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The valuation of Kinh Do Corporation using Discounted Cash Flow method

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Abstract

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This Bachelor's thesis presents a guide on how to value a company using the discounted cash flow method with a case study of Kinh Do Corporation (KDC). The main objective is to give readers a walk-through of how a valuation model is commonly done within the field of finance.

The first part of this thesis provides information on the research background, key concepts behind valuation and introduction to the case study company KDC. Next, the theoretical framework goes deeper into the theories of investment valuation and discounted cash flow method, with a detailed explanation of free cash flow to firm. The last part is the applied valuation model created for KDC. The structure of the valuation follows that of the theoretical framework.

There are many methodologies of valuation introduced in this thesis. However, the main focus is on the discounted cash flow method because it is one of the most widely-used methods by analysts, banks and investments institutions. The thesis primarily concentrates on free cash flow to firm techniques for the purpose of the case study which aims to estimate the enterprise value of KDC. The final outcome concerning KDC is then further investigated in a sensitivity analysis and benchmarked with the price offer made by Mondelēz International at the end of 2014.

The results show that the value of KDC is actually lower than what it is valued by the market and by Mondelēz International. Mondelēz International acquired only 80% of KDC's snacks operations but it paid out a price that is much higher than the value of KDC as a whole. If the valuation is correct, it is fair to say that KDC was over-priced. The decision to pay such a high price for only 80% of the snacks business which contributed more than 50% to KDC revenue could be one of Mondelēz International's long-term strategic plans. It is for certain that Mondelēz International would substantially benefit from KDC's already established consumer base, distribution channels, retail network as well as pre-existing manufacturing infrastructure.

Keywords
Corporate finance, investment valuation, valuation, discounted cash flow, free cash flow to firm, enterprise value, multiples valuation.

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1 Introduction

This thesis aims to explore the theories of investment valuation, specifically on how to determine a company's value using discounted cash flow method. Theories and main concepts related to the topic are thoroughly explained in the theoretical framework. After that, a case study of valuing a real-life company is conducted applying these concepts. The final product of this thesis is a compact guide on discounted cash flow valuation which will be very beneficial for anyone who are interested in the field of corporate finance.

This first chapter explains research background of the thesis: reasons for choosing the topic and expected outcome. After that, an introduction to main concepts, scope of studies and case study company is provided to help readers form a general view of what is covered in this thesis. Last, a brief explanation of what benefits the readers can anticipate is presented.

1.1 Research background

In early November 2014, Mondelēz International announced the acquisition of 80% stake of Kinh Do group's snacks business for a total spending of $370 million. This is one of the biggest cross-border acquisitions happened in recent years in Vietnam (Abdulla, H. 2014). Tim Cofer, Executive Vice President and President, Asia Pacific and Eastern Europe, Middle East & Africa for Mondelēz International, stated that the investment in Kinh Do is a perfect fit for the company's vision and strategy in Asia. Through Kinh Do's long established customer base and distribution channels, Mondelēz International expected to be able to reinforce its core business segment in snacks as well as to expand its business to other neighboring markets such as Thailand, Malaysia, the Philippines and China.

As the topic being the most interested among investors and businesses in Vietnam and worldwide, this thesis is to create a guide on how to value a company using discounted cash flow method with the case study of Kinh Do. The final result of the case study is then compared with the price of the acquisition deal that Mondelēz International has paid in order to investigate if Kinh Do was under- or over-valued.

1.2 Introduction to case study company

Kinh Do Corporation (KDC) was founded in 1993 in Ho Chi Minh city, Vietnam. Over 22 years, Kinh Do has come a long way to be the largest confectionary company in Vietnam. The company has a leading position in various food segments such as biscuits, buns,

cakes, moon cakes, ice cream, snacks and chocolates with nationally well-known brands like AFC, Cosy, Moon Cake, Solite, Scotti, Merino, Celano, etc.

KDC's business model has continually evolved over the last 22 years. Traditionally, its model was strategized upon pricing power and scale i.e., the group was able to gained competitive advantage with just producing mass amount with lower price levels. As the market developed rapidly, consumer choice was no longer driven by product availability and low price. Consumers are now demanding products with quality and complexity to satisfy their needs. In addition to the market development, various entrants had entered the scene with new and innovative products, making it one of the most competitive industries in Vietnam. Due to this context, KDC has included Value Creation in its pre-existing business model, which focuses on investing and developing new brands, marketing strategies and distribution. This new strategy has allowed KDC to obtain its competitiveness and leading position in the industry (KDC annual report 2015, 22).

As of now, KDC has achieved an extensive network of stakeholders both locally and globally with over 2100 employees in manufacturing and distribution, 200 suppliers from all over the world along with more than 215 distributors and 90,000 retailers in order to reach to over 50 million Vietnamese consumers. In 2015, KDC has published its new strategy going forward is to prepare for the new phase of growth after the profitable period 2010-2014 by penetrating into less prominent market position, streamlining processes and focusing on new investments (KDC annual report 2015, 24).

1.3 Scope of the thesis

The topic of this thesis falls into the area of corporate finance, specifically in mergers and acquisitions. There are various aspects to mergers and acquisitions, however, the thesis mainly focuses on the valuation analysis of the target firm. In addition, the method chosen to perform the valuation is discounted cash flow and so other valuation methods will be briefly explained but not covered in details. The scope of the thesis is illustrated in figure 1 below in which the areas covered are highlighted in orange.

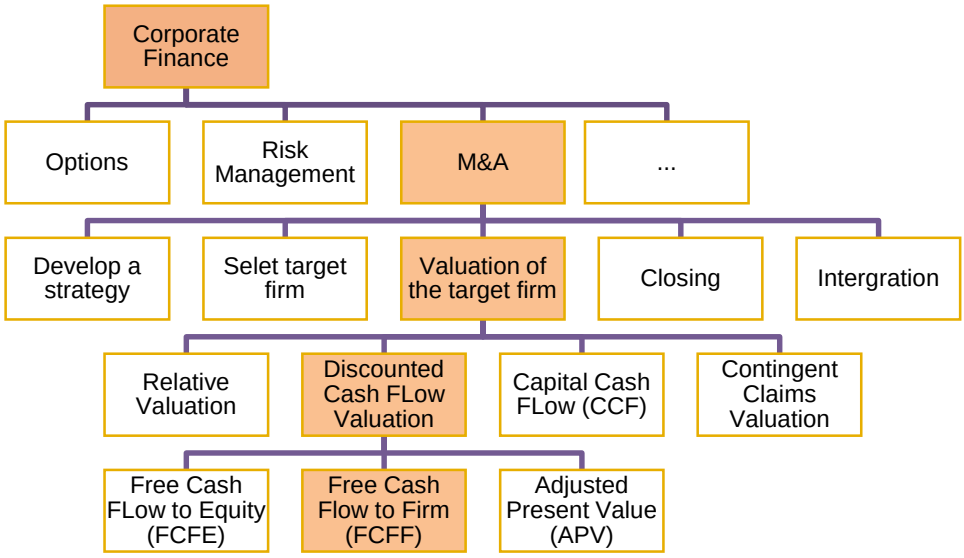

Figure 1. Thesis demarcation

1.4 International Aspect

Mergers and Acquisitions has become one of the most common modes of entry in international markets due to the fact that acquirers can have access to local knowledge, distribution channels, established brand names and customer base (Hollensen 2012, 271). Valuation of a target company is undeniably the most vital stage in any M&A activities, especially cross-border M&A due to its high risk nature. In this thesis, an analysis on the valuation of a large-sized Vietnamese confectionery company whose 80% of the snacks segment was acquired by Mondelēz International – an American multinational firm at the end of year 2014 is provided. As the company being valued is operating in a developing country, some aspects explained can be useful for companies or investors who intend to penetrate in developing markets.

1.5 Anticipated Benefits

The thesis benefits greatly any readers who are interested in corporate finance, specifically in valuation. The outcome of this thesis can be utilized as a compact guide on how to estimate a company's value using the discounted cash flow methods. It provides not only the main theories related to valuation but also an applied valuation model of the study

company – Kinh Do Corporation. Such valuation models are used by many analysts, investment firms or institutions on a highly detailed level in order to determine the value of an enterprise for investing purposes, M&A or buyout. Having complete understanding about valuation is definitely necessary for any person who intends to study further or have a career in the field. The model presented in this report will give you an explicit overview of how an enterprise valuation is normally done.

For the author, the topic had challenged her reasoning and analytical abilities in finance as well as immensely improved those skills. It had given her the opportunity to explore corporate finance in a more comprehensive and thorough manner, strengthened her knowledge and interest in the field. The thesis can be very beneficial for future studies, research or personal career development.

1.6 Key Concepts

Investment Valuation is a tool that every investor uses to reach the decision on when to purchase or sell an investment. An investment can come in many forms such as a real-estate property, a publicly-traded stock or even a company; whether it is tangible or intangible, every asset has its own value. According to Damodaran (2012, 3), a successful investor is the one who not only recognizes the value of an asset but also fully understand what generates and drives that value.

Discounted Cash Flow Valuation is one of many common methods used to evaluate an investment. Contrast to many other valuation models, discounted cash flow analysis applies an intrinsic valuation methodology to determine the value of a firm, that is it closely examines the business operation and historical performance of a firm to estimate how much cash flow the firm can generate in the future. The total sum of the present value of these cash flows is the value of the firm.

1.7 Risk Analysis

Financial data is the key input for this research. Since the case company is public-trading companies, information should not be difficult to be collected once it is available. One major risk regarding this matter is the fact a full valuation on highly detailed level requires data that can only be available through purchased professional platforms. However, for the purpose of this thesis, information that is publicly available should be adequate.

Another risk concerning this thesis is the relevance of the results being heavily affected by the firm's performance as well as the whole market. The analysis presented in this thesis

was performed with available information at the time. Once new information, firm-specific or market-wide, is revealed; the value obtained in this research might not be relevant. Financial data is constantly flowing and changing, therefore any valuation on any asset becomes outdated rapidly and has to be updated to take into consideration the latest information (Damodaran 2012, 3).

2 Investment Valuation

Every asset, tangible or intangible, holds a value and successful investors are those who can estimate the true value of these assets. Many argue that the value of an asset is irrelevant as long as there are other “fools” willing to pay the price. However, it might only be true when investors purchase assets for aesthetic or emotional reasons. Financial investors only buy for the assets will bring higher cash inflows in the future. (Damodaran 2012, 3.)

Any asset can be valued. Though, the valuation of different asset might vary as each asset requires different information and approach. To come up with a true value, it is important that the valuation is objective and unbiased. This is easier said than done because it is unlikely to go through a valuation without having any bias, given that we are exposed to various public information, external analyses and opinions. There are two ways to produce an impartial valuation. The first is to avoid being affected by public opinions on the value of the firm before the final result. The second is to maintain neutral position by disregarding any personal interest in whether the firm is over- or under-valued, prior to the valuation. (Damodaran 2012, 3.)

Valuation has an extremely vital part in acquisition analysis. The price of the target firm is set through negotiations between the bidding firm and the target firm. Prior to the final decision, the bidding firm has to put forth a fair value for the target firm to consider; and so does the target firm. It also has to self-evaluate and come up a reasonable value that could help answer the question on whether to accept or turn down the offer of the bidding firm. (Damodaran 2012, 3.)

There is a variety of models that analysts use to value an asset. These models offer different assumptions about pricing but they share some common characteristics which can be classified in broader terms. In general terms, there are three approaches to valuation: discounted contingent claim valuation, relative valuation, and discounted cash flow valuation. (Damodaran 2012, 11.)

Relative valuation is another direct approach that uses multiples such as price-to-earnings, price-to-book value, etc. to value a firm. These multiples are assumed based on the pricing of similar companies in the same industry. A company that is comparable to the

one being valued must be closely resembled in expected growth and risk. Scale is another factor that needs to be considered in selecting comparables as company size does have a significant impact on its value. However, true comparables are not always available because firms may differ from the valued firm in growth cycles even though they are in the same industry. In this case, the analysis of precedent transactions which comparable firms and the valued ones have made might be used to figure out the multiples needed for valuation. The most commonly used multiple is the price-to-earnings ratio (P/E). The ration is calculated by dividing the share price of a comparable company by its earnings per share (EPS). The result will then multiply with the EPS of the company being value to get its share price. (Arzac 2005, 63)

Contingent claim valuation is an application of option pricing model to value assets with characteristics of an option (Damodaran 2012, 23.). A financial option is a contract that allows, but does not oblige, option holders to buy or sell an asset at an agreed-upon price which is often referred to as a strike price. Option contracts come in two forms: call options and put options. A call option gives its owner the right to sell the asset, whereas the put option entitles them to buy the asset (Berk, DeMarzo & Harford 2015, 672). A contingent claim, in general, is a claim that only holds true when certain outcomes or contingencies occur. In contingent claim valuation, the approach basis also follows the same idea. An asset can be valued as an option and only under specific contingencies. The investment on this asset will pay off as a call option if its value is greater than a predefined strike price or as a put option if its value is less than a predefined strike price (Damodaran 2012, 23-4).

Discounted cash flow (DCF) valuation, on the other hand, takes into account the time value of money where the value of the firm is the present value of its expected future cash flows. Despite that there is a variety of valuation methods, DCF is still the foundation from which many other approaches are developed. The topic of discounted cash flow valuation has been covered extensively and repeatedly in various books related to finance as a complete comprehension of its fundamentals is required so as to precisely perform a relative valuation or to apply option pricing models to value assets. It is extremely critical for anyone who studies or works in finance to understand this valuation method to be able to analyze and use other approaches. (Damodaran 2012, 11)

As the main purpose of this thesis is to explore discounted cash flow valuation and its application in the acquisition deal of the case study, other valuation approaches were only mentioned briefly to help form the full picture of the theories, while discounted cash flow valuation will be further explained in details in the next chapters.

2.1 Discounted cash flow approaches

According to Thomas and Gup (2010,108), while the fundamental structure of DCF method has existed for many years, DCF nowadays takes many forms from simple to extremely sophisticated. However, they share the same theoretical concept "*The value of any operating asset/investment is equal to the present value of its expected future economic benefit stream"* (Hitchner 2010, 143).

So in case of a project where DCF is often used to forecast future cash flows, discount them back to present and then calculate the net present value (NPV) by subtracting the cost of the project from the present value of those cash flows. The obtained result will help investors to make a decision on whether to accept or reject the project. Conceptually, an investor can also view any firm simply as a bundle of projects and therefore, should be evaluated with the same manner (Thomas & Gup 2010, 108-9).

The valuation format of DFC method, as Brealey, Myers & Allen (2011, 91) demonstrated, evaluates the value of a firm as below:

$$\text{PV} = \frac{FCF_1}{1+r} + \frac{FCF_2}{(1+r)^2} + \cdots + \frac{FCF_n}{(1+r)^n} + \frac{TV}{(1+r)^n}$$

with PV = Present value of the business

FCF*n* = Free Cash Flow in period n

r = Discount rate

TV = Terminal value at period n

Free Cash Flow (FCF) is the amount of cash that firm can pay out to investors after paying all investments necessary for future growth. Free cash flow can be negative for rapidly growing businesses. (Brealey, Myers & Allen 2011, 90.) Discount rate r shows the riskiness of the cash flows. For instance, the cost of debt needs to include a default premium or the cost of equity has to take into consideration a risk premium. Terminal value or Continuing Value is the value of the firm at the point where forecast period stops since we cannot estimate future cash flows until infinity. (Damodaran 2006, 27,143.)

According to Fernandez (2007,855), there are four basic cash-flow methods for valuing companies: Free Cash Flow to Equity (FCFE), Free Cash Flow to Firm (FCFF), Capital Cash Flows (CCF), Adjusted Present Value (APV). All four methods should always give the same result as long as they analyze the same reality under the same hypotheses. The

only differences they have from each other are the cash flows taken at the starting point, the discount rate used as well as the tax shields associated with the debt financing (Oded and Michel 2007, 21).

Free Cash Flow to Equity is the valuation of cash flows corresponding to equity holders, whereas **Free Cash Flow to Firm** corresponding to both debt and equity holders. Both variations stem from the discounted method of expected future cash flows method but they are different in how cash flows and discounted rates are formulated. Figure 2 demonstrates the two approaches in a more detailed view.

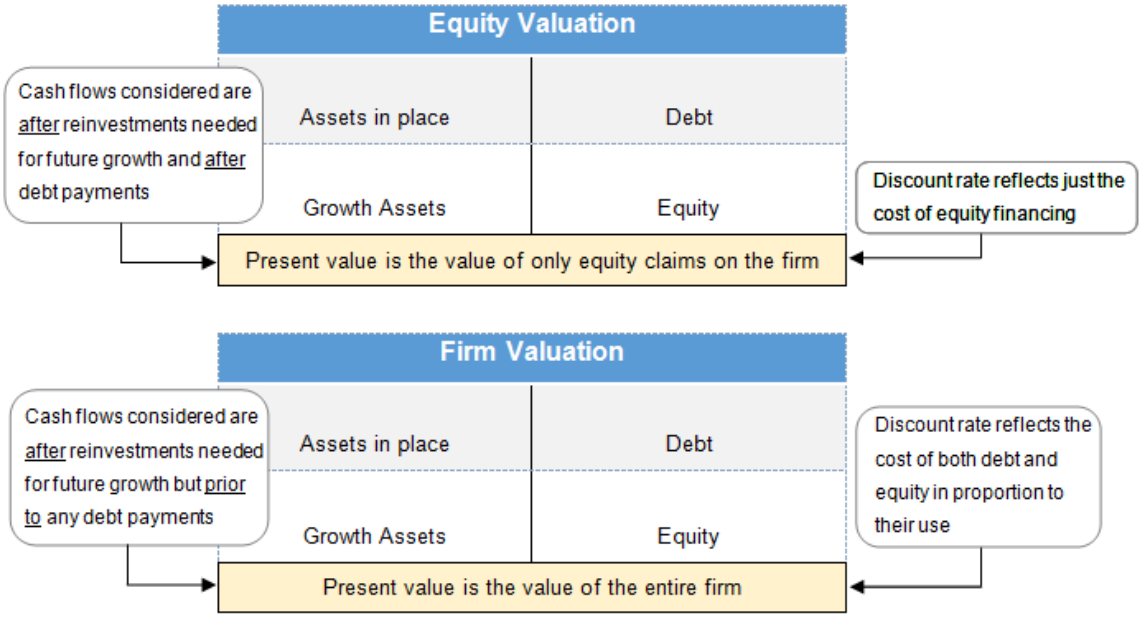

Figure 2. Equity versus Firm valuation

The value of equity is obtained by discounting expected cash flow to equity which is the residual cash flows after meeting all expenses, reinvestment, tax obligations, and interest and principal payments at the cost of equity which is the rate of return required by equity investors in the firms.

$$\text{Value of equity} = \sum_{t=1}^{n} \frac{FCFE_t}{(1+k_e)^t}$$

with n = Life of the asset

$FCFE_t$ = Future Cash Flow to Equity in period t

k_e = Cost of equity

The value of the firm or enterprise value is obtained by discounting expected cash flows to the firm which is the residual cash flows after meeting all operating expenses, reinvestment, and taxes, but prior to any payments to either debt or equity holders at weighted average cost of capital (WACC).

$$\text{Value of firm} = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t}$$

with n = Life of the asset

$FCFF_t$ = Future Cash Flow to Firm in period t

WACC = Weighted Average Cost of Capital

Equity value of a company in a particular period can be used to estimate its enterprise value in the corresponding period. CFA Institute explained in its lecture about equity valuation that the most used formula to determine enterprise value from equity value is by adding market value of preferred stock, minority interest and market value of debt to market capitalization (market value of equity) then subtracting cash and investments from the resulting sum. Equity value is vice versa calculated from enterprise value with the backwards logics. Damoradan (2012, 386) had pointed out that FCFE is best suited for firms with a stable leverage whether high or not. FCFF, on the contrary, is more practical to apply when valuing companies with very high or very low leverage which is expected to change over time.

Adjusted Present Value is an alternative model that divides the valuation into two components: the value of the firm as if it was financed entirely with equity and the value of tax shields that arises from debt financing (Koller, Goedhart & Wessels 2005, 122). The interest tax shields on debt, claimed by Brealey, Myers & Allen (2011, 487) the most important financing side effect, is the benefit gained from the tax-deductibility of interest paid on the debt.

$$\text{APV} = \begin{array}{l}\text{Enterprise Value as if the company} \\ \text{was all-equity financed}\end{array} + \begin{array}{l}\text{Present Value} \\ \text{of Tax Shields}\end{array}$$

First, the firm is evaluated as if it was all-equity financed. This valuation follows exactly the same as FCFF model only that it uses unlevered cost of equity instead of WACC as the discount rate. Later, the tax shields are separately valued and added to the all-equity value. The result is an APV valuation for the company. (Brealey, Myers & Allen 2011, 489.)

APV is particularly useful when it comes to businesses which have fixed dollar debt with an already settled repayment term. These firms plan to pay down its debt as soon as possible by cutting costs, increasing profit margin, etc. As the dollar amount of debt changes, the effect of interest tax shield also alters. Therefore, it is best to discount tax shields at the cost of debt rate instead of the constant WACC because it would overstate the impact of tax shield on the firm values. (Brealey, Myers & Allen 2011, 489; Koller, Goedhart & Wessels 2005, 122.)

Another prominent technique for valuing a company using DCF is **Capital Cash Flow**. The model was first introduced by Richard Ruback in 2000. CCF differs from other methods due to the way it approaches cash flows and interest tax shields. In FCFF model, free cash flows taken are prior to any debt payments and thus do not incorporate any of the value from the interest tax shields. This is because the tax benefits are already considered in the discount rate which is after-tax WACC. Including interest tax shields in the cash flows would result in double counting. CCF, on the other hand, combines the free cash flows with the interest tax shield before discounting it with pre-tax WACC. FCFF and CCF are technically equivalent and should yield the same result if correctly applied even though the two methods treat interest tax shields differently. Hence, when choosing between FCFF and CCF, if the firm considers the interest tax shields in its cash flow projection then CCF method is more suitable to apply. If not, FCFF method is an easier approach to the valuation. Ruback (2012, 85-86) claimed that simplicity is the advantage of CCF compared to other methods. Equation (1) shows how pre-tax WACC used in CCF is calculated and from what we can see, it depends only on the market parameters for risk-free rate (Rf), the risk premium (Rp) and the unlevered asset beta (Bu). It does not depend on capital structure and therefore will not need to be recomputed when capital structure changes. Due to this reason, it is especially useful in valuing highly levered firms whose capital structure changes substantially over time. (Ruback 2002, 85-94; Damodaran 2012, 381.)

$$\text{Pre-tax WACC} = Rf + BuRp \quad (1)$$

When comparing CCF and APV methods, CCF is based on the assumption that debt is proportional to value. An increase in the firm value means that more debt is financed in the firm's capital structure. As a result, interest tax shields will be higher. Since the risk of the interest tax shields is positively correlated to the risk of the debt and the changes in the debt level, interest tax shields in CCF is discounted by the rate of pre-tax WACC. On the contrary, APV is built on the assumption that debt is fixed dollar amount and independent of value. APV treats interest tax shields separately and considers it to be less

risky than the firm as a whole; therefore, it discounts interest tax shields at the cost of the existing debt instead of the firm's cost of capital. In general; APV, as mentioned earlier, would be more useful to value firms with a fixed dollar value debt which is supposed to decrease as the plan is to pay it down over time while CCF is a more practical alternative in the evaluation of firms with constantly changing financial leverage. (Ruback 2002, 85-103; Damodaran 2012, 401-402.)

2.2 Free Cash Flow to Firm (FCFF) framework of valuation

Having mentioned in previous section that FCFF and CCF methods is best applied to companies with constantly changing debt-to-equity ratio, FCFF seems to be a better option for the valuation of Kinh Do. This section discusses framework for the valuation of the target firm using FCFF.

2.2.1 Estimating Future Growth

As for APV and FCFE models, FCFF model comes in different versions in terms of how expected growth rate is assumed to be. The following figure shows the three trends that expected growth rate of a firm is likely to follow:

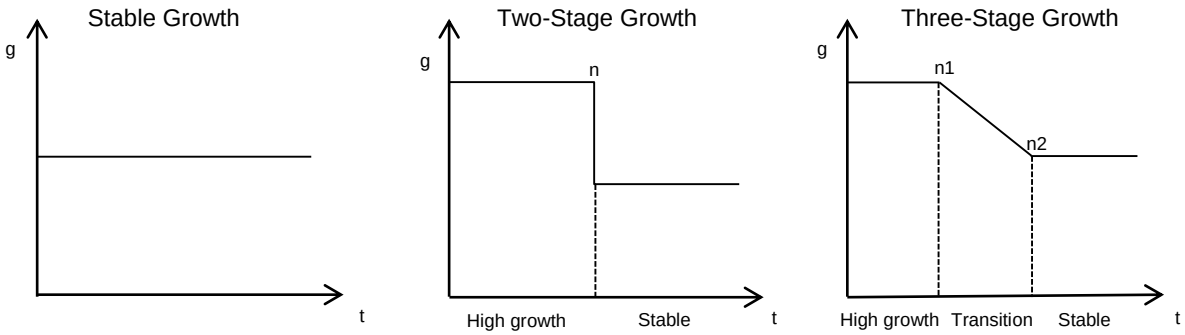

Figure 3. Three different growing models (Damodaran lecture on Discounted Cash Flow Models)

Stable-growth model assumes that the target firm will grow at a constant rate in perpetuity. The value of such firm can be formulated in equation below:

$$\text{Value of firm} = \frac{FCFF_1}{WACC - g_n}$$

with $FCFF_1$ = Future Cash Flow to Firm next year

WACC = Weighted Average Cost of Capital

g_n = Growth rate in perpetuity

Stable growth model, as Damodaran (2006,194) stated, can be applied when firms possess characteristics that are in consistent with assumptions of stable growth. These characteristics can be described as below:

- Growth rate of the firm is less or equal than that of the economy.
- The difference between capital expenditure and depreciation is not significant.
- Beta of the firm's stock should be close to one.

(Damodaran lecture on Discounted Cash Flow Models)

Two-stage growth model presumes that firms will grow at an extraordinary rate for a period of time in the first stage and then drop to a stable rate in the second stage. The value of firm with two-stage growth model can be illustrated as below:

$$\text{Value of firm} = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{FCFF_{n+1}}{(WACC - g_n)(1+WACC)^n}$$

with n = end of high growth period

$FCFF_t$ = Free cash flow to firm in period t

WACC = Weighted average cost of capital

g_n = growth rate at year n

The value of firm calculated using two-stage growth FCFF model is the sum of present value of FCFs generated in the high growth period and present value of terminal price at the end of the high growth period where the firm is assumed to start growing at a constant rate for eternity. Two-stage growth model is best suited for firms that:

- are large-sized and growing at a moderate rate (±8% of stable growth rate).
- have maturing products with increasing competition.
- have high leverage that is likely to change over time.

(Damodaran lecture on Discounted Cash Flow Models)

Three-stage growth model is designed with the assumption that firm will experience a supernormal growth for a period of time in the first stage then gradually drop to a stable rate in the second stage and finally grow at a constant rate in perpetuity in the last stage. The model is formulated as below:

$$\text{Value of firm} = \sum_{t=1}^{n1} \frac{FCFF_t}{(1+WACC)^t} + \sum_{t=n1+1}^{n2} \frac{FCFF_t}{(1+WACC)^t} + \frac{FCFF_{n2+1}}{(WACC - g_{n2})(1+WACC)^{n2}}$$

with $FCFF_t$ = Free cash flow to firm in period t

WACC = Weighted average cost of capital

g_n = growth rate at year n

n_1 = end of high growth period

n_2 = end of transition period

Three-stage growth model is used in valuing firms that:

- are small-sized and growing at a very high rate (≥8% higher than stable growth rate).
- have unique products with no or little competition.
- have higher capital expenditures compared to depreciation.
- have low risk but also higher returns.

(Damodaran lecture on Discounted Cash Flow Models)

Once the assumption about the growth pattern of the company has been established, it is important to proceed with estimating the growth rate of the company so that expected future cash flows can be best measured. The most logical sources to look at are the firm's own historical performances, management estimates, and analyst estimates. When forecasting future growth for a company, it is common that we consider its past activities to see how the company has been growing so far. Historical growth and activities can provide a lot of insights into the firm's future; however, it is not always a reliable indicator for future growth. For instance, small-sized companies tend to grow at widely fluctuating rates. This suggests that though past growth can be very useful in valuing stable firms, it can also become irrelevant in forecasting future growth at firms with more volatile growth. Another source of information that can be used in firm valuation is management estimates. These are forecasts of the company's future performance and earnings prepared by its own management. The numbers provided from the internal can be very valuable as it shows future plans and strategies of the company. Despite the value it has, it is unavoidable for these estimates to be biased. It is often that management estimates represent high expectations from the top management of the company rather than realistic forecasts of the future. Therefore, it is advised that these estimates need to be check for feasibility and internal consistency before using in the valuation. Additionally, we can find the estimates for future growth of publicly-trading companies from analysts who are following the companies. These estimates can be accessible from platforms such as Institutions Brokers Estimate System (IBES) and Zacks. Analyst forecasts are believed to be better or relatively correct compared to others since the analysts are exposed to more information or sometimes private information. They take into consideration not only historical data of the company but also the overall economy to make predictions about the future. However, it is dangerous to rely only on the analysts' estimates in valuation because they can often be inaccurate or misleading. (Damodaran 2012, 282.)

In general, an accurate valuation requires a large amount of work in researching all available sources to discover the most logical estimates. In this thesis, we will be looking at information from various sources such as financial reports published by the case company, information revealed by competitors in the same industry as well as industry or sector-specific information.

2.2.2 Measuring Existing Cash Flows

In FCFF method, the first step is to measure cash flows to the firms for both equity and debt holders, in other words, is to measure how much cash was generated after taxes and reinvestments need for future growth but prior to any debt payments. Free cash flow to firm can be computed as below:

Free cash flow to firm = Operating income (1 - Tax rate) + Depreciation & Amortization - Capital expenditures - Δ working capital

(Damodaran 2006, 79-80.)

Operating income or Earnings before Interest and Taxes (EBIT) can be found in the company's Income Statement (IS). EBIT (1- *t*) gives us the operating income after tax. Depreciation & Amortization is added back to EBIT because they are non-cash items and therefore, does not have any real impact on the cash position of the company.

Capital expenditures (CAPEX) is the total amount of expenses that the company spends on long-term fixed assets such as buildings, plants or equipment.

Net working capital or working capital, as Brealey, Myers & Allen (2011, 130) explained, is the difference between current assets and current liabilities of the company. Current assets are usually cash and cash equivalent, accounts receivable, inventory, and other current assets while current liabilities encompass short-term liabilities such as short-term debt, accounts payable, accrued liabilities. Additional investments are often required to be injected in most projects. Changes in operating working capital leads to changes in our cash balance as they are recognized as cash transactions. An increase in operating working capital indicates a cash inflow and vice versa a decrease results in an outflow of cash. Therefore, changes in working capital are considered when computing free cash flow to firm.

2.2.3 The Weighted Average Cost of Capital (WACC)

In discounted cash flows valuations, the determination of suitable discount rates is one of the most important steps that should never be overlooked. The discount rates indicate the riskiness of future cash flows and for that reason; the estimated rate used in DCF valuations has a major impact on the company value. As for FCFF method, weighted average cost of capital is used as a discount rate. WACC is the cost of a company capital calculated by the proportional cost of each of the company's financing sources. The formula for WACC can be presented as below:

$$WACC = \frac{E}{D+E} * Cost\ of\ Equity + \frac{D}{D+E} * Cost\ of\ Debt\ (1-t)$$

In this sub-section, we will be looking at the estimation of cost of equity as well as cost of debt, following by the determination of WACC by putting the weights to each of the costs.

Cost of equity, according to Damodaran (2012, 183), is the expected return rate on the equity that the investor has invested in. The most common model to calculate the cost of equity is called Capital Asset Pricing Model (CAPM). CAPM describes the correlation between risk and expected return in which the expected risk premium of an investment is proportional to its sensitivity to average market risk or its beta (Brealey, Myers & Allen 2011, 192). CAPM holds true under two assumptions which are there are no transactions costs when trading assets and all information about the market is accessible to everybody. The expected return on an asset or in this case the cost of equity, if following the CAPM model, can be written as a function of the risk-free rate and the beta of that asset:

$$Cost\ of\ Equity = E(R_i) = R_f + \beta_i[E(R_m) - R_f]$$

with $E(R_i)$ = Expected return on asset i

R_f = Risk-free rate

$E(R_m)$ = Expected return on market portfolio

β_i = Beta of asset i

As seen from the equation above, there are three inputs needed to compute cost of equity: the risk-free rate which is the rate that the expected return equals to actual return of the asset, the risk premium which is the excess return demanded by investors, and the beta which is the risk added by the investment to the investors' portfolio. In CAPM model, the risk-free rate and risk premium are common to all companies; only the beta differs from one company to another. In the preceding part, we first look at how to estimate the

risk-free rate and the risk premium. Later on, we discuss different approaches for estimating the beta. (Damodaran 2012, 65-8; Koller, Goedhart & Wessels 2005, 297.)

When estimating the risk-free rate, we often look at government bond rate as it is considered to be default-free. The choice of a government default-free bond varies between projects. If the project is short-term, short-term government security rate can be taken as the risk-free rate. However, if you are valuing a company or a long-term project, the risk-free rate should be determined from the long-term government bond rate instead of the short-term one. (Damondaran 2012, 155; Koller, Goedhart & Wessels 2005, 302.)

Risk premium, on the other hand, is usually computed through historical market risk premium over a long period of time. Koller, Goedhart &Wessels (2005, 304) suggested that to best estimate the risk premium using historical data we should take into consideration the long-term government bonds instead of the short-term bonds. Regarding the time period used, it is best to use the longest history possible if the market risk premium is stable to minimize errors in estimation. The final point in estimating the risk premium using historical data is how to get the average annual number from a century of risk premium data. There are two methods in computing the average annual returns which are arithmetic and geometric averages. The arithmetic average takes a simple sum of all the observed premiums then divides the sum by the number of years, whereas the geometric average compounds each year's excess return then roots the resulting product. Each averaging method will give different results; therefore, the choice between the two methods is as important as any other step in the valuation process. Damodaran (2012, 162) stated that if returns on stocks are negatively correlated over time and we are interested in estimating risk premium over five or ten years then geometric average is preferred.

The last input needed in the CAPM model is the beta of the company's stock. There are various methods for the estimation of beta; however, the method that is used by most financial analysts is the historical market betas. In this method, the beta is estimated through a linear regression analysis where stock returns are regressed against market returns. The slope of the regression shows movement of the stock in response to changes in general market and therefore, is a good indicator for the beta of the stock. In practice, stock index such as the S&P 500 is often used as a proxy for the market portfolio. We later regress the interval returns collected for the company against this index so as to reach the estimated beta. (Damodaran 2012,182.)

Cost of debt is the interest that the firm has to pay on the amount of debt it borrows to finance the business. In other words, it is the rate of returned demanded by the debt holders. Cost of debt is commonly calculated in two ways. The first way is by looking up the yield to maturity of the company's long-term outstanding bonds. The market price of the bond together with its yield to maturity can help compute the interest rate because it is a promised return the company makes to the debt holders. This approach, however, only works best for firms with liquid and widely traded outstanding bonds. The second approach to cost of debt is to examine the credit rating of the company on long-term debt. The credit rating of a firm, often graded by rating agencies such as Standard & Poor's (S&P) and Moody's, provides a measure to the firm's ability to repay its debt. For instance, a company with AAA rating will be able to borrow at a lower interest rate compared to a company with BBB rating. Once the credit rating of the company on its long-term debt is determined, cost of debt is the implication of average yield to maturity on a portfolio of long-term bonds with the same credit rating. Investment grade credit rating is a good alternative to the direct average yield to maturity method; however, complications may occur when a firm can have multiple ratings or when its bonds are safer than the rest of the firm's debt. (Damondaran lecture; Koller, Goedhart & Wessels 2005, 324.)

2.2.4 Calculation of the Terminal Value (TV)

Terminal value, as mentioned in section 2.3, is the value of the firm at the end of the forecast period. Terminal value help simplify company valuations by assuming that the company will grow at a constant rate after the forecast period. It is critical to perform a detailed and careful estimation of terminal value because terminal value often makes up a large proportion of a company's total value. In this sub-section, we will discuss the recommended formula of terminal value for discounted cash flow valuation method. (Koller, Goedhart & Wessels 2005, 275-6)

When it comes to valuing an enterprise by using DCF methodology, it is common to apply growing free cash flow perpetuity formula in computing terminal value of the company. The growing free cash flow perpetuity formula was established on the assumptions of stable growth model. In stable growth model, we assume that the company, at the end of the forecast period, will grow at a constant rate forever. The calculation of terminal value differs between FCFF and FCFE in which cash flow and discount rate are considered. In case of FCFF, terminal value can be estimated as below:

$$\text{Terminal value}_n = \frac{FCFF_{n+1}}{WACC - g_n}$$

with n = end of high growth period

$FCFF_{n+1}$ = Free cash flow to firm at year n+1

WACC = Weight averaged cost of capital

g_n = stable growth rate at year n

(Damodaran 2012, 425 & Koller, Goedhart & Wessel 2005, 275)

Koller, Goedhart & Wessel (2005, 57-63) have demonstrated how growth has a major impact on value. Growth is, in fact, one of the key drivers of cash flow and ultimately value. Damodaran (2006, 145) also agreed to how growth rate affects value more than any other factors. A minor change in the stable growth rate could lead to a significant shift in terminal value and in total value of the enterprise. Therefore, it is advised to measure carefully the stable growth rate. Because stable growth rate is expected to be sustained for eternity, it should not exceed the growth rate of the economy in which the company operates. Any growth rate above that is considered to be unsustainable in the long-term.

Once we have the estimated FCFs, terminal value and discount rate, it is time to discount FCFs and terminal value back to their present values, then sum them up to get to the final value of the enterprise.

3 Case study: Kinh Do Valuation

This chapter applies the above theories to build a valuation model for the case company. The analysis is performed following the structure of the theories presented in sub-chapter 2.2. First, future growth of KDC is estimated and translated into its financial statements. Then, its future free cash flows are measured using information prepared in the previous step. After that, weighted average cash flow is calculated with market data as well as the data from KDC's comparable companies. Subsequently, terminal value is computed under the assumption of a particular long-term growth rate. Last, the value of KDC is finally reached by inputting above components together.

3.1 Estimating Future Growth

As chapter 2.2 explains, there are different approaches to DCF valuation. FCFE measures the amount of cash that is available to equity holders or the levered free cash flow. It is because it takes into consideration the impact of interest expense, interest income and debt repayments. In other words, FCFE estimates the value of a company based on how much cash and debt it has. FCFF, on the other hand, excludes the impact of interest expense, interest income and debt repayments from the calculation (figure 2). Hence, it measures the cash flow that is available to all investors in the company e.g., equity and debt holders. Even though, levered free cash flow is much closer to how much cash the company generates in real life, most investors use unlevered free cash flow in FCFF model to determine the enterprise value. This is because FCFF estimates the value of an enterprise purely on its core business operation, not the value from its debt or cash. In this case study of KDC, an analysis of FCFF is a better measure because the purpose of the thesis is to evaluate KDC's enterprise value.

As KDC is the largest confectionery company in Vietnam with 28% market share and is growing with a moderate rate of 6-8% since 2013 (Maritime Bank Securities 2014,1). Over 22 years leading in market, KDC starts to show signs of stabilization due to increasing competition as well as the lower average growth of the snacks and confectionery sector. According to these characteristics, the most suitable growth model to apply for KDC is the two-stage growth model. During the first period, KDC is assumed to grow slightly higher than its current rate then at a lower and more stable rate in the second period. Furthermore, the most commonly used forecasting period for matured companies like KDC is over the period of 5 years. The growth projection for KDC, therefore is implemented for a 5-year period.

According to the forecast from BMI Research published in December 2015, the market outlook for confectioner section in Vietnam for the period from 2010 to 2019 is positive (figure 4). The sector is expected to grow at a CAGR of 9% in the period 2015-2019, however the growth rate is also predicted to gradually decrease in the future once the market starts to stabilize. Furthermore, the development direction of confectionery sector is leaning towards healthy and functional products such as dried fruits and vegetables. KDC does not carry such product segment in the company portfolio. BMI Research commented on the competition in the sector that it is unlikely to level off any time soon due to new international entrants.

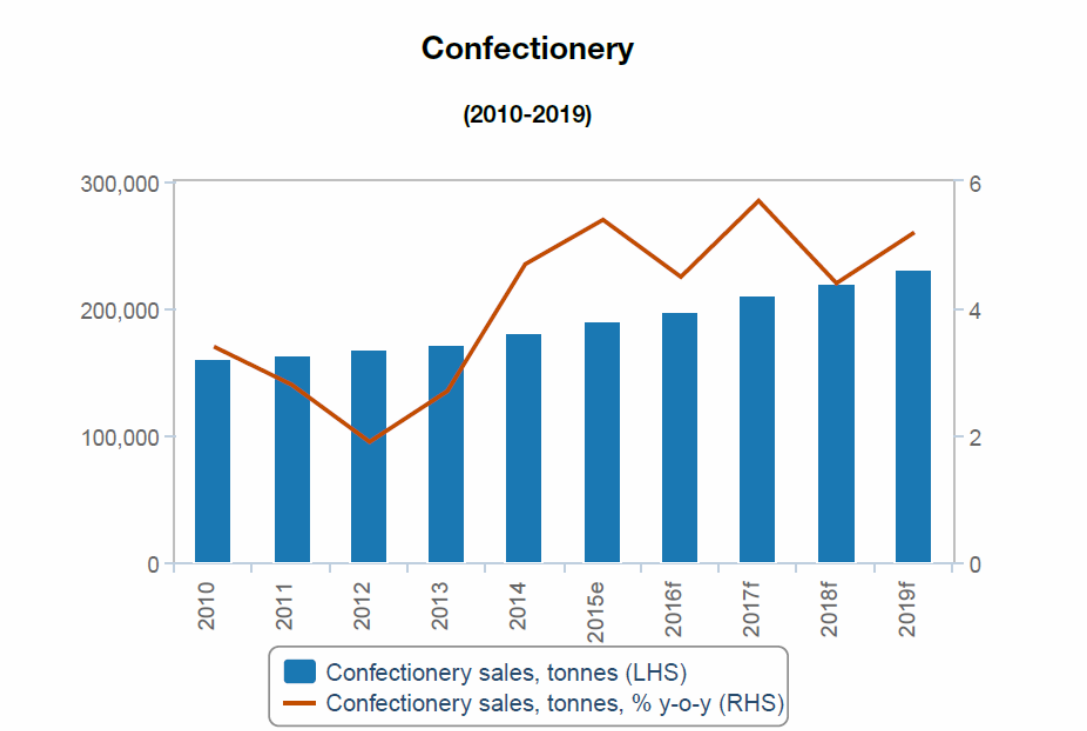

Figure 4. Vietnam's Confectioner sector in sales and %YoY (BMI Research 2015, 16)

KDC, being the market leader, is assumed to grow slightly below the average rate of the sector due to increasing competitiveness in the market as well as the new strategy announced by the management. According to the analysis report of Phu Hung Securities (2014,1), KDC stated that the 5-6% growth rate of its confectionery segment is no longer attractive and it will be difficult for the segment to remain the primary growth driver of the company for the upcoming years. Therefore, KDC decided to sell off 80% of its confectionery segment to Mondelēz International at the end of 2014. In this analysis, regardless of the signed acquisition deal, it is assumed that KDC did not sell its confectionery segment but rather shifted its focus on investing in other business segments such as ice cream and other dairy products. This is for the purpose of valuing the company worth at the end of 2014 which is when the deal was made. Table 1 below demonstrates the estimation of KDC revenue growth. It can be seen from the table that KDC revenue from 2011

to 2014 was growing and this trend is expected to carry forward as the market is predicted to expand. Revenue of KDC for future periods is forecasted to follow the market trend until 2016 with the rate of 9-10%. After that, KDC growth rate drops slowly to 8% in 2019 due to changes in strategies. Confectionery segment contributes more than 50% of KDC revenue and thus, the shift in management strategy can have an impact on its short-term development.

Table 1. Estimated revenue growth rate for KDC and Confectionery sector (KDC annual report 2011-2014; BMI Research 2014, 17)

REVENUES in Billion VND									
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Kinh Do Corporation	$4.247	$4.286	$4.561	$4.944	$5.389	$5.928	$6.521	$7.108	$7.676
YoY %		*0,9%*	*6,4%*	*8,4%*	*9,0%*	*10,0%*	*10,0%*	*9,0%*	*8,0%*
Confectionery Volume Sales - Historical Data & Forecasts (Vietnam 2012-2019)									
Confectionery sales, VNDmn		$22.411	$24.586	$26.778	$28.783	$31.111	$34.400	$37.570	$41.342
YoY%			*9,7%*	*8,9%*	*7,5%*	*8,1%*	*10,6%*	*9,2%*	*10,0%*

Once the projections of revenue growth rate are established, the next step is to incorporate this into KDC financial statements in order to calculate the unlevered cash flows for the forecasting period 2015-2019. In income statement of KDC, margin analysis is performed to measure the company's performance in terms of costs and profitability over the years. Margin analysis or Vertical analysis and Trend analysis or Horizontal analysis are widely used techniques for fundamental evaluation of a company's performance. The two methods are utilized extensively in this report. Table 2 below explains the results from the margin analysis of KDC through the proportion of each cost item in relation to revenue, in which projected numbers are highlighted in orange. As seen in the table, revenue is considered to be 100% because this is the main drivers for the rest in the statement. Historical data of KDC from 2012 to 2014 shows that Cost of Goods Sold (COGS); Selling, General & Administrative (SG&A) and Depreciation & Amortization developed in a stable proportion compared to revenue. Therefore, we can assume that their proportions to revenue are the average of the last three historical years, which mean COGS is accounted for 56% of revenue from 2015 to 2019, so as to SG&A for 27% and depreciation & amortization for 4,9%. The rest of the line items in KDC income statement slightly fluctuated over the years but since their proportions to revenue are relatively small using the average of the historical data then put the percentage constant for future years should be adequate. Income Tax for KDC core business operation is 22% but it also varies between different subsidiaries that KDC owns as some entities receive lower income tax rate or higher from the government. Despite of the varied tax rate, the average of the last three year arrived

at 22% and so we will put the constant rate of 22% for the forecasting years. Once assumptions of each item are made for the income statement, we can calculate backwards using the logic that these expenses grow proportionally to revenue. For example, in 2015 it is projected that COGS is 56% of the revenue earned in the same year and we are able to arrive at the COGS for 2015 with a simple calculation: COGS equals assumed percentages multiplied by revenue of the corresponding year.

Table 2. KDC margin analysis and costs projections for 2015-2019

Income Statement								
	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Revenue:	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**
Cost of Goods Sold:	56,4%	56,7%	54,9%	56,0%	56,0%	56,0%	56,0%	56,0%
Gross Profit:	**43,6%**	**43,3%**	**45,1%**	**44,0%**	**44,0%**	**44,0%**	**44,0%**	**44,0%**
Operating Expenses:								
Selling, General & Administrative:	25,4%	25,5%	30,1%	27,0%	27,0%	27,0%	27,0%	27,0%
Other Operating Expenses	2,0%	0,6%	0,0%	0,9%	0,9%	0,9%	0,9%	0,9%
Total Operating Expenses:	**27,4%**	**26,0%**	**30,1%**	**27,8%**	**27,8%**	**27,8%**	**27,8%**	**27,8%**
Depreciation & Amortization:	5,0%	5,0%	4,6%	4,9%	4,9%	4,9%	4,9%	4,9%
Operating Income:	**11,2%**	**12,2%**	**10,4%**	**11,3%**	**11,3%**	**11,3%**	**11,3%**	**11,3%**
Interest Income:	2,9%	2,4%	2,8%	2,3%	2,1%	2,0%	1,8%	1,6%
Interest Expense:	2,2%	1,0%	0,4%	1,0%	0,7%	0,6%	0,6%	0,5%
Other Income & Expense:	-0,5%	-0,1%	0,6%	0,0%	0,2%	0,2%	0,1%	0,1%
Pre-Tax Income:	**11,4%**	**13,6%**	**13,4%**	**12,6%**	**12,9%**	**12,9%**	**12,6%**	**12,5%**
Income Tax Provision:	27,0%	20,3%	19,0%	22,0%	22,0%	22,0%	22,0%	22,0%
Net Income:	**8,3%**	**10,8%**	**10,9%**	**9,9%**	**10,0%**	**10,1%**	**9,8%**	**9,8%**

Now that the income statement is ready, the projection of balance can be performed in the same manner. Table 3 illustrates the assumptions made for some of the items in the balance sheet that are driven by revenue or COGS. With these percentage rates, Accounts Receivable, Inventory, Other Current Assets, Accounts Payable, Accrued Expenses, Statutory Tax and Other Accruals are calculated backwards into the balance sheet relative to their driver. These items are also taken in to the calculation of net working capital which will be covered later in this section. Besides the items that can be estimated using revenue or cost drivers, there are various special items in the balance sheet that can only be estimated with a more advanced and highly detailed model, for instance any future investment or loan taking, good will, common stock or treasury stock and so on. Such items can be quite complicated to estimate as we simply do not know when they will occur in the future. It is possible to measure closely these items with more comprehensive and usually exclusively accessed data. Nevertheless, for the purpose of this thesis it should be sufficient to give those items a rough estimation.

Table 3. Operating Assumptions for KDC Balance Sheet

Operating Assumptions								
	Historical			Projections				
	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Accounts Receivable % Revenue:	*4,2%*	*4,1%*	*3,6%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*
Accounts Receivable Days:	15,2	14,9	13,1	14,4	14,4	14,4	14,4	14,4
Inventory % COGS:	*13,1%*	*11,8%*	*12,3%*	*12,4%*	*12,4%*	*12,4%*	*12,4%*	*12,4%*
Other Current Assets % Revenues	0,6%	1,0%	0,7%	0,8%	0,8%	0,8%	0,8%	0,8%
Accounts Payable % COGS:	*11,4%*	*11,0%*	*10,2%*	*10,6%*	*10,6%*	*10,6%*	*10,6%*	*10,6%*
Accounts Payable Days:		39,5	36,9	38,2	38,2	38,2	38,2	38,2
Accrued Expenses % Operating Expenses:	*16,5%*	*19,4%*	*20,8%*	*18,9%*	*18,9%*	*18,9%*	*18,9%*	*18,9%*
Accrued Statutory Taxes % COGS	*4,3%*	*3,2%*	*1,9%*	*3,1%*	*3,1%*	*3,1%*	*3,1%*	*3,1%*
Other Accruals % COGS	*5,4%*	*5,7%*	*5,8%*	*5,6%*	*5,6%*	*5,6%*	*5,6%*	*5,6%*
CapEx % Revenue:	*5,0%*	*3,8%*	*0,7%*	*3,2%*	*3,2%*	*3,2%*	*3,2%*	*3,2%*

For non-recurring items like Long-Term Investments, Long-Term Debts, Common Stock, Additional Paid-in Capital, Treasury Stock, Minority Interest, etc., it is presumed that there will be no special movement in the next five years. Hence, these items as seen in the balance sheet (appendix 2) stay the same as in the last historical year which in this case study is 2014. At this point, we should have most of the items on balance sheet ready but we still need to make it balanced by linking it with the forecasted cash flow statement (appendix 3). Before going straight to forecasting the cash flow statement, it is best that net working capital is first prepared since data is already available in balance sheet. After that, net working capital can be easily plugged into the cash flow statement to reach to the levered free cash flow.

Net Working Capital

Net working capital or working capital, as explained in sub-section 2.2.2, is the difference between current assets and current liabilities of the company. It measures the capability of financing its operating activities in the short-term. Changes in working capital impact the balances of cash flow at the end of the period and so those changes are always taken into consideration of the determination of free cash flow. Table 4 below shows the calculation of KDC's net working capital. All of the line items in total current assets and total current liabilities can be referenced from the balance sheet. Once they are all input into this table, we should be able to arrive to the net working capital which is the difference between current assets and current liabilities.

Table 4. KDC projected working capital

Working Capital	Historical			Projections				
	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Account Receivables	$882	$860	$768	$810	$845	$855	$883	$907
Inventory	$317	$304	$334	$374	$411	$452	$493	$532
Other current assets	$24	$48	$34	$41	$45	$50	$54	$59
Total Current Assets	**$1.222**	**$1.211**	**$1.136**	**$1.225**	**$1.301**	**$1.357**	**$1.430**	**$1.498**
Short-Term Debts	$530	$401	$553	$495	$495	$495	$495	$495
Trade Payables	$275	$284	$278	$320	$352	$387	$422	$456
Accrued Expenses	$194	$230	$310	$284	$312	$343	$374	$404
Accrued Statustory taxes	$103	$82	$51	$93	$103	$113	$123	$133
Other Accruals	$252	$269	$344	$313	$338	$366	$375	$396
Total Current Liabilites	**$1.353**	**$1.266**	**$1.536**	**$1.505**	**$1.599**	**$1.704**	**$1.790**	**$1.884**
Net Working Capital	**($131)**	**($54)**	**($400)**	**($280)**	**($298)**	**($347)**	**($360)**	**($386)**
Increase/Decrease in Working Capital		($76)	$346	($119)	$18	$49	$12	$26

To double-check the results of the changes in working capital, we can calculate the changes based on individual line items. One remark when measuring the changes of working capital from single line items is that the signs of year-over year difference should agree with the following logics: Increase (decrease) in current assets bring less (more) cash and thus has a negative (positive) impact on our cash balances whereas Increase (decrease) in current liabilities results in more (less) cash remained in the company and so has a positive (negative) impact on the cash position. Changes in working capital using individual line items are calculated as in table 5. As the results achieved in both table 4 and 5 are matching, we can proceed to the next step which is the determination of KDC's Free Cash Flow. Otherwise, it is necessary to investigate the causes of deviations in case of mismatched results.

Table 5. KDC Net working capital for 2015-2019

Changes in Working Capital:	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Accounts Receivable:	(42)	(35)	(10)	(28)	(24)
Inventory:	(40)	(37)	(41)	(41)	(39)
Other Current Assets:	(7)	(4)	(5)	(4)	(4)
Short-Term Debts	(59)	-	-	-	-
Accounts Payable:	42	32	35	35	34
Accrued Expenses:	(26)	28	31	31	30
Statustory Tax Payables:	43	9	10	10	10
Other Accruals:	(31)	24	28	10	21
Net Decrease / (Increase):	**(119)**	**18**	**49**	**12**	**26**

3.2 Measuring Free Cash Flow to Firm

As emphasized previously, enterprise value of a company is derived from the discounted free cash flow to firm which is the amount of cash available after the expenditure for operating activities. It does not take into account the impact of interest expense, interest income and debt repayments. Contrary to that, free cash flow received by the cash flow statement has taken into consideration the impact of investing and financing activities which are not the core business operation. Therefore, it is important to understand which cash flow should be considered for your valuation. Since we are not interested in the cash flow produced by the cash flow statement, we are not going to deep into the projection of the cash flow statement. However, with the prepared working capital and the assumption that non-recurring items will not have any movement in the forecasting period, it should be straightforward when preparing the forecasted cash flow statement and link it to other statements. The main purpose here is to determine free cash flow to firm of KDC. Table 6 explains the computation of KDC free cash flow to firm for the period 2015-2019. Operating Income and Taxes are found in the income statement prepared earlier. One important remark in this calculation is that we should not include the impact of interest expenses and interest income. NOPAT or Net Operating Profit After Tax is calculated by subtracting taxes from operating income. After that, operating charges such as Depreciation and Amortization and Deferred Income Taxes are added back to NOPAT because they are non-cash transactions. From there, we add the changes of working capital and less CAPEX to reach to unlevered free cash flow of KDC. As seen from the table, free cash flows of KDC grow quite extraordinarily in the beginning but leveled off to a lower rate at the end of forecasting period. After 2019, free cash flow of KDC is expected to grow at a constant rate for eternity. The determination of this long-term growth rate is covered in the terminal value section.

Table 6. KDC Free cash flow to firm projections

KDC Corporation - FCF Projections			Projected		
	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Revenue:	$ 5.389	$ 5.928	$ 6.521	$ 7.108	$ 7.676
Operating Income:	608	669	736	802	866
Less: Taxes, Excluding Effect of Interest:	(134)	(147)	(162)	(177)	(191)
Net Operating Profit After Tax (NOPAT):	474	522	574	626	676
Adjustments for Non-Cash Charges:					
Depreciation & Amortization:	263	289	318	347	375
% Revenue:	*4,9%*	*4,9%*	*4,9%*	*4,9%*	*4,9%*
Deferred Income Taxes:	49	54	59	65	70
% Revenue:	*0,9%*	*0,9%*	*0,9%*	*0,9%*	*0,9%*
Decrease / (Increase) in working capital:	(119)	18	49	12	26
Less: Capital Expenditures	(170)	(187)	(206)	(225)	(243)
% Revenue:	*(3,0%)*	*(3,0%)*	*(3,0%)*	*(3,0%)*	*(3,0%)*
Unlevered Free Cash Flow	$ 497	$ 695	$ 795	$ 825	$ 904
Free Cash Flow Growth Rate:		*39,9%*	*14,3%*	*3,8%*	*9,5%*

3.3 The Weighted Average Cost of Capital

The weighted average cost of capital is one of the key elements in a valuation of an enterprise as it is used to discount all of the future unlevered free cash flow that the company generates back to present day. There are two main components needed to estimate the weighted average cost of capital which are cost of equity and cost of debt. However, if we look at the balance sheet of KDC, it is projected that KDC will hold no long-term debt going forward from 2015-2019. This means KDC has no cost of debt and the WACC rate is impacted only by cost of equity. Table 7 illustrated step by step on how to calculate WACC for KDC.

The main assumptions in this analysis is risk-free rate, equity risk premium and interest rate on debt. Risk-free rate is often derived from the return rate of long-term government bond of the country in which the company is operating because it is considered to have no default risk. According to the article from The Saigon Time published on 03 May 2016, the rate of return for 30-year government bond of Vietnam is 8%. Equity risk premium, on the other hand, is usually computed through historical market risk premium over a long period of time. The market risk premium for Vietnam was reported by Fernandez, Linares & Acin

(2014, 4) in their survey is 10.4% which is roughly in line with 10.22% - the rate stated in the analysis of Country Default Spreads and Risk Premiums from Damodaran (2016). Since the two sources reported rather similar rate, we will use the average of 10.4% and 10.22% in the valuation of KDC. Interest rate of Debt for KDC historically was around 5%, however, as the company had no debt in 2014 and is assumed to not take on any debt in the future the estimation of interest rate on debt is therefore not necessarily needed.

Table 7. WACC analysis

WACC Analysis - KDC Corporation
(VND in Billions, Except Per Share Amounts in VND and Share Counts in Thousands)

Discount Rate Calculation - Assumptions	
Risk-Free Rate:	8,00%
Equity Risk Premium:	10,30%
Interest Rate on Debt:	5,00%

Comparable Companies - Unlevered Beta Calculation					
Name	Levered Beta	Debt	Equity Value	Tax Rate	Unlevered Beta
Viet Nam Dairy Products Joint Stock Company	0,52	346	104.012	22,0%	0,52
Masan Group Corporation	1,50	17.522	61.808	22,0%	1,23
Minh Phu Seafood Corporation	0,83	-	7.394	22,0%	0,83
Haiha Confectionery JSC	0,36	-	269	22,0%	0,36
Bibica Corporation	0,83	-	887	22,0%	0,83
Median	**0,83**				**0,83**

KDC Corporation	0,80

KDC Corporation - Levered Beta & WACC Calculation					
	Unlevered Beta	Debt	Equity Value	Tax Rate	Levered Beta
KDC Corporation	0,83	$0	$ 10.959	22%	0,83
Cost of Equity Based on Comparables:					16,55%
Cost of Equity Based on Historical Beta:					16,24%
WACC = Cost of Equity * % Equity + Cost of Debt * % Debt * (1 - Tax Rate)					
WACC					16,55%

Another input needed in the calculation of WACC is beta of the company's stock. This beta indicates the level of riskiness of a company's stock relatively to the whole market. That means if beta is 1 then the stock of that company is as risky as the market, if it is 2 then the stock of the company is twice as risky as the market. In this case, since the market risk premium for Vietnam is 10.3% and the levered beta recorded by Vietstock for KDC at the end of 2014 is 0.8, the risk premium for KDC would be 10.3% multiplied by 0.8 equals 8.24%. In this valuation of KDC, we could use the beta 0.8 for KDC but to ensure the quality of the valuation, we will compare this beta of KDC to the betas of its industry peers. Financial data from KDC's industry peers has been collected from Vietstock and input into table 7. Unlevered beta for these five companies are then calculated following

the formula below. The computation resulted in a median unlevered beta of 0.83 which is quite close to the beta that KDC had. Usually, the median of unlevered betas from comparable companies is used to calculate backwards to KDC levered beta using its financial data. However, as said before, KDC will have no debt in the future. This means its levered beta is also its unlevered beta according to the formula.

Levered Beta = Unlevered Beta + Unlevered Beta * (1 – Tax rate) * (Debt/Equity)

The levered beta 0.83% is chosen in this valuation instead of the historical beta 0.8% from KDC simply because the beta derived from financial data of five companies in the industry is more reliable than that of one single company. In this case, the betas are roughly the same, therefore, it is fair to use the beta of 0.83% to calculate WACC using the equation presented in the table. Equity value of VND 10,958bn is the market capitalization of KDC recorded by Vietstock at the end of 2014. The final output of this WACC analysis is 16.55%. Next part of the valuation, we move on to determine the terminal value and discount it back to present day using the computed WACC rate 16.55%.

3.4 Calculation of Terminal Value

The terminal value is computed as the formula presented in sub-section 2.2.4 which is as follow:

$$\text{Terminal value}_n = \frac{FCFF_{n+1}}{WACC - g_n}$$

with n = end of high growth period

$FCFF_{n+1}$ = Free cash flow to firm at year n+1

WACC = Weight averaged cost of capital

g_n = stable growth rate at year n

Free cash flow for the forecasting period and WACC have already been prepared in previous sections. The only component missing from the equation is long-term stable growth rate at the end of the forecasting period. This long-term stable growth rate determines the amount of free cash flows that the company will generate for eternity. According to Damodaran lecture on Growth rates and Terminal Value, the larger the company the more difficult it is to maintain growth rate at a high level. It is also not possible for this long-term growth rate to exceed the growth rate of the economy in which the company is operating. Looking at KDC case, Vietnam's economy reported in Bloomberg's article by Nguyen

(2015) grew at the rate of 6.6% in 2015 and so the long-term growth rate of KDC's terminal value should not be higher than 6.6%. Considering the market context of the firm, KDC is one of the matured companies in the market, the market growth is decreasing year over year along with intense competition both locally and internationally. KDC's new strategy is to shift focus to other business segments rather than its core segment which is snacks and confectionery. Due to these reasons, it is fair to say that the long-term growth rate of KDC should be slightly below the rate of that of the economy. In this valuation, we specifically look at the rate of 5.5%. However, almost no analysts look at one assumption but rather to look at a range of different rates as nothing is certain in the future. In the latter part, a sensitivity analysis is performed to investigate different possible outcomes of this valuation.

Now that we know WACC rate is 16.55% and the amount of free cash flow in the last forecasting period is VND 904bn:

The calculation of terminal value should be rather straight-forward.

$$\text{Terminal Value}_{2019} = \frac{904 * (1 + 5.5\%)}{16.5\% - 5.5\%} = \text{VND } 8632\text{bn}$$

3.5 Determination of KDC Enterprise Value

The last step of this valuation is putting together the components to calculate the enterprise value of KDC. Sub-section 2.2.4 has explained that enterprise value of a company is the sum of the present value of its free cash flow and its terminal value. Table 8 shows how the calculation of KDC enterprise value is done. As shown in the table, there are normal discount period and mid-year discount. Normal discount period assumes that the cash generated that year all comes at the end of the period but in reality the incoming cash flow seasonally distribute throughout the year. Therefore, using normal discount period would over-discount the cash flow. To adjust this, analysts or investments institutions often use mid-year discount convention which will help distribute the cash flow evenly throughout the year. The valuation of KDC will apply this adjustment in the analysis.

PV of Terminal Value = Terminal Value / (1+WACC) ^ 4.5 = 8632 / (1+16.5%) ^ 4.5
= VND 4334bn

and

PV of Cash Flows = $\sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t}$ = VND 2492bn

sum up the PV of terminal value and free cash flows, we arrive to

KDC Enterprise Value = VND 4334bn + VND 2492bn = VND 6825bn

Table 8. KDC Enterprise Value

Discounted Cash Flow Analysis - KDC Corporation
(VND in Billions, Except Per Share Amounts in VND and Share Counts in Thousands)

KDC Corporation - FCF Projections		Projected			
	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Unlevered Free Cash Flow	$ 497	$ 695	$ 795	$ 825	$ 904
Present Value of Free Cash Flow	460	553	542	483	454
Discount Period:	*1,000*	*2,000*	*3,000*	*4,000*	*5,000*
Mid-year Discount:	*0,500*	*1,500*	*2,500*	*3,500*	*4,500*

KDC Corporation - DCF Assumptions & Output	
Discount Rate:	16,5%
Terminal Growth Rate:	5,5%
Terminal Value:	$8.632
PV of Terminal Value:	$4.334
Sum of PV of Cash Flows:	$2.492
Enterprise Value:	**$6.825**

Terminal value of KDC is roughly around 65% of its enterprise value, which is considered to be quite reasonable. If the valuation produces a terminal value that contributes to 80%-90% of enterprise value, this is not usual in DCF valuation and so we need to go back to the assumptions to make some adjustments. Once the computation of KDC enterprise value is complete, we would want to investigate this outcome further with sensitivity analysis. Sensitivity analysis gives different results through a range of independent and dependent variables. Now if we want to perform the analysis on KDC, it is more relevant to do it with implied share price of the obtained enterprise value as KDC is a publicly trading company. To get to the implied share price of KDC, we need to first find the implied equity value using the logics below:

Enterprise Value
Plus: Cash & Cash Investment
Less: Debt
Less: Minority Interest
Less: Preferred Stock
Less: Other liabilities
= Equity Value

These items are available from the 2014 financial statements of KDC. Inputting the data into the formula should allow us to arrive at this value:

Enterprise Value:	$6.825
Plus: Cash & Investments	$4.647
Less: Debt	$553
Less: Minority Interest	$101
Less: Preferred Stock	$0
Less: Other Liabilities	$52
Equity Value:	**$10.766**

KDC annual report (2014, 96) reported the number of outstanding share at the end of 2014 is 242,185,110 shares. Therefore, the implied price per share is Equity value multiplied by 1000000 then divided by the number of outstanding shares which equals to VND 44,454. The share price of KDC recorded on the stock market on 31 December 2014 is VND 49,900 which means according to this valuation KDC was over-valued by the market. Table 9 depicts different scenarios of KDC share price under varied set of assumptions. As can be seen from the table, the market share price of KDC falls somewhere in the third quadrant i.e., if the valuation is correct then KDC was being over-valued.

Table 9. KDC share price sensitivity analysis

KDC Corporation - Net Present Value Sensitivity - Terminal Growth Rates								
		Discount Rate						
		13,0%	14,0%	15,0%	**16,0%**	17,0%	18,0%	19,0%
Terminal Growth Rate	2,0%	$ 47.357	$ 44.738	$ 42.523	**$ 40.628**	$ 38.986	$ 37.552	$ 36.288
	3,0%	$ 49.570	$ 46.525	$ 43.991	**$ 41.848**	$ 40.013	$ 38.424	$ 37.035
	4,0%	$ 52.274	$ 48.671	$ 45.725	**$ 43.271**	$ 41.196	$ 39.420	$ 37.881
	5,0%	**$ 55.654**	**$ 51.293**	**$ 47.805**	**$ 44.953**	**$ 42.578**	**$ 40.569**	**$ 38.848**
	6,0%	$ 60.000	$ 54.570	$ 50.348	**$ 46.972**	$ 44.210	$ 41.910	$ 39.964
	7,0%	$ 65.795	$ 58.784	$ 53.527	**$ 49.439**	$ 46.169	$ 43.494	$ 41.265

At the end of 2014, Mondelēz International completed the deal of acquiring 80% share of KDC's snacks operations for USD 370mn equivalent to VND 7846bn. One remark is that the price paid is much higher than the valuation's final result. KDC as a whole in this valuation worth total of VND 6825bn while Mondelēz International paid for only 80% of its snacks operation. Even though the snacks business is the most valuable segment of KDC with the revenue contribution of more than 50%, the market for this segment is expected to grow at much slower pace and soon stabilize. Therefore, speaking from the analysis of KDC value, it is fair to say that this part of the business was over-priced by the acquirer. One possible reason for why Mondelēz International was willing to pay much higher could be the synergies created once it has fully integrated with the acquired function. KDC already has a firm established positive image to the customers; a large network of suppliers, distribution channels and manufacturing infrastructure. The high price offered was more of a long-term strategic plan from Mondelēz International to penetrate not only into Vietnam but also into the southeast Asian market.

4 Conclusion

The primary objective of this thesis is to create a guide on how to build a valuation model to determine the enterprise value of a company. The model was structured step by step to make it easier for readers to follow. There are various approaches to valuing a company, however, the main point is to choose a method that is best suited for the purpose of valuation as well as the availability of information at the time. Discounted cash flow was the main focus of the thesis as this is considered to be the most common method used by analysts, banks and investment institutions to estimate the value of a company. Discounted cash flow differs from other valuation techniques due to the fact that it measures the intrinsic value of a company. That means DCF estimates a company worth based on its own operating performance and capability rather than the market or its competitors. There are different DCF techniques we can use in valuation and which one to choose depends on what value we are interested in looking at. FCFE measures the equity value of a company by discounting all of the cash flows available for equity holders to present. FCFF, on the other hand, determines the enterprise value by discounting all of the cash flows available for both equity and debt holders to present. Usually, FCFF is often used to estimate a company's value as it takes into consideration only the value created by the core business of the company and not by debts or other investing activities. A step by step FCFF valuation is as follow: estimate future growth, measure future cash flow to firm, calculate weighted average cost of capital and terminal value and last determine enterprise value of the company by adding the present value of its future cash flow to firm and the present value of its terminal value.

The valuation of KDC is conducted using FCFF method. The final result of the valuation had showed that KDC was over-valued by the market as well as by Mondelēz International at the end of 2014. KDC's enterprise value obtained is VND 6825bn much lower than what the stock market has valued and the price that Mondelēz International offered to buy 80% of KDC's snacks business. However, like many other valuation models, this result is derived under different assumptions due to limited access to financial data. Nevertheless, it has depicted the common process and technique in valuing a company, which will provide guidance for anyone who are interested in performing such valuation analysis.

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Appendices

Appendix 1: Income Statement

Income Statement	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Revenue:	**4.286**	**4.561**	**4.944**	**5.389**	**5.928**	**6.521**	**7.108**	**7.676**
Cost of Goods Sold:	2.417	2.584	2.715	3.017	3.319	3.651	3.980	4.298
Gross Profit:	**1.869**	**1.976**	**2.229**	**2.372**	**2.609**	**2.870**	**3.128**	**3.378**
Operating Expenses:								
Selling, General & Administrative:	1.088	1.163	1.487	1.454	1.600	1.760	1.918	2.072
Other Operating Expenses	86	25	0	46	50	56	61	65
Total Operating Expenses:	**1.174**	**1.188**	**1.487**	**1.500**	**1.650**	**1.815**	**1.979**	**2.137**
Depreciation & Amortization:	214	230	228	263	289	318	347	375
Operating Income:	**482**	**558**	**514**	**608**	**669**	**736**	**802**	**866**
Interest Income:	123	108	139	123	124	129	125	126
Interest Expense:	94	43	21	53	39	38	43	40
Other Income & Expense:	(20)	(4)	31	2	10	14	9	11
Pre-Tax Income:	**490**	**619**	**663**	**681**	**763**	**841**	**893**	**963**
Income Tax Provision:	132	126	126	150	168	185	196	212
Net Income:	**357**	**493**	**537**	**531**	**595**	**656**	**697**	**751**

Appendix 2: Balance Sheet

Balance Sheet	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Assets:								
Current Assets:								
Cash & Cash-Equivalents:	829	1.958	2.467	2.621	2.986	3.445	3.925	4.482
Short-Term Investments:	237	39	700	700	700	700	700	700
Accounts Receivable:	882	860	768	810	845	855	883	907
Trade receivables	181	189	180	215	237	261	284	307
Advances to suppliers	196	71	49	49	49	49	49	49
Other receivables	507	603	543	551	566	553	557	559
Short-term loan receivables	0	0	8	0	0	0	0	0
Provision for doubtful debts	(2)	(3)	(11)	(5)	(7)	(8)	(7)	(7)
Inventory:	317	304	334	374	411	452	493	532
Other Current Assets:	24	48	34	41	45	50	54	59
Total Current Assets:	**2.289**	**3.209**	**4.303**	**4.546**	**4.987**	**5.502**	**6.056**	**6.680**
Long-Term Assets:								
Long-Term Investments:	1.271	1.272	1.480	1.480	1.480	1.480	1.480	1.480
Fixed Assets:	1.476	1.393	1.632	1.539	1.437	1.325	1.203	1.071
Goodwill:	350	326	281	281	281	281	281	281
Deferred Income Tax	48	41	36	49	54	59	65	70
Other LT Assets:	81	138	144	144	144	144	144	144
Total Assets:	**5.515**	**6.378**	**7.876**	**8.039**	**8.383**	**8.791**	**9.227**	**9.725**
Liabilities & Shareholders' Equity:								
Current Liabilities:								
Short-term loans and debts	530	401	553	495	495	495	495	495
Trade payables	275	284	278	320	352	387	422	456
Other Accruals	131	147	158	170	187	206	224	242
Accrued expenses	194	230	310	284	312	343	374	404
Statutory obligations	103	82	51	93	103	113	123	133
Other Payables	121	122	186	143	151	160	151	154
Total Current Liabilities:	**1.353**	**1.266**	**1.536**	**1.505**	**1.599**	**1.704**	**1.790**	**1.884**
Long-Term Liabilities:								
Long-Term Debt:	53	169	0	0	0	0	0	0
Other Long-Term Liabilities:	64	61	52	52	52	52	52	52
Total Liabilities:	**1.469**	**1.495**	**1.588**	**1.557**	**1.651**	**1.756**	**1.842**	**1.936**
Shareholders' Equity:								
Common Stock:	1.599	1.676	2.567	2.567	2.567	2.567	2.567	2.567
Additional Paid-In Capital:	2.190	2.344	3.274	3.274	3.274	3.274	3.274	3.274
Treasury Stock:	(655)	(153)	(806)	(806)	(806)	(806)	(806)	(806)
Retained Earnings:	809	947	1.085	1.278	1.529	1.831	2.182	2.586
Minority Interest	35	2	101	101	101	101	101	101
Other funds	67	67	67	67	67	67	67	67
Total Shareholders' Equity:	**4.045**	**4.883**	**6.288**	**6.481**	**6.732**	**7.034**	**7.386**	**7.789**
Total Liabilities & SE:	**5.515**	**6.378**	**7.876**	**8.039**	**8.383**	**8.791**	**9.227**	**9.725**

Appendix 3: Cash Flow Statement

Cash Flow Statement	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Operating Activities:								
Pre-tax Income:	**490**	**619**	**663**	**681**	**763**	**841**	**893**	**963**
Depreciation & Amortization:	215	230	228	263	289	318	347	375
Interest Expense:	94	43	21	53	39	38	43	40
Other non-cash Expense:	(43)	(108)	(167)	(49)	(108)	(119)	(129)	(139)
Changes in Operating Working Capital:								
Receivables:	65	71	256	(42)	(35)	(10)	(28)	(24)
Inventories:	76	6	(28)	(40)	(37)	(41)	(41)	(39)
Other Current Assets	22	(11)	(20)	(7)	(4)	(5)	(4)	(4)
Accounts Payable:	(94)	51	223	(31)	94	105	86	94
Interest Paid	(96)	(44)	(21)	(53)	(39)	(38)	(43)	(40)
Corporate Income Tax Paid	(77)	(181)	(134)	(56)	(65)	(72)	(73)	(79)
Cash Flow from Operations:	**650**	**675**	**1.022**	**719**	**897**	**1.018**	**1.050**	**1.147**
Investing Activities:								
Term Bank Deposits:			(700)	0	0	0	0	0
Loan to other entities:	(2.773)	(2.411)	(286)	0	0	0	0	0
Collections from loan borrowers:	2.852	2.592	322	0	0	0	0	0
Purchases of LT Investments:	(259)	(1)	(889)	0	0	0	0	0
Proceeds from sales of Investments	111	33	14	0	0	0	0	0
Net CAPEX:	(215)	(172)	(34)	(170)	(187)	(206)	(225)	(243)
Dividends and Interest received	31	49	490					
Cash Flow from Investing:	**(253)**	**90**	**(1.082)**	**(170)**	**(187)**	**(206)**	**(225)**	**(243)**
Financing Activities:								
Proceeds from Common Stock:	693	697	1.820	0	0	0	0	0
Common Stock Repurchased:	(501)	0	(484)	0	0	0	0	0
Dividends Issued:	(315)	(318)	(379)	(338)	(345)	(354)	(345)	(348)
Short-Term Loans		(129)	152	(59)	0	0	0	0
Raise / (Pay Off) Long-Term Debt	(415)	114	(541)	0	0	0	0	0
Cash Flow from Financing:	**(538)**	**364**	**569**	**(396)**	**(345)**	**(354)**	**(345)**	**(348)**
Increase / Decrease in Cash:	**(141)**	**1.129**	**509**	**153**	**365**	**458**	**480**	**556**
Impact of exchange rate fluctuation:	3	(0)	0	1	0	1	1	1
Cash & Cash Equivalents:	**829**	**1.958**	**2.467**	**2.621**	**2.986**	**3.445**	**3.925**	**4.482**

Appendix 4: KDC Working Capital Projections

Working Capital	Historical			Projections				
	FY 2012	FY 2013	FY 2014	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Account Receivables	$882	$860	$768	$810	$845	$855	$883	$907
Inventory	$317	$304	$334	$374	$411	$452	$493	$532
Other current assets	$24	$48	$34	$41	$45	$50	$54	$59
Total Current Assets	**$1.222**	**$1.211**	**$1.136**	**$1.225**	**$1.301**	**$1.357**	**$1.430**	**$1.498**
Short-Term Debts	$530	$401	$553	$495	$495	$495	$495	$495
Trade Payables	$275	$284	$278	$320	$352	$387	$422	$456
Accrued Expenses	$194	$230	$310	$284	$312	$343	$374	$404
Accrued Statustory taxes	$103	$82	$51	$93	$103	$113	$123	$133
Other Accruals	$252	$269	$344	$313	$338	$366	$375	$396
Total Current Liabilites	**$1.353**	**$1.266**	**$1.536**	**$1.505**	**$1.599**	**$1.704**	**$1.790**	**$1.884**
Net Working Capital	**($131)**	**($54)**	**($400)**	**($280)**	**($298)**	**($347)**	**($360)**	**($386)**
Increase/Decrease in Working Capital		($76)	$346	($119)	$18	$49	$12	$26
Ratios & Assumptions								
Trade Receivables % Net Revenues	20,6%	18,9%	15,5%	18,3%	18,3%	18,3%	18,3%	18,3%
Collection period in days	74,1	67,9	55,9	66,0	66,0	66,0	66,0	66,0
Inventory % COGS	13%	12%	12%	12,4%	12,4%	12,4%	12,4%	12,4%
Other current assets (% of Net Revenues)	0,6%	1,0%	0,7%	0,8%	0,8%	0,8%	0,8%	0,8%
Trade Payables % COGS	11,4%	11,0%	10,2%	10,6%	10,6%	10,6%	10,6%	10,6%
Days Payable	40,9	39,5	36,9	38,2	38,2	38,2	38,2	38,2
Accrued Expenses % Operating Expenses	17%	19%	21%	18,9%	18,9%	18,9%	18,9%	18,9%
Accrued Statustory taxes (% of COGS)	4,3%	3,2%	1,9%	3,1%	3,1%	3,1%	3,1%	3,1%
Other accruals (% of COGS)	10,4%	10,4%	12,7%	11,2%	11,2%	11,2%	11,2%	11,2%

Appendix 5: KDC discounted cash flow analysis

Discounted Cash Flow Analysis - KDC Corporation
(VND in Billions, Except Per Share Amounts in VND and Share Counts in Thousands)

KDC Corporation - FCF Projections			Projected		
	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E
Revenue:	$ 5.389	$ 5.928	$ 6.521	$ 7.108	$ 7.676
EBITDA:	695	788	742	871	958
Operating Income:	608	669	736	802	866
Less: Taxes, Excluding Effect of Interest:	(134)	(147)	(162)	(177)	(191)
Net Operating Profit After Tax (NOPAT):	474	522	574	626	676
Adjustments for Non-Cash Charges:					
Depreciation & Amortization:	263	289	318	347	375
% Revenue:	*4,9%*	*4,9%*	*4,9%*	*4,9%*	*4,9%*
Deferred Income Taxes:	49	54	59	65	70
% Revenue:	*0,9%*	*0,9%*	*0,9%*	*0,9%*	*0,9%*
Changes in Working Capital:					
Accounts Receivable:	(42)	(35)	(10)	(28)	(24)
Inventory:	(40)	(37)	(41)	(41)	(39)
Other Current Assets:	(7)	(4)	(5)	(4)	(4)
Short-Term Debts	(59)	-	-	-	-
Accounts Payable:	42	32	35	35	34
Accrued Expenses:	(26)	28	31	31	30
Statustory Tax Payables:	43	9	10	10	10
Other Accruals:	(31)	24	28	10	21
Decrease / (Increase) in working capital:	**(119)**	**18**	**49**	**12**	**26**
Less: Capital Expenditures	(170)	(187)	(206)	(225)	(243)
% Revenue:	*(3,0%)*	*(3,0%)*	*(3,0%)*	*(3,0%)*	*(3,0%)*
Unlevered Free Cash Flow	$ 497	$ 695	$ 795	$ 825	$ 904
Present Value of Free Cash Flow	460	553	542	483	454
Discount Period:	*1,000*	*2,000*	*3,000*	*4,000*	*5,000*
Mid-year Discount:	*0,500*	*1,500*	*2,500*	*3,500*	*4,500*
Free Cash Flow Growth Rate:		*39,9%*	*14,3%*	*3,8%*	*9,5%*

KDC Corporation - DCF Assumptions & Output	
Use Multiples Method?	No
Discount Rate:	16,5%
Terminal EBITDA Multiple:	9,0 x
Terminal Growth Rate:	5,5%
Terminal Value:	$ 8.632
PV of Terminal Value:	$4.334
Sum of PV of Cash Flows:	$2.492
Enterprise Value:	**$6.825**
Terminal Value % EV:	63,5%
Enterprise Value:	$6.825
Balance Sheet Adjustment:	$3.941
Implied Equity Value:	**$10.766**
Implied Price Per Share:	**$ 44.454**

Enterprise Value:	$6.825
Plus: Cash & Investments	$4.647
Less: Debt	$553
Less: Minority Interest	$101
Less: Preferred Stock	$0
Less: Other Liabilities	$52
Equity Value:	**$10.766**