Dynamic Capabilities in a High-tech Born Global Firm: A Case Study

Riding the waves of change
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Abstract
This thesis involves a case study of Cinnober, a financial technology company based in Stockholm, Sweden, that demonstrates how a born global firm adapts, evolves and survives in a highly dynamic environment. The purpose of this thesis is to contribute to the dynamic capability view (DCV) of born globals by identifying and examining the main dynamic capabilities of Cinnober. This thesis utilizes a qualitative method, whereby data has been collected from face-to-face interviews and Cinnober’s financial information. The interviews were conducted with three top managers employed at Cinnober, who are experienced and knowledgeable about the firm’s business strategies and capabilities. The main dynamic capabilities important for Cinnober were identified and examined. Another important finding was the interrelatedness between dynamic capabilities and non-dynamic capabilities, both being able to affect each other and contribute to seizing new opportunities (e.g. creating a new product in response to changing demands). The relationships were expressed by the authors through the development of a new two-step model involving the processes of (1) opportunity recognition and (2) opportunity seizure.

Key words: Born global, dynamic capability, knowledge-intensive
I Introduction

The first component of this introduction will include a background. This will describe the firm selected for this case study, and the subject matter, which will briefly introduce the two main concepts of born global firms and the dynamic capabilities that these firms may possess. The section after that will involve a problem discussion, describing and motivating the existence of a gap and demonstrating the need for further case studies in this research area. The final part of the introduction will explain the purpose of this thesis and the main research questions.

1.1 Background

1.1.1 The Firm

This thesis will perform a case study of a Swedish software company called Cinnober Financial Technology AB. Since the company was founded in 1998, it has had an international approach, offering software products and services for banks, financial institutions and exchanges all over the world. While the firm operates in a dynamic high-technology market, it is also heavily influenced by the financial sector (assisting in transactions in financial markets) (Cinnober website).

A significant event in the firm’s history was during the 2008 financial crisis. This was a period that had a worldwide impact and was characterized by an economic collapse with the government bailout of banks, a crash in the major stock markets, and the collapse of large financial institutions (e.g. Lehman Brothers Holdings Inc.). During and around this event, the landscape of the financial sector shifted significantly in terms of new rules and regulations. Companies such as Cinnober, operating in highly dynamic and fast-changing market conditions, had to adapt their technologies and respond with immediacy and efficiency to the changing environments in order to survive.

1.1.2 Overview of the Subject

Contemporary history is characterized by increased globalization and technological advancements. The technology industry is rapidly evolving and it is apparent that techno-
logical changes in information, transportation, and communication have contributed
towards the shrinkage of physical and cultural distances, causing many firms to inter-
nationalize early in their existence (Cannone & Ughetto, 2012).

Firms that adopt a global market strategy – entering foreign markets by exportation or
other mode of entry – at the start or early stages of their existence are often referred
to as born globals (Knight & Cavusgil, 2004). According to Cannone and Ughetto
(2012), it is often the case that born globals are small-sized technology firms which de-
velop a global strategic vision. How do these types of firms, competing in foreign mar-
kets, adapt to highly dynamic environments characterized by rapid changes in technol-
ogy? This can lead to the discussion of dynamic capabilities (as an important factor be-
ing able to adapt) described by Barreto (2010, p. 271):

“The firm’s potential to systematically solve problems, formed by its propensity to
sense opportunities and threats, to make timely and market-oriented decisions, and to
change its resource base”

An example that illustrates the concept of dynamic capabilities more simply can be
taken from a software company researched by Aramand and Valliere (2012). One of
the firm’s resources (or more specifically, an internal capability) is product design. The
company’s specific software development method allows them to alter the design of
their software to respond to changing environments, especially changes in customer
needs. Being able to change or modify their design is a dynamic capability of the firm.
This paper will refer to internal capabilities that are not dynamic as ordinary or sub-
stantive (used interchangeably). For example, a firm’s product design may be a sub-
stantive capability if it is kept the same as there is no need for the design to change, or
the firm is unable to change it. The dynamic capabilities concept and more examples
will be further explained and presented in the theoretical framework.

Cinnober is a high-tech born global as it is a software company that was established
with a global strategic vision, internationalizing from the start. A high-tech market is a
market where there are innovative and cutting-edge technological developments present and their improvements are occurring frequently (Oxford Dictionaries, 10/5-14). As Cinnober has customers in various countries around the world with different financial regulations to comply with, the company has had to (and still does) adapt to a highly dynamic environment, where conditions are varying for different foreign markets. Therefore, it is imperative and instructive to identify and analyze the dynamic capabilities that the firm uses to understand how it adapts and survives in the long run.

1.2 Problem discussion

When concurrently searching online for literature that specifically discusses born globals (or international new ventures) from the dynamic capabilities view (DCV), there are very few articles that surface. Some of the key words and phrases used to search through multiple online databases included “dynamic capabilities”, “DCV”, “born global”, and “international new venture”. Weerawardena et al. (2007) is one of the articles that surfaced, discussing born globals from a dynamic capabilities perspective. The authors state a number of propositions, but also point out the limited amount of research currently in the area of dynamic capabilities of born globals. Although this article has been cited by many other published articles, very few of them focus on the DCV of born globals.

“More research is required to determine the kinds of environments in which the dynamic capabilities concept is most relevant” (Barreto, 2010, p. 276). Barreto (2010) also points out that there are few studies that have researched specific types of firms (in terms of size or sector) in the context of dynamic capabilities, and which types are most likely to benefit from them. For example, the article mentions that dynamic capabilities could be important for public sector organizations due to the frequency of change in regulations and policies determined by the cycle of elections. Although Cinnober is not in the public sector, it is affected by the financial sector where rules and regulations change and vary between different countries.
Another motivating factor for investigating born globals is that it relates to Teece’s (2007) statement which advocates that multinational companies in global markets are especially relevant to research in the DCV. Born globals usually manage their capabilities and reconfigure them in a way so they can rapidly create a competitive advantage and expand in global markets (Knight and Cavusgil, 2004). This is what normally distinguish born globals from other firms, as they possess a certain adaptation skill and a specialized business model (e.g., Knight and Cavusgil, 2004; Teece et al., 1997). This can easily be integrated into different business environments consisting of varying technology standards and regulations. Born globals also seem to focus more on their capabilities, when it comes to internationalization, than other similar organizational forms (Jantunen et al. 2008). Therefore, the authors of this thesis believe that examining born globals’ utilization of their capabilities will allow progress to better understand these firms’ abilities to remain competitive and survive in the long run.

The technology industry is an interesting and relevant area of focus, as it is characterized by a rapidly changing environment (Weerawardena et al., 2007). According to Audia, Locke and Smith (2000), technology is ranked as critically important to the international success of born global firms. It is a necessary tool for adapting to environmental changes and avoiding negative firm performances. Aramand and Valliere (2012), in their case study of the dynamic capabilities of software companies, emphasized the importance of understanding how a firm responds to changes in environment by changing and improving its internal capabilities. Taking this into consideration compels closer scrutiny of the dynamic capability view in the context of a high-technology born global firm such as Cinnober.

1.3 Purpose

By conducting a case study on a high-tech born global firm, this thesis aims to contribute to the field of the dynamic capability view of born globals by exploring their firm-specific dynamic capabilities. This case aims to serve as an example for understanding how a firm in a rapidly changing environment changes and modifies their capabilities to adapt and survive in the long run.
1.4 Research Questions

- What are the dynamic capabilities of a high-tech, knowledge-intensive, born global firm?
- Which dynamic capabilities allowed the born global firm to respond to the dynamic environment during the financial crisis?
\section{Disposition}

\subsection{Theoretical Framework}

In this section, the authors will summarize all the relevant theories necessary to grasp when dealing with this paper’s purpose. First, the theory of born globals will be described. Thereafter the dynamic environment that is characteristic of born globals will be explored. The aspect of knowledge-intensity, characteristic of a high-tech market, will also be discussed. After that, the resource-based-view (RBV) will briefly be explained for introductory purposes for the dynamic capabilities-view (DCV), which is an extension of the RBV. Thereafter, the main view about the DCV will be explained, including how it is defined, examples of dynamic capabilities, how the view has evolved, and the current research on the DCV of born globals.

\subsection{Method}

As research was conducted to form this thesis and to finalize it, the authors will in this section describe the different methods implemented to gather essential data. This section will also inform the reader about the strategy that was put in place to guide the authors through the collection period and the analysis part of the data. The reliability and validity of the data will also be clarified in this part.

\subsection{Empirical Findings}

The data gathered from the research method implemented will be summarized in this part to bring some clarity to the reader of what the authors were able to gather. Here, the reader will get an overview of the different categories of data that the authors established from the completed data. Some parts of this section will also be used in the analysis section to connect the data to the thesis’s purpose, using theory from the theoretical framework (primarily regarding the DCV).

\subsection{Analysis}

This part will include the authors’ own reflections on the data that has been gathered and processed, as those thoughts are genuinely based on the theories from the theo-
retical framework. Then it is connected with the matter from the data established from the empirical finding section of the thesis. Concluding, the reader will be able to visualize how the formerly brought up theories connect to the empirical findings.

2.5 Conclusion

In the conclusion there is a summary of the analysis previously observed. The reader will in this section get a more in-depth overview of the central analysis parts that the authors of the thesis have established previously.

2.6 Discussion

This part will conclude the thesis with a discussion about the findings and the drawn conclusion of it all. Limitations to the thesis are provided here as the authors reflect on the process of thesis. At the end there will be suggestions for further research based on discoveries from the process on this thesis.
3 Theoretical Framework

3.1 Born Global

The reason why born globals are interesting for our thesis is because of their capacity to go international so early by utilizing their resources and capabilities to extract competitive advantage on a global scale. Born globals are normally very good at estimating market risk and reward, and the rapid changes occurring in dynamic environments (Rennie, 1993). How they tackle these changes and risks can be observed by looking at their dynamic capabilities (Winter, 2003). Therefore we think it is informative to examine and observe born globals in knowledge-intensive high-tech markets as they usually base their decision to expand internationally by containing deep knowledge and understanding of their internal skills and expertise (McNaughton, 2001).

Most of the scholars (e.g., Knight and Cavusgil, 2004; Hennart, 2013; Madsen and Servais, 1997) touching upon the topic of born globals and their origin seem to agree that the definition of this business structure and manner is;

“That they from inception, seek to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries.” (Oviatt and McDougall, 1994, p. 49)

In other words, they pursue their business outside national borders at a very early stage to reach a maximum level of performance with commonly high competitive resources/capabilities such as knowledge and innovation (Knight and Cavusgil, 2004). Born globals recognize very early that their business is suitable for the global market (Hennart, 2013). This is normally evident in how they structure their resources/capabilities by involving flexibility and customization into their routines so they can attain solid and healthy customer affiliations (Madesen and Servais, 1997).

Describing how a born global function to a person who has never heard of this internationalization-oriented type of firm before can be complicated without enlightening and
clarifying its origin. Hennart (2013) argues that there are three agreed upon factors to born globals’ existence. The first factor which is significant for a born global is a unique resource/capabilities that contributes to the firm’s competitive advantage on a global scale. It explains why born globals are heavily represented in niche markets, because of their smaller size but highly remarkable expertise (Efrat and Shoham, 2012). The low amount of monetary assets committed when entering an international market is the second factor mentioned, which is deeply dependent on the firm’s network and contacts. If the extent of contacts is high in a foreign market, then there is an increased possibility for the firm to succeed. Because of important guidance and tips commonly given from the network to achieve a successful market penetration (e.g., Efrat and Shoham, 2012; Gabriëllson and Kirpalani, 2004; Coviello and Munro, 1997; Oviatt and McDougall 2005). Therefore it is not common that a born global firm over-invest in unknown businesses abroad. The third factor Hennart (2013) mentions is the cheaper transportation and the improved communication accessibility between suppliers and customers, for example internet. These three factors provide the basis for the growth of a born global firm. From this there are also evolved born globals that have other factors integrated into their business model. These factors are often knowledge-, technology-, innovation- and learning-associated (Rialp et al., 2005).

Knowledge for a born global firm can be related to the learning theory of how to manage and adopt newly attained resources and competencies (Sapienza et al., 2006), (Oviatt and McDougall, 2005). Research states that it benefits born global firms to organize how they manage their knowledge because it normally results in aiding the firm to discover opportunities and reduces the sense of foreignness when entering new markets (e.g., Zahra et al., 2000; Sapienza et al., 2006; Oviatt and McDougall, 2005). Without the ability to gather knowledge, any firm would have difficulties in sustaining its position in a foreign market. Knowledge in the born globals internationalization is consisting of collecting and integrating the knowledge acquired from the market and the knowledge-intensity involved in managing the firm’s products/services (Chen et al., 2012; Oviatt and McDougall, 2005).
Where this knowledge comes from has been discussed many times and the overall conclusion is that it usually originates from two sources. It is either prior knowledge that the entrepreneur has obtained through his/her career and/or the companies’ network width and expertise (Grant, 1996; Oviatt and McDougal, 2005). What knowledge basically does in born globals’ internationalization process is lowering the risk involved in their newly discovered business opportunities abroad, which also explains why born globals commit so quickly to international markets (Zahra et al., 2000; Madsen and Servais, 1997). It is because they can act with higher certainty than perhaps other players in the same market (Madsen and Servais, 1997).

These born globals possess dynamic capabilities that are developed to handle market alterations and varying customer needs on a global scale (Sapienza et al., 2006). The modifications or customizations required by born globals to satisfy their international customers, reflects the need for born globals to utilize their dynamic capabilities. To generate customer satisfaction and market-competitive products/services that may result in creating a unique international competitive advantage (Hennart, 2013).

3.1.1 Dynamic Environment

For a born global firm it is vital to be able to scan their market and pinpoint opportunities that can be further developed into business opportunities (Teece et al., 1997). Therefore the authors believe that recognizing the rapidly changing market environment, where most of the high-tech born globals are present in (Knight & Cavusgil, 2004), will shed light on Cinober’s approach to their dynamic capabilities when it comes to adapting to rapid changes in dynamic environments.

Dynamic environments are markets where rapid changes and developments are frequently occurring, and where active players must be aware of the continuous modifications required to compete (Lin and Wu, 2014). These sorts of environments have developed in parallel with the growth of globalization. The opening up of borders has resulted in a decrease in transaction costs and a widespread communication platform that have increased the opportunities for firms to expand both quicker and safer inter-
nationwide (Knight and Cavusgil, 2004). Born globals are normally small-medium sized companies that are able to take full advantage of these variables existing in the dynamic environments (Rennie, 1993). They are able to do this because of the flexibility integrated into their business model and closer customer relationships compared to the larger established firms acting in global markets.

Where these born globals also differ from other international firm structures are their diminished administrative restrictions (Knight and Cavusgil, 2004). When a firm decides to expand rapidly, it can be difficult to efficiently embrace the new routines and knowledge necessary to compete in the new market. Born global firms usually have a low-hierarchy and less strict organization that assists the company to avoid clashes with old and new routines that frequently occurs otherwise when entering a new dynamic business environment (Efrat and Shoham, 2012). Less administrative obstacles can benefit managers to make faster decisions when it comes to investing in new businesses and products. It also welcomes a more flexible structure in the firm, where information flows freely between the different work sections to enhance the experience-sharing and collaboration possibilities. It is also related to the firm’s business model (Hennart, 2013). How the firm decides to integrate flexibility into their products/services to generate the best possible customer satisfaction to their customers that have different needs.

The development of internet and smartphones, has improved the communication between buyers and suppliers all over the world as we mentioned earlier. It has also made an impact on the preferences of products in the global markets (Laanti et al., 2007; Knight and Cavusgil, 2004). Assumingly, the importance of being available internationally has grown because of the understanding of customers’ accessibility to obtain products from all over the world. It has also led to products developing into more standardized products that can function with excellence in several regions of the world. This is in contrast with old goods that were generally country-constrained (Knight and Cavusgil, 2004). This has allowed born globals to pursue sustainable superior value and performance on a global scale, which keeps them intensely competitive.
in their small niche markets where the MNE are usually not superior (Efrat and Shoham, 2012; Knight and Cavusgil, 2004).

### 3.1.2 Knowledge-Intensive Firms

In rapidly changing environments it is crucial to be aware of recent market changes and growth/declines that might have an effect on the firm’s dynamic capabilities and make the firm’s product/services inferior (Efrat and Shoham, 2012). In certain markets firms are required to predict changes before they even occur. In this section, the thesis therefor provides an explanation on the importance of knowledge and its impact on born globals.

Born globals are mostly present in several different foreign markets at the same time. These markets can be both high-tech and low-tech environments where they are able to provide a significant value-adding product/service (Weerawardena et al., 2007). In some markets the knowledge capability is more crucial than others, for instance in markets where it is considerably important to be able to adapt to rapid changes by collecting and learning new knowledge (Autio et al., 2000). It is usually high-tech firms that possess this knowledge-intensity. They transform learned knowledge into something that gives them a unique competitive advantage on a global scale (Oviatt and McDougal, 2005). In a way, the more the firms strive to obtain new knowledge the more likely they will succeed to integrate important processes that can be revalued and become vital for future businesses (Autio et al., 2000).

“Perhaps in today’s hypercompetitive environment what may be most important is not how much a firm knows going in, but how quickly it can learn (D’Aveni, 1994).” (Autio et al., 2000, p. 919).

This quote is an interesting insight into knowledge-intensive firms, where their methods to achieve competitive advantage does perhaps not lie in what knowledge they possess, but more in how they convert it into something valuable. What Autio (2000) argues is that the problem for high-tech born globals is not how to assemble new
knowledge and avoid competitors imitating their business. The problem for these companies is how to preserve their most valuable and dynamic knowledge base (Starbuck, 1992). This knowledge base can decrease by either unreplaceable employees deciding to move on or firms’ possessing resources or capabilities that are out-of-date in their business market.

### 3.2 Resource-based View

Prior to the initial development of the dynamic capabilities view, the resource-based view (RBV) as a part of the strategic management, was first introduced by Wernerfelt (1984). It is important to understand what the RBV is in order to know how the dynamic capabilities view came into existence as an extension of the RBV.

The RBV provides a framework that is used to explain how firms gain competitive advantages through the application of set (static) bundles of resources (Eisenhardt and Martin, 2000). For example, a company with experienced employees that have exceptional expertise in a particular field (an example of a human capital/resource) might provide a competitive edge against other close competitors in the same industry. In addition to a firm having a unique set of resources, it must also possess its own capabilities, which “refer to a firm’s capacity to deploy resources, usually in combination, using organizational processes, to affect a desired end” (Amit & Schoemaker, 1993, p. 35).

Various scholars have pointed out that one of the main limitations of the RBV is that it does not explain how firms maintain a competitive advantage in changing environments (e.g., Barreto, 2010; Priem & Butler, 2001). Put another way, the RBV does not provide a solution as to why the success of firms with the same resources and capabilities are not equal (Eisenhardt and Martin, 2000). The dynamic capabilities view (DCV) seeks to address this particular gap in the RBV.
3.3 Dynamic Capabilities View (DCV)

The DCV, since its inception toward the end of the 1990s, has become more widely accepted among scholars and it is a topic that has become increasingly popular to research in the academic field of strategic management (Aramand & Valliere, 2012). Barreto (2010, p. 260) mentions the concept of dynamic capabilities first being defined by Teece and Pisano (1994) as “the subset of the competences and capabilities that allow the firm to create new products and processes and respond to changing market circumstances”. Later, Teece and colleagues (1997, p. 516) redefined dynamic capabilities as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments”. The research paper by Teece and colleagues (1997) is regarded as possibly the most influential study on the topic of dynamic capabilities (Barreto, 2010). Their research provided a dynamic capabilities approach to address the gap, how some firms are able to remain competitive in changing environments, that could not be filled by the RBV. Teece and colleagues’ approach to building the DCV was by the assimilation of a number of key theoretical components and assumptions (Barreto, 2010, p. 259):

1. A dynamic capability is an extension of the RBV, being a special type of capability (also categorized as an ‘ability’ or ‘capacity’).
2. The purpose of this special capability is to “integrate (or coordinate), build, and reconfigure internal and external competences”.
3. The focus is on a specific external context – that is, “rapidly changing environments”.
4. A dynamic capability is assumed normally to be “built rather than bought”. It is created and changed through the organizational processes that are formed by the company.
5. There is heterogeneity across firms with regards to their dynamic capabilities “because they rest on firm-specific paths, unique asset positions, and distinctive processes”.
6. The assumed outcome of the possession of dynamic capabilities by a firm is a sustained competitive advantage.
Further explaining the importance of the DCV, in order for a firm to maintain its competencies and resources, and create (and utilize) new competencies and resources against fast-changing environments, it is necessary to possess dynamic capabilities (Teece et al., 2007). Dynamic capabilities enable a firm to change their competences and resources to respond to fast-changing environments. This in turn, may allow the firm to gain competitive advantage and survive in the long run. Similarly stated, the main proposition of the DCV is “...that firms with dynamic capabilities are better equipped to deal with changing environments and, in consequence, to perform better” (Barreto, 2010, p.271).

Specific examples of possible dynamic capabilities (Eisenhardt & Martin, 2000, Aramand & Valliere, 2012):

- Development routines – whereby managers employ their variety of skills and abilities to develop profitable products and services
- Strategic decision-making – using various personal, business, and functional capabilities to make decisions which form the strategies implemented by the firm. For example, in a changing environment, is a firm able to significantly alter its strategic decisions in order to adapt?
- Product design
- Project management
- Customer service

Put in another way, “dynamic capabilities are regarded as a transformer for converting resources into improved performance” (Lin and Wu, 2014, p.407). However, measuring the effects of dynamic capabilities on firm’s performance is very difficult (Barreto, 2010). Using the software company example from the background, even if the firm’s dynamic product design capability causes it to respond exceptionally fast to changing customer needs, the impact of this dynamic capability is not quantifiable.

Before analyzing these kinds of capabilities for a company, it is not assumed that they are dynamic. For example, perhaps a company has ‘product design’ as a capability, but the firm is unable to change or modify it. Al-Ali and Teece (2014, p. 105) explain that
dynamic capabilities “...are higher-order capabilities in the sense that they govern how the organization’s ordinary capabilities are developed...and combined”. In the case where a firm’s capability is not dynamic, or it has not been analyzed yet to determine if it is dynamic, this paper refers to such a capability as an ‘ordinary’ (or ‘substantive’) capability of the firm.

In order to measure the degree to which a company can change and modify its ordinary capabilities (i.e. whether a company has a high, moderate or low degree of dynamic capabilities) it is important to understand “...the frequency of changes and the source of changes in their substantive capabilities” (Aramand & Valliere, 2012, p. 154). For example, a software company may have a high degree of dynamic capabilities if their project management skills and design and development skills are changed and modified throughout an entire duration of a project. In contrast, another software company might only change and modify its ordinary capabilities at the start of a project and not change them for the remainder of the project. In this case, the software company would have a low degree of dynamic capabilities.

3.3.1 The Evolving DCV

In recent years, the DCV has evolved in different ways. As mentioned by Barreto (2010, p. 257), the growing academic research on the DCV “...has provided successive and distinct definitions of the construct”. The creation of various definitions of dynamic capabilities demonstrates that this approach is still in its early stages, and shows the significant amount of interest generated by this topic. However, the proliferation of definitions also creates some confusion that may prevent research of the DCV from progressing effectively. Some authors define dynamic capabilities as ‘abilities’ (or capacities), while others describe the concept in terms of ‘processes’ or ‘routines’. Therefore, Barreto (2010, p. 271) formed a new definition to accommodate the various interpretations of dynamic capabilities:
“The firm’s potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base”

This way of describing dynamic capabilities incorporates the different variations that have arisen since the concept was first introduced by Teece and colleagues (1997). It also fits perfectly with this case study of Cinnober, and especially regarding problems, opportunities and changes in resources (or capabilities) associated with the financial crisis.

In addition to the various definitions of dynamic capabilities, different researchers have been focusing on different outcomes. For example, some authors have explored firm performance as the outcome, while other researchers have used processes or organizational outcomes. And while some articles have focused on the maintenance and development of dynamic capabilities, others have merely paid attention to the existence of these capabilities (Barreto, 2010). As this thesis intention is to investigate the existence of these capabilities.

More recently, Aramand and Valliere (2012) have explored the relationship between entrepreneurial capabilities (the ability to discover new opportunities in the market) and dynamic capabilities, how each reinforces the other, through carrying out a case study on three different software firms. Additionally, the authors developed “...a new method to capture the dynamic capabilities through capturing changes in ordinary capabilities” (Aramand & Valliere, 2012, p. 142). Their conclusion included the figure (Fig. 4, p. 155) below to illustrate the relationship between opportunity recognition and dynamic capabilities:
The relationship they found was that dynamic capabilities, substantive capabilities and opportunity recognition are interrelated; one can lead to the other and vice versa. This conclusion was reached by discovering that the three companies analyzed in this study learned to use an agile design and development method over time. This has enabled them to take advantage of opportunities in the market through change and modification of their skills in design and development. Additionally, taking advantage of opportunities in the market has allowed them to alter their ordinary capabilities, which has led to stronger dynamic capabilities. Although this thesis does not focus specifically on the relationship between entrepreneurial capabilities and dynamic capabilities, the aspects of opportunity recognition and taking advantage of opportunities are highly relevant to the DCV of a company operating in a dynamic environment (Aramand & Valliere, 2012).

3.3.2 The DCV of Born Globals

As mentioned previously in the problem discussion, the research of specifically born globals from the DCV is limited. Weerawardena et al. (2007) is one study that investigated the factors that contribute to accelerated internationalization of born global firms. The authors reviewed previous literature on capabilities relevant to successful born globals. In doing so, they developed a number of propositions, some of which are listed below:

- “The owner-manager’s profile is positively related to market-focused learning capability in accelerated internationalizing firms” (p. 300). In other words, acquiring market knowledge is an important capability of the top management of a firm.
- “The owner-manager’s profile is positively related to internally focused learning capability in accelerated internationalizing firms” (p. 301).
• “Market-focused learning capability is positively related to the development of knowledge intensive products in accelerated internationalizing firms” (p. 302).
• “Internally focused learning capability is positively related to the development of knowledge intensive products in accelerated internationalizing firms” (p. 302).
• “The development of knowledge intensive products relates to the firm’s accelerated internationalization” (p. 303)

Note, however, that the authors use the term “capability” rather than “dynamic capability” as it is not assumed that such capabilities are always dynamic (i.e. being changed or modified) for every firm. Based on their research, and in summary of their propositions, the authors conjecture that born globals with a set of (dynamic) capabilities that are built and sustained allow for the creation of leading-edge knowledge intensive products in high-tech markets.

A more recent study by Al-Aali and Teece (2014, p. 95) also finds that “strong dynamic capabilities coupled with good strategy work together to generate and sustain superior enterprise performance in fast-moving global environments”. To analyze a born global’s dynamic capabilities, the authors suggest a framework that looks into the dynamic capabilities that are relevant to three processes (p. 107):

1. Sensing – the process of identifying and assessing opportunities domestically and internationally. This relates to Figure 1 in terms of opportunity recognition.
2. Seizing – using resources (including capabilities) to address these opportunities and obtain value as a result of doing so.
3. Transforming – “continued renewal”. For example, “selectively phasing out old products” and “changing business models, methods, and organizational culture”.

The propositions by Weerawardena et al. (2007) and Al-Ali and Teece framework can be combined to illustrate a hypothetical example. Suppose a firm’s market-focused
learning and internally focused learning capabilities improve over time. These improvements allow the capabilities to be categorized as dynamic capabilities. Furthermore, these dynamic capabilities give the firm a competitive advantage in terms of being able to (1) sense new opportunities (due to better business intelligence) in a dynamic environment. Since the market-focused learning and internally focused learning capabilities also contribute to developing knowledge intensive products, this also helps in (2) seizing new opportunities (developing new products in response to a changing environment). Over time, the firm continues to (3) transform by, for example, phasing out its older products in favor new ones that are better adapted to the current market conditions. Note that, in this example, only two dynamic capabilities are mentioned. There could easily be more dynamic capabilities (e.g. product design capability, strategic decision-making, etc.) involved in these three processes.
4 METHOD

In the first sections of the method the authors will attempt to describe and convince the reader why this specific method structure was chosen for this particular paper’s purpose. It will contain an explanation of how the qualitative method selected and the gathering of secondary data gave the authors some in-depth knowledge about the firm and its capabilities. It will also include a short description about the interviewees to give the reader a better understanding of why they were selected and their contribution to the firm in focus in this paper. This section will also aim to illuminate how the authors of the paper accessed data and afterwards processed it. The final part of the discussion of this method will explain the reliability and validity of this method. This will add some clarity to the trustworthiness of the data gathered through the method implemented.

4.1 Research Approach

After the construction of the purpose, the authors acknowledged that the paper demanded data that contained complex corporate information with a clear connection to the firm’s dynamic capabilities. This data was necessary in order for the authors to fully understand the dynamic capabilities at Cinnober (the process of selecting Cinnober and Case study in our research is explained in the case study section of the method)

To expand the view on how the selected firm Cinnober adapts their recognized dynamic capabilities when they face rapid changes in their market, a certain event was included in the thesis to get an accurate explanation of the process. The event chosen was the financial crisis occurring 2008-2009, where the market experienced fast changes (annual report 2008/2009). The authors believe that the firm’s adaption skills used during this hectic period will serve as a good example for the reader to know how their dynamic capabilities are used.

4.1.1 Qualitative Research Method

A qualitative research method contains devices that gather and apprehend data more in-depth than its counterpart quantitative research method (Bryman & Burgess, 1999).
As Bryman and Burgess (1999) argue; the essence of doing a qualitative method is to get an insider perspective on the issue in question, and see how the interviewee perceives the situation. This insider perspective was necessary to properly accomplish this thesis’s purpose, as mentioned previously. If this method was not selected there was an anticipated risk from the authors that other research methods would not generate the same preferable multi-faceted data as could be derived from a qualitative method (Bryman & Burgess, 1999). Another benefit with conducting a qualitative research method is that the conductor and the respondent are able to reach a relationship level where they achieve some sort of understanding of each other. This would enable them to go deeper into the conversation, and from an interviewer perspective, discover unexpected new data.

4.1.2 Semi-structured Interviews

The upside with a semi-structured interview is that it can access information that has been newly discovered by adding follow-up questions (Wengraf, 2001). It gave the authors the option for adjustments when, for example, the interviewee mentioned a key phrase or word that has never been brought up before which seemed necessary to add to the paper and therefore needed to be further explained. Eisenhardt and Martin (2000) mention in their article that dynamic capabilities are ambiguous, and this is one of the arguments for conducting our interviews in a semi-structured manner as it adds extra flexibility to the process (Bailey, 2007). An example of this flexibility was when in the second interview the respondent mentioned project management and the authors wanted to have further clarifications of their procedures and job description. The authors felt a misconnection between capabilities and project management. The respondent clarified and the authors received further insight as to how CInnober functions and how project management is used to maintain customer relationships.

There are many different approaches when conducting a qualitative research. It can be for a grounded theory purpose, where the purpose is to create a theory built on the collected data. Another qualitative research method strategy can be a case study perspective where the purpose is for example investigating how a firm, in their environ-
ment, can relate to certain academic business theories (born-global and dynamic-capability-view). This single case study structure is called a holistic approach (Yin, 2003). It is what this thesis has embraced as a method strategy because of the decision to only focus on a single firm and their dynamic capabilities.

4.1.3 Case Study

The purpose behind choosing a single case study was because the authors aimed to test a proven theory about dynamic capabilities in a born-global context, and see if the firm had experiences that could be useful for further research. Eriksson and Kovalainen (2008) argue that a case study should not be viewed as a method itself but more accurately as a strategy within a method. What a case study should reflect is a detailed and complex view of a chosen context (Eriksson & Kovalainen, 2008). The reason behind it should be that the topic itself is complicated and needs to be examined through a case example to portray a simplified version of what the research purpose is based on (Flyberrg, 2006). An interesting perspective shared by Flyberrg (2006) is that there are several misconceptions when it comes to case studies reliability. Some people believe that a case study cannot be based on just one individual case and that its content is biased towards a successful verification of the author’s hypothesis. However, Flyberrg argues for the opposite and that case study strategy has often been heavily criticized on false assumptions, and that it should not be doubted just because it is arranged differently than for example a quantitative method.

The case study of this thesis is represented by a Swedish firm called Cinnober. The authors found the representative born global firm Cinnober through the authors’ network connections. It was from the authors’ perspective an interesting firm to look into because they are spread out over the world and that the firm’s experience could bring some insight to how managers handle their work internationally. One of the selection criteria that Cinnober fulfilled was their market. Their market is characterized by rapid changes and knowledge-intensity, where it is crucial to be updated and flexible to satisfy customers. The second criterion was the firm’s structure and international familiarity, a firm that could be defined under the born-global theory. This criterion was ful-
filled because the firm went international from the early beginning and they are still active in many different countries.

4.2 Research Strategy

To form an efficient research strategy the authors had to first and foremost recognize what had been previously explored, and what those researchers suggested their readers to look further into. The authors went through the Scopus (a journal database on internet), school library and its database for articles touching upon the subject dynamic capabilities, born-globals and knowledge-intensive. This background check was necessary because it aided the authors to have some foundational knowledge about the subject. Thereby extrapolate and accurately predict which research strategy was best suited to serve the purpose of the paper. Some of the most useful articles discovered were Barretto (2010), Eisenhardt and Martin (2008) and Knight and Cavusgil (2004). These three articles helped the authors with the creation of the purpose by highlighting the existence of a gap in the research of dynamic capabilities.

When the processing of articles was complete, the authors took a closer look into Cinnober through their website and old newspaper-articles to get an appropriate estimate of their products, market and customers. The purpose behind this was to produce a research method that could extract the most information as possible. These steps prepared the authors to conduct the most crucial part of the method section, the primary data collection and data analysis.

4.2.1 Method of Data Collection

The first contact we made with Cinnober was a scheduled meeting in March 2014 with the Deputy CEO, where the authors of the thesis had a short presentation about our education at JIBS and the purpose of writing a thesis from a case study perspective. We got a very welcoming response to this idea and it was evident that they were going to provide us with as much help as possible. During this meeting the authors and Deputy CEO discussed the theories that the authors had read before the meeting occurred, and wondered if it was something from those theories that was visible in their business
environment. The Deputy CEO insight to Cinnober helped the authors realize in what way they could implement their theoretical background about dynamic capabilities in born globals to shape the purpose of the thesis.

The next step was to find respondents within the firm that could clarify and accurately explain the firm’s capabilities function. That could also explain the process of changing the capabilities according to newly discovered market constraints and opportunities. As these capabilities were assumed to have a major part in the firm’s business, the authors’ assumption was that the persons that could describe these the best were individuals that had a managerial role at Cinnober. The writers of the thesis assumed that these managers probably set the outlines for which new business opportunities to pursue and which to ignore, influenced by recognized market changes. Even though the employees working in the firm’s projects are probably the first ones to come in contact with the newly discovered opportunities, it is the managers at Cinnober that implement them into the business model. The authors therefore concluded that the most effective and rewarding research method would be a qualitative method, where we interview managers at Cinnober to successfully extract and integrate the data needed for this thesis.

Most of the questions used in the interviews (the questionnaire used in the interviews is available in the appendices – figure 6) were structured to collect data about the firm’s dynamic capabilities. First the authors wanted to get a substantial look at their capabilities, to understand them and if the interviewee could recognize any. As mentioned previously the financial crisis was incorporated into the questionnaire to get a clear example of how the firm used their capabilities. At the end there was a question about dynamic capabilities and their performance. The reason why this question was included was because it gave the authors a better understanding of how the dynamic capabilities impacted the firm on a daily basis and how they were used. A weakness with some of the questions was that they could be seen as quite broad, but it is important to underline that it was intentional as the authors did not want to influence the interviewees’ answers too much which could make the answers less reliable.
A short presentation of the three managers interviewed and their position in the firm:

**Deputy CEO:** Deputy CEO holds a lot of knowledge about Cinnober because of the position this individual holds in the company.

**Head of Business Development:** Being head of business development the person offered an interesting insight to Cinnober business and how they adapt to market changes.

**CEO:** The CEO had experience from the early days of Cinnober and could therefore provide the thesis with both current and earlier information about the firm’s capabilities and structure. The CEO also provided an excellent overview of the firm.

### 4.2.2 Interview Procedure and Strategy

Before conducting the interviews we contacted Cinnober via email where the authors first of all mentioned which persons they wanted to interview and asked if they were available. In the same email, the authors also described the thesis purpose. As an educational aid the respondents also received some explanation of the theories and terms that would be mentioned in the interviews. This would provide the respondents with some prior knowledge and enhance the quality of the interview because the interviewees would understand the subject better and it would also decrease time wasted on explanation.

After the interviews were scheduled, two of the authors visited their office in Stockholm where the interviews were conducted. Because of availability and time constraints, two of the respondents (Deputy CEO and Head of Business Development) were interviewed at the same time for about fifty-six minutes. The significance of this will be discussed in the validity sections. The questions were still asked to both of the respondents and both of them responded to each question. The second interview was with the CEO, and its duration time was twenty-five minutes. Both of these interview activities were semi-structured (and conducted in English), meaning there was room for flexibility where the respondents were able to expand their answers further (Bailey,
The interviewer could also ask the respondent to elaborate if there was a certain question that needed to be clarified. Most of the questions (the questionnaire used in the interviews is available in the appendices – figure 6) were structured to collect data about the firm’s dynamic capabilities.

The two authors, who conducted the interviews, divided the interview work between them. One author asked the questions while the other took notes of the answers that were given. This separation of tasks made the interviews more efficient as one focused on the quality of the interview making the interviewee comfortable and asking the right questions, while the other authors focused on collecting all the vital data. The interviews were also recorded (after permission had been given to record) which made the data analysis process and the recognition of important data much easier. After the two interviews had been performed the process of transcribing the interviews was started. The respondents were also available for answering new questions after the interviews through email.

To increase the depth of data from the firm, the authors looked into Cinnober’s annual reports and website to gather some secondary data. It provided triangulation to the paper, which is using multiple data collection methods as it adds reliability on the paper’s quality. (Bailey, 2007) This provides an improved understanding of the firm’s dynamic capabilities and the impact it has had over time. The annual reports of Cinnober provided a description of their market’s condition and the firms view on it after each fiscal year, which will be further shown in the result sections of this thesis. After the interviews and the secondary data had been gathered and finalized, the process of analyzing the data followed.

4.2.3 Method of data analysis

To identify and locate the data, the authors of this thesis used focused coding (Bailey, 2007). This method includes putting data into conceptual groups, where in this case, the distinctions between the different groups were characterized by the data’s relevance to the different theories in the theoretical framework (Bailey, 2007). For exam-
ple, when the respondent talked about their product design being modified over time it fell under the category dynamic capabilities as it matched with that particular theory. This procedure was conducted for all data conceived in this paper and resulted in giving the authors some clarity and pattern recognition for the analysis section. The upside of having different conceptual groups is that it gives an excellent overview of the data collected and provides possibilities to further scrutinize and make subgroups (Bailey, 2007). The size of the data was controllable and the data was clearly marked (by the respondent’s name, from which interview it came from and lastly the secondary data).

In the analysis the authors of the thesis identified which capabilities mentioned from the interviews were truly dynamic capabilities and which were ordinary capabilities. This process was supported by the theories included in the theoretical framework.

4.2.4 Reliability

What can be the downside with implementing a qualitative research method is that there is a possibility that the authors lose their awareness of the issue and deviate from the original plan. The authors acknowledge this as a critical error that was important to avoid. Thus, most of the questions were structured beforehand and based on academic theories not influenced by the interviewees’ answers. By using a semi-structured structure on the interviews this thesis was capable of exploring deviant information and then afterwards return to the original plan (Bailey, 2007).

From a reliability perspective a semi-structured interview might cause some problems for the reader to achieve the same results when conducting the same method. This is true as the authors’ beliefs and reflections might differ and result in different focuses during the interview practice. This is something that is difficult to avoid and that the authors try to argue against in the research strategy section of the method by describing the reasoning behind the method.
As there are three authors of this thesis there are some risks of interpretation bias when it comes to the interview process and the data analysis section. As all people have different opinions and thoughts, so did the authors as to what was more important to focus on in the paper. Thus it was crucial for the reliability of the thesis that the authors collaborate with each other when writing the thesis. In an attempt to solve this issue the authors tried to reflect upon the purpose of the thesis and not let their opinions direct the process of writing the thesis. Therefore the analysis method was a good way to harmonize the authors’ different considerations because there had to be an agreement on what data belonged under what category to make the paper more coherent.

The authors recognize that the respondents and the documents (annual reports) from the company reflect some bias of the firm to present an attractive profile to people outside the firm. To reduce impartiality, the strategies implemented have been carefully analyzed to minimize the risk of it having an effect on the finalized product of the thesis. The questions were mainly structured on the theories from the different articles which add some reliability to the data.

4.2.5 Validity

Because the first interview had to include two of our targeted candidates, for time-restraint purposes from the company, there might be a justified concern that the respondents’ answers did not reveal their own reflections. The purpose of interviewing these representatives was because of their embedded knowledge of Cinnober. So it is natural that their answers should, to a certain amount, echo each other’s opinion as well as the company’s view of the topic. Taking this into consideration, the view of the authors is that this issue is not significant enough to interpret these results as invalid. It can also add some strength to the data because if there are some disagreements on an answer the interviewers could address the matter directly as the moment occurred.

The semi-structured method chosen increased the level of trustworthy data in this particular interview scenario. If any of the individuals interviewed said something unex-
pected that we wanted further explained, the interviewers could interrupt the structure of questioning and direct full attention to what the respondent said and ask follow up questions to get a more clarified picture of it.

As mentioned earlier in this part, the firm that this paper did its case study on is a firm that deals with a high pressure market where there is little time available. Because of this when the authors were able to get appointments to conduct interviews they knew that it could not be a long interview process. As the reader can see in the questionnaire (appendices – figure 6), the questions were structured to go straight to the point but, important to mention, there was still room for flexibility to reach extra data. To ensure that the respondent knew the basis of the questions that were going to be asked during the interview, the authors sent out an email beforehand to enlighten the respondents on the theories and definitions used in the thesis. This email served as an educational tool to inform the respondents of the different theories and definitions that the thesis had embraced. The time-constraint does raise questions about the data in terms of whether perhaps more could have been covered. The authors do feel that the answers given were pleasing for our purpose to reach some analytical results. Important to recognize is that the method used is a qualitative research method and therefore the quantity of interviews should not be the issue but the quality of the data the authors of the thesis succeeded to gather (Eriksson, & Kovalainen, 2008). There is a justified concern that there is more empirical data that could have been collected if more interviews had been conducted and it is something that will be further mentioned in the discussion section (further studies) of the thesis.

A draft of the analysis and the data gathered from the interviews has been shown to the respondents involved, they approved the content and that adds some validity to the thesis as their insight to the material used in the thesis is undisputable (Yin, 2003).
5  Empirical findings

In this section the empirical findings of our data collection will be presented. This section will provide an analytical framework that will guide the remainder of this thesis.

The purpose of this thesis is to explore firm-specific dynamic capabilities of a high-tech born global, and to understand how this firm can adapt to a rapidly changing environment. In order to reach a high level of depth in our discussion this chapter is divided into two main parts.

The first part will include the secondary data research and will describe Cinnober during the financial crisis, both in terms of the global financial market and also their main activities during this period. The financial crisis will be an important focus in this thesis, and with the goal of giving the case study more depth, help to fully understand how a firm in a rapidly changing environment uses its dynamic capabilities to adapt and survive. The aim of this part is to provide a context to our case study, in which we can fully explore the company’s firm-specific dynamic capabilities.

The second part will present our primary data research gathered from the interviews that have been conducted. This part will go into depth to ascertain the actual dynamic capabilities of Cinnober that they possess currently. In addition it will also further explore the company’s dynamic capabilities during the financial crisis.

*The structure of this chapter will follow:*

1. A description of the company
2. Cinnober through the financial crisis
3. Present the dynamic capabilities of Cinnober

5.1  The Company

As the focus of the thesis will be centered on one specific firm (Cinnober) the beginning of this chapter will present a description of the company.
The information below about this company will be presented, including its history, service and market in which it operates in. This will provide an overview of the company and the context for the research of this thesis.

At the very beginning of the company in 1998 in Stockholm (Sweden), the company set out to develop and provide a platform for financial transactions (Cinnober AB, 2014). From inception, the company targeted the global market and has ever since grown into a profitable company with a net sales of 295.8 (SEK million) in the financial year of 2012/2013, and with over 230 employees working there (Cinnober Annual Report 12/13, 2014). Today Cinnober has grown into a knowledge intensive company where the majority of the employees have a background in financial information technology and computer programming. It operates globally with major financial players such as exchanges, banks, clearinghouses and brokerages, and delivers systems on nearly all continents. These customers are for example: Deutsche Börse, Dubai Gold & Commodities Exchange, Eurex, London Metal Exchange, Markit BOAT and Stock Exchange of Thailand (Cinnober website). To conclude, it is a born global high-technology company offering services in the financial market (Cinnober Annual Report 12/13, 2014).

The company service focuses on two distinct niches in the financial market: trading and clearing. Solutions they offer within these two areas are for example price discovery, order matching, market data, settlement and surveillance. This service is based on a java-based platform the company calls “TRADExpress”. What separates Cinnober from its competitors is the fact that they are an independent provider of financial technology. This means that they are independent from financial actors with vested interests such as individual exchanges or investment banks. Cinnober has many competitors which are often found in financial marketplaces systems. Their main competitor is NASDAQ OMX Group, owner of the NASDAQ American stock exchange (Cinnober Annual Report 12/13, 2014).

Cinnober’s annual report from 2012/2013 summarizes their current position by explaining: “The global financial market is a continuously changing landscape, to which all players in our industry must maintain a relationship. At Cinnober, we consider the rap-
pace of change to be a strong driving force when it comes to development and success. Our customers are marketplaces, clearinghouses, banks and brokerages around the world. Our foremost task is to help these customers implement innovative changes to gain new positions faster than their competitors”. The fact that customers in various countries need to use specialized software adhering to different financial regulations that are likely subject to change, makes Cinnober a compelling candidate for investigating the use of its capabilities in such a globally dynamic environment.

In the next part the thesis will briefly introduce the financial crisis and how it is highly relevant and interesting to assess in the context of Cinnober and its dynamic capabilities. This will serve as an introduction to our secondary data research where we will zoom in and assess the market situation for Cinnober during this period and how Cinnober responded to it through its activities.

5.1.1 The 2008 Financial Crisis

Briefly summarizing the events that occurred during the global financial crisis, it began with rapidly falling real estate prices in the USA in 2007. As this continued into 2008, the value of investments tied to real estate (e.g. mortgage-backed securities and collateralized debt obligations) fell by the billions. The credit markets seized up (making it extremely difficult to borrow money) and the value of major financial institutions collapsed. The government intervened to save some of these large companies, but it is possible that this led to even more panic in the financial world. More financial institutions ended up collapsing and the stock markets crashed, resulting in the worst financial crisis since the Great Depression of 1930s. This was a period in which changes in the global market were frequent and resulted in dynamic environments for companies involved. As a consequence of this crisis, many new financial regulations required implementation to help prevent such a crisis from occurring again (Guynn, 2010).

As a born global company with customers in many different countries, Cinnober has had to adapt to these kinds of changes in regulations. These changes have opened up for new opportunities. Potential customers for Cinnober need help in adapting to this
dynamic environment in the best or most efficient way possible, to reduce the costs associated with obeying to new regulations in the market.

5.2 Cinnober through the financial crisis (secondary data)

In this section we will present the market situation in which Cinnober found themselves in during the financial crisis. In addition to this, critical activities undertaken by Cinnober will be presented. This section will be structured in a chronologically way, so first the market situation and critical activities for the financial year of 2007/2008 will be presented. After this, the financial year of 2008/2009 will be examined through the same structure. This period between 2007 and 2009 is when the majority of the changes happened, and will be the focus of this thesis when it comes to examining their market situation. This is the period that the authors of the thesis believe it is most interesting to investigate Cinnober’s dynamic capabilities.

5.2.1 Market Situation of 2007/2008

During the financial year of 2007/2008 the financial crisis had spread throughout Europe. Within the global financial market there were two main trends Cinnober experienced:

*Consolidation:* An overall tendency in the market was that marketplaces started acquiring each other, for example the American stock exchange “NASDAQ” buying “OMX” (a financial services company). This tendency translated into both more risk as well as opportunities for Cinnober. The risk was that the purchasing players would want to integrate their newly acquired businesses into their own platform and phase out Cinnober’s system. From another standpoint, this allowed Cinnober to build relationships with larger marketplaces for their services (Cinnober Annual Report 07/08, 2014).

*Fragmentation:* Another common tendency in the market was the financial regulatory changes as a response to the lack of control during the crisis. Because of these regulatory changes, it became very important for Cinnober to be able to respond and adapt quickly (Cinnober Annual Report 07/08, 2014). Without going into too much detail of
all the changes in regulations that occurred throughout the world, one of the most significant changes introduced was the Dodd-Frank Act in the United States. The Dodd-Frank Act is a framework that encompasses a whole set of regulations for many areas of finance, including the regulations for trading and clearing systems (Guynn, 2010).

Another major financial regulation was the Markets in Financial Instruments Directive (MiFID 1) introduced by the European Commission in November, 2007. It was stated on the European Commission website that “...this directive governs the provision of investment services in financial instruments by banks and investment firms and the operation of traditional stock exchanges and alternative trading venues” (Investment Services and regulated markets, n.d., para. 1). Although MiFID 1 was implemented to benefit investors by, for example, lowering transaction prices, the financial crisis revealed that more drastic changes in regulations were needed. Therefore, the European Commission introduced MiFID 2 in October 2011, with the goal of increasing protection for investors, more transparency and market efficiency. (Investment Services and regulated markets, n.d.)

5.2.2 Activities by Cinnober 2007/2008

During the financial year of 2007/2008 Cinnober managed to acquire three new customers within the area of trading systems. Two of these customers operated within marketplaces for equity trading. These customers were; The European banking consortium Turquoise and Canadian banking consortium Alpha Trading Systems. The first mentioned was created by nine world-leading investment banks; Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, Merrill Lynch, Morgan Stanley, UBS, BNP Paribas, and Société Générale. This acquisition was established as a direct result of the company’s technological improvement and regulation of the market (MiFID 1) that generated an increased demand for Cinnober’s solutions. The latter was owned by nine of the leading players in the Canadian stock market. The third new customer was American Quadriserv. These were three large contracts for Cinnober and were important in the sense that it positioned Cinnober as a leading provider of trading systems among players establishing new markets. Furthermore, they added extensively to
their geographical expansion, reaching exchange markets in both Europe and North America (Cinnober Annual Report 07/08, 2014).

5.2.3 Market Situation of 2008/2009 (and after-effects)

At this point of the crisis, an even higher level of market turbulence had swept over the global financial market. As a result of this, the global economy had a strong downturn. From the perspective of Cinnober this resulted in clients beginning to prolong their decision processes because of the high level of uncertainty the market had created. Apart from this setback the company experienced a strong interest from their clients (Cinnober Annual Report 08/09, 2014).

One main tendency in the market during the financial period of 2008/2009 was the regulatory changes like the ones mentioned previously. Important regulations would continue affecting trading and clearing systems in Europe before and after the crisis. For example, in Europe (where Cinnober has many customers) a European Union regulation known as European Market Infrastructure Regulation (EMIR), was introduced in August, 2012 (European Market Infrastructure Regulation, n.d.). This included many rules that served to mitigate the risks (creating more stability) involved in trading and clearing (European Market Infrastructure Regulation, n.d.).

5.2.4 Activities by Cinnober 2008/2009

In the financial year of 2008/2009 Cinnober continued to add two new clients to their portfolio within the area of trading systems. The first new client was Hong Kong Mercantile Exchange. This was the company’s first client in Asia, and was a geographical milestone for the company. The second new client was Burgundy (Cinnober Annual Report 08/09, 2014).

During this period Cinnober went through one important initiative: broadening their offerings towards the primary target group of not only stock exchanges but also clearing organizations. By doing this the company strengthened their position as the world-leading independent supplier to financial marketplaces. In order to carry it out the company created a system called “TRADExpress Realtime Clearing”. This system, aimed
towards clearing houses, CCP’s (Central Counterparties) and brokers enabled a service including real-time clearing and risk management. This demand for real-time clearing and risk management was created out of the regulatory changes in the market. For example, risk management was a system that clearing houses needed in order to meet new regulations caused by the crisis. These changes in the financial market gave rise to new business opportunities for Cinnober that they took advantage of (Cinnober Annual Report 08/09, 2014).

5.2.5 How the financial crisis affected Cinnober

The financial crisis resulted in a dynamic market climate to operate in for companies such as Cinnober. Consolidation and fragmentation affected the company and offered both risks and opportunities (Cinnober Annual Report 07/08, 2014). The fragmentation in the market is an important change that Cinnober took advantage of when the company acquired Turquoise (is an equity trading platform, the MIFID regulation allowed this takeover).

Furthermore during this period Cinnober added new clients to their portfolio each year and experienced a steady growth and a geographical expansion. One important initiative was the development system for real-time clearing. This opportunity presented itself as a consequence of the financial crisis. Cinnober managed to sense this change in the market and it has been an important addition to their product portfolio ever since.

Based on the results from the financial crisis, it becomes clear that Cinnober managed to recognize the opportunities the financial crisis offered, and adapted. The crisis did have lasting effects on the global financial market, and for example volumes in the world’s financial markets have more or less halved from the point of the crisis to now. This has forced competitors to Cinnober to cut back on their operations. Cinnober in contrast, took advantage of this period and today their market share is considerably greater than it was back in 2009. Even during the financial crisis the company experienced a high level of performance in terms of financial figures which is shown in the
The company experienced consistent profits:

![Key Figures](https://example.com/key_figures.png)

(See figure 2 – appendices)

### 5.3 The dynamic capabilities of Cinnober (primary data)

In this section the results derived from conducting interviews will be presented. The approach was to begin by defining the company’s internal capabilities. Thereafter we discovered the dynamic capabilities based on the level of change of the defined internal capabilities. The questionnaire (in the appendices – figure 6) was used as a guiding tool.

During the interviews there were a total of eight identified internal capabilities that Cinnober uses for designing and developing their services. These were:

- Business Intelligence (Market understanding)
- Product Design
• Product Development
• Project Methodology
• Project Management
• Strategic Decision-Making
• Investment Discretion & Initiative-Taking
• Innovation & Boldness

Each out of these internal capabilities will be explained based on the information derived from the interviews:

**Business Intelligence (Market Understanding):** Cinnober operates in the market of financial technology, and an important capability is therefore their marketing comprehension skills; their business intelligence. The firm needs to possess a high level of competence in regards of their offered solutions to their clients. Furthermore the firm needs to master transaction technology and the business logic of trading and clearing in order to be competitive. The market in which the firm operates is constantly changing and the firm needs to stay current with the latest technology, which is why the firm puts a heavy emphasis on their *business development forum*. The intention is to capture trends in the market by collecting information and add to the business intelligence in the following ways:

1. **Collect information through press and different websites**
2. **Participation in marketing events with the aim to seek information. In addition to this, sales account managers attend conferences twice a year.**
3. **Account managers communicating and developing close relationships with their clients. By listening to their clients the firm better understands their requirements and wishes.**
4. **Running a lab with the intention to generate new ideas.**

In line with the Deputy CEO and Head of Business Development, the CEO also mentioned Business Intelligence being important for the company. According to the CEO
the firm uses it as “thought leadership” in terms of where they should take the product, and also what product they should develop. This capability gives the firm a good understanding of the trend in the market, what the current demand is, and what the market will need in a few years’ time.

The business intelligence is also important for the company in order to provide rewarding customer relations where they can give advice. From the second interview with the CEO: “for the customer it might be the first time they are buying a system. Therefore, we need to provide guidance throughout the process. For example, the client might have had a domestic system before and now all of a sudden have an international client base. Then they need advice on adopting the best international practices and how to attract foreign customers”.

**Product Design:** Their *product design* involves the infrastructure of their actual product, and it is based on their Java-based platform they call “TRADExpress”. From this platform business modules can be used to adapt their solutions to each customer’s needs and market environment. According to the CEO this is an important capability of theirs and explains: “the product we’re building can be seen as a toolbox, so you can take these libraries and components and put them together to build a system for the customer. Within the toolbox we have modules to build a trading system, clearing system, risk engine, and a variety of products. That also makes us flexible to changes in the market because the code we developed can be used in many combinations to create and modify different products”.

**Product Development:** Cinnober continuously develops their product, by improving its performance and adding features to it. This is a deeply rooted capability within the firm. The firm’s business intelligence is a supporting capability, and enables the firm to understand what features to add (as a result of the improved level of market knowledge).
**Project Methodology:** Cinnober focuses on providing customized solutions for their clients. In order for the firm to offer a high level of client focus, and deliver what they promise, the organization is flat and project-oriented where selected self-managed teams are assigned for each client. These teams have a high level of autonomy and are not restricted from the top management. Usually during these projects they create time boxes that extend to around 6 months. When the project is designed, employees will get specific roles for the decided time period. What this means is that the employee can focus on one client and offer a good customized service, but is also not married to that specific role in the long run. After a project is finished the employee gets to work for another project. This is important for the firm as then the employees within the firm switch between different projects and gets a more uniform view and understanding of the firm. During the actual projects the company uses a project-based product development framework called “SCRUM”. This method is used for managing software projects.

**Project management:** According to the CEO, project management is important and involves maintaining the customer relationship, to allow the customer to become confident in the abilities involved to develop a system for them. Therefore the firm focuses on being transparent with what they are doing and how the firm is progressing.

**Strategic Decision-Making:** One important capability for the company is their strategic-decision-making. This will be further explained later in this section, but a short explanation is found by the CEO: “We see the solutions and we are not afraid to set new achievements. We like challenges. It would have been easy for anyone else to say back in 2008-2009 “well yeah, good idea, but this is impossible”, because it was so different to what existed at that time”. This is taken from the context of the financial crisis when Cinnober added real-time clearing to their product portfolio, which made them highly successful. An interpretation of her quote is therefore that they are good in terms of making decisions which is a statement supported by their successful move during the crisis.
**Investment discretion & Initiative-Taking:** This capability we derived out of the interview with the CEO as well. By possessing this capability it enabled the firm to add real-time clearing to their product portfolio. For example the CEO explained: “the other capabilities that we have is also that the owners of the company allow us to do that investment. For example, we don’t need to have three customers signed up before we start development”.

**Innovation & Boldness:** This capability of innovation and boldness was also identified from the interview with the CEO. When talking about the financial crisis: “We at Cinnober are very curious and think anything is possible with technical development; software can solve everything. We see the solution and we’re not afraid to set new achievements”.

According to the CEO, one significant factor for the firm’s success in the financial crisis was their courage that enabled them to respond quickly to the opportunities during this period.

*Out of the identified internal capabilities, three out of them were identified as being subject to change, and therefore their dynamic capabilities:*

- **Project Methodology**
- **Product Design**
- **Strategic Decision-Making**

**Project Methodology:** The Deputy CEO explained in the first interview: “On a micro-level, our self-managed teams are an internal capability that we change when committing to different projects”. The firm changes this capability in two ways; *team formation changes* and *in-project changes*.

In terms of *team formation changes*, the firm puts an effort into allocating employees in different projects. Based on which client and size of project, different employees with different skills will be assigned to the project.
The *in-project changes* are a dynamic capability that is enabled through the mentioned method “SCRUM”. It allows the self-managed teams to self-organize by encouraging online collaboration of all team-members as well as having a daily face-to-face communication. SCRUM allows individuals within the project to make changes in response to challenges that may occur. This allows for a high level of flexibility and enables the team to quickly respond to emerging situational requirements. This ability; to make changes throughout a project is important for Cinnober as they operate in a dynamic environment that is hard to predict.

**Product Design:** One firm-specific dynamic capability that the firm constantly change is their product design. Cinnober is a born global firm and has a diverse mix of clients from different continents. This puts a significant pressure on their product design in terms of being able to adapt to various wants and needs, and according to the Deputy CEO: “Our platform is designed to allow us to customize our solutions for different customers with different needs and unique business models”.

The CEO also added an interesting perspective on this by explaining: “In 2007, there was a new regulation in Europe called “MIFID” for regulating financial transactions. Previously the domestic exchanges had a monopoly in all countries, but this new regulation opened up for competition. For example, Burgundy opened in Sweden and in London there were five alternative marketplaces to the London Stock Exchange. Since then, the regulatory landscape has really changed the financial landscape. This has made our customers and potential customers to have to invest in new technology in order to comply with new regulations. Since we have this “modulized” platform we can very easily adapt to those new regulations. So rather than having to change the process internally, we do change the offerings based on external activities and changes”.

**Strategic Decision-Making:** An important finding through the interviews was how the firm added clearing to their product portfolio as earlier explained. Stated another way, they changed strategy during a very important time that would enable them to have
continued success. What makes this a dynamic capability is how the company was able to, in rapidly changing environments, make important decisions such as these. The initial market strategy can be changed in order to adapt to market changes.

*Below, the firm’s dynamic capabilities used in the context of the financial crisis will be presented.*

### 5.3.1 Financial Crisis

The financial crisis was a period in which the company remained profitable, and rather than downsizing the firm expanded their portfolio by undertaking a clearing system initiative. In other words, they extended their product from offering solutions in trading, to offering solutions in clearing as well. This was a successful move and enabled the company to become market leaders in this area. The main capabilities that made this significant move possible were the firm’s product design and strategic decision-making. The Head of Business Development explained: “the reason why we could add clearing to our offered solutions was because trading systems are dwarfed to clearing systems”. I.e the possession of a trading system enabled Cinnober to implement a clearing system. The Deputy CEO also explained: “one of our strengths is being able to adapt to, for example, changing regulations”. This is because of the company’s dynamic capability of product design, and also their strategic decision-making.

In terms of Cinnober’s strategic decision-making there were several reasons why they decided to shift from trading to a major focus on clearing houses during the financial crisis. According to the CEO the firm had one product for one segment during this period, and this made them very dependent on the product to perform. For example if the exchanges didn’t do well, the firm wouldn’t do well either. Therefore Cinnober wanted to broaden the product portfolio and also broaden their potential customer base. They determined that exchanges were starting to go to electronic trading instead of manual trading. The identification of this new trend resulted in the strategic decision to add clearing to their product. This was a large investment as well as a risk, however, their
estimate later on became true and nowadays almost everything is executed electronically.

With regards to clearing, no one had updated a clearing system according to the CEO. The clearing system and risk management system were fifteen years behind. CEO said in the interview: “Previously it might have been okay to know your risk just two times a day, but nowadays if you are doing thousands of transactions per second, you can go bankrupt in three seconds if your algorithms are wrong. We more or less invented the concept of ‘real-time’ clearing, which no one had heard about around 2008-2009. The capabilities have as a company allowed us to create this”.

6 Analysis

This section is designed to analyze these capabilities in order to fully understand them, how they are applied to a high-tech born global firm, and how it enables the firm to successfully adapt to its dynamic environments.

**An overview of the ordinary and dynamic capabilities**

As noted, the internal capabilities have been identified. As recalled from the theoretical framework these capabilities can be divided into two different categories: ordinary and dynamic capabilities. The figure below illustrates and applies this procedure to our case study. By separating the identified capabilities as such, it will assist the remainder of this thesis when analyzing our findings. *Figure below.*
6.1 The born global firm Cinnober and Dynamic capabilities

This thesis has aimed to explore the firm-specific dynamic capabilities of Cinnober. The authors concluded that most of the scholars (e.g., Knight and Cavusgil, 2004; Hennart, 2013; Madsen and Servais, 1997) agree that born globals are characterized from inception with a global market strategy and foreign market entry. Cinnober is a born global that expanded internationally from the very beginning (1998), and set out to provide a product (TRADEXpress) to assist financial transactions. The firm had from their very beginning a global vision, which is a trait often found in born global technology firms according to Canonne and Ughette (2012).
The theory on born globals suggested that firms commonly operate in dynamic environments (Teece et al., 1997). By conducting the research the authors of the thesis found this to be valid for Cinnober. The firm operates in the highly dynamic global financial market dealing with a variety of clients with differing needs and wants. These clients are found all over the world some of which are Deutsche Börse, Dubai Gold & Commodities Exchange, London Metal Exchange. These firms were all highly dependent on the market environment, and the authors found that one important factor was regulatory changes such as MIFID, hence this also impacted Cinnober.

In this context of a dynamic environment with a high level of change, the authors defined two important aspects for a born global firm needed to be taken into consideration. These were for the firm to be knowledge-focused as well as possessing dynamic capabilities.

Scholars such as Teece et al. (1997) suggested that it is important for a born global firm to scan their market and pinpoint opportunities that can be further developed into business opportunities. The authors concluded that acquiring knowledge is an important factor for a born global firm operating in dynamic environments. This was also the case for Cinnober, which puts a large emphasis on this. By conducting interviews with staff from the firm’s management, the authors found that business intelligence (an ordinary capability), was developed through their business development forum, with the intention to capture trends in the market. This was done by, for example, participating in different market events, communicating with clients as well as having a lab where they generate new ideas. This ordinary capability impacts other capabilities within the firm such as their ordinary capability product development. The business intelligence enabled the company to add business modules and improve the performance of their product.

The authors’ research suggests that for a born global firm such as Cinnober it is necessary to be able to adapt to new market regulations and client needs. It was suggested that the theory of dynamic capabilities was important in this context. The three dynamic capabilities that were derived from Cinnober were: Product Design, Project Methodology and Strategic Decision-Making.
Product design was determined to be a significant capability for Cinnober, which is subject to high level of change. According to the CEO: “Our platform is designed to allow us to customize our solutions for different customers with different needs and unique business models”.

Aramand and Valliere (2012) proposed that ordinary capabilities and dynamic capabilities are interrelated. To explain, ordinary capabilities can support dynamic capabilities and the other way around. This relationship was apparent in terms of Cinnober’s product design. The firm’s business intelligence for instance is an important supporting variable for this dynamic capability. This relationship and the level of significance of this dynamic capability will be further scrutinized in the next section of the analysis.

Another important dynamic capability for the firm was project methodology. The deputy CEO of Cinnober explained how the firm is project-based in order to enable the firm to offer a customized experience for every client. This was important in order to, for example, adapt their product design for the client’s individual needs. This project-based methodology was an internal capability that the firm changed when committing to different projects. There were two ways for the firm to change this capability: team formation changes and in-project changes.

The first mentioned change in terms of the allocation of different employees in different projects was based on the size of the project and the client. The firm also changes their project methodology in terms of in-project changes by using “SCRUM. This method for the firm’s projects included self-managed teams that self-organized and carried out their project through daily face-to-face communications. Within the projects the employees could also make changes in response to challenges that may occur. This enabled the firm to quickly respond to situational requirements, and it is extremely important for Cinnober.

Similarities between the earlier mentioned Aramand and Valliere (2012) research on software firms’ dynamic capabilities and this thesis research on a born global firm can be observed, especially when it comes to the findings about the importance of the dynamic capability product design. The two observed firms (from this case study and
Aramand and Valliere’s case study) are both active in dynamic environments and therefore the authors of this thesis make the conclusion that in certain markets where dynamic environments can be identified, the capability to adapt and fulfill customer needs is crucial to create a certain competitive advantage. This particular dynamic capability examined, also seem to encourage firms in dynamic environments to continuously seek for finding new possibilities to create competitive advantages. The conclusion drawn from the other case study was that product design has a significant part in the level of success of the companies under study, which can also be drawn from this study.

6.2 Dynamic Capabilities during the Financial Crisis

To understand how a high-tech born global firm operating in a dynamic environment uses its dynamic capabilities this case study included the period of the financial crisis to investigate this. During this period the global financial market was performing poorly, which as a consequence had a negative impact on Cinnober as their products were focused on trading. Nevertheless, in retrospect, the firm was able to successfully utilize its dynamic capabilities to adapt to a rapidly changing environment and survive in the long term.

The firm’s research during the financial crisis revealed that the global financial market was characterized by two main trends during this period. These were consolidations (acquisitions of marketplaces) and fragmentation meaning there were many regulatory changes. This created a dynamic environment with new obstacles for companies, but also business opportunities for the ones being able to adapt to the new market conditions. Cinnober was one of these companies. Their financial results from the year of 2006 to 2010 indicated consistent profits. During the financial year of 2009 the firm experienced net sales of 322.8 (MSEK) and an operating profit of 70.8 (MSEK) and thereby close to tripling their operating profit from the year before. This was surprising considering the increased level of market turbulence and turmoil during the year.

What enabled this performance was the firm recognizing an opportunity in the market due to their market analysis, using their business intelligence (an identified ordinary
capability of the firm) – in other words, their internal and market knowledge. As a result of regulatory changes, they realized that there would be a strong demand for ‘real time’ clearing, whereby the risk could be analyzed and managed for thousands of transactions in a matter of milliseconds. They believed they could create a clearing system that was significantly more efficient and faster than any other system at that time. Cinnobber not only recognized this opportunity, but also took action by investing an enormous amount of resources to create this new product, shifting away their focus from trading. This was a major risk that ended up paying off as we can see from their financial results of 2009, and they have remained profitable every year since.

6.2.1 Adding real-time clearing to their product portfolio

Cinnobber was able to succeed in the creation of its ‘real time’ clearing software due to a number of factors. First of all, the company’s software product design (an identified dynamic capability) is flexible and relatively easy to modify and develop new products from existing ones. According to Aramand and Valliere (2012), major changes and modifications are indicative of a high degree of dynamic capabilities. Cinnobber utilized and changed its product design to create an entirely new and innovative product, which further shows that its product design is a highly dynamic capability.

Another important factor in the creation of the ‘real-time’ clearing system was that the principles of the company have always allowed its top managers to pursue any large investment deemed favorable (through market analysis) for the firm. This sort of flexibility and freedom to invest without hindrance is a type of internal capability for the company, and has allowed the firm to be more dynamic. However, it is not a dynamic capability (i.e. it is ordinary/substantive) because this flexibility has not needed to be changed or modified. The ability to freely invest in developing a new product contributes to the dynamic capability of strategic decision-making. This was an important factor in enabling Cinnobber to change their business strategy during the financial crisis.

Cinnobber was able to demonstrate that their strategic decision-making is a highly dynamic capability, as derived from the interviews. The high degree of dynamic capability
is due to the wide scope of change and modification in its strategy that took place during this time. Other factors that contributed to Cinnober’s highly dynamic strategic decision-making included the company’s culture. *Innovation* and having the “courage” (or *boldness*) to take on new challenges and set new goals is highly encouraged within the firm according to the CEO of Cinnober, as they believe that “software can solve everything”. This was identified as an ordinary capability.

### 6.2.2 Two step-model

In order to understand the firm’s use of dynamic capabilities during the financial crisis, the authors of this thesis incorporated two existing models into a two-step model. Using figure 1 that shows the relationship between opportunity recognition, substantive capabilities and dynamic capabilities, the authors of this thesis have suggested an alternative way of using this model. A distinction is made between opportunity recognition and opportunity seizure. By making this distinction, the *sensing* (1) and *seizing* (2) processes described by Teece and Al-Aali (2014) are included. The *transforming* (3) process, which involves the phasing out of old products, is already implied in the seizing process (in Cinnober’s case, shifting from the focus on trading systems to the ‘real-time’ clearing system). Therefore, the authors of this thesis suggest a *two-step model*. The first step illustrates the relationship between opportunity recognition and the relevant capabilities, and the second step shows the relationship between opportunity seizure and the relevant capabilities:

**Step 1: Recognizing an opportunity in a rapidly changing environment**
Step 2: Seizing the opportunity

In Cinnobers case for step 1, the company’s business intelligence, a substantive capability, allowed them to recognize the opportunity and need for ‘real-time’ clearing. There were apparently no dynamic capabilities that contributed toward recognizing this opportunity in the market. The reason why acquiring business intelligence is categorized as substantive is because although this capability may have been built up over time (suggesting that it could be regarded as a low degree of dynamic capability), their methods for gathering market knowledge and internal learning were not changed or modified during this time period.

In step 2, there were both substantive and dynamic capabilities that allowed Cinnober to seize the opportunity and create the ‘real-time’ clearing system. The substantive capabilities identified in this step included investment discretion and initiative-taking, and the company’s innovation and boldness being central to its cultural identity. The dynamic capabilities of step 2 included strategic-decision making and product design. The two-step process for Cinnober being able to adapt to changing environment during the financial crisis is shown below:
1. Recognizing an opportunity in the changing market

![Diagram showing the relationship between Business intelligence and Need for more advanced clearing systems]

2. Seizing the opportunity

![Diagram showing the relationship between Creation of a ‘real-time’ clearing system and Substantive Capabilities (Investment discretion & initiative-taking, Innovation & boldness, Strategic decision-making, and Product design)]

The relationship between the capabilities and opportunity seizure in step 2 are more complex than step one, as there are more capabilities involved and are related in different ways. For example, *investment discretion & initiative-taking* not only contributed to opportunity seizure, but also influenced CInnober’s *strategic decision-making*.

The reason for the arrows pointing in two directions in the step 2 diagram is to suggest that there may be a higher degree of interrelatedness than what has been investigated and explained so far in this analysis. For instance, the company’s *innovation & boldness* to take on new challenges helped in the creation of this new product, but perhaps this capability was strengthened further (i.e. the company became more innovative and bold) in the aftermath of the product’s success. This in turn could have had an effect on the dynamicity of its *strategic decision-making* in terms of being able to be more...
creative and make bolder (wider in scope) decisions regarding its business strategies. To repeat and make clear, this is just an example of what could have occurred, as this paper did not investigate every possible relationship between each capability and outcome (opportunity recognition and seizure). In contemplating these numerous possibilities, the authors of this thesis recognize that further exploring the interrelatedness, especially regarding the components of step 2, could be important in an increased understanding of the change in a firm’s dynamic capabilities after going through a significant change in the environment (the financial crisis in this case).

By conducting this case study the authors defined the firm-specific dynamic capabilities of a born global firm. Furthermore, these capabilities were further investigated through the context of the financial crisis. These capabilities in combination with the firm’s ordinary capabilities enabled the firm to experience consistent profits throughout and subsequent to the financial crisis. Cinnober transforms and evolves through dynamic challenging situations, and sees them as business opportunities as opposed to barriers. This is the hallmark of a born global firm operating in a high tech environment.
7 Conclusion

As the empirical data and analysis have been carried out this section will function as a summarized effort to help the reader comprehend the most significant discoveries that this case study has given rise to. By gathering the empirical data, and analyzing these findings by making use of the academic theories presented in the theoretical framework, the authors of this thesis felt that the purpose could be met.

By investigating Cinnober’s dynamic capabilities, and how they came into play during the financial crisis, the authors enabled the research questions to properly be answered. The first research question in this thesis was: "What are the dynamic capabilities of a high-tech knowledge-intensive born global firm?". By successfully carrying out their research the researchers found the three dynamic capabilities of the high-tech born global firm Cinnober to be:

- Project Methodology
- Product Design
- Strategic Decision-Making

The second research question was: “Which dynamic capabilities allowed the born global firm to respond to the dynamic environment during the financial crisis?” The authors found that during this important period the firm’s identified dynamic capabilities were all used to some extent. Nevertheless, the product design and strategic decision-making were the most important ones that allowed the born global firm to respond to the dynamic environment this crisis brought with it.

An important strength in terms of the research was the advantage of being able to interview the top management of Cinnober. This was critical in order for the authors to derive the dynamic capabilities, and should be considered as a major strength in this thesis as their particular insights are exceptional. This allowed for a high level of reliability and validity in terms of defining the firm’s dynamic capabilities. Furthermore, the authors found that carrying out the research on the firm-specific dynamic capabilities is complex and significantly difficult. Therefore defining the DCV’s of a firm, demands a careful investigation. Focusing on a high-tech born global firm during the event of the
financial crisis, enabled for a deep case study where the dynamic capabilities of the firm could be explored properly.

An assumption that can be carefully made after examining a born global firm like Cinnober, is that their ordinary capabilities and dynamic capabilities are much more interlinked than the authors of the thesis first anticipated. The second step (seizing) in the two-step model developed in the analysis shows this. For example during the financial crisis the relationship and significance between these different capabilities became apparent. Furthermore, the interrelatedness between dynamic capabilities and non-dynamic capabilities, both being able to affect each other and contribute to seizing new opportunities (e.g. creating a new product in response to changing demands). The relationships were expressed by the authors through the development of a new two-step model involving the processes of (1) opportunity recognition and (2) opportunity seizure. This relationship was crucial and enabled Cinnober to add clearing to their product portfolio, to utilize the dynamic environment of the financial crisis and perform in the long-run.

Also, a dynamic capability could become an ordinary capability and vice versa in a different setting where perhaps change is not a major force. For example, while looking at the specific time period of the financial crisis, the business intelligence was not a dynamic capability. However, this capability could have been changed and improved over a much longer time period (a factor that was not investigated in this thesis), thereby resulting in a low degree of dynamic capability. Another observation in this paper was that even though dynamic capabilities are the components in the firm that has the direct impact on flexibility and adaptation to market changes, the ordinary capabilities can be seen as equally important as it may support and add value to the utilization of the dynamic capabilities. This can be clearly shown during the specific event that this thesis chose (2008 financial crisis) to examine the dynamic capabilities in play. For example, the investment discretion and initiative-taking (ordinary capability) in Cinnober had an immediate impact on the product design (dynamic capability) during the financial crisis as it funded resources to the adaptation process of the firm’s products without the need of consulting with the owners of the company. That agility per-
mitted the firm to satisfy new customer needs much faster than their competitors, after the market conditions had experienced significant change.

8 Discussion

Throughout the process of the thesis, the writers discovered new perspectives and issues regarding dynamic capabilities of born globals. These discoveries will be discussed here with suggestions for further studies, but first there will be a section about the limitations of the thesis.

A limitation of this thesis was the quantity of interviews conducted at Cinnober, as it has left the possibility that more empirical data exists that could have been obtained. The authors agree with Barreto’s 2010 argument that dynamic capabilities are highly context-related and obtuse, and thus are complicated to recognize from a generalized perspective. Therefore, the interviews were limited to individuals at Cinnober that hold a top managerial position, as they presumably have a good overview of Cinnober’s business. This gives the data an accurate picture of the firm and increases the validity of the paper. There is also a possibility that if the numbers of interviewees were increased it would confuse the process of data collection, as subjectivism coming from their job description and background would perhaps influence the answers too much and hurt the reliability of the thesis. Also, as it is difficult to preserve a generalized picture of dynamic capabilities, the authors decided to tackle the issue by using a case study strategy to show examples of dynamic capabilities in a certain environment.

From the first encounter with Cinnober, as described in the method part, the writers met the deputy CEO where there was a discussion about different directions to go with the thesis’s purpose. One suggestion originating from this meeting was to look into their business model and explain how the rapidly changing environment impacts its flexibility. This investigation could add some insight into how a born global firm can shape their dynamic capabilities, as a business model can be perceived as the foundation of a firm.
Both the academic researchers and this case study suggest that dynamic capabilities are important in rapidly changing environments. More extensive research can be conducted to investigate to which degree these dynamic capabilities, recognized in born globals, affect the firm’s business. Research to measure the dynamic capabilities’ impact, development and its importance to a firm would be instructive. It is something the writers believe can add some clarity to the dynamic capabilities definition, and would assist in a better comprehension of the connection between dynamic capabilities and firm performance. In this case study the authors intentionally only highlighted changes that have led to improvements as the reason was to see how a born global firm handles the dynamic environment without including the mishaps. However, the authors believe that this is something that could be further examined as it can be informative as to how dynamic capabilities may not always lead to positive outcomes. Another recommendation for future research is to investigate dynamic capabilities in further contexts. This would further add valuable knowledge to the currently not fully developed DCV-view.
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Appendices

Figures

Figure 1 (theoretical framework):

Figure from theoretical framework (dynamic capabilities):

![Figure 1](image)

Figure 2 (Empirical Findings):

<table>
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Figure 3 (Analysis)

Figure from Analysis: *Internal capabilities, ordinary capabilities and dynamic capabilities*

![Diagram showing internal, ordinary, and dynamic capabilities]

- **Internal Capability**
  - Business Intelligence
  - Product Design
  - Product Development
  - Project Methodology
  - Project Management
  - Strategic Decision-Making
  - Investment Discretion & Initiative-Taking
  - Innovation & Boldness

- **Ordinary Capability**
  - Business Intelligence
  - Product Development
  - Project Management
  - Investment Discretion & Initiative-Taking
  - Innovation & Boldness

- **Dynamic Capability**
  - Product Design
  - Project Methodology
  - Strategic Decision-Making
Figure 4 (Analysis)

General 2-step figures:

Step 1: Recognizing an opportunity in a rapidly changing environment

Step 2: Seizing the opportunity
Figure 5 (Analysis)
Cinnober’s 2-step figures:

1. Recognizing an opportunity in the changing market

   Business intelligence
   (Substantive Capability)

   Need for more advanced clearing systems
   (Opportunity Recognition)

2. Seizing the opportunity

   Creation of a ‘real-time’ clearing system
   (Opportunity Seizure)

   • Investment discretion & initiative-taking
   • Innovation & boldness
   (Substantive Capabilities)

   • Strategic decision-making
   • Product Design
   (Dynamic Capabilities)
## Figure 6 - Questionnaire

Questionnaire used for interviews:

<table>
<thead>
<tr>
<th>Dynamic capabilities on a born global firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Internal Capabilities</td>
</tr>
<tr>
<td>Alternatives:</td>
</tr>
<tr>
<td>Routines (Such as self-managed teams &amp; account manager rotation)</td>
</tr>
<tr>
<td>Project Management Skills</td>
</tr>
<tr>
<td>Product Design Skills</td>
</tr>
<tr>
<td>Product Development Skills</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Being a high-tech born global company means obtaining new customers from different countries with varying needs, as well as facing a dynamic environment where change is common. In these circumstances having dynamic capabilities enables the firm to perform, which is why we want to explore yours.**

<table>
<thead>
<tr>
<th>Dynamic Capabilities</th>
<th>Out of the mentioned internal capabilities, do you change them? In that case; how often do you change, modify and extend them?</th>
</tr>
</thead>
</table>

**The financial crisis was characterized with changing regulations and an uncertain financial market in which the future was uncertain. Therefore we would like to explore important dynamic capabilities for Cinnober during this period.**

<table>
<thead>
<tr>
<th>Financial Crisis</th>
<th>What dynamic capabilities were important during the financial crisis? In what way were they important?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How did these capabilities influence the firm during this period?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance</th>
<th>In what way have these identified dynamic capabilities affect your performance during this event?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ending Question</th>
<th>Is changes in regulation good for Cinnober?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Is it okay that we mention the name of the company in the bachelor thesis?</td>
</tr>
</tbody>
</table>