

### 3. CHAPTER 2: THEORETICAL FRAMEWORK

This chapter represents the initial state with which the problem of the Credit Letter arose. The knowledge areas discussed should place the reader in the appropriate context to better understand the CL itself and the problems around it.

#### 3.1. The Credit Letter (CL)

##### 3.1.1. *Background of the CL*

The purpose of the CL is to provide accurate information about the receivables of the firm. Specifically, it is to create an internal report that describes the state of accounts receivable, the collection efficiencies of the firm and report a DSO to top management. The CL has to be created at the beginning of the month, when the information from the past month is being summarized and uploaded into the Business Intelligence (BI) computers.

When this process was created, it had a complex structure based on an excel template; it was not user friendly, many formulas had to be updated manually and the file was exceedingly detailed and unorganized. Two months before the Internship started, Kurt, the creator of the CL retired. The Finance department inherited this process and tried to learn the process while creating the credit letter themselves. Since little time was spent with the files before this, they struggled with the process. At the same time, the finance department has to perform the closing of the last month. That is, an analysis of the changing items in the financial statements, the reasons for these to happen and the impact this had on the Income and Cash Flow Statements of any given month. Clearly these took priority over the creation of the CL; nevertheless, the later the CL is published, the less important its information becomes, as more information becomes available and changes in the receivable accounts happen in the month in course.

### *3.1.2. Process for the creation of the Credit Letter*

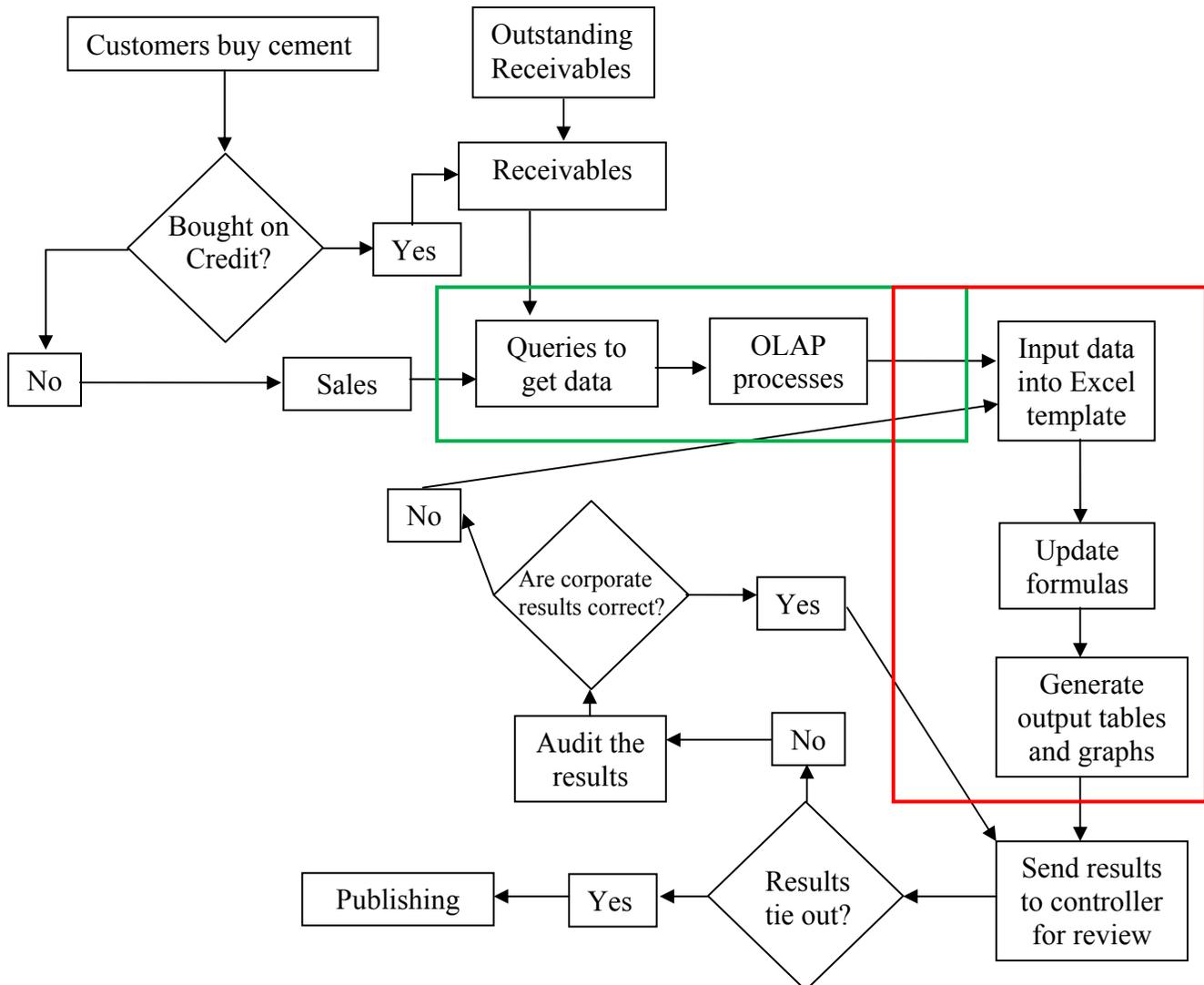
The Credit Letter functions among other purposes as an element of control for the controller. Regional and credit managers will create parts of the information of the CL themselves for the region that they manage, using the same model and files as the corporate office does. This is sent to the controller and he then checks the regional results with the ones at the corporate office for compliance and discrepancies. The main information that is sent consists of regional and sub-regional DSOs, trends and influences in the current local and regional markets, and lastly, advancements that have been made in the collection of major accounts that are outstanding.

Regional and credit managers have no visibility or control over the information of other areas of the company. The system restricts their information access, enabling them to see only what is registered in their own region. As they prepare the information, a corporate equivalent has to be prepared. This is the CL in its complete form. However, as this information is interesting for other parts of the company, like top management, more aspects and metrics were added to enrich the value of the analyses that this report provides. Before the CL can be published, it has to be revised and compared to the results that are sent in by the credit managers. If there is no discrepancy in the information, comments on performances and explanations on given results are added by Rick, before it is sent off to other recipients of the report. A flow chart is described below to clarify each step in the creation of the CL using the original model.

### 3.1.3. The original Credit Letter model

The following diagram shows the steps involved in the original creation process of the CL as performed at Holcim (US)'s' headquarters:

Figure 3: Original Credit Letter model



Source: Self-produced, 2008

The green rectangle represents the part of the process that is performed in the reporting system; the red rectangle represents the steps that take place inside the Excel model. Note that the overlapping area is intentional. This part represents the interaction of the reporting system and Excel. Excel is used as the main user interface for the reporting system's functions.

Following is an estimate of the time that is needed to complete the process of the CL using this model. This is representative for the first CLs that the finance team created.

- 1) Running all queries to obtain the information, estimated time: 8 hours
- 2) Performing the necessary OLAP processes until all information is in the desired format, estimated time: 9 hours
- 3) Input data into the former Excel template, estimated time: 1 hours
- 4) Update formulas and links to the right information inside the template, watching for accuracy and correctness, estimated time: 6 hours
- 5) Create the final tables and graphs for the CL, estimated time: 1 hour
- 6) Rick, the controller is in charge of the publication of the CL. He does so, depending on his schedule.

These time estimations assume that the results of the process tie with other reports and accounting information Holcim (US) has. This was not always the case. For the completion of this process, three persons worked the estimated number of hours. Knowing that, on average the normal working day is eight to nine hours long, it took the finance team about three days to complete this process.

### 3.2 Analysis of the model

To be able to come up with improvements to this process, one first has to understand its characteristics, uses and limitations. First of all, the information is obtained from the company's BI reporting System; this means that many other stakeholders share a certain degree of influence as they are also users of this part of the system. To make changes, users have to propose them and work with IT personnel to forge systems that interested users can use effectively. The proposers additionally have to understand the impact the changes will have on other users, because this touches upon issues like more specific training and associated costs, usefulness of

the benefits that this change will bring and so on. A single department can rarely change a major reporting structure on its own.

The efficiency with which the new information is loaded into the system is sufficient. Users use queries to access that information for different purposes; little control can be exerted from the financial planning department to arbitrarily make changes to these queries.

The next big part of the process is the model itself. Since it is not a part of the reporting system but an internal tool that uses information from the reporting system, is the only part the process that the finance team can change on their own. This allows greater flexibility to make improvements and, as seen above, presents the greatest difficulties in the process.

Lastly comes the publication part. This performed by the controller himself. Rick puts in comments on analyzed results and gives his insights on the outcomes of the credit collection performances. This part can only be performed by him, as he has a much greater overview of the situation of the company and is responsible for the performance of credit managers reporting to him.

### 3.3. Relevant Literature Review

#### 3.3.1 *Introduction*

The focus of this literature review is on the creation of a model that gives better information regarding the collection efficiencies of a large company. It is therefore imperative to understand the available literature around the problem. This section focuses on the creation of a framework based on literature about the leading trends and practices that have an impact on the intended project. Based on this information an assessment model is presented to understand the current situation for the stakeholders, and lay solid grounds for the creation of alternatives for the project to implement.

Listed are semantic areas that will be developed in the following order:

- The role of a business intelligence system
- The function of Accounts Receivable inside a company
- The impact of good receivables on the value of the company
- Ratio Analysis and the Days Sales Outstanding measure

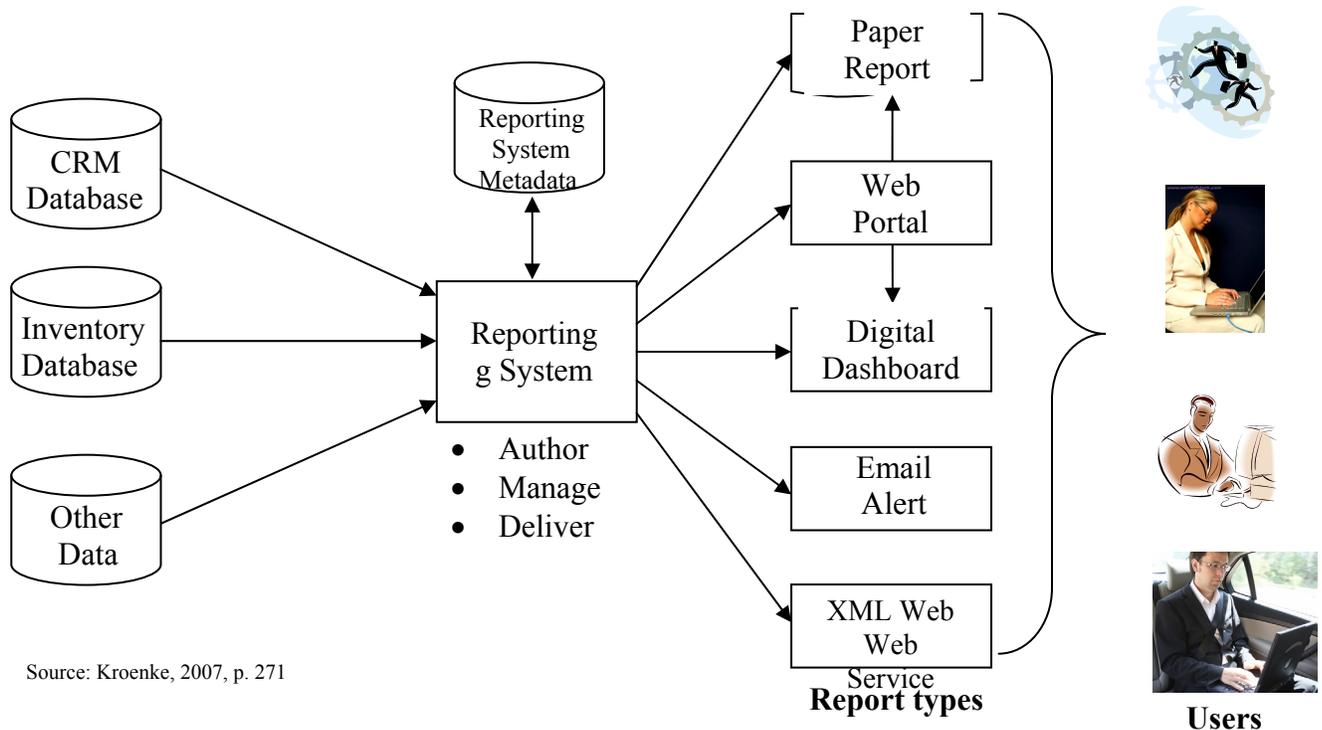
### *3.3.2. The role of a Business Intelligence (BI) system*

A Business Intelligence system is operated by Holcim (US) to integrate all data transactions into one platform. This is the digital environment in which the informational inputs for any process are gathered and processed. This is relevant to this project as the initial part of the process for the creation of the Credit Letter is based on the information obtained from this source.

A BI system is “a collection of hardware, software, data, procedures and people.” (Kroenke, 2007, p. 268); in other words, these systems create a necessary alignment among the listed system parts “to provide the right information, to the right user, at the right time.” (Kroenke, 2007, p. 268). This system provides the tools to generate the information and distributes it to the right sources at an opportune time. Here, an important distinction has to be made. BI systems use BI tools to gather meaningful information to create patterns that other parts of the system have to analyze, distribute and use to make informed decisions. (Kroenke, 2007, p. 269). Especially important BI tools that are used by many large companies like Holcim (US) are Reporting Tools. These programs gather information from different sources, apply simple processing tasks and create formatted reports for the users that need them (Kroenke, 2007, p. 269ff). These tasks include filtering, grouping, sorting and making simple calculations to the data, like subtotaling, creating averages or generating graphs based on the information that is

given. An analyst can also perform these tasks, but will usually take a relatively long time to do so and no value will be created from such activities. Nevertheless, these analyses are necessary for analysts to do their work and managers to take better decisions, with clear and helpful information sources and analyzes. Following is a figure of the components of a reporting system:

Figure 4: Reporting System



Source: Kroenke, 2007, p. 271

The main functions of a reporting system are the three bullet points listed in the figure. Authoring refers to the creation of reports and their associated metadata. It is intended to connect the dots between all the sources of information from the databases, formatting the extracted information in a specific way and present it in a logical structure.

Managing refers to the administration of the reports. This part is mainly devoted to the metadata, as here is specified who is allowed to ask for the information the report provides, as well as other related information.

The reporting system has to work with the inputs from other databases to create the reports that users need. In doing this, the metadata plays a fundamental role. “The metadata describes reports, users, groups, roles, events, and other entities involved in the reporting activity. The reporting system uses the metadata to prepare and deliver reports to the proper users on a timely basis.” (Kroenke, 2007, p. 270) This makes the process accurate and safe<sup>1</sup>. As the reporting system has this information, it knows how to customize reports for the needs of a certain user; review if the user has the needed authorizations to see the information on the report and the general purpose for which a user is asking for a certain report. This refers to the management aspect of the reporting system.

Finally, the delivery method indicates the way that the user will get hold of the report. The various report types have different channels to deliver the information; a few are presented in the previous image. When considering the delivery of the information, the system must watch for the security, time and other context specific delivery metadata, as many times sensitive information is transmitted.

The different types of reports provide users with increasing levels of complexity, detail and functionality, depending on the needs of each user. Table 1 shows the general classifications with a brief description of the each, presented in an ascending order of complexity. The second column describes the mode of the report. This differentiates whether the report was generated by a user’s request or not.

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<sup>1</sup> Metadata is simple data used to describe other data portions. <http://www.techterms.com/definition/metadata>. Example: “Karl Oliver John Rivera” is a name. Labeling this data with the tag “name” is considered metadata.

Table 3: Reporting types and modes

Type	Mode
<p><u>Static</u>: A report prepared from underlying data that is not further changed.</p> <p><u>Dynamic</u>: a preformatted report that is generated from the most current data in the system. E.g. a report on a current stock price.</p> <p><u>Query</u>: Reports prepared with defined variables provided by the user.</p> <p><u>Online Analytical Processing (OLAP)</u>: Allow users to change the structure of the information. Similar to Pivot tables in Excel.</p>	<p><u>Push</u>: Reports that are sent to users for a certain reason without users requesting them.</p> <p><u>Pull</u>: reports requested by users.</p>

Source: Taken from Kroenke, 2007, p. 264ff

### 3.3.3. *The functions of Accounts Receivable inside a company*

Having the A/R line item on the company's balance sheet means that the company has offered financing options to a buyer for their products or services. It indicates that the company can offer some degree of flexibility to its customers. This is important to win over and retain customers that otherwise would not have the financial capacities to demand their products or services. In creating receivable balances, the company can increase its sales in the long term, as a receivable "represents a legal obligation for the customer to remit cash for its short-term debts" (Investopedia, 2008). That is why having receivables increases the potential revenue of the company.

It is important to take into account that the amounts in accounts receivable are quantified as money; it is not cash that is at hand right now and will only be available in the future. This is

important, for as long as the company has cash tied up in its receivables' accounts, it cannot add these amounts to the cash flows of the company. Nevertheless, these amounts add to the value of companies over time, which is the reason they are quantified and added when analysts value firms.

In the case of receivables, operating and producing costs associated with the products or services have already been taken into consideration. This position may be disadvantageous for the company, but as long as the company has enough cash to pay off its debt and can maintain its operations functioning, this situation does not become harmful. When benchmarking the company with leaders in the industry, exceeding receivables may raise alerts on the collection efficiency and other management practices, compared to its competitors. This last point illustrates the idea of 'Net Working Capital'.

#### *3.3.4. The impact of good receivables on the value of the company*

*3.3.4.1. Net Working Capital* "[is defined as the company's] Current assets less current liabilities; the amount of money a company has tied up in short-term operating activities" (Luecke, R. in the "Harvard Business Essentials" series, 2005, p. 239). It is a vital driver of value in the company, as it represents an essential part in the Statement of Cash Flows. Fundamentally, managing a firm's NWC presents a trade-off, because "[...] the higher a firms' net working capital (current assets minus current liabilities), the lower its profitability and the lower its risk of being unable to pay its bills as they come due, and vice versa" (Gitman, 1991, p. 668). In this situation, one would try to strike a balance in a way that profits are maximized without the current operations and required liquidity to be affected. However, the definitions of 'required liquidity' vary from one firm to the other. The amount of liquidity of an asset describes how easy

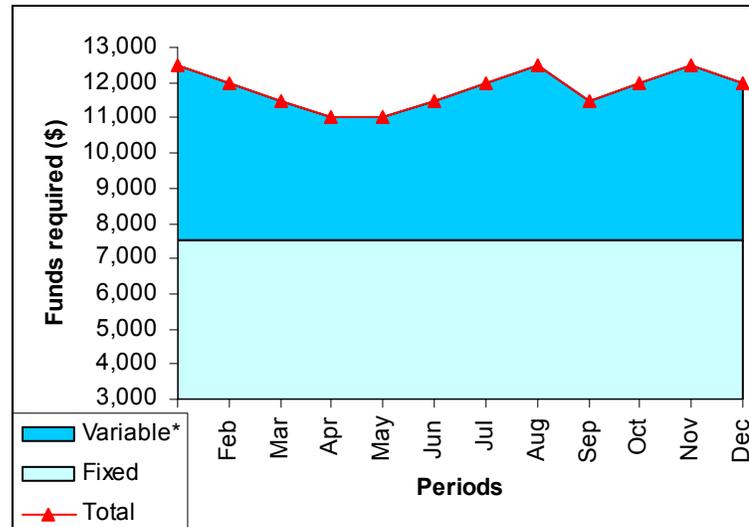
it is to find a buyer for the asset and consequently convert the value of the asset into cash at a fair market value (Brigham & Houston, 1997, p 5).

Particularly for accounts receivable and accounts payable, liquidity is vital. A company needs to have enough cash or near cash equivalent assets to pay its obligations. Having liquidity provides the company with short term flexibility. In this way a company has a reserve to fall back to in case of unexpected defaults or changes in the market. If, for example, demand for a product is much less than expected, lower income for the company is expected, but not necessarily decreasing costs. In fact, costs may even increase due to a reduction of scale economies.

Over the short term, all companies require an immediate availability of funds to sustain operations throughout the year. The requirements of funds can fundamentally be classified as fixed or permanent, and as variable or seasonal. “The **permanent need**, which consists of fixed assets plus the permanent portion of the firm’s current assets, remains unchanged over the year” (Gitman, 1991, p. 674). Examples of the current portion are minimum inventory levels that firms hold in case of shortages and operational outages. “[...] the **seasonal need**, which is attributable to the existence of certain temporary current assets, varies over the year” (Gitman, 1991, p. 674) and can refer to the levels of receivables that a company has in one period over the other.

To exemplify this situation graphically, a fabricated structure of fixed and variable fund requirements is presented in graph 1.

Graph 1: Fixed and variable funds



From: the Gitman book, page 675, values have been altered on purpose

Nevertheless, it is not the only factor to keep in mind. The influence of accounts receivable on the company altogether is diminished by all the other NWC factors that also have weight in defining the value of the company. The way all these inputs are calculated is the same for every company; however the size that each of these inputs has is relative to each company. Even competing firms can have very different NWC structures because of the way they manage their inventories, have financing policies and generally conduct business. Nevertheless, the way it affects financially the company is that, together with CAPEX investments, they have to be subtracted from the operating cash flow of the firm. This creates the Free Cash Flow. “[...] free cash flow [...] is the cash flow actually available for payments to investors (stockholders and debtholders) after the company has made the investments in fixed assets, new products, and working capital required to sustain ongoing operations” (Brigham & Houston, 2007, p. 84). (See below for the generalized formula on how to calculate Free Cash Flows). When managers and academics preach that the “primary goal of financial management is to maximize shareholders’

wealth over the long run” (Brigham & Houston, 2007, p. 102), they refer to the return for the investors. In other words, the more free cash flows the company can generate, the more will the investors see their returns increase. This is why, for the maximization of the returns for the shareholders, every little revenue driver has to be addressed to create a streamlined operation.

Statement of Cash Flows for company X:

Net Operating Profit After Taxes  
+ Depreciation  
+ Amortization  
- CAPEX investments  
- Change in Net Working Capital  
= Free Cash Flow

3.3.4.2. *Opportunity costs:* These costs are incurred in any investment a company, a person or even the government makes. Opportunity costs quantify “what is lost by not taking the next-best [...] alternative” (van Horne & Wachowicz Jr. 1998, p.136). Or if viewed from a profit based point of view, opportunity costs represent “the difference in return between a chosen investment and one that is necessarily passed up.” (Investopedia, 2008). These costs are important in calculating a part of the value of the firm. The most common solution for companies is to introduce a credit policy. This allows its customers more flexibility in their payments and therefore increases the mid term earnings of the firm. In doing this, the opportunity to sell marginal product units is not forfeited. On the other hand, it establishes guidelines and restrictions for credits to minimize the risk of possible defaults. It accounts for the cash that is lost in bad debts and the additional administrative costs of running a credit department. The company hedges its positions as long as optimal and dynamic credit policies are in place.

However there is still an opportunity cost involved in having the receivables. The company owns the money but does not have it yet at hand, which means that it cannot reinvest it and the interests that this money could be making are lost. To obtain this information, first, there are aspects that need to be put in context.

3.3.4.3. *Rate of return:* Every company makes investments, be it in the form of new machinery, new processes, new marketing campaigns, etc. Every project, in which the company invests resources in, is expected to generate a return. Measured as a percentage, the expected rate of return for an investment is a weighted average of the most probable returns considering likely, optimistic and pessimistic scenarios (Brigham & Houston, 2007, p. 258). Firms use this number as input in various tools to compare the different projects it has to choose from.

In addition to the expected rate of return, the capital the company uses comes at a cost. It has to pay interests to stockholders, debtholders, or other sources of funds that have extended capital to the company to generate a certain return for them. This is called the *Required Rate of return* or cost of capital. It is a weighted average of the required returns of each source of funding, relative to the amounts that a firm holds of each. This is called the Weighted Average Cost of Capital, or WACC (Brigham & Houston, 2007, p. 331). This is how the WACC is calculated.

Table 4: WACC calculation

$$\text{WACC} = (\% \text{ of debt}) * (\text{After-tax cost of debt}) + (\% \text{ of equity}) * (\text{cost of equity})$$

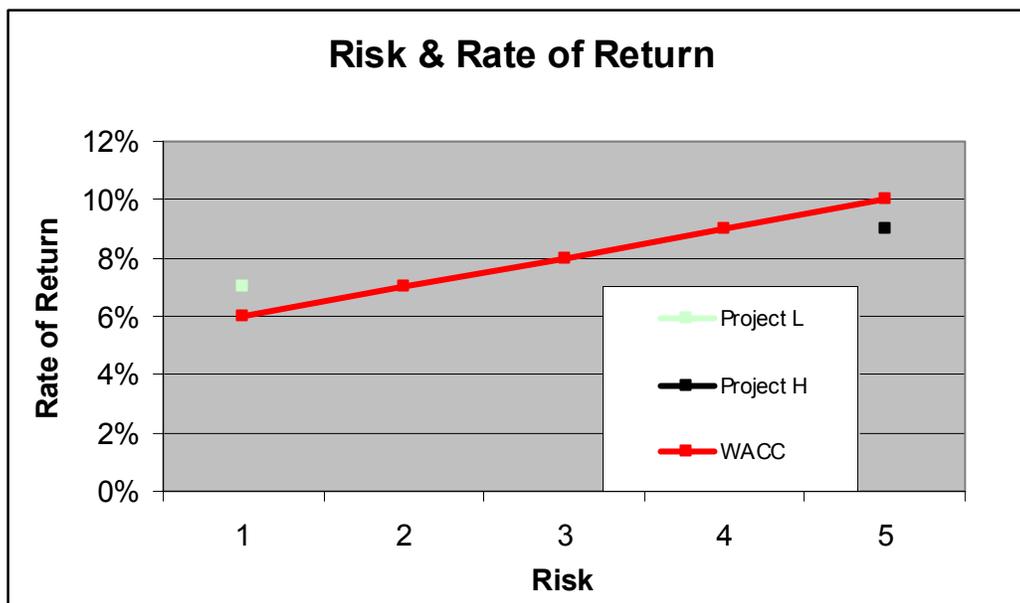
Source of funds	Amounts	Cost of funds	Calculation
Debt	60 million (60%)	3% (After Tax)	60% * 3% = 1.8%
Equity	40 million (40%)	7%	40% * 7% = 2.8%
<b>Total</b>	100 million (100%)		<b>WACC: 4.6%</b>

If other sources of funding are used, these would represent subsequent lines.

The WACC provides a required rate that all projects must yield minimally not to be turned down. When projects are profitable they have to be so from an accounting and from an economic point of view. This means that not only does each project have to produce some profits (accounting), it has to produce more profits than what is owed by the company to have access to the funding for the project. Returns above the cost of capital are called Economic Profits.

Tying it all together, every proposed project must yield a higher expected return than the cost of capital of the company, while having a tolerable level of risk associated. To illustrate a generalized overview of how companies choose projects from a financial perspective is presented in graph 1:

Graph 2: Risk and Rate of Return



Source: Self-developed, 2008

The rationale behind this graph is the same for all companies. The WACC increases with the amount of risk incurred. If a company is to invest in a project, it must make sure that the incremental risk is accounted for, as well as an increase in the cost of capital. Investors expect to earn premium returns for undertaking higher risks. Thus, the return and the measured risk of a

certain project can be mapped and compared to the WACC in the graph above. For the sake of simplicity, the risk factor has been segmented into increasing levels, where 1 represents very low risk, 3 represents an average risk and 5 a very high risk. Project L has a lower risk than project H, equally so L has a smaller rate of return than H. However compared to the WACC, L poses a higher return than the WACC at a smaller amount of risk. This would render Project L as acceptable. On the other hand, Project H may have more risk and a higher rate of return than Project L, but the WACC indicates that at these risk levels, a higher rate of return is necessary to be acceptable. This is why Project H would be rejected.

The WACC is defined individually for each company. Since it is a combination of various sources of capital and each one of these comes at a certain cost, the chosen mixture is the most desirable for the company. A company has to pay interests on the money it has taken to build and operate its installations. Equity pays dividends, debt pays tax-deductible interests and if preferred stock is available, that too comes at a certain cost. Hence the name “Cost of Capital”. “The weight on each cost component is the fraction of total long-term financing (common stock, debt, preferred stock) that each financing source represents, at market values in the company’s desired or target capital structure.” (Stowe, et. al., 2002, p. 48) This represents the minimal funds that companies need to generate in doing its projects. Note that the words “desired” and “target” are used to describe a best possible state in which the WACC is as low as possible, making the discounting minimal and thus, increasing the value of the company. This situation is not always the case. As the environment and the company change over time, the perfect mix of financing options also changes. This is further detailed by Francois Mallet: “[In creating a customized financial strategy, the first step is to] establish an appropriate capital structure, after which a determination would be made of the magnitude of its cash surplus.” (Mallet, 2004)

The cost of capital complements the notion of opportunity costs in the following way. As described, the interests that the company could be making if it had collected the receivables could have been reinvested at least at a WACC, assuming that the company can reinvest this extra capital either in existing projects or adding these funds to new ones. As time progresses and receivables take more time to be collected, this opportunity cost increases. The idea of maximizing the return of the shareholders should not stay at an abstract level, but influence the culture and mindset of every employee and manager of the company. Especially for companies like Holcim (US) that have chosen a Total Cost Leadership strategy every marginal cost incurred is a hindrance in thriving in the chosen competitive position.

This is a case in point, the better the collection efficiencies of a company work, the greater the marginal increase in the value of the company will be. With these bases, control and measurement tools can be created that make the impacts on value more tangible and engaging for its managers. Thus, to really maximize the return for the owners of the firm, every stakeholder has to perform the best job possible.

### *3.3.5. Ratio Analysis and the Days Sales Outstanding measure*

Many of the metrics that people stumble upon in the news are based on ratio analyzes. Ratios are mathematically speaking, just a division of two numbers to create a quotient that explains the relation between those two numbers. What these inputs summarize is what gives meaning to the ratios. These touch on defined structures that all companies have and the relations among these numbers reflect the various situations that a company is currently experiencing. Ratio analysis is defined as: “A tool used by individuals to conduct a quantitative analysis of information in a company's financial statements. Ratios are calculated from current year numbers and are then compared to previous years, other companies, the industry, or even the economy to

judge the performance of the company.” (Investopedia, 2008). There are many ratios that a person can use to analyze companies. To classify them first a distinction has to be made between accounting ratios and non-accounting ratios. Accounting ratios are always related to information from financial statements, while non-accounting ratios are industry and / or company specific.

For the purpose of the project, the focus will be only on selected accounting ratios. Accounting ratios are segmented into five general categories, addressing liquidity, debt management, profitability, market value and asset management. This segmentation breaks the accounting of the company down to explain, in a more focused way, specific areas of the company that are of special interest for different groups of people. For instance, “investors obviously like to see a high ROE [return on equity], and high ROEs are generally positively correlated with high stock prices.” (Brigham & Houston, 2007, p. 115). As different groups of stakeholders focus more attention on their specific areas of interest and find them clearly delimited, this segmentation makes sense. All stakeholders, alas, have to pay attention to all the ratios of a company and understand the interrelations between them to grasp not only the position of the firm in their area of interest, but to understand holistically the whole situation of a company.

3.3.5.1. *DSO*: Especially important for this project is the “Days Sales Outstanding” ratio. It is grouped as one of the asset management ratios, which measure how effectively a company manages its assets (Brigham & Houston, 2007, p.104). They provide good comparisons among competitors and the industry standards. Since competitors are similar in the production and selling of a certain good, they can be compared in terms of the productivity that management can obtain from operating assets. The most common asset management ratios are the “Inventory Turnover Ratio”, the “Fixed- and Total Asset Turnover Rate” and the “Days Sales Outstanding (DSO)”. The DSO “is used to appraise accounts receivable, and it is calculated by dividing

accounts receivable by average daily sales to find how many days' sales are tied up in receivables" (Brigham & Houston, 2007, p. 106). The DSO is important for Holcim (US) because all cement producers sell more or less on equal credit policies. This makes it possible to compare the efficiencies of all competitors in the same industry.

The following equation is taken from the last mentioned source;

$$\text{DSO} = (\text{Receivables} / \text{Average Sales per day}) = (\text{Receivables} / (\text{Annual Sales} / 365))$$

This assumes that the average taken from the annual sales of a company, divided by the number of days of the year is a good enough input for the equation. However this is not always the case. In doing this generalization, important assumptions are made. First, it assumes that the company has more or less constant sales volumes with only minor fluctuations throughout the year. Secondly, seasonality is scarcely considered. Since receivables and sales amounts differ depending on the months on the year, the DSO for a year becomes an average. This would hardly be useful. The third assumption is that over the year, no major events would have impacted the company, like increasing competition, shortages, internal developments, etc. Lastly, it assumes that each day of the year is exactly the same. For many companies, this level of simplification and steadiness is not accurate enough. To make a case in point, Holcim's Accounting and Reporting Procedures (HARP), modified this equation to better address the trends and patterns of their company (Holcim Ltd, 2007, electronic version). The DSO is calculated as follows:

$$\text{DSO} = (\text{Current Receivables} / \text{Current Sales}) * \text{Number of days of the current month}$$

As the cement business is highly seasonal, receivables and sales in different months will yield different DSOs, depending on the typical demand for that month. The ratio now is measured on a monthly basis, creating more accurate trends and targeted feedback. Since the information is collected in a smaller span of time, the sources and reasons for mistakes can be identified and corrected. This gives analysts the possibility to inquire with greater ease into the

issue investigated, generate more accurate observations that result in clearer feedback for management and ultimately become possible learning experiences for them. If the calculation for the whole year is done at once, skewed and diffuse DSOs would result.

In the case that receivables are a bigger amount than sales, a full month of sales would not suffice to cover for receivables. The HARP method sees to this problem and imposes a solution for Holcim (US) to follow. For a detailed walkthrough of this method, see Appendix D.

This chapter covered the required information about the problem at hand and documented the necessary knowledge to understand how the problem is dealt with, in the following chapters.