

Case Study**Why No Debt? A FRICTO Analysis of the Capital Structure of Cal-Maine Foods Inc.**Carlos J.O. Trejo-Pech^a and Susan White^b*University of Tennessee^a, University of Maryland^b*

JEL Codes: G30, G31, M21

Keywords: Agribusiness finance, cage-free eggs, corporate finance, optimal capital structure

Abstract

Cal-Maine Foods Inc., the largest egg producer in the world, has historically operated with low debt. Cal-Maine reported in its 2021 third fiscal quarter no debt on its balance sheet, making this company one of the few debt-free publicly traded agribusinesses in the United States. This case analyzes Cal-Maine's capital structure, which represents a rare case for exploring and challenging the notion of optimal capital structure in theory and practice. Understanding the rationale behind a debt-free firm's policy is puzzling because financial theory predicts that adding debt up to a certain level—the optimal capital structure—creates economic value for equity holders. According to surveyed chief financial officers, there is also evidence that practitioners use an optimal capital structure framework for financial management decisions. By applying a framework allowing for both qualitative and quantitative analysis, this case reviews the benefits and costs of debt in the capital structure, as applied to Cal-Maine. The case asks students to evaluate potential recapitalization policies in which Cal-Maine adds debt to its capital structure and uses debt proceeds plus excess cash to repurchase shares at the prevailing price as of the end of May 2021. The target audience is graduate business and agribusiness students, although the case could be used in an elective advanced undergraduate finance course.

1 Introduction

By May 2021, covid restrictions and consumer avoidance for dining-in had drastically reduced demand for eggs in the food service egg segment. In contrast, the lockdown had increased demand and prices of eggs at food retail stores as families were consuming more eggs while staying at home, because eggs were a convenient and well-priced form of protein (King 2020b). This situation negatively affected profits of those small egg producers who supplied eggs to the food service segment, but was less problematic for large and vertically integrated companies like Cal-Maine Foods Inc. (Cal-Maine), which was capable of packing and grading eggs to sell to retail stores and benefit from higher prices.¹ Indeed, by May 2021, Cal-Maine's financial accounting performance, on an annual accumulated basis, had slightly improved relative to pre-pandemic levels. However, financial analysts' recommendations regarding Cal-Maine's financial strength were mixed. While some analysts recommended that investors buy Cal-Maine's equity, others recommended holding or not buying this equity (New Constructs 2021a, 2021b; Reuters 2021; SADIF 2021; ValuEngine 2021).

Cal-Maine has historically operated with low levels of debt, and in late 2019 the firm retired all its outstanding long-term debt (Cal-Maine Foods 2020a), making Cal-Maine one of the few debt-free publicly traded firms in the United States. While having no debt provided a firm with financial flexibility, this practice was counterintuitive according to finance theory, which predicts that a firm should have debt in its capital structure even when it does not need debt financing because debt might

¹ In 2020, Cal-Maine was ranked the largest egg producer in the United States and the world, housing an estimated flock of 44.26 million hens (O'Keefe 2021a). The firm sold more than one billion dozen eggs per year, and its equity traded on NASDAQ under the ticker CALM. Chicken eggs in their shell, as sold in most food retail stores, are commonly referred to as shell or table eggs. The term "shell egg" is used in this study.

create economic value. As an example, the tax break offered by debt financing could be substantial for a firm, with the benefits accruing to its equity holders.

Given the combination of Cal-Maine's financial strengths and weaknesses, the firm's position within the egg industry, and external financial analysts' recommendations: Was mid-2021 a good time for Cal-Maine to recapitalize its balance sheet by contracting debt? How might Cal-Maine's potential capitalization affect its dividend policy and income taxes? What impact might a share repurchase policy have? Should Cal-Maine play it safe by keeping its current capital structure with no debt? The objective of this case is to review the benefits and costs of debt in the capital structure, as applied to Cal-Maine. Specifically, after analyzing this case, students should be able to:

1. Evaluate a firm's capital structure decisions, both qualitatively and quantitatively;
2. Assess a firm's choice of dividend policy;
3. Perform a ratio and financial statement analysis to assess the financial health of a firm; and
4. Discuss the impact of changes in capital structure on a firm's weighted average cost of capital.

2 FRICTO: A Framework for Capital Structure Analysis

Finance theory predicts that the presence of debt in a firm's capital structure creates economic value accruing to equity holders, but after a certain level, additional debt may erode value. In other words, theory predicts the existence of an individual firm's optimal or target capital structure,² which may include a significant level of debt. In practice, financial managers in firms trading their equities in a stock exchange seem to agree to some extent. Graham and Harvey (2001) surveyed financial managers showing that 81 percent of firms made debt vs. equity financing decisions guided by a target or estimated optimal capital structure.

However, determining the appropriate mix of debt and equity and timing to change a firm's capital structure could be very complicated in practice because theory does not provide a clear, unambiguous method for such estimations for a given firm (Kester and Hoover 2005). There are multiple, and sometimes ambiguous, cost and benefit trade-offs for choosing the appropriate debt and equity mix and the best timing for a recapitalization. Timing refers to when a company issues debt or equity and the signal that these actions send to the market. Conventional investing wisdom says "buy low, sell high." When a firm issues equity it is in essence selling equity. Investors know that a firm knows more about that firm than an unconnected investor. If a firm issues new equity it may be signaling that management thinks the stock price is high since it would be dilutive for a firm to issue equity if the price were low. Similarly, it is better for a firm to issue new debt when interest rates are low or are expected to increase in the future. These complexities may explain why firms like Cal-Maine would pursue, at least temporarily, an extreme debt-free capital structure policy.

One analytical framework to evaluate capital structure decisions is FRICTO, an acronym representing elements that are relevant for financing decisions: flexibility, risk, income, control, timing, and others (Sihler 1971; Kester and Hoover 2005). FRICTO captures relevant trade-offs to consider when evaluating alternative capital structures in a firm. For example, a firm without debt like Cal-Maine might need to raise capital for strategic growth. Just moving away from no debt to a certain amount of debt might increase income expressed in earnings per share (EPS) or return on equity (ROE), but might also increase risk as the firm would be committed to fixed payments in the future. The change of stakeholders' perceived level of risk would depend on cash flow variability and might in turn have a cascade effect on the company's weighted average cost of capital and ultimately in its stock value. Alternatively, a firm might be inclined to raise equity instead of debt but find out that it is not the appropriate time to raise equity due to a combination of its current stock price, its stock return momentum, and the current and

² Defined as the proportions of debt and equity that *maximize* economic value for equity holders.

projected level of interest rates. The decision on the optimal debt to equity mix could become complicated when other FRICTO elements are considered in the analysis.

2.1 FRICTO Elements

The questions asked in a FRICTO analysis and the analytics used to evaluate them are summarized in Appendix 1. The FRICTO elements are summarized as follows.

Flexibility: Some firms require more financing options than others. Typically, a firm's debt capacity is finite, and a firm with too much debt may be forced to use more costly equity financing. Firms with aggressive capital spending or acquisition strategies may choose to use more flexible equity or hybrid financing rather than debt financing, which has contract provisions that could, for example, require the firm to maintain specified ratios, limit future debt, and have principal and interest that must be paid back on a fixed schedule.

Risk: Some firms engaged in volatile industries may choose conservative financing options to protect the firm in times of financial adversity. If a firm has fixed obligations, including interest and principal repayments, lease payments, preferred stock dividends, and so on, it will want to ensure its operating cash flows are sufficient to cover its obligations. More debt means more fixed obligations. Firms with more stable cash flow no matter the economic circumstances, for example, grocery stores, may choose to have more debt in their capital structure.

Income: Income, in FRICTO, refers to income per shareholder rather than to the value of net income. Assuming a firm is accepting only positive net present value projects, shareholders will prefer higher (vs. lower) return on equity, return on assets, and earnings per share. Generally, higher debt—as long as the debt will not cause financial distress—results in higher income per shareholder. Note that this does not necessarily mean the firm should always aim for the highest net income possible. The number of outstanding shares impacts income per shareholder, which is the more appropriate measure of shareholder income.

Control: This element refers to how concentrated shares are and how dilution of ownership might be impacted by the issuance of additional shares. If there are many small shareholders, issuing additional shares will be dilutive, but will not necessarily significantly impact shareholders' ability to control the firm. If shares are concentrated among a few large shareholders, then those shareholders might be reluctant to issue additional shares and risk losing control of the firm.

Timing: Timing refers to the economic and financial environment at the time new financing is issued. Firms generally would only want to issue new shares if management believed the stock price was low and issue new debt when interest rates were low. Future expectations also come into play. For example, if a firm knew it would need financing in the future and it also expected interest rates to rise, it might issue debt now to avoid paying higher interest rates in the future.

Others: Others refer to any factors that were not addressed under the first five elements. For example, a very conservative management team that wanted to maintain a high bond rating might choose equity over debt even if the prior elements pointed to benefits from debt financing.

3 Cal-Maine Foods

3.1 The Company and the Industry

With a 16.8 percent estimated market share in the United States (IBISWorld 2021), Cal-Maine is the largest chicken egg firm in the United States and the world housing 44.26 million hens (O'Keefe 2021b). Top U.S. egg producers housing at least 10 million hens include Rose Acre Farms (27.60 million hens), Versova Holdings L.L.P. (20.06 million hens), Hillandale Farms (20.00 million hens), Daybreak Foods (15.00 million hens), Michael Foods (13.50 million hens), MPS Egg Farms (11.10 million hens), and Prairie Star Farms (10.60 million hens) (O'Keefe 2021b). Most large egg firms are highly mechanized, vertically integrated, and highly cost-effective. According to an *Egg Industry* magazine 2020 survey, egg

producers have been actively pursuing consolidation in recent years (O’Keefe 2020). The survey noted that 66 producers owned more than 90 percent of total industry layers. The ten largest producers owned about 54 percent of total industry layers compared to 50 percent five years earlier.

The egg business is capital intensive. The large flock of hens needs physical space, plus equipment to feed the chickens and collect eggs, and capital to sort and package the eggs for safe shipping. Like most large egg producers, Cal-Maine is a vertically integrated company producing, grading, packaging, marketing, and distributing conventional and specialty eggs. Specialty eggs include eggs produced using cage-free and organic methods. In conventional egg production, hens are kept in smaller cages, with automated feeding and egg collection. Cal-Maine has expanded its cage-free production, even though this was more costly because of consumer demand for more humanely produced shell eggs and regulations. About 24.6 percent of eggs in the United States are produced using cage-free methods (O’Keefe 2021a). Cal-Maine sells its eggs to national and regional grocery chain stores, club stores, food service distributors, and egg product sales outlets.

The egg business is risky in that there are many factors beyond Cal-Maine’s control. For example, the firm lost a large percent of its flock to avian flu in 2014–2015, and an eventual bad weather season can significantly increase the cost of grains used to feed the hens. On the other hand, eggs are a staple food in every grocery store, consumed by millions daily. IBISWorld characterizes the egg industry as one with very high revenue volatility, high capital intensity, high competition (but decreasing due to consolidation), and moderate to high regulation with new laws driving a transition from conventional egg production to a cage-free egg production system (IBISWorld 2021).

Unlike the rest of U.S. egg producers, Cal-Maine is a publicly traded company. This facilitates Cal-Maine’s access to capital but also puts additional pressure on the firm. Publicly traded companies are highly scrutinized by equity analysts focused on short-term results. Because it is the only publicly traded firm in its segment it is difficult to establish financial benchmarks when analyzing Cal-Maine. Recent research provides a strengths, weaknesses, opportunities, and threats (SWOT) analysis for Cal-Maine as of the end of the firm’s 2020 fiscal year (Trejo-Pech and White 2021).

3.2 Investment, Financial Performance, and Risk

In a presentation to investors in late 2020, Cal-Maine provided an overview of historical revenues, product mix, cash holdings, use of capital, and investment pipeline (Cal-Maine Foods 2020b). Figures 1 and 2 show recent annual revenue, average egg prices, and total eggs produced broken down by product categories as of the end of Cal-Maine’s fiscal years, ending in May 2020. Cal-Maine’s top ten buyers included Walmart/Sam’s Club, H-E-B, Publix Super Markets, Food Lion, ALDI, US Foods/Sysco, Kroger, CCF Brands, Costco, and Wakefern, with the top three buyers representing about one half of Cal-Maine’s 2020 fiscal year total revenue. Figure 3 shows the use of capital broken down by capital expenditures, acquisition of other firms, and dividends paid. Cal-Maine’s current Growth Strategy and Acquisitions contains the following (Cal-Maine Foods 2021b):

“Our growth strategy is focused on remaining a low-cost provider of shell eggs located near our customers. In light of the growing customer demand and increased legal requirements for cage-free eggs, we intend to continue to closely evaluate the need to expand through selective acquisitions, with a priority on those that will facilitate our ability to expand our cage-free shell egg production capabilities in key locations and markets. We plan to continue to closely evaluate the need to continue to expand and convert our own facilities to increase production of cage-free eggs based on a timeline to meet the anticipated needs of our customers. As the ongoing production of cage-free eggs is more costly than the production of conventional eggs, aligning our cage-free production capabilities with changing demand for cage-free eggs is important to the success of our business.”

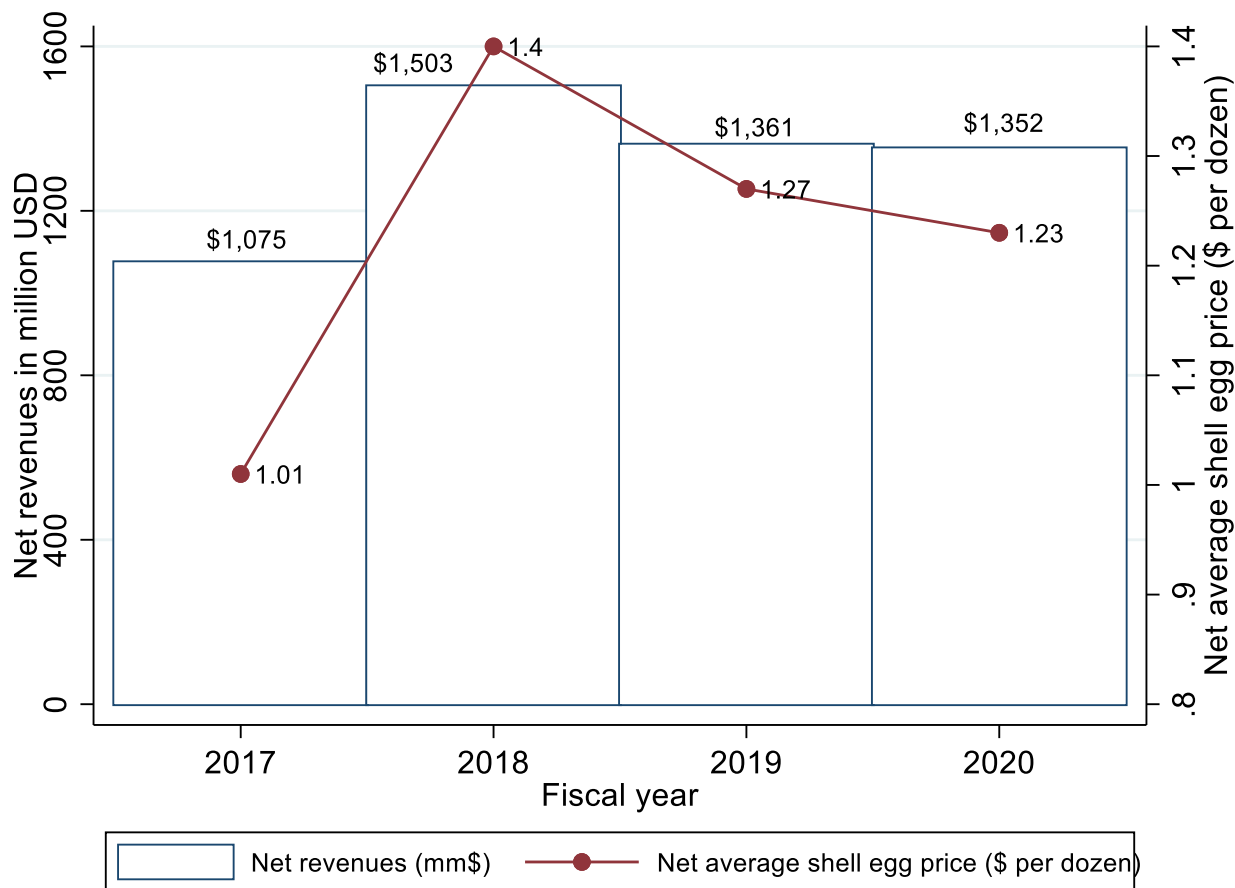


Figure 1. Cal-Maine’s Historical Revenue (\$ million) and Egg Prices (\$ per dozen)

Source: Cal-Maine Foods (2020b).

Driven by consumers’ changing preferences and cage-free regulations, the egg industry has been transitioning, in recent years, from conventional to cage-free production. Egg producers like Cal-Maine have been converting, whenever technically possible, their conventional production facilities to produce cage-free eggs and investing in new cage-free facilities to catch up with demand. By the end of 2020, it was estimated that 24.6 percent of the total U.S. layer flock of 325.5 million shell egg laying hens were cage-free hens (i.e., 80.1 million layers of this total were cage-free housed). Cal-Maine’s mix of conventional and cage-free eggs volume in 2020 was very similar to the national average of one quarter cage-free and three quarters of conventional eggs (Trejo-Pech and White 2021). According to industry predictions, egg producers will need to quickly invest in cage-free facilities within the following decade to comply with demand (Markets Insider 2017; Wong 2017; Trejo-Pech and White 2020; O’Keefe 2021a).

Recently, *Egg Industry* magazine surveyed egg producers housing approximately 60 percent of the total U.S. layer flock (O’Keefe 2021a). On average, surveyed egg producers predict that cage-free will represent about 45 percent of production by 2025 and 60 percent by 2030. This implies that housing for more than 13 million hens per year would need to be converted to cage-free in the following five years, which represents an aggressive goal when considering that the national cage-free flock grew 9.3 million from 2019 to 2020. Overall, according to surveyed egg producers, it is estimated that egg producers would convert approximately one third of their housing from cages to cage-free and free-range in the

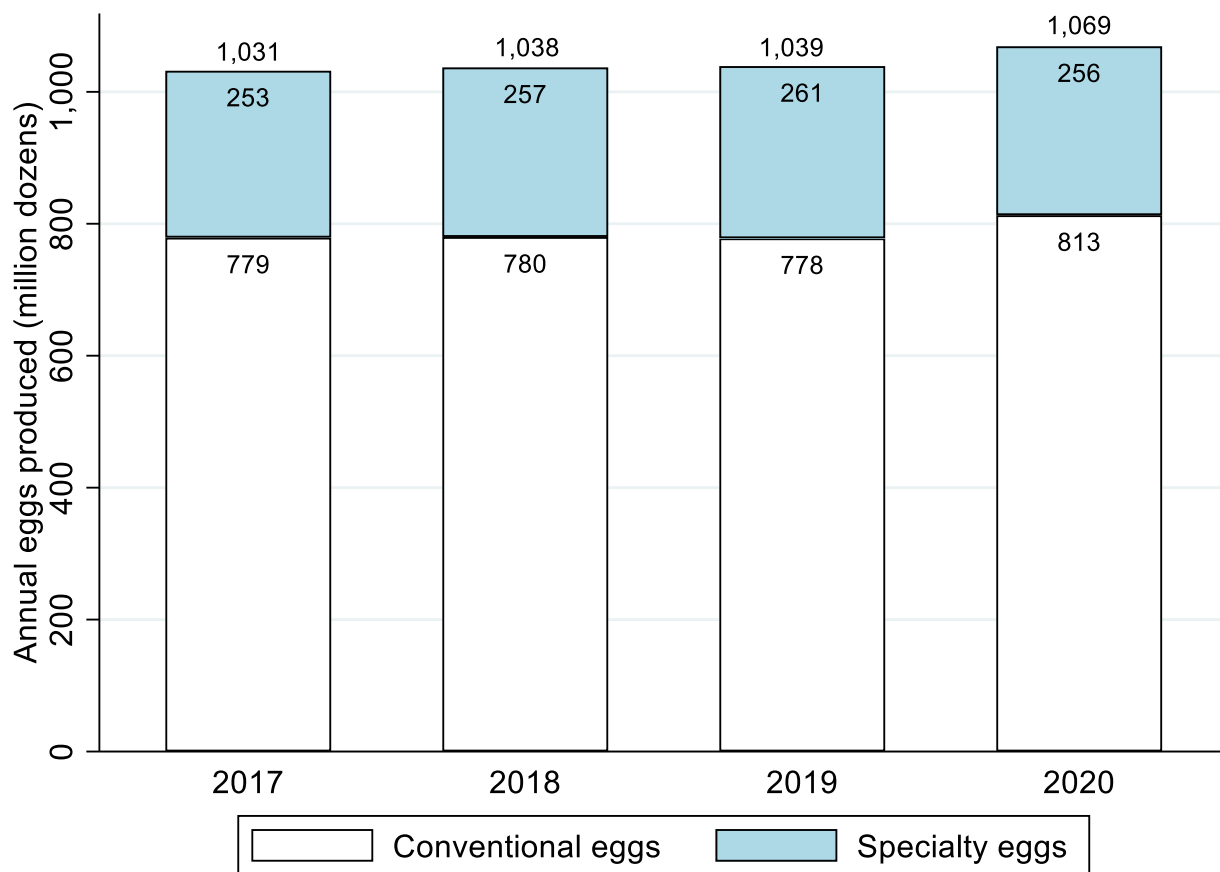


Figure 2. Cal-Maine’s Historical Egg Production (in million dozens) by Categories

Source: Cal-Maine Foods (2020b).

next decade (O’Keefe 2021a). In 2020, Cal-Maine estimated that industry-wide investment from 2021 to 2026 would total about \$6.5 billion (Cal-Maine Foods 2020b).

Cal-Maine aims to meet future consumer cage-free demand by combining organic growth from reinvesting its earnings and through acquisitions. In its 10Q, third quarter 2021 fiscal year report, the company reported having \$141.6 million in cage-free investments under construction, with \$116.2 million already spent as of the end of February 2021 and \$26.3 million to be spent in the following months (Figure 4). Cal-Maine also reported that accumulated investment in cage-free facilities since 2008 totaled \$418 million (Cal-Maine Foods 2021a).

Cal-Maine has historically grown by acquiring other firms. In the previous 30 years, Cal-Maine acquired 22 firms, and management recently stated the firm planned to continue its program of buying other egg producers. Cal-Maine’s management believed that the shell egg market was fragmented with meaningful consolidation opportunities, the firm was well-equipped to capture synergy in potential acquisitions, and small egg producers viewed Cal-Maine as a buyer of choice (Cal-Maine Foods 2020b). While the company certainly has experience in acquisitions, there is research showing that capturing synergies is a risky proposition and that a high proportion of acquisitions in the United States actually destroy economic value for current shareholders (Bruner 2004). Overall, Cal-Maine management believes that their “current cash balances, investments, cash flow from operations, and revolving credit

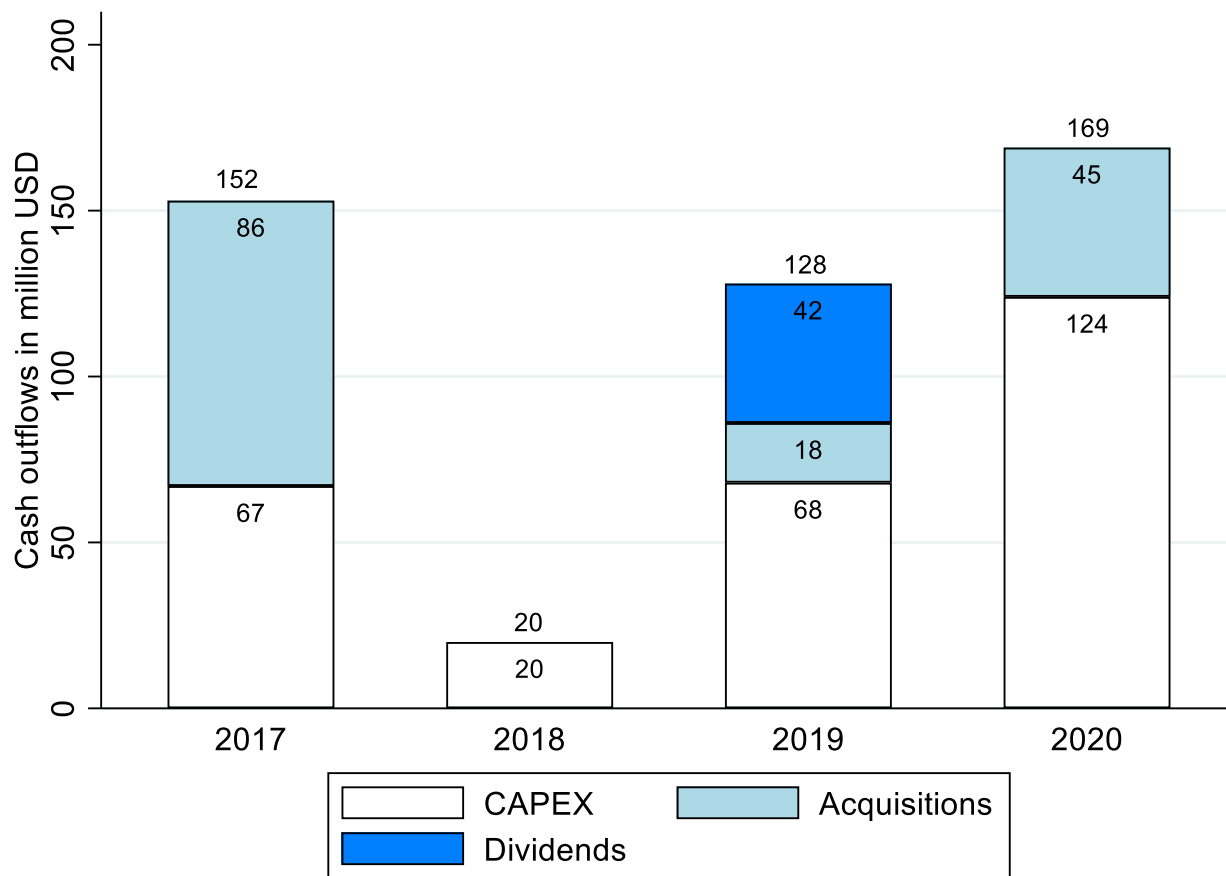


Figure 3. Cal-Maine’s Selected Use of Capital per Fiscal Year

facility will be sufficient to fund [their] current and projected capital needs for at least the next twelve months” (Cal-Maine Foods 2021a, p. 28). Indeed, cash and cash equivalent holdings in Cal-Maine’s balance sheet have been relatively high in recent years, as shown in Figure 5. Other financial metrics are shown in Table 1, and financial statements are provided in Appendix 2. Table 1 provides traditional financial accounting ratios and two risk market-based measures: the Altman’s Z score, which predicts a firm’s likelihood of bankruptcy, and a firm’s beta, which measures the risk of a publicly traded firm in a market portfolio according to the Capital Asset Pricing Model (CAPM). Operational risk relates to variability of earnings or cash flows. Figure 6 illustrates how variable Cal-Maine’s gross margins and EPS have been from 2016 to 2021.

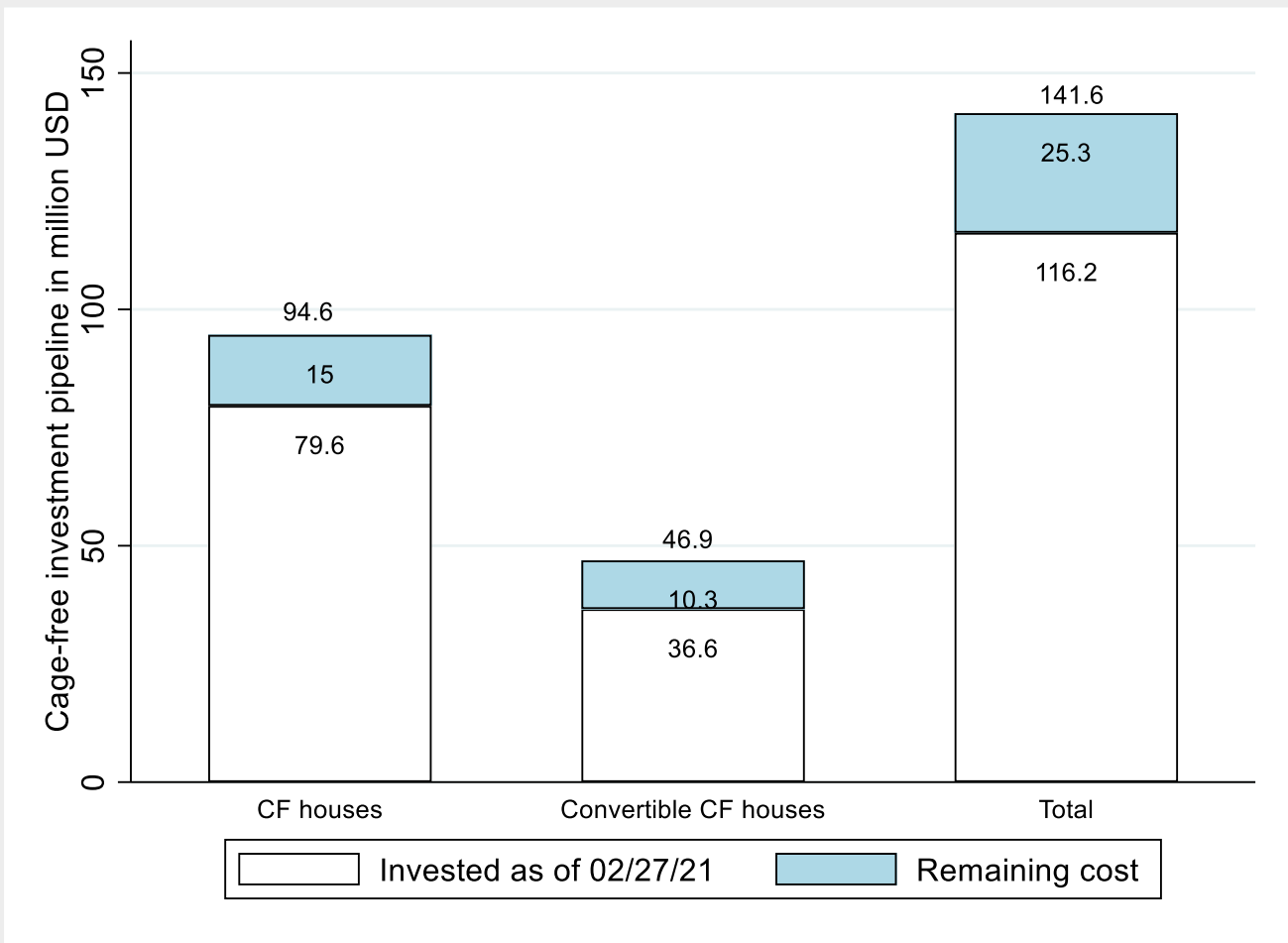


Figure 4. Cal-Maine’s Cage-Free (CF) Layer and Pullet Houses Investments Pipeline for the Current Fiscal Year as of the End of February 2021

Source: Use of capital from Cal-Maine Foods (2020b) and investment pipeline from Cal-Maine Foods (2021a).

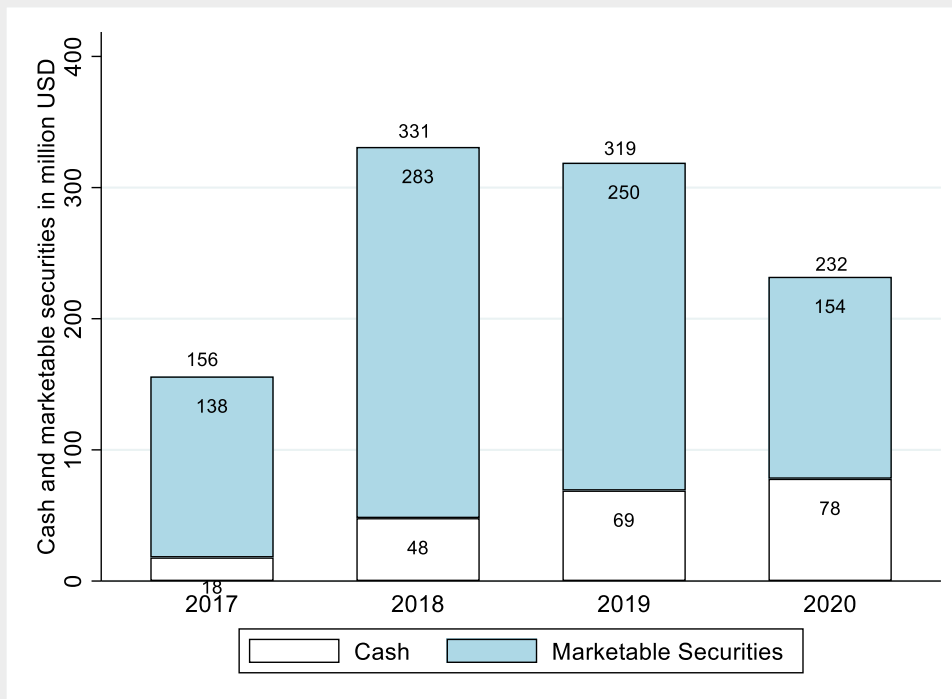


Figure 5. Cal-Maine’s Cash Plus Marketable Securities as of the End of Fiscal Year

Source: Cal-Maine Foods (2020b).

3.3 Financing

Finance theory supports the existence of patterns within firms’ and industries’ capital structures. For example, pharmaceutical firms tend to have less debt in their capital structure than steel manufacturers. Researching new drugs is an inherently risky business. Pharmaceutical giant Merck recently wrote off two potential coronavirus vaccines because they proved to be too ineffective in trials. Yet, Merck has been a successful, experienced vaccine producer in the past. Because it is difficult to know if expensive research would pay off or be discarded, pharmaceutical firms tend to have low to no debt in their capital structure. In contrast, firms operating in industries with large investments in physical capital, particularly equipment that could be tasked to multiple uses, tend to have more debt in the capital structure since this equipment would have value in a bankruptcy sale.

Cal-Maine seems to deviate from what capital structure theory prescribes. The company has historically operated with low debt. Figure 7 compares Cal-Maine’s annual debt to invested capital ratios with median ratios for companies in the health (including pharmaceuticals), steel, food, meals (including restaurants), and retailing (including food stores) industries during the last decade. Further, in late 2019 Cal-Maine retired all its outstanding long-term debt (Cal-Maine Foods 2020a), converting it into one of the few debt-free publicly traded firms in the United States. Under the simplest interpretation of the capital structure theory, this is anomalous. The tax break offered by debt financing, for instance, can be substantial for a firm, depending on current and future income tax rates and firm margin levels. However, as elaborated in section 2, a FRICTO framework analysis can be used to analyze Cal-Maine’s unusual choice of debt structure.

Table 1. Cal-Maine’s Selected Financial Metrics

	2016	2017	2018	2019	2020	Feb. 2021
Profitability						
Return on assets	28.8%	(7.6%)	10.4%	2.6%	0.3%	3.5%
Return on equity	39.2%	(8.4%)	14.0%	5.7%	1.8%	6.8%
Return on capital	34.6%	(9.1%)	12.5%	3.1%	0.4%	4.1%
Margin Analysis						
Gross margin	34.0%	4.2%	24.0%	16.4%	13.5%	16.8%
EBITDA margin	27.0%	(7.6%)	15.7%	7.5%	4.8%	8.6%
EBIT margin	24.6%	(12.1%)	12.1%	3.5%	0.5%	4.5%
Net income margin	16.6%	(6.9%)	8.4%	4.0%	1.4%	4.6%
Asset Turnover						
Total asset turnover	1.9x	1.0x	1.4x	1.2x	1.1x	1.2x
Fixed asset turnover	5.1x	2.5x	3.4x	3.1x	2.7x	2.6x
Short-Term Liquidity						
Current ratio	7.5x	6.7x	5.4x	7.6x	5.6x	5.2x
Quick ratio	5.6x	4.2x	3.9x	5.2x	3.5x	3.1x
Cash conv. cycle	47	66	59	61	60	58
Long-Term Solvency						
Total debt to equity	2.8%	1.3%	0.6%	0.3%	0.3%	0.0%
Long-term debt to equity	1.0%	0.7%	0.3%	0.1%	0.2%	0.0%
Net debt to EBITDA	-0.7x	1.8x	-1.4x	-3.1x	-3.6x	-1.5x
Risk						
Altman Z score	12.6	8.4	9.8	11.0	8.7	8.4
CAPM beta	0.69	0.61	0.53	0.48	0.47	NA

Notes: (1) Financial ratios estimated by authors using financial statements by Standard & Poor’s Net Advantage Capital IQ database (Standard and Poor’s 2021). Ratios are as of the end of Cal-Maine’s fiscal years, ending in May. EBITDA is earnings before interest, taxes, depreciation, and amortization; EBIT is earnings before interest and taxes, and CAPM stands for capital asset pricing model. (2) Firm’s annual betas are the average of daily CAPM betas obtained from Beta Suite by WRDS (WRDS 2021).

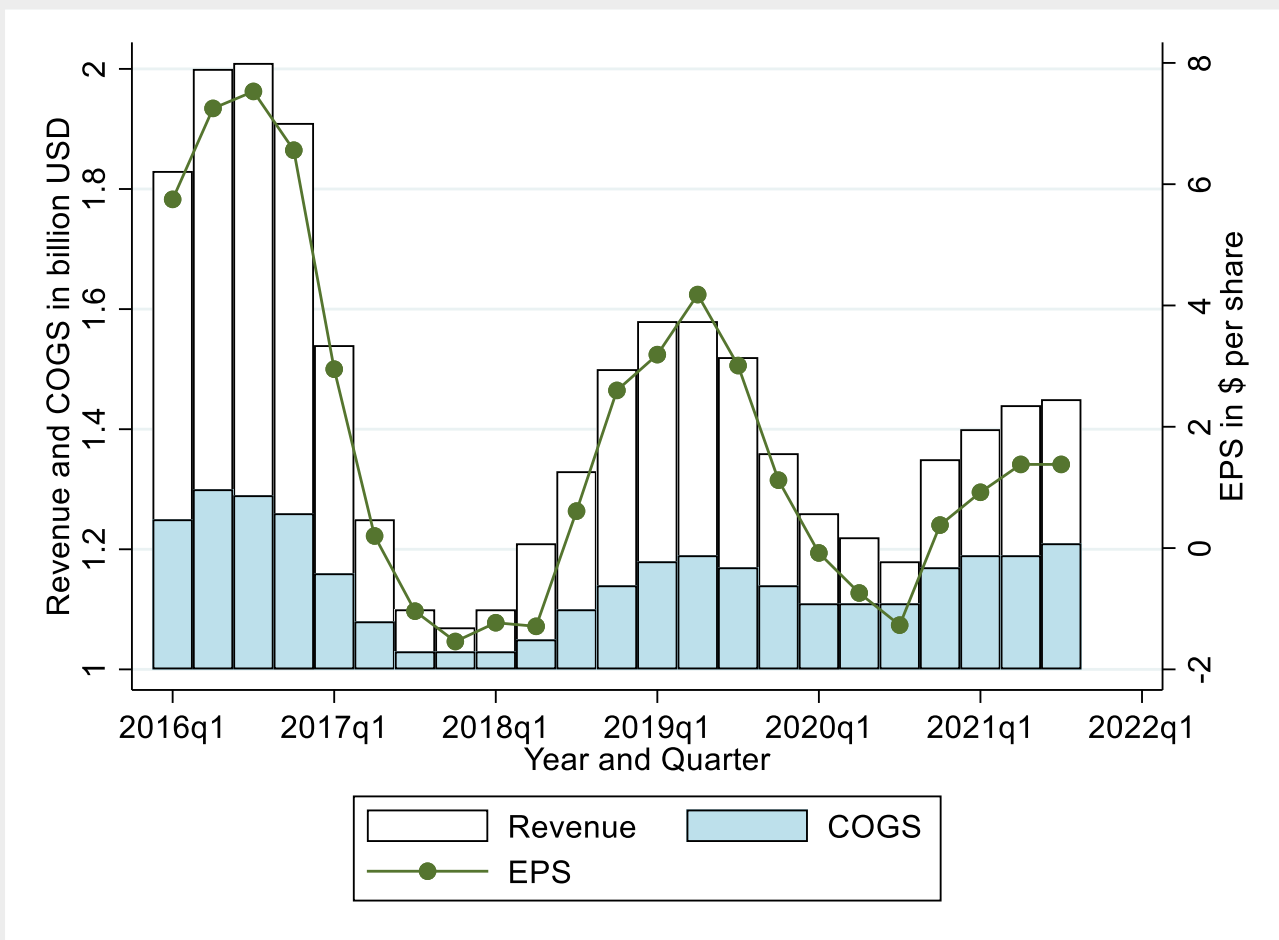


Figure 6. Cal-Maine’s Last Twelve Months Earnings per Share (EPS), Revenue, and Cost of Goods Sold

Notes: Q refers to the quarterly financial statements reported to the Securities and Exchange Commission. The line depicts EPS (in \$, right axis), the white bars show revenue (in \$ billion, left axis), and the blue bars show the cost of goods sold (\$ billion). Source: Standard & Poor’s Net Advantage (Standard and Poor’s 2021). Accessed on May 29, 2021.

3.4 Shareholders and Stock Returns

As of April 2021, Cal-Maine had 46,056,163 shares of common stock and 4,800,000 shares of Class A common stock. One hundred percent of the Class A shares were owned by members of Cal-Maine’s founding family who also owned common stock shares, controlling 57.7 percent of total voting power (Cal-Maine Foods 2021a). As stated in Cal-Maine’s 2021 third quarter 10Q report (Cal-Maine Foods 2021a), management believed that such ownership might discourage certain types of transactions in which the holders of common stock might otherwise receive a premium for their shares over current market prices. Cal-Maine management further recognized in the referred quarterly report that the company’s sale or availability for sale of substantial amounts of common stock could adversely impact its stock price and dilute current owners’ share of the business. The corporation had authorized the issuance of 120,000,000 shares of common stock, with 44,056,163 shares outstanding as of March 29, 2021, meaning that a substantial number of shares could become available for sale in the market (Cal-Maine Foods 2021a). If the company chose to raise capital through offerings of common stock in the future, existing stockholders’ equity interest might be diluted, which might adversely affect Cal-Maine’s stock

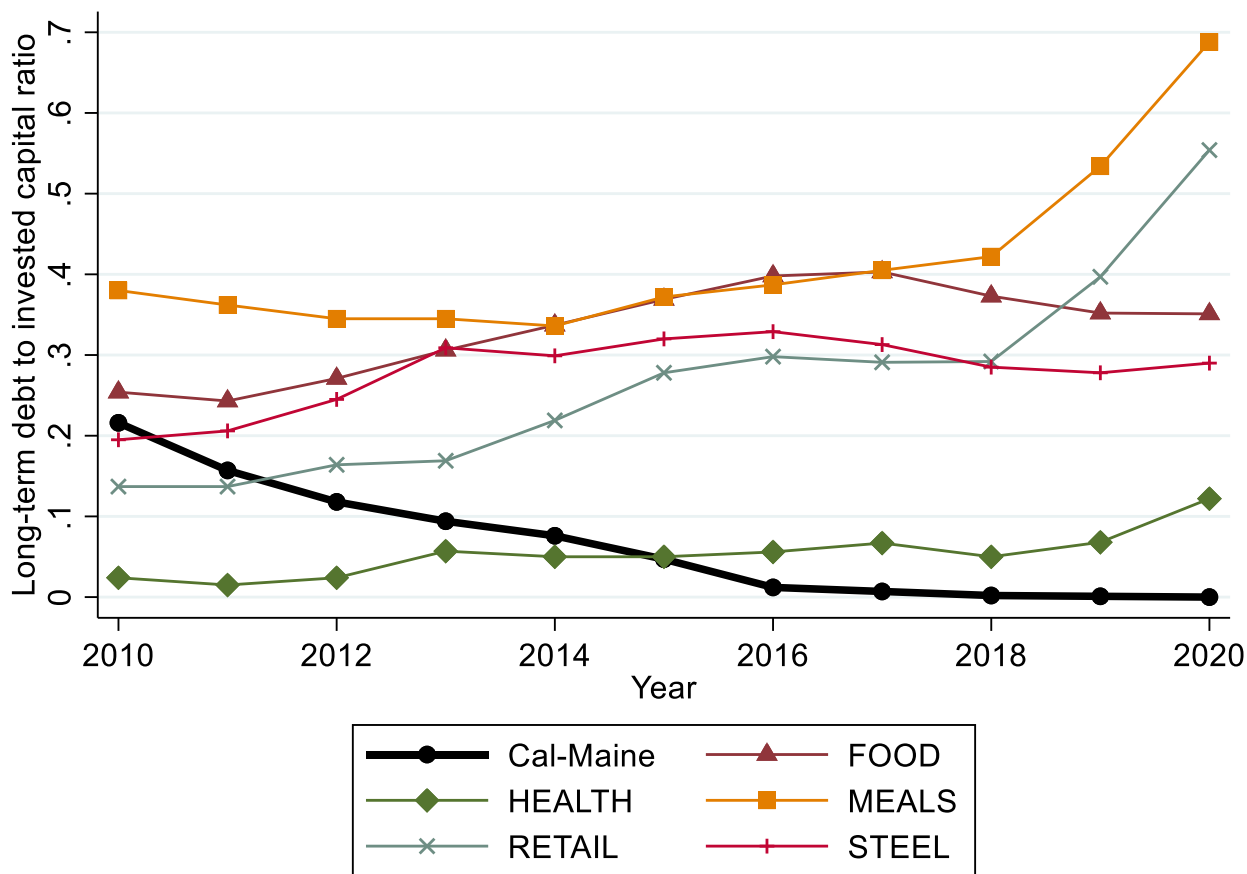


Figure 7. Long-Term Debt to Total Investment Ratios for Cal-Maine and Selected Industries

Notes: Figure 7 shows long-term to total investment (debt plus equity) ratios for Cal-Maine Foods Inc. and median ratios for selected industries, including all publicly traded firms in these U.S. industries, according to Fama and French’s 30 industries classification.

Source: Prepared by authors using data from Financial Ratios Suite by WRDS (WRDS 2021).

prices—but such an effect could not be predicted, according to the firm. Figure 8 shows Cal-Maine’s historical stock prices, and Figure 9 compares Cal-Maine’s stock return performance with stock performance of selected food companies and stock market indices over time (Standard and Poor’s 2021).

3.5 Cash and Dividends

Cal-Maine maintained a relatively high cash level. Cash plus marketable securities represented about 15 percent of total assets as of March 2021, and 23 percent on average between 2016 and 2021. Consistently, Cal-Maine’s net (of cash) debt to the market value of equity as of September 2020 represented a negative 10 percent, compared to a positive 30 percent median for ten comparable agribusiness firms according to Capital IQ’s analysis. Cal-Maine’s cash policy was closely related to its leverage and dividends policies.

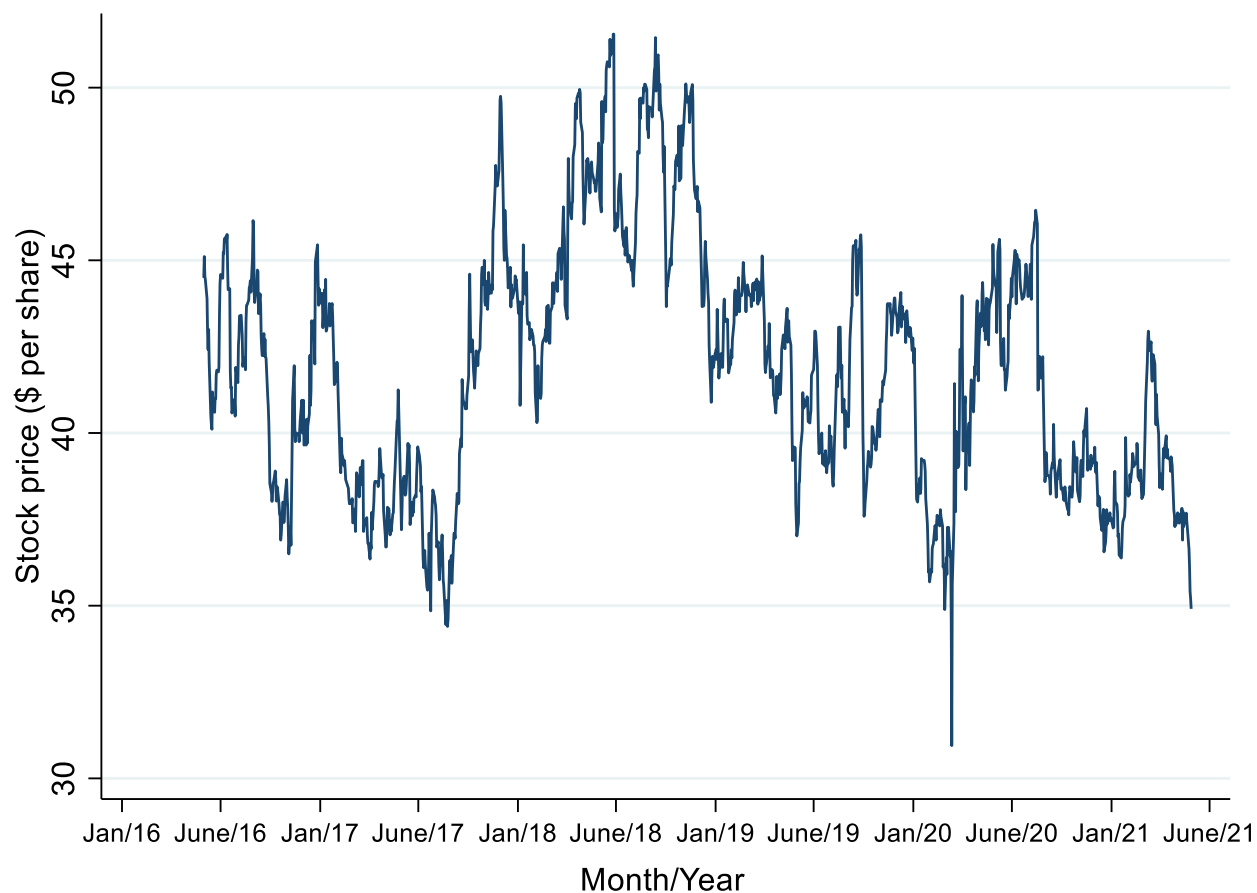


Figure 8. Cal-Maine Foods Inc. Stock Prices (\$ per share)

Source: Standard & Poor's Net Advantage (Standard and Poor's 2021). Accessed on May 29, 2020.

In some respects, Cal-Maine's dividend policy also contradicts finance theory.³ A conservative financial management may explain why a mature firm with relatively high cash would not have a stable-dividend policy. A firm with negative-return⁴ excess cash is expected to return that cash to its shareholders who could earn higher returns on that distribution. Cal-Maine did not pay dividends in 2020 because its dividends policy, tied to reported earnings, precluded the firm from doing so. Specifically, Cal-Maine's dividends policy stated that dividends could only be paid from current earnings, and in a low-earning year, the firm could not pay out a dividend even if it had excess cash on hand.

³ Cal-Maine's variable dividends policy is available at <https://www.calmainefoods.com/investors/dividend-policy/>.

⁴ Cash not needed for operations is considered to be a negative return on investment. Cash is typically invested in short-term safe securities, such as Treasury bills. Treasury securities, because of their low risk earn low returns. Those returns are taxable to the firm, further reducing that return. An investor would prefer that this excess be distributed. The investor could in turn invest in low-risk Treasury securities if desired, and avoid double taxation (firm income tax plus personal income tax) or could invest in higher risk, higher return investments.

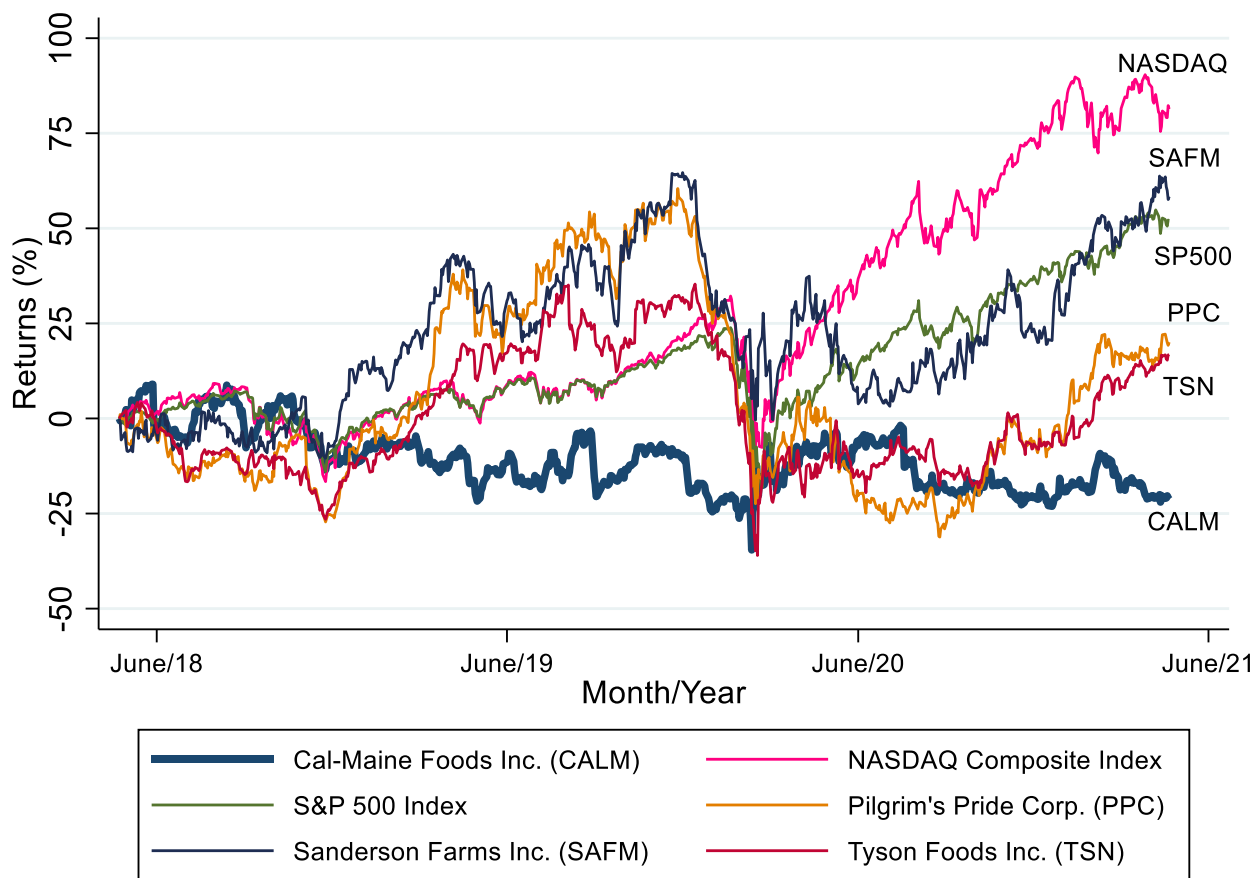


Figure 9. Cal-Maine and Peers Stock Returns

Source: Standard & Poor’s Net Advantage (Standard and Poor’s 2021). Accessed on May 29, 2020.

4 Most Recent Financial Performance: Time for Recapitalization?

In its 2021 third quarter 10Q filing dated March 29, 2021, Cal-Maine reported slightly better financial results compared to the previous year (Table 1, Appendix 2, and Figure 9; Cal-Maine Foods 2021a). While the COVID-19 lockdown negatively affected small egg producers, Cal-Maine’s large scale provided the firm flexibility and resources to efficiently reach retail stores’ high demand and high prices, as Cal-Maine’s CEO commented (King 2020a). However, during the weeks that followed the 10Q report, Cal-Maine stock prices declined to about \$35 per share by the end of May 2021 (Figure 8). With some exceptions, that is, the beginning of the current pandemic, this stock price was well below previous Cal-Maine’s stock price levels since 2017. Some financial analysts covering Cal-Maine were not very enthusiastic about the firm’s equity prospects (New Constructs 2021a; Reuters 2021; SADIF 2021; ValuEngine 2021). Figure 10 provides financial analysts’ monthly recommendations to investors regarding trading on Cal-Maine’s equity from 2016 to 2021. Perhaps it was time to recapitalize Cal-Maine’s balance sheet now that stock prices were low—which meant the firm could buy back shares at lower prices?

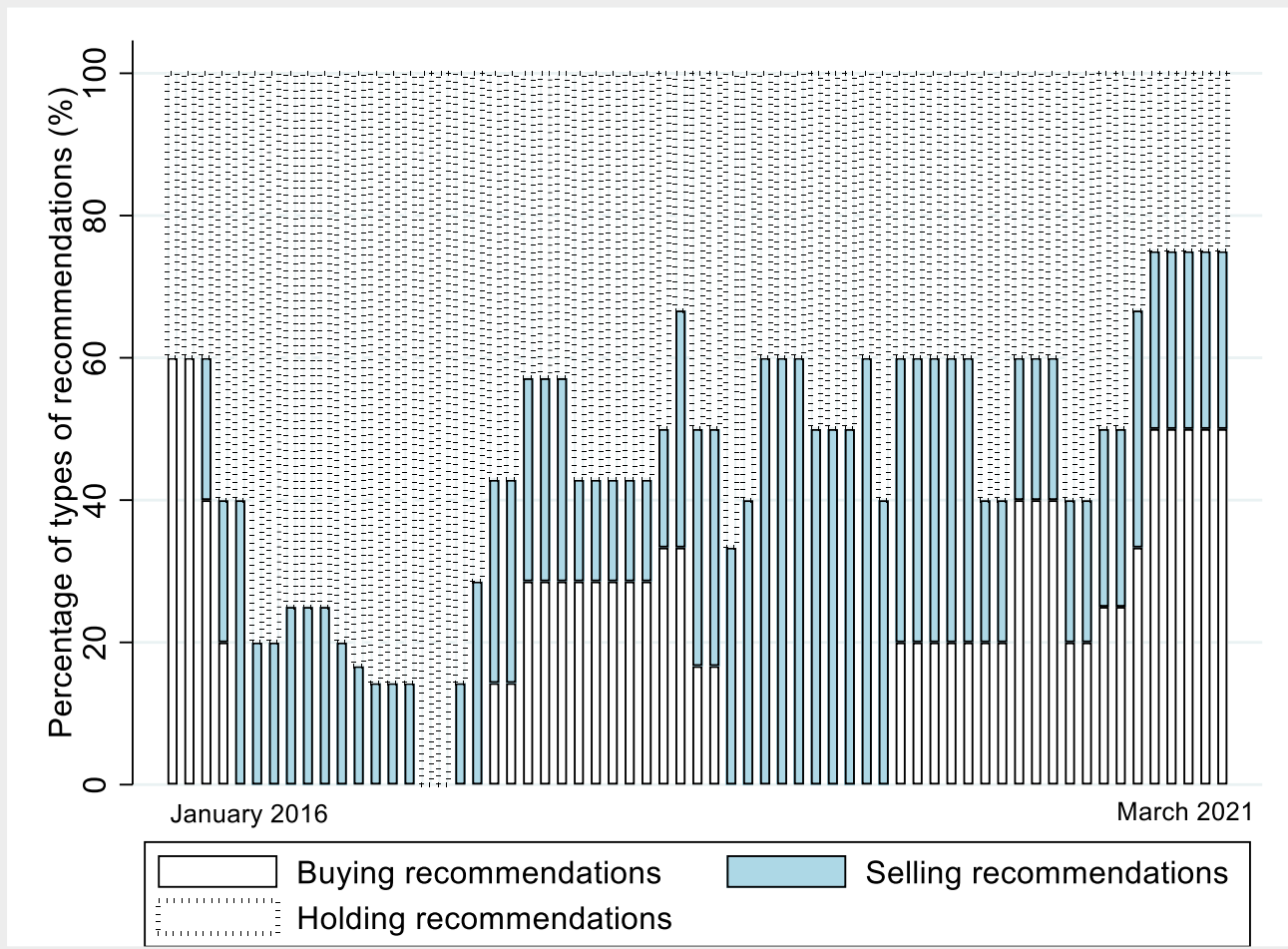


Figure 10. Analysts' Stock Trading Recommendations for Cal-Maine's Equity

Notes: Buy percent, sell percent, and hold percent represent the percentage of monthly recommendations by analysts to investors regarding Cal-Maine's equity.
 Source: IBES Consensus Recommendations, obtained from the WRDS database.

Table 2 presents the most current financial figures reported by Cal-Maine⁵ and proforma restatements under alternative capital structure scenarios assuming 30 percent and 50 percent debt to capital ratios.⁶ The potential recapitalization scenarios assume that Cal-Maine issues debt and uses the proceeds plus some excess cash to repurchase stocks at the prevailing price as of the end of May 2021, at \$35. Each scenario yields differing expected earnings per share (details on the proforma statements are provided in Table 2 in the next section).

5 Discussion Questions

A FRICTO-based analysis may help to explain Cal-Maine's very-low historical capital structure policy. The analysis may also provide insights on how likely this firm is to keep its debt policy unchanged or change it (i.e., acquire significant debt) in the foreseeable future given the current industry and financial market conditions. Below we suggest a list of questions that should guide a systematic FRICTO analysis. The

⁵ These financial figures were reported by Cal-Maine as of February 2021, the most current financial data available at the time this case study was prepared. Instructors using this case are recommended to ask students to calculate an alternative scenario, say 70 percent debt to capital ratio (refer to suggested discussion questions).

⁶ These scenarios are only potential scenarios provided as examples to evaluate their potential effects on Cal-Maine's value.

qualitative-based question can be responded by assessing whether each FRICTO element justifies a low, moderate, or high capital structure for Cal-Maine. This case study provides enough information for this assessment. For instance, section 3.2 in this case discussed historical and prospective investing, financial performance, and risk factors affecting Cal-Maine. This discussion could be related to the flexibility, income, and risk components of FRICTO, and an assessment could be provided. Similarly, section 3.4 of the case discusses issues related to control. The quantitative-based question is broken down in specific questions linking standalone FRICTO components. Some of these questions (i.e., those related to tax savings and EPS) rely on proforma restatement metrics of Cal-Maine alternative capital structures (Table 2). Other questions could be addressed by conducting financial statements and ratio analysis or other topics typically covered in finance courses, such as the weighted average cost of capital.

1. Using the financial statement and ratios given in the case, discuss Cal-Maine's financial strengths and weaknesses.
2. Perform a qualitative FRICTO analysis on Cal-Maine.
3. Perform a quantitative FRICTO analysis on Cal-Maine, which could include the following:
 - 3.1. Recalculate all financial metrics provided in Table 2 by adding an alternative debt to capital ratio scenario = 70 percent. Use the same assumptions stated in Table 2 except for interest rate, which would equal 3.50 percent (i.e., interest rates would grow from 2.25 percent in the 50 percent scenario to 3.50 percent in the 70 percent scenario).
 - 3.2. Discuss the tax benefits from higher debt (Income element of FRICTO).
 - 3.3. Discuss earnings per share under various levels of debt (Income element of FRICTO).
 - 3.4. Discuss potential cash needs, for future acquisitions and expansion, if Cal-Maine continues its past policies at the same pace (Flexibility element of FRICTO).
 - 3.5. Estimate changes in beta if Cal-Maine acquires more debt. Discuss how this might impact the firm's risk and weighted average cost of capital (WACC) under various levels of debt (Risk element of FRICTO).
 - 3.6. Assess the variability in Cal-Maine's income (Risk element of FRICTO).
 - 3.7. What impact would restructuring have on shareholder's control? (Control element of FRICTO).
 - 3.8. At the time of the case study, is the stock market (and Cal-Maine's specific stock price) relatively high or low? Are debt costs relatively high or low (Timing element of FRICTO)?
4. Based on the qualitative and quantitative analysis, briefly discuss what capital mix is most appropriate for Cal-Maine.

Table 2. Actual Figures as of the End of February 2021 and Proforma Restatements for Cal-Maine's Alternative Capital Structures (\$ Million Except Indicated Otherwise)

	Actual Feb. 2021	Proforma restatements Feb. 2021 for:	
Capital structure (debt to capital ratio)	0%	30%	50%
Revenue	1,452.5	1,452.5	1,452.5
EBIT ¹	64.9	63.8	63.8
Interest ²	-12.0	5.7	10.8
Other	-2.8	-2.8	-2.8
Profit before taxes	79.8	60.9	55.9
Income taxes ³	13.0	9.9	9.1
Profit after taxes	66.8	51.0	46.8
Common shares outstanding ⁴	48.86	38.94	33.48
Earnings per share	1.37	1.31	1.40
Interest coverage (EBIT to interest)	-5.4	11.1	5.9
Cash and equivalents ⁵	180.7	120.7	120.7
Total debt	0.0	286.9	478.2
Equity	1,016.4	669.5	478.2
Common stock price	35.0	-	-
Average market value of common stock	1,710.0	-	-
Excess cash		60.0	60.0
New debt ⁶		286.9	478.2
Repurchase		346.9	538.2
Reduction in common shares		9.91	15.38
Interest rates for recapitalization		2.00%	2.25%

¹ EBIT declines in proforma results due to interest income foregone from the \$60 million "excess" cash used to buyback shares (the difference between actual cash balance minus assumed cash balance at 10 percent of total assets). The decline in interest income is assumed to occur at 1.88 percent, the interest yield reported by Cal-Maine in its February 10Q financial report.

² Interest expenses depend on debt levels and varying interest rates for recapitalization. Interest rates are assumed to vary across capital structure scenarios, consistent with the expectation that debt increases interest rates given that higher debt implies higher financial risk. Thus, assumed interest rates are 2.00 percent (for the 30 percent capital structure scenario) and 2.25 percent (for 50 percent capital structure) before taxes.

³ The assumed income tax rate = 16.3 percent, Cal-Maine's effective tax rate in its most current financial report as of the end of February 2021.

⁴ Common shares outstanding, in millions, across capital structures, equals actual common shares minus "reduction in common shares."

⁵ Excess cash and cash equivalents is estimated by subtracting target cash and equivalents to actual cash and equivalents. Target cash and equivalents is assumed to be 10 percent of total assets.

⁶ New debt is added to the balance sheet in the proforma results by issuing an amount of debt that achieves the capital structure target (e.g., 30 percent and 50 percent scenarios) and using the debt proceeds to repurchase common stock. Thus, repurchase equals excess cash plus new debt. New debt (D_1) is calculated by solving: $T^* = \frac{D_1 + D_0}{D_0 + E_0 - EC_0}$, where T^* is the target capital structure (debt to capital), D_0 is actual debt, E_0 is actual equity, and EC_0 is actual excess cash returned to investors via the repurchase program. In other words, target capital structure is total debt after recapitalization divided by the book value of capital after recapitalization.

About the Authors: Carlos J.O. Trejo-Pech is an Assistant Professor in the Agricultural & Resource Economics Department at the University of Tennessee (Corresponding author: ctrejope@utk.edu). Susan White is a Clinical Professor in the Robert H. Smith School of Business at the University of Maryland.

Acknowledgements: this work was partially supported by the USDA National Institute of Food and Agriculture, Hatch Multi-State project 1020537.

References

- Bruner, R. 2004. *Applied Mergers and Acquisitions*. Rochester NY: Wiley Finance. <https://papers.ssrn.com/abstract=306750>.
- Cal-Maine Foods. 2020a. "Form 10-K Reported on July 20, 2020 by Cal-Maine Foods, Inc. to the Securities and Exchange Commission." *The US Securities and Exchange Commission*, July. <http://www.calmainefoods.com/investors/sec-filings/>.
- Cal-Maine Foods. 2020b. "Investor Presentation Cal-Maine Foods." Cal-Maine Foods' Website, Investors Section, August. https://www.calmainefoods.com/media/1173/investor_presentation_nov-2020.pdf.
- Cal-Maine Foods. 2021a. "Form 10-K Reported on February 27, 2021 by Cal-Maine Foods, Inc. to the Securities and Exchange Commission." *The US Securities and Exchange Commission*, February. <http://www.calmainefoods.com/investors/sec-filings/>.
- Cal-Maine Foods. 2021b. "Cal-Maine Foods Inc.: Growth Strategy & Acquisitions." Cal-Maine Foods' Website, Investors Section, May 29. <https://www.calmainefoods.com/investors/growth-strategy-acquisitions/>.
- Graham, J.R., and C. Harvey. 2001. "The Theory and Practice of Corporate Finance: Evidence from the Field." *Journal of Financial Economics* 60(2001):187–243.
- IBISWorld. 2021. "Farm Fresh: Revenue Is Projected to Rise in Line with per Capita Egg Consumption and Egg Prices." 11231. IBISWorld Industry Report. <http://tinyurl.com/yb5aa6do>.
- Kester, G., and S. Hoover. 2005. "FRICTO Analysis: A Framework for Making Capital Structure and Financing Decisions." *Journal of Financial Education* 31:61–68.
- King, D. 2020a. "CFO of Cal-Maine Addresses Egg Market during COVID-19." *Egg Industry*, no. May 2020:10–13.
- King, D. 2020b. "Covid-19 Impacts Cage-Free Transition, Egg Industry (May 6, 2020)." *WATTPoultry.com*. <https://www.wattagnet.com/articles/40252-video-covid-19-impacts-cage-free-transition-egg-industry>.
- Markets Insider. 2017. "Cage-Free Egg Pledges Yielding to Market Reality Cage-Free Egg Pledges Yielding to Market Reality." <https://markets.businessinsider.com/news/stocks/cage-free-egg-pledges-yielding-to-market-reality-1011562632>.
- New Constructs. 2021a. "Cal-Maine Foods Inc. (CALM)." *Business Insights: Essentials*, no. 1–6, April.
- New Constructs. 2021b. "Cal-Maine Foods Inc.: Credit Rating." *Business Insights: Essentials*, no. 1–6, April.
- O'Keefe, T. 2020. "Ranking the Largest US Egg-Producing Companies in 2020." *Egg Industry* 125 (2):6–13.
- O'Keefe, T. 2021a. "2021 Survey: Cage-Free Conversions Slowing Down." *Poultry International* 60 (3):10–13.
- O'Keefe, T. 2021b. "Ranking the Largest US Egg-Producing Companies in 2021." *Poultry International* 60(3):16–21.
- Reuters. 2021. "Cal-Maine Foods Inc. (CALM). Reuters Investment Profile." *Business Insights: Essentials*, no. 1–12, April.
- SADIF. 2021. "Is There Long-Term Value in Cal-Maine Foods Inc.?" *Business Insights: Essentials*, no. 1–12, January.
- Sihler, W.W. 1971. "Framework for Final Decisions." *Harvard Business Review*.
- Standard and Poor's. 2021. "Standard and Poor's Net Advantage." Standard and Poor's Capital IQ. S&P Global Market Intelligence, May. www.capitaliq.com.
- Trejo-Pech, C., and S. White. 2020. "Capital Budgeting Analysis of a Vertically Integrated Egg Firm: Conventional and Cage-Free Egg Production." *Applied Economics Teaching Resources* 2(4):34–46.

- Trejo-Pech, C., and S. White. 2021. "Cal-Maine Foods, Inc.: Stock Price Estimation in the Midst of Pandemic." *International Food and Agribusiness Management Review*, 24(5):887-900. <https://doi.org/10.22434/IFAMR2020.0182>.
- ValuEngine. 2021. "ValuEngine Rating and Forecast Report for CALM." *Business Insights: Essentials*, no. 1–11, March.
- Wong, V. 2017. "Egg Makers Are Freaked Out by the Cage-Free Future." CNBC, March 22. <https://www.cnbc.com/2017/03/22/egg-makers-are-freaked-out-by-the-cage-free-future.html>.
- WRDS. 2021. "Wharton Research Data Services (WRDS). The Global Standard for Business Research." Wharton Research Data Services. CRSP Module, May. <https://wrds-www.wharton.upenn.edu/>.

4(1) doi: 10.22004/ag.econ.320048

©2022 All Authors. Copyright is governed under Creative Commons BY-NC-SA 4.0 (<https://creativecommons.org/licenses/by-nc-sa/4.0/>). Articles may be reproduced or electronically distributed as long as attribution to the authors, Applied Economics Teaching Resources and the Agricultural & Applied Economics Association is maintained. Applied Economics Teaching Resources submissions and other information can be found at: <https://www.aaea.org/publications/applied-economics-teaching-resources>.

Appendix

Appendix 1. Questions and Analytical Tools to Consider for Capital Structure Decisions under FRICTO

Element	Questions to Ask	Analytical Tools
Flexibility	What are the company's future financing needs? Is this a stable, low growth company? Does the firm anticipate making high dollar purchases, like acquiring another company? Is management in this firm unsure about the firm's future?	Ratio and financial statement analysis. Main ratios are leverage ratios, including times interest earned, debt/equity ratio, return on equity, and current ratio.
Risk	What is the company's and industry's risk of bankruptcy? Does the company have a higher portion of tangible or intangible assets? It is a high growth or mature firm? Are cash flows stable or unpredictable? Heavy capital expenditures? Is the firm profitable overall when compared to companies in the same industry?	EBIT/EPS analysis (calculating EPS at various levels of debt and equity financing to determine which financing strategy provides the highest EPS). Variability of earnings (calculating standard deviation of earnings as a measure of total risk) and beta with and without increased debt as a measure of market risk.
Income	What financing strategy provides the highest income per shareholder?	Ratio analysis, for example calculating return on equity, profit margin, and other profitability ratios.
Control	Will issuing equity cause a potential control problem? Is this a closely held company, where management owns a large portion of the stock, and is unwilling to give up control? Or, are shareholders diverse, so a new equity issue is less likely to shift control?	Calculate dilution (percentage ownership decline) if new equity is issued.
Timing	Are stock prices and interest rates high or low? What signal will be sent by issuing debt or equity?	Determine economic conditions at the time of the proposed issuance and view future stock market and interest rate projected trends.
Other	Are there any other factors not covered in the above elements? Is management unusually risk averse? Does the firm want to maintain a given bond rating? Is the firm closely held and the owner is concerned about the impact of financing on the liquidity of the firm?	Evaluated on a case-by-case basis depending on the characteristics of the firm being analyzed.

Source: Notes by authors, summarized from Kester and Hoover (2005) and Sihler (1971).

Appendix 2. Cal-Maine’s Selected Financial Statement Items (\$ million)

Financial Item	2016	2017	2018	2019	2020	Feb. 2021
Revenue	1,908.7	1,074.5	1,502.9	1,361.2	1,351.6	1,452.5
Cost of goods sold	1,260.6	1,029.0	1,141.9	1,138.3	1,169.1	1,208.3
Selling, gral. and adm. expenses	177.8	176.0	179.3	174.8	176.2	179.3
Operating income (EBIT)	470.3	(130.5)	181.7	48.1	6.3	64.9
Net interest (expenses) gains	10.1	10.5	11.7	17.8	14.6	12.0
Net income	316.0	(74.3)	125.9	54.2	18.4	66.8
Cash and short-term investments	389.5	156.0	331.0	319.4	232.3	180.7
Receivables	79.3	117.2	85.8	71.8	98.4	130.3
Inventory	154.8	160.7	168.6	172.2	187.2	207.7
Total current assets	626.3	436.2	587.5	567.8	522.3	522.9
Net property, plant, and equipment	392.3	458.2	425.4	456.3	560.6	587.9
Other long-term assets	93.2	138.7	137.5	132.2	123.9	120.5
Total assets	1,111.8	1,033.1	1,150.4	1,156.3	1,206.7	1,231.3
Accounts payable	36.3	30.6	37.8	39.2	55.9	99.9
Current portion of LT debt	16.3	4.8	3.5	1.5	0.0	0.0
Other current liabilities	30.9	29.2	66.5	34.2	37.3	1.0
Total current liabilities	83.5	64.7	107.8	74.9	93.2	100.8
Long-term debt	9.3	6.1	1.2	0.0	0.0	0.0
Other non-current liabilities	101.7	117.8	85.7	91.6	103.8	114.0
Total liabilities	194.4	188.6	194.8	166.5	197.0	214.8
Total equity	917.4	844.5	955.7	989.8	1,009.7	1,016.4
Depreciation & amortization	44.6	49.1	54.0	54.7	58.1	59.6
Change in accounts receivable	21.2	(37.2)	31.4	16.0	(28.3)	(28.3)
Change in inventories	(8.5)	2.4	(8.0)	(2.3)	(9.7)	(9.7)
Change in accounts payable	(8.5)	(9.5)	28.4	(14.3)	17.7	17.7
Cash from operating activities	388.4	(45.9)	200.4	115.1	73.6	124.8
Capital expenditure	(76.1)	(66.7)	(19.7)	(68.0)	(124.2)	(103.4)
Sale of property, plant, and equipment	2.9	0.1	1.0	1.6	3.3	4.7
Cash acquisitions	0.0	(85.8)	0.0	(17.9)	(44.7)	(0.1)
Cash from investing activities	(219.1)	52.7	(163.9)	(47.8)	(61.4)	(138.6)
Total debt issued	0.0	0.0	0.0	0.0	0.0	0.0
Total debt repaid	(25.3)	(16.5)	(4.8)	(3.8)	(1.7)	(0.2)
Repurchase of common stock	(1.8)	(1.7)	(1.1)	(1.0)	(0.9)	(0.9)
Common dividends paid	(120.9)	0.0	0.0	(41.7)	0.0	0.0
Cash from financing activities	(148.9)	(18.3)	(5.7)	(46.5)	(3.4)	(1.1)
Net change in cash	20.4	(11.5)	30.9	20.8	8.9	(14.8)

Source: Standard & Poor’s Net Advantage Capital IQ database (Standard and Poor’s 2021)