attractive, it was anticipated that interest rates would fall to combat the financial crisis and, as such, made the use of the Company’s undrawn long-term debt facility a viable alternative. Furthermore, given the nature of its substantial contracted revenue and the strong demand for its services, the Company was in an attractive position to take advantage of the pending interest rate cycle. Conclusion: debt or equity.
Other

Various other factors were also considered.

To win the projects, the Company wanted to be in a position to react quickly to the needs of the respective mining companies (i.e., start projects as soon as possible, as the services provided by the Company are critical in developing the initial stages of a mine.) Even though we believed we could successfully raise the funds required via the equity markets in a limited amount of time, debt complemented a construction timetable more so than equity.

Another issue that we considered was that the development and construction phase of the required infrastructure would take approximately 12 months; therefore, revenue generated from the new facilities could take up to 12 months to realize and, in the short-run, EPS would be diluted.

As indicated, the Company to date had not informed the market that equity may be issued as a possible funding source. It had continuously emphasised the use of debt as its main and only funding source in the short to medium term. As such, it was our view at the time, any large equity issue would:

1. Spook the market as to the strength of the underlining business;
2. Irritate research analysts, as they may believe that the Company had misled them;
3. Be seen as opportunistic given the high trading multiple; and
4. Potentially, contradict statements made in the IPO prospectus and subsequent ASX announcements and investor marketing.

Therefore, it was determined that the Company had backed itself into a corner and debt was the only option available. Furthermore, based on the above issues, it was suggested that the Company’s management slowly introduce the concept of equity into its rhetoric when discussing the Company’s potential future funding strategy to the market.

Recommendation and Decision

Other securities were considered. However, given the state of credit markets at the time and the lack of a credit rating, it was determined that a hybrid security issue would be difficult. Furthermore, the Company’s management was opposed to the issue of such securities, given that:

1. The use of equity was a such strong alternative; and
2. The Company’s bank was still offering very competitive terms.

Our overall recommendation was to fund the initial development of the new facilities via debt and, once operating, seek to reduce debt to levels consistent with the Company’s long-term debt strategy. The Company followed our recommendations on this matter.

CASE 2: A GLOBAL INFRASTRUCTURE FUND

This case involved a global infrastructure fund with diversified investments in infrastructure assets throughout Australia, New Zealand and Europe. Its assets included energy transmission and distribution assets (such as electricity transmission and gas distribution networks), transportation assets (including ports and rail lines), and social infrastructure projects such as toll roads, prisons, hospitals and schools. The Company derived its revenues through
long term government concessions or regulated tariffs on a cost plus basis. Given the capital intensity of the assets and the relative stability of the underlying cash flows, the business operated using relatively high levels of debt to finance its operations and maximize returns to equity holders.

The Company had been listed since 2002 on the ASX and had numerous global institutional shareholders on its security register, providing it with access to capital in a number of jurisdictions. The share price of the Company had fallen by over 50 percent in the preceding 12 months and was trading at a substantial discount to its book value.

The Company was in a high growth phase and had recently acquired a number of assets which were partly funded using short-term bridge loans from banks. In addition to the requirement to refinance its bridge loans, further capital was needed to enable the Company to invest in positive NPV capacity expansion opportunities, as well as to fund a share repurchase that might potentially bridge the gap between the Company’s prevailing share price and its book value. The Company was on credit watch with ratings agencies which had advised the Company that if it did not reduce its gearing (financial leverage) in the near term that a ratings downgrade was likely.

At the time, the Company had been approached by a sovereign wealth fund (state-owned investment fund) seeking to become a strategic (long term) investor in the Company through either the issue of an equity or debt instrument. Given the flexibility of the potential investor regarding the final form of the investment, the Company wanted advice on the best source of financing.

Using the FRICTO analysis framework, the following analysis was undertaken.

**Income**

Due to the low price of the company’s shares, it was determined that an equity issue would result in significantly lower EPS than a debt issue. Under the ASX Listing Rules, the Company could not issue more than 15% of its current issued equity in a 12 month period to the strategic investor without obtaining shareholder consent. Existing large (institutional) shareholders had advised that they would not be supportive of an equity issue that diluted EPS. The existing investors had also advised that they would not be able to participate in any pro-rata rights issue to existing security holders due to their own financial constraints arising out of the global financial crisis. *Conclusion: debt.*

**Risk**

As stated above, the Company had a significant amount of debt and an impending requirement to refinance its short-term bridge loans. Given that the Company was already on the verge of a ratings downgrade, any further debt would likely trigger an increase in its existing financing costs and would further increase the risk of it being unable to service its debt requirements. *Conclusion: equity.*

**Flexibility**

Because of the Company’s existing high level of debt, the Company’s would have little or no future financing flexibility if additional debt were used. Indeed, our risk analysis indicated that the company should decrease, not increase, its financial leverage. As previously
mentioned, the Company had been advised by ratings agencies that any further debt issues would result in a credit downgrade, which would further limit the Company’s ability to raise debt in the future.  Conclusion: equity.

Control

Given the depressed nature of the stock price, a large equity issue would significantly dilute the voting control of existing shareholders. As previously mentioned, existing large institutional shareholders were not in favor of an equity issue that would dilute EPS or that was materially below book value.

The Company was also concerned about the onerous covenants that may be attached to new debt, which would impede management’s ability to pursue investment opportunities. Conclusion: preference shares (preferred stock) or convertible equity security.

Timing

Given the Company’s depressed share price, the timing was quite unfavorable for an equity issue. The global financial crisis had also effectively shut down debt markets and the Company’s existing debt issues were on credit watch. Thus, the Company had little ability to issue further debt securities and bank debt was increasingly difficult to obtain.

As an alternative to issuing debt or equity, the Company was considering the sale of some of its non-core assets. However, this was an unrealistic option given the bridging finance needed to be refinanced well before any asset sale program could be concluded. Compounding the timing problems around any asset sale program was the fact that most potential buyers were preoccupied with strengthening their own balance sheets, and as a result prevailing market prices for assets had dropped significantly. Conclusion: preference shares or convertible equity security.

Other

Another issue was how quickly funds were needed. The Company’s bridge loans were maturing and it did not have time to wait for shareholder approval for an equity issue of more than 15%. Therefore, placement of ordinary equity to the strategic investor would be capped at 15% and as the Company’s share price had depreciated significantly in the preceding 12 months, this would not provide the amount of funds needed.

Although preference shares would have avoided some of the problems associated with issuing debt or ordinary equity, a default event under the Company’s existing debt securities would also be triggered if the Company attempted to issue preference shares which were redeemable for cash at the election of the holder of the preference shares.

Recommendation and Decision

As previously mentioned, the Company was on credit watch and in danger of a reduction in its credit rating. Therefore, it was considered essential that whatever securities were issued to the strategic investor must receive an equity classification from the ratings agencies. In order to receive an equity classification, the following requirements had to be met:
(1) the instrument could not be redeemable for cash and could only be convertible to equity; and

(2) the instrument could not carry a penalty coupon step up rate and coupons (interest) must be payable at the Company’s discretion (only when the Company had available cash flows).

The strategic investor had indicated that it could live with the above limitations, but would require compensation in the form of future co-investment rights with the Company or a priority right to purchase any of the Company’s assets should it seek to dispose of any assets.

Having considered all of the above, the final recommendation made to the Company was to issue an unlisted (privately placed) ten-year convertible note with the following terms to ensure the notes were considered equity for credit rating purposes:

(1) the convertible notes would not be redeemable for cash and there would be no step up penalties associated with non-payment of a coupon (the conversion price would simply adjust downwards by the value of any coupons not paid);

(2) the coupon rate payable on the notes would be fixed as the greater of a fixed percentage, or equity distributions (dividends payable to ordinary shareholders). Payment of the coupon would be at the discretion of the Company, however coupons would be payable to note holders in priority to ordinary equity distributions;

(3) the convertible notes would be subordinated to all existing debt and would not provide the holder with any voting rights; and

(4) in order to compensate the strategic investor for the above terms, the notes would have a priority co-investment right to co-invest alongside the Company in any future acquisition opportunities. The Company would not charge management fees for the portion of the asset purchased by the strategic investor.

The issue price recommended was at a substantial premium to the prevailing security price as this would enable the Company to raise a much larger quantum of funds from the strategic investor than an ordinary equity issue would enable given the 15% limit discussed above. The conversion price of the notes was at the Company’s book value per share. However the conversion price would adjust downwards to reflect non-payment of any coupons over the life of the notes.

Our advice was well received by both the Company and the strategic investor. However, negotiations ceased at the outset of the global financial crisis and the collapse of Lehman Brothers in September 2008 as the strategic investor had a significant exposure to the financial sector and was forced to focus its attention on its existing investments.

The Company was forced to seek extensions to its bridge loans at substantially higher interest rates to the banks and undertake an asset divestment program to raise funds.

CONCLUSION

As a tool, we have found the FRICTO analytical framework to be a simple and logical tool when developing and assessing the Company’s financing strategy. FRICTO provides an objective approach to what is a fairly subjective decision and enables us to assess a broad range of consequences resulting from issuing debt or equity. Furthermore, it prompts us to consider additional issues beyond risk and the effect on EPS, enabling us to demonstrate that we know our client’s businesses intimately and the various issues confronting clients which are key
attributes for winning future work. In addition, the tool assisted us in providing a logical framework:

(1) to generate original ideas and solutions
(2) to undertake side by side comparisons of capital management strategies adopted by various companies given the tool is not sector, nor company specific; and
(3) to communicate the key considerations which influenced our analytical process to the client.

The framework also facilitated a participative approach amongst team members and our clients, and created far greater transparency around the final recommendation. The number of different alternatives generated by the thought processes required to undertake a FRICTO analysis enabled us to come up with a more tailored financing approach which met both the investor’s and the client’s requirements.

It is challenging for decision-makers (and those who advise decision-makers) to identify and weigh the wide variety of factors that pertain to financing decisions. As illustrated in this paper, the FRICTO framework helps decision-makers systematically evaluate the various factors -- flexibility, risk, income, control, timing, and other -- that pertain to capital structure policy and financing decisions.

The two case examples in this paper illustrate how FRICTO analysis leads to financing choices that take into account a company’s unique situation and often complicated circumstances.

ENDNOTES

1 See Baskin (1989) for a review of empirical evidence and additional findings supporting the pecking order hypothesis.

2 Maintaining a target capital structure and the pecking order theory are not necessarily mutually exclusive. Over time, firms that follow a financing hierarchy may do so subject to not deviating significantly from their target capital structures.

3 The elements of FRICTO are based upon the analytical framework for making financing decisions developed by Hunt, Williams, and Donaldson (1966). The FRICTO acronym (originally FRICT) was first suggested by William W. Sihler (1971).

4 If a firm’s earnings-to-price ratio is less than its after-tax cost of debt, EPS will be higher from issuing common stock than issuing debt.

5 “Take or pay” is a contractual arrangement whereby the client is required to purchase a level of service or quantity of goods even if the services or goods are not subsequently required or used (i.e. the client pays to have the resources of the service or goods provider on standby).

6 The reference to long term government concessions generally relates to toll roads and other social infrastructure projects such as prisons, hospitals and schools whereby the government issues the company with a long term concession to construct, own and operate the project for a long period of time (generally 30 to 40 years) after which time the company transfers ownership and operation of the project back to the government. These types of projects are generally called BOOTs (Build Own Operate Transfer) or PPPs (Public Private Partnership). Regulated tariffs refers to critical infrastructure assets that have been privatized, such as electric transmission and gas distribution networks, for which the Government or regulatory authorities regulate the returns the operator can extract in the form of the unit charge (tariff) it charges customers.
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