UNIVERSITY OF GOTHENBURG

SCHOOL OF BUSINESS, ECONOMICS AND LAW

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LIBERA UNIVERSITÀ INTERNAZIONALE DEGLI STUDI SOCIALI

Master's Degree Project in Innovation and Industrial Management

Master's Degree Project in Innovation and Entrepreneurship

Understanding the valuation of intangibles

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Master's Degree Project No.

Graduate School

Acknowledgements

As with all academic and personal endeavors, so too has this thesis come with its bumps in the road. However, it is with perseverance and a genuine interest in the topic that I have managed to overcome those challenges and ultimately complete this thesis. I have learned a lot from the process of writing this thesis from several different viewpoints and words cannot express my gratitude towards the participants partaking in making this thesis. Nevertheless, it is my intention to list a few of the involved below.

I would like to extend a sincere thank you to Johan Brink of Gothenburg University that helped to oversee this thesis and offered crucial advice when needed. His critique, and the critique of other students in the sessions that he has arranged, has been invaluable to the finishing of this thesis. In addition, I would like to extend a thank you to my supervisor at LUISS, Richard Tee, for his support and insights during the course of this course.

I would also like to thank the participants of the interviews conducted in this thesis. Without your help and sharing of your valuable insights this thesis would have never come to its completion. By virtue of anonymity I cannot name you, but I would like you to know that I am most thankful that you took the time to answer the questions that I had for you.

Gothenburg, 3rd of June, 2018

Anton Emanuelsson

Abstract

Essay/Thesis:	30 ECTS
Program and/or course:	MSc in Innovation and Industrial Management
Level:	Second Cycle
Semester/year:	Spring/2018
Supervisor:	Johan Brink, Richard Tee
Examiner:	
Report No:	
Keyword:	Intangible assets, valuation, innovation, resource-based view

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Purpose: In order to close the gap between the reported value of intangibles and the activities companies undertake to achieve such values, new approaches to appraisal are constantly being developed. With professionals acting in the best interest of investors, said approaches aim to fundamentally understand the entirety of value creation, specifically targeting intangible value. Thus, in an effort to better understand the market value of companies, this study aims to shed light over what methods of valuing intangible assets investors utilize when valuing target firms. In addition, with valuation theory being concerned with the future prospects of a firm, it has been argued by Buchmann (2013) that it may be beneficial to understand the wealth generation potential of target firms in the process of valuing them. In his line of reasoning, innovation theory should provide insights to this dilemma, seeing as innovative activities may endow resources with novel capacities to create wealth and profitability in the future for a firm. Thus, having outlined a relationship between the two academic fields of valuation theory and innovation theory, analyzing the innovative activities that are being undertaken by target firms should enable an investor to draw conclusions on its potential future prospects. The research questions that this thesis tries to answer are thus: *How do private equity investors use industry practices to value*

intangible assets prior to acquiring a company? And subsequently: *How do private equity investors take into account the value of future prospects and wealth generation from innovative activities in a target firm prior to acquiring a company?*

Theory: The theory stems from three academic fields, namely: *valuation theory, resource-based view* and *innovation theory.* Key authors in the respective fields are: Damodaran (2012), Damodaran (2010), Berk and DeMarzo (2013); Barney (1991), Helfat and Peteraf (2003), Denrell et al. (2003); Schumpeter (1934), Buchmann (2013), Cooper (1990). From valuation theory, models such as Discounted Cash Flow (DCF), Leveraged Buyout (LBO), multiple approach and Internal Rate of Return (IRR) are discussed. From a resource-based view, several insights on how resources could be treated and analyzed as assets are presented. In addition, the notion of intra-specific relationships between resources is brought to light, and how this may be beneficial to industry practitioners of valuation. From innovation theory, models of how one manages innovation to deal with inherent risk and successes of projects are introduced. The presented theory also offers insight into the intricacies of innovative activities.

Method: Through qualitative interviews professionals active within the industry of private equity shed light over how one determines the financial market value of a firm and its resources. With an inductive approach to the empirical data gathering, combined with an ontological position of constructionism, a qualitative research method was used to both gather the empirical data as well as analyze it.

Result: As opposed to valuing assets and resources on a holistic level of a firm, private equity investors may benefit from the outlining of value inherent in specific resources or assets on a more granular level. Notwithstanding that this might be more adept for investors investing in target firms active in certain industries, it may be beneficial in the understanding of how target firm's intangible assets and resources continue to deliver on continued profitability and growth.

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Abbreviations

As this thesis makes use of several abbreviations, the most used are outlined in the table below. In any instance one as a reader has a question regarding the abbreviation, please refer back to this page.

CIS	Community Innovation Survey
DCF	Discounted Cash Flow
DVCA	Danish Private Equity & Venture Capital Association
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest Tax Depreciation and Amortization
EY	Ernest and Young
FCFE	Free Cash Flow to Equity
GAAP	Generally Accepted Accounting Principles
GDPR	General Data Protection Regulation
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
IRR	Internal Rate of Return
LBO	Leveraged Buyout
NPV	Net Present Value
NVCA	Norwegian Private Equity & Venture Capital Association
OECD	Organisation for Economic Co-Operation and Development
PPA	Purchase Price Allocation
RBV	Resource-based View
SVCA	Swedish Private Equity & Venture Capital Association
TV	Terminal Value

Table 1 Table of abbreviations used in this thesis. Source: own.

1. Introduction

This introductory chapter aims to depict the current issues from which the research stems from. First, it focuses on how a combination of the resource-based view of a firm and valuation theory may aid in the valuation prior to an acquisition. Second, this is followed by a brief introduction of how innovation can be measured today, and what key issues follows these measurements. This sheds light on how innovation activities could be classified as a resource and may thus be under the scrutiny of analysis when appraising assets. Lastly, the research questions are presented with the corresponding delimitations taken to conduct this study.

1.1 A new era of value

A new type of value-creation has evolved which can be observed amongst companies active in the 21st century. The change can be ascribed to intangible value, where intangibles may represent a large portion of the market value of a company (EY, 2014). As has been argued by Paul Herman (2012), current financial measurements that aim to depict the economic reality of a company (e.g. financial statements) lack the fundamental ability to report how value is created within the company. The author further explains that in 2010, 80% of the market value of S&P 500 could be attributed to intangible assets who are not properly disclosed under current accounting standards. According to Ocean Tomo (2015) that number had grown to 87% in 2015, showing the fundamental need of ushering outdated reporting structures to the 21st century table.

As is discussed by Sullivan and Sullivan (2000), with such a vast part of the value being intangible, it is becoming ever more difficult to properly value the underlying assets. The authors further elaborate by explaining the methodical error in generic company valuation, as it may grossly understate the true value of a company. This line of reasoning is also emphasized by Ernest and Young (2014) who mean that investors fail to realize the true value of a company due to an incremental gap in the information distributed by companies, and what is really occurring within. Ultimately, they argue, the market value of a firm would coincide with its intrinsic value, the target value, had the market been fully transparent and everyone had access to all the information. Subsequently, a market requiring full disclosure of information about any firm would be a market of the most harmonious nature. However, as is argued by Buchmann (2013), existing research suggests that valuation methods are inadequate to fully grasp the inherent value of intangible assets.

The difficulties of valuing the different assets of a firm to determine its value has been on the minds of researchers across various research fields for decades. With much of the intangible assets comprising of tacit knowledge accumulated over time, one might benefit from the use of a resource-based view (RBV) when evaluating said assets. This argument rests upon the notion that a RBV of a firm is concerned with the valuation of underlying resources and capabilities that enable the firm to continue to be profitable and grow, as is suggested by Barney (1991), Wernerfelt (1984) and Helfat and Peteraf (2003). In extension of this view, the research field of valuation pertaining to acquisitions is concerned with the firm's ability to continuously perform on profitability and growth (Buchmann, 2013). Sequentially, a useful approach to valuation might stem from the utilization of a RBV when trying to establish the inherent value in a company's developed capabilities and resources. With the scope of this proposed combination of research fields being able to analyze the entirety of a company's intangible assets, this study aims to focus specifically on the valuation of capabilities and resources connected to innovative activities within a firm. Such activities are defined by the OECD (2005, p. 47) as *"all scientific, technological, organizational, financial and commercial steps which actually, or are intended to, lead to the implementation of innovations"* and will be elaborated and discussed further in this thesis.

1.2 The multifaceted issues with innovation

At its core, innovation comprises of the activities that are undertaken by firms which are aimed at improving performance and gaining an advantage over the competition (OECD, 2005). This view has been heavily influenced by Schumpeter (1934) who argued that innovation lies at the root of economic development. Thus, in modern day economies, as a means of competition, firms adopt strategies on which they base decisions pertaining to the investments in their research and development, each in their respective fields (Strecker, 2009). Further, these strategies aim to tackle the intrinsic uncertainties that come with innovation and to secure the positive contribution of innovations on firm performance (ibid.). However, surprisingly enough, with a research field that spans over decades, scientists still find difficulties in agreeing on best practices regarding measurement of innovative activities (Rammer, 2016). To add to the complexity, as argued by Strecker (2009), most often innovation performance is not aggregated to the firm level but remains at the project level. The author further explains that the measurement of innovation performance on a per-project level is undoubtfully complicating the comparability of success outside a focal entity. Consequentially, in line with efforts taken by large actors devoted to measuring innovative

activities, the measurement standard tends to move towards the aggregated firm level comprising of the sum of the success of individual projects undertaken by companies. An example of such a measurement is the Community Innovation Survey (CIS) carried out by national statistical offices in the European Union member states (European Commission, 2018). This survey is carried out every other year and aims to measure innovative activities, on the basis of OECD's (2005) definition of innovation, undertaken by enterprises.

With measurement methods set aside, the processes of innovative activities are seldom easy to report on either, in the views of the company. As has been argued by Lev (2001), the inherent nonmarketability of the results of innovative efforts arises due to the sheer inability to write contracts that would cover all possible outcomes of an investment in innovaiton. The author clarifies by exemplifying the issue of ownership of knowledge after a research project has failed. Most likely, the conductors of the research will benefit from the knowledge ascertained from conducting the research, whilst the investors are left without return. Thus, since the hallmark of intangibles is that knowledge is cumulative, it is likely that failed investments in R&D projects guide any future endeavors undertaken in the same field, leaving the company better off when conducting future research. (Lev, 2001). Alas, with the limitations of reporting that comes with innovative activities and intangible assets, there are professionals working with establishing the value of intangibles to, for example, more appropriately determine a price of a company prior to an acquisition. These professionals are tasked with the understanding of growth opportunities within a firm that could be generated from innovative activities, how to appraise them and to combat a nonexistent reporting framework for intangible value (Buchmann, 2013).

1.3 Purpose

With the emergence of a new era of value creation, evaluating strategies for how companies are continuously innovative and intrapreneurial will play a key role in better determining the real value of firms. Unlike much of the existing theory on valuation, this thesis aims to include the capabilities and resources concerning innovation to offer insights into appraising growth potential in target firms. According to recent research, the inclusion of such insights to valuation models may prove to be highly beneficial for the outcome of the valuation. Therefore, this study aims to investigate how professionals working with the valuation of target firms analyze intangible assets and resources to establish a price for an acquisition. In addition, innovative activities and their outcomes

are subject to analysis and the thesis aims to understand how they are reflected in the financial valuation of companies. Thus, the research aims to answer the following questions:

How do private equity investors use industry practices to value intangible assets prior to acquiring a company?

And subsequently:

How do private equity investors take into account the value of future prospects and wealth generation from innovative activities in a target firm prior to acquiring a company?

1.3.1 Delimitations

While much research within valuation refers to companies listed on a stock exchange, this study aims to shed light on the valuation principles used when acquiring firms that are not publicly listed. This line of reasoning is influenced by the notion of information, as valuations performed by investors prior to acquisitions are generally deemed more thorough compared to mere stock analysis of a publicly listed firm. In addition, said valuations are often more strategic in nature as it may complement the already existing business of the acquiring entity, thus requiring extensive due diligence. What's more, the companies examined in this study are limited geographically to the Nordic markets including Denmark, Sweden and Norway.

2. Theoretical Framework

In this chapter the aim is to outline the framework from which theory can be deduced in order to aid in the investigation on how professionals value firm's assets and innovative activities prior to an acquisition. The theory draws upon different research fields that offer valuable insights into how investors may regard different sources of value prior to going through with the acquisition. More specifically, the theoretical framework stems from the theory of a firm and its boundaries, the managerial perspective of value, the resource-based view of a firm as well as the value in managing innovative activities determined by innovation theory. In addition, financial valuation models will be outlined of how one could value firms and their' assets. Seeing as the resource-based view is concerned with the strategic value of resources, and innovative activities can be seen as a utilization of resources, this could be deemed a beneficial approach to determining the value of innovation within companies.

2.1 Theory of the firm

For purposes of clarity, an outlining of the components of value within a firm's assets might be of interest to a reader, seeing as its constituent components and its value has changed over time. Coase (1937) theorized that a firm comprises of a hierarchical organization in which people perform activities with assets that help them perform these activities in an efficient manner. In addition, the author argued that this also defined a firm's boundaries. With assets tied within the boundaries of a firm, corporations and investors alike have sought to communicate and appropriate value to different types of assets in financial statements (Berk & DeMarzo, 2013). Specifically pertaining to assets, their value is disclosed through what is known as a balance sheet that lists the current and historical value of the underlying assets (ibid.). According to PWC (2015), the assets listed under a balance sheet may include property, plant and equipment, inventory, intangible assets, amounts due from debtors etc. The different posts are to reflect the summation of each underlying asset's historical costs and amortization and is generally valued at a specific point in time, such as the end of a financial year (Black, Hashimzade & Myles, 2017).

2.1.1 The market value of assets

With trends of market value shifting in the 21st century, market researchers as well as academics often try to categorize a firm's assets into two categories, namely tangible and intangible, in order

to analyze where the value of a company's asset stems from (Ocean Tomo, 2015). This is due to an overarching change in market value, where market value was historically mostly appropriated from tangible asset's value but now value is being ascribed to intangible assets (ibid.).

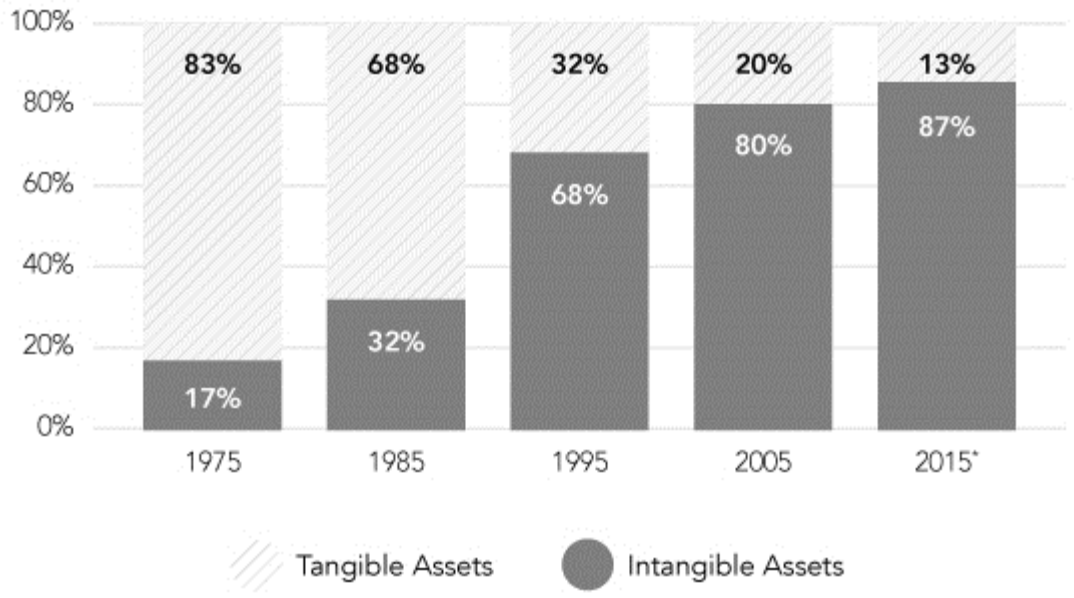

Figure 1 Components of S&P 500 market value. Source: Ocean Tomo (2015).

However, the categorization between tangible and intangible is not always straightforward and can be cumbersome to determine. Alas, the definition of the latter, according to the international accounting standards (IAS), is that an intangible asset is an identifiable non-monetary asset that is without physical substance (IAS 38, 2018). Historically, the ease at which accounting standards have been able to communicate the value of tangible assets to investors have sufficed for a market where value was appropriated mainly to those types of assets. However, the problem of accounting for intangible assets is described in an article written for Forbes where Christopher Skroupa outlines the intricacies regarding intangible assets as conventional accounting methods have not evolved to measure the value of intangibles as they have for tangible assets (Forbes, 2017). The author argues that with the change in value appropriation from mainly being tangible to intangible, one must consider what effects investments in intangible assets may have on both short-term and long-term value creation. As an example, an investment in employee training might be regarded as a short-term cost but may benefit long term value creation in the future. Methods of applying such thinking have been outlined by Berk and DeMarzo (2013) who argue that instead of looking any

asset's value from a historical cost perspective, one may utilize a market value balance sheet that looks at the current market value of an asset. This would then differ from what is referred to as a book value of assets, which is currently commonly used as a financial reporting standard. According to Berk and DeMarzo (2013), the market value approach would more accurately reflect the value of each underlying asset and would be outlined on a comprehensive balance sheet. However, reflecting on the ambiguity of categorizing assets into tangible and intangible, there exist further ambiguity when distinguishing between different intangible assets as well. Beyond the distinguishable intangible assets defined in IAS 38, according to IAS 3 (2018), the resources that cannot be parsed out individually or measured directly are defined as goodwill. Thus, goodwill is a post that is more miscellaneous in nature but still contributes to the company's worth to exceed its book value (Investopedia, 2018). Yet, goodwill only appears on a balance sheet when an acquirer obtains a business above the sum of the book value of its assets, where the target firm's assets must be valued at a fair value (IAS 3, 2018.). Thus, the argument from a market value balance sheet point of view goes that to the extent possible, one would want to outline the different intangible assets in separate posts to inform investors of their independent worth (Berk & DeMarzo, 2013). A recent study conducted by André, Dionysiou and Tsalavoutas (2017) confirmed that when employing a market value balance sheet point of view, investors tend to have less dispersed forecasts concerning future market value of firms. The authors outline the implications of financial disclosure pertaining to how firms value their intangible assets and argue that the result is reduced uncertainty about the value of a company's intangible assets. Thus, investors may act more rationally and conduct analysis that end up with a valuation that is more accurately in line with the market value of a firm (André et al., 2017).

2.1.2 Assets through a resource-based view

A different approach to looking at what makes up the value of firm's assets is by employing the internal view of a firm's different resources, known as a resource-based view of a firm (Buchmann, 2013). The connection between an asset and a resource stems from the definition posited by Helfat and Peteraf (2003, p. 999), where a resource is an *"asset or input to production (tangible or intangible) that an organization owns, controls or has access to on a semi-permanent basis".* Thus, the utilization of resources must be under the control of an organization's management. It is by careful evaluation of how to best utilize the scarce resources a firm has that they can build and sustain a competitive advantage in a market (Barney, 1991). In contrast to categorizing different

assets, when valuing a firm of its entirety, one may separate the different resources by looking at them in terms of value generated by the utilization of different resources (Damodaran, 2010). Taking a resource-based view (RBV), as is defined by Barney (1991), a firm is made of resources put to use in order to achieve growth and profitability. Sequentially, it stands to reason that the resources within a firm comes with an inherent value in a marketplace. It is by virtue of this value that researchers in the field of acquisitions are trying to identify opportunities where the value of the acquired resources outweighs the cost of the investment (Buchmann, 2013). Therefore, it becomes evident that with the principle of value being important in both valuation theory and the RBV view of a firm, a fruitful approach to valuing a firm may spring from the combination of the two. Support for such an argument can be found in the reasoning of Wernerfelt (1984), where the author argues that an acquisition could be viewed as a purchase of a bundle of resources existent within a firm. This argument is further colored by Denrell, Fang and Winter (2003) who agree with Wernerfelt (1984) and Barney (1991) on the need for a RBV in valuation theory but highlight that the process is not very straightforward. At the outset, Denrell et al. (2003) mention the complexity of various resources within a firm and choose to later label them as either commodity resources or complex resources. Both resources, according to the authors, serve the purpose of enabling a firm to deliver on its performance but differ in the ease at which they are valued. In contrast to a commodity resource, where a market for determining an underlying value is more likely to exist, the same cannot be said for a complex resource. As these resources are more tacit in nature (e.g. knowledge from working in teams, diverse or customized pieces of equipment), the underlying value may stem from the utilization of complex resources in combination with commodity resources (Denrell et al., 2003). Resembling the categorization stipulated by the IAS (2018), the definition of commodity and complex resources enables an investor to separate resources, much like assets, in a way that allows for analysis of which resources, or combination of resources, that contribute to the value of a firm's assets. To be put in perspective, Denrell et al. (2003) depict a multistage production chain that consists of several resources that could be put in motion to produce the desired output of a consumption good.

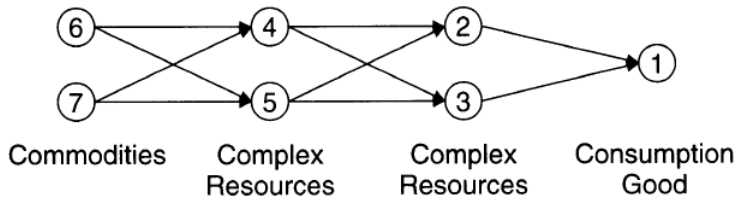

Figure 2 Imputation in a multistage production. Source: Denrell et al. (2003).

In essence, seeing as there are various ways in which resources could be transformed into the desired output, firms must evaluate which paths of transformation to undergo that could generate the most value for a firm (Denrell et al., 2003). The reasoning goes that if a price of a consumption good is known or estimated, then one can backtrack to understand which sequence would be most beneficial for the value of the firm (ibid.). In effect, given a market value balance sheet view of assets (Berk & DeMarzo, 2013), a better evaluation of the utilization of resources would lead to more value appropriated towards an intangible asset that could be listed in a balance sheet. As an example, the value of such an asset could be related to the complex resources of human capital, specific skills or management of a process that led to the production of the consumption good. One could thus think of the RBV as complementary to the market-based view when trying to identify value inherent in assets. However, much like assets on a balance sheet are categorized separately, proponents of a RBV, such as Barney (1991), Helfat and Peteraf (2003) and Denrell et al. (2003), all offer insights on how to categorize resources.

2.1.2.1 The various resources within a firm

The view of Denrell et al. (2003) on how resources are complex and multifaceted has been argued by several researchers active in the field of research of a RBV of the firm (Barney, 1991; Wernerfelt, 1984; Helfat & Peteraf, 2003; Buchmann, 2013). However, as opposed to Denrell's et al. (2003) definition of resources, Helfat and Peteraf (2003) take a different view on what RBV constitutes of. Instead of merely including resources, the authors argue that organizations are made up of the combination of resources and capabilities. These capabilities are defined as *"…the ability of an organization to perform a set of tasks, utilizing organizational resources, for the purpose of achieving a particular end result."* (Helfat & Peteraf, 2003, p. 999). Much like how the value of complex resources mentioned by Denrell et al. (2003) were consistent with the way in which one utilizes different resources, the definition of capabilities by Helfat and Peteraf (2003) offers a way of determining those specific intra-resource relationships. This approach is useful to the

determination of value in an acquisition, as suggested by Buchmann (2013). The reason for that being is, according to the author, that the distinct determination of capabilities is what lies inherent in a company's ability to produce outputs satisfactory to the profitability and growth of a firm. In addition, capabilities can be regarded as developed through a process over time, where they are influenced by different paths taken during its development (Teece, Pisano & Shuen, 1997). The latter would imply that capabilities are difficult to create or imitate without letting the process of development run its cause, which could be both time-consuming and tedious. From this argument it is evident that the different resources and capabilities necessary to sustain a competitive advantage, as argued by Barney (1991), are developed over time, and thus may be desirable for an acquiring firm to get a hold of if they do not have the resources to develop it themselves. Taken altogether, the resources inherent in a firm configured in a specific way that is tailored to the maximized utilization of any entity's capabilities would secure the most value being created.

2.1.3 Management of intangible assets

As has been henceforth exemplified, much, if not most, of the market value associated with a firm's assets are in some ways tied to the intangible assets of a firm. One is therefore inclined to ask the question of how intangible assets may generate profitability and growth and contribute to the continued existence of a firm? It has been argued by Schumpeter (1934) that the economic development of a firm rests upon the ability of the entity to create new combinations from existing resources and thereafter enforcing them accordingly. Such reasoning is much in line with the arguments of Buchmann (2013) where the author claims that the management of a firm's resources and intangible assets plays a key role in how resources, or a combination of resources, are continuously profitable and wealth generating. However, when looking at novel combinations of resources or considering investments in intangible assets, there is always a notion of risk concerning the possibility of failure of the expected outcome (Damodaran, 2012). In the interest of enabling a consensus amongst stakeholders concerned with valuing assets and resources of firms, proponents of a market-based view of asset valuation, such as André et al. (2017), urge firms to disclose their efforts to account for such risks. From the viewpoint of a market valuation approach, valuators could disclose such information by deliberately sharing their assumptions regarding the discount rate, reflecting the riskiness of an asset (see section 2.2.1 for elaboration), and the estimated useful life of an intangible asset (ibid.). In effect, that would inform investors about the assumptions made when estimating the value of an asset to be put on a balance sheet. Alternatively,

taking a RBV, one could disclose the management of risk by outlining the valuation of different paths of resources taken, as suggested by Denrell et al. (2003), in order to show the most efficient and reliable path that the firm chose.

Schumpeter (1934) defines the ability to generate new combinations of resources as innovation and denotes that as such, innovation is concerned with the economic development of a firm. In line with Schumpeter (1934), Drucker (1985, p. 31) defines innovation as *"the act that endows resources with a new capacity to create wealth. Innovation, indeed, creates a resource"*. Thus, given a RBV of a firm, innovation could be regarded as an independent resource that is the act of managing novel approaches to combining resources that would generate the most value to a firm. Given such a definition, innovation may act as a bridge between understanding the future prospects of a firm's resources and its assets and the managerial process of getting there. What's more, proponents of innovativeness, such as Cooper (1990), emphasize the importance of dealing with risk-mitigating factors to reach the expected outcome of the innovation. Sequentially, taken from innovation theory, learning of a firm's risk management when combining resources into what will enable future delivery on profitability and growth is of interest to valuators and investors alike (Buchmann, 2013).

2.1.3.1 Risk management of novel intangible assets

By viewing innovation as a resource, it becomes evident that one can analyze the different capabilities and resources of which innovative activities are built upon and determine if there are any specific combinations of these resources or capabilities that lead to the better outcome for the firm. This idea has occupied the minds of researchers in the field of innovation theory, such as Cooper (1990) and Song and Montoya-Weiss (1998), who both present different critical steps in a process to successfully deliver on an end result. The degree of innovativeness of a firm is argued by Cooper (1990) to be one of the strongest determinants of investment value, given a long-term investment horizon. Subsequently, the folly of not adhering to the investors' expectations of firms being innovative could prove to be devastating for a company. This reasoning is well in line with the statements of OECD (2005) who claim that the innovative activities increase performance through raising the profitability and securing future survival of a company in a competitive market. However, as was further elaborated by Cooper (1990), few roadmaps of how companies could better map and test the innovative processes which they use in order to mitigate the inherent risk

of failing with projects. Therefore, the author presents a model that could be placed in the hands of managers to better cope with the costs and uncertainty that comes with innovation. In addition, according to Buchmann (2013), the model proposes an understanding of a process view of innovation that is sequential or iterative in its nature. The model is called a stage-gate model and consists of five steps that are recommended in managing the innovative process and to minimize the risk inherent in the project (Cooper, 1990). Each step of the model is preceded by a gate in which specific criteria is stipulated and tested to meet the quality requirements of the following step (Cooper, 1990). Therefore, by virtue of the flow of a process, each gate acts as a determinant of whether or not to proceed to the next stage for further development of an idea or invention. In the same sense as an end result could be the successful commercialization of an invention, one could view the mere development of new capabilities as applicable in the process-based view as well. With the end result being the development of new innovation capabilities, the management of the different processes comes into play. According to Buchmann (2013), as investors seek to find companies in which the process of undertaking new projects or using resources in a novel way is guided by a methodology to mitigate the riskiness inherent in their endeavors, this intertwines proponents of valuation theory with innovation theory. In fact, Damodaran (2010) posits that companies with intangible assets require excessive consideration towards risk assessment, as projects or other intangible assets can dissipate overnight. In lieu of different methods, Damodaran (2012) and other proponents of valuation theory claim that one may have to value the specific resources that could be the source of the generated value, such as key employees or management, and distinctively take that into consideration when determining an acquisition price. However, the research of Buchmann (2013) suggests that investors are more prone to be assessing the management of the innovative capabilities within a firm, looking both at historical and future prospects of innovative projects undertaken by firms. Therefore, the author argues, learning about the management of innovation and innovation potential within firms may be a valuable insight and variable in the valuation process with the intent of understanding how target firms deals with risk in their endeavors.

2.1.3.2 Measuring the performance of firm's risk management

A noteworthy challenge to the premises of Schumpeter's (1934) definition that innovative activities are the cornerstone for better performance of an entity could be the following: how does one measure the performance of such activities? Following the previous paragraph, the management of

innovative activities plays a key part in its ability to deliver on profitability and growth (Buchmann, 2013). However, according to Griffin and Page (1996), performance is a subjective term, which is most often associated with financial measurements when discussed in the setting of enterprises. Such an argument puts emphasis on the issue of measuring the performance of innovativeness within firms. In addition, it has been argued by Hall and Oriani (2006) that the disclosure of information pertaining to innovation varies between countries and that this too complicates the efforts of valuing firm's innovative activities. What's more, according to Strecker (2009), successes of the management of innovative activities are seldom reported on an aggregated level of the firm. However, arguments for how investor's may best evaluate a firm's performance of management of innovation, and the risks and levels of uncertainty that comes with it, are leaning towards firm's aggregating their endeavors to the level of the firm (Strecker, 2009). The argument goes that at a holistic level, the market value of the resources that companies utilize, that are consequentially not accounted for in a financial statement, are best reflected through the market value of the firm (Investopedia, 2017). Thus, at the very base, to be sure to encapsulate the intrinsic value of innovation activities and its management in firms it follows that one may have to start with analyzing the market value of the entities. Since the market value is defined as what investors believe a firm to be worth and corresponds to the price of which an asset could be purchased or sold for (NASDAQ, 2017), it stands to reason that all activities undertaken by a firm are included in its value. This view has been enforced by Toivanen, Stoneman and Bosworth (2002) where they argue that if capital markets operate efficiently, then the market value of a company ought to reflect the discounted sum of future dividends, which are linked to company profits. They continue their research with arguing that the entirety of a firm's performance can thus be used as an indicator of the management of innovativeness. Thus, using the market value as a proxy for performance measurement has been reasoned to be most successful when studying the impact that management of innovation has had on firm performance, due to reasons described above (Hall, 2000; Toivanen et al., 2002). However, as was argued by Strecker (2009), with innovative performance most commonly being measured on a project-level, one might assume that the more granular level of data concerning a firm's innovative efforts are made available to investors, the better their valuation becomes. Hence, with data availability being rather granular for private equity investors (Damodaran, 2012), such reasoning would thus allow them to make more informed valuations of innovative activities undertaken by target firms and enable analysis of them from a historical

management perspective. While issues of data availability pertaining to innovative activities has long been an issue for valuators (Hall & Oriani, 2000), questions of whether a more granular level of data may aid investors in their valuation of a target firm is of concern to the second research question in this thesis. Thus, the discussions regarding this topic is left to the section of analysis of the empirical material (see section 5).

2.2 Valuation Theory

According to Damodaran (2012), a philosophical basis for valuation is that an investor ought not pay more for an asset than what it is worth. Thus, in essence, a specific asset's worth is what consumes the minds of proponents of valuation theory. Following this reasoning, proponents are concerned with how to objectively arrive at some type of fair representative value of the underlying asset. Although value is sometimes argued to lie in the eyes of the beholder, Damodaran (2012) argues that a representative value has to reflect reality and that an asset's worth should reflect the expected future cash flows generated by that same asset. This is of utmost importance to grasp, as most financial theory is concerned with being as objective as possible when determining the sources of value within a firm (Berk & DeMarzo, 2013). In doing so, several methodologies have been developed in an attempt to ultimately reach an appraisal of any asset. It is my aim to elaborate on some of these methods below to later shed light over the intricacies of valuing the assets of which it is harder to determine expected future cash flows.

2.2.1 The Discounted Cash Flow Model

One of the most common valuation models used to date is sprung from the development of a method to analyze the incomes or cash flows that an asset generates now and in the future, and discount it back to a present value. It is based on the research conducted by Miller and Modigliani (1961) who came up with a mathematical model to value an asset based on its future expected generated cash flows. However, the authors claim that the same approach can be used to appropriately value a combination of assets, such as a bundle of assets existent within a firm, and is not limited to the valuation of single assets. This opened up a wide scope of applications for the discounted cash flow (DCF) model, one which has seen its development unfold over the last couple of decades. With regards to firm valuation, the DCF approach is concerned with the intrinsic value of an asset, or bundle of assets, based on its fundamentals (Damodaran, 2012). In essence, value is derived at by summing up all future estimated cash flows generated by an asset, or bundle of assets,

which is discounted to a present value with a rate reflecting the riskiness of the estimated cash flow (ibid.). The formula looks as follows:

$$\text{Value} = \sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t}$$

Figure 3 Discounted Cash Flow formula. Source: Damodaran (2012).

Where n is the life of the asset, CF_t is the estimated cash flow in period t and r is the discount rate which reflects the riskiness of the cash flow. In addition, one may add to the equation the notion of a terminal value, TV, to the asset that could be thought of as its salvage value or, with respects to a firm, its going concern value (Berk & DeMarzo, 2013). For a firm going concern, this is established by estimating a growth rate of the cash flows beyond the time n and is calculated with the following formula:

$$\text{TV} = \frac{CF_{n+1}}{(r-g)}$$

Figure 4 Terminal value formula. Source: Damodaran (2012).

Where g is an assumed constant growth rate of cash flows beyond the time n. For an asset's salvage value, the terminal value is instead the value that the asset, or bundle of assets, is assumed to be worth at the end of the forecasted time period.

The notion of intrinsic value deals with the investor's assumption that an unbiased analyst could correctly estimate the expected cash flow of a firm and derive an accurate discount rate reflecting the inherent risk of the cash flows (Damodaran, 2012). Thus, an investor is looking to find an investment where the analysis of a firm's fundamental value differs from its (optimally lower) market value, as it is assumed to converge with the former at a later point in time (Buchmann, 2013). Proponents of an intrinsic valuation of a firm thus assumes that the aforementioned unbiased analyst has access to all information crucial to the valuation of an asset, or bundle of assets, in order to arrive at an accurate appraisal. However, as Damodaran (2010) suggests, no such analyst exists but instead emphasizes that investors are aspiring to come as close as possible to the intrinsic value of the underlying asset. This sheds some light over the intricacies that are being experienced when professionals are trying to value firms with limited amount of information, such as private firms, young firms or growth firms. One solution to this dilemma is, according to Damodaran (2010), to

focus on the revenues and earnings of firms, and not the details of the intermediate items or the reinvestment requirements of the firm. In addition to these actions, investors more often focus on a short-term period, rather than a long-term period, stretching between 3 to 5 years as it is too difficult to forecast beyond that point in time (ibid.). It is thus safe to say that with the absence of information about companies, investors take a more cautious and conservative approach to valuation, as it rests upon numerous of assumptions of how the business will develop over time (Sim & Wilhelm, 2010). The risks associated with these assumptions could span from a probability of default to the poor quality of governance and management of the firms (ibid.). Ultimately, these different situations are calculated within the model to amend it to certain levels of risk that the investment may bear with it.

2.2.2 Internal rate of return

Another common approach to valuation that is used by venture capitalists and private equity firms alike is the method that determines an investment's internal rate of return (IRR) and then compares that to the company's hurdle rate (Gallo, 2016). The former is tied to the DCF model by the fact that the IRR is the discount rate at which any project's present value would be equal to zero. The latter, a company's hurdle rate, is tied to the cost of capital that a company incurs over its different projects. The formula is as follows:

$$0 = \text{NPV} = CF_0 + \sum_{n=1}^{N} \frac{CF_n}{(1 + IRR)^n}$$

Figure 5 Internal rate of return formula. Source: Gallo (2016).

Where CF_0 is the initial investment, CF_n is the cash flow for each period n and N is the holding period for the entire investment. Solving for the rate of return that results in a net present value (NPV) of 0 gives the IRR (Berk & DeMarzo, 2013).

When determining a company's hurdle rate, several factors weigh into the equation, such as risk premium, inflation- and interest rates related to the geographical region in which the investment is undertaken (CFI, 2018). Sequentially, the IRR and the hurdle rate makes for a sound basis of comparison to any project, where if the IRR is higher than the hurdle rate it is considered a profitable project (Gallo, 2016). However, the method does come with its caveats and as

Damodaran (2012) points out, the IRR should never be used in isolation. As an example, the author argues that merely referring to the IRR does not let the investor know the actual dollar value of the benefits. The IRR is merely reflected as a percentage which could lead to the faulty selection of a project solely based on a comparison of IRR, as the dollar value of a project that is worth more but carries a smaller IRR will still generate higher returns than the opposite situation (CFI, 2018). Nevertheless, the method is still widely used in combination with several other valuation methods due to its simplicity and straightforwardness.

The IRR, much like the DCF model, may amend its different assumptions regarding the proposed investment in order to properly deal with the project-specific risk factors (CFI, 2018). As an example, the cash flows upon which the IRR is calculated could take into consideration the future prospect of the company's ability to generate growth and profitability (ibid.). Consequentially, by decreasing the assumed cash flows in the future, the calculated IRR would be higher and thus may represent a higher risk-threshold.

2.2.3 Valuation with the use of multiples

Another way of determining the value of a firm comprising of several assets or a single asset is by comparing it to how other similar firms or assets are priced in a market (Damodaran, 2010). The method comprises of three steps, where the first step involves identifying a comparable firm or asset that has previously been priced by the market. Second, the comparison is scaled through the use of a common variable, such as multiples of earnings, book value etc. at which the compared firm or asset is trading. These multiples are then used to determine an approximate value of the firm or asset in question. Finally, in the third step, the comparison is adjusted for specific characteristics of the firm or asset in question as they may vary a bit across assets. As an example, a house may be priced differently based on its newness, albeit having the same size as another older one on which the multiple of comparison is established. (Damodaran, 2010). However simple and comprehensive relative valuation may be, this methodology does not go unchallenged by researchers. As Damodaran (2012) points out, multiples are difficult to use when evaluating firms with no obvious comparable companies and may build on several biases that are simply untrue about the firms. In addition, when comparing a target firm to existing companies, it stands to reason that if these firms are either under- or overvalued the same goes for the multiples on which the valuation of the target firm is based (ibid.). Such an economic setting is mentioned by Mangipudi,

Subramanian and Vasu (2013) as a "boom" in the market and is argued to be one of the more important errors that can affect the target value of a firm. Nevertheless, the method's simplicity and ease of use is often mentioned as pros when deciding upon how to value a company (Damodaran, 2010).

2.2.4 Leveraged buyout

A leveraged buyout (LBO) is a way of acquiring a company that differs slightly from the DCF and relative valuation in the sense that it often entails an exit strategy, where the purchased company is either brought to a stock market through a public offering or is sold off to someone else (Povaly, 2007). However, this must not be the case, as pointed out by Fürth and Rauch (2015), since different investors have different horizons on which they base their investments. Nevertheless, according to the authors, with an explicit exit strategy, the profitable sale of a portfolio company's shares in an investment is paramount to the buyout investment process.

The purchasing of a target company's equity in a LBO is usually done by acquiring a portion of a company's equity, and thereafter borrowing debt to finance the purchase of the entirety of the company against the company's future cash flows (Povaly, 2007). Hence the name leverage, as debt levels of up to 80% is not uncommon for the financing structure of an acquisition (ibid.). In addition to a fund owning an equity stake in the company, managers of the company may also be included as owners (Fürth & Rauch, 2015). This is based on the idea that invested managers may have higher incentives to take value-maximizing decisions (ibid.). An illustration of the concept can be seen below.

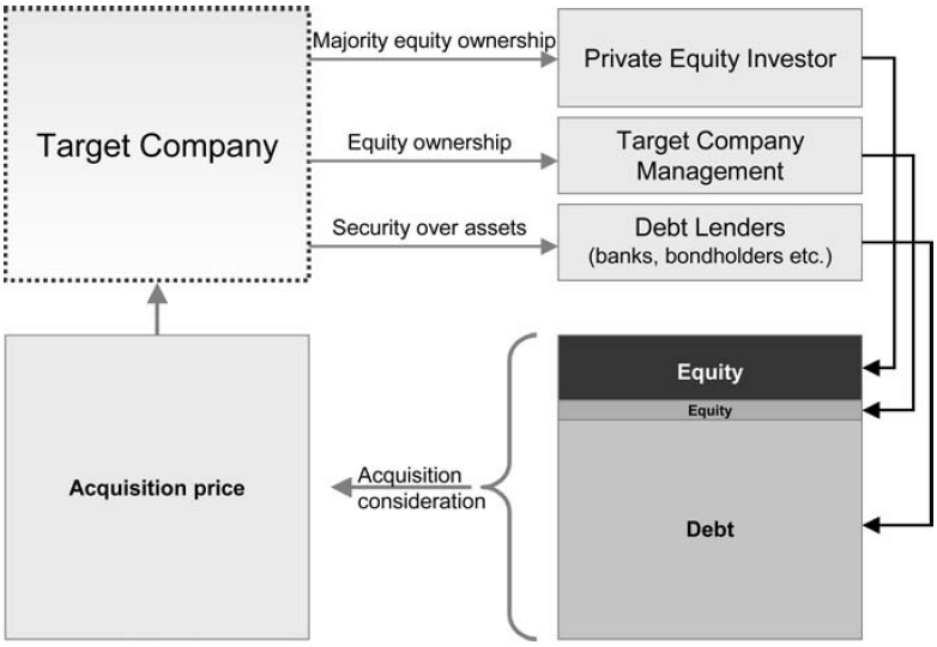

Figure 6 LBO acquisition concept. Source: Povaly (2007), p. 87.

In order to arrive at an acquisition price, according to Macabacus (2018), the LBO analysis consists of several steps:

- Develop operating assumptions and projections for the standalone company to arrive at earnings before interest, depreciation and amortization (EBITDA) and cash flow available to refinance debt repayment over an investment horizon.
- Determine key leverage levels and capital structure that result in realistic financial coverage.
- Estimate the multiple at which the investor is expected to exit the investment.
- Calculate equity returns (IRR) to the financial sponsor and conduct a sensitivity analysis on a range of leverage and exit multiples, as well as investment horizons.
- Solve for the price that can be paid to meet the above parameters.

Thus, the determination of acquisition value of an LBO shares the characteristics with a DCF valuation in the sense that they both analyze the cash flows generated in the future by the investment. However, according to Povaly (2007), the difference lies within the cash flows on which the valuation is based. In contrast to the cash flows of a DCF, where the cash available to the firm is of interest, the cash flows used in an LBO valuation are the cash flows available to the

equity holders (Berk & De Marzo, 2013). Such a cash flow, known as free cash flow to equity (FCFE), is the cash flow available from the company's operations after taking into account the payments to and from debt holders. Much like the DCF, these cash flows are then discounted back using a different cost of capital, namely the equity cost of capital, to arrive at a value of an investment (ibid.).

2.2.5 Valuation theory of intangible assets

Up until now, the discussion of valuation has mostly concerned situations when the underlying assets that are being valued can, in some explicit sense, assume to generate some future cash flow. However, and more interestingly, with the assumption that any asset may generate cash flows, the interesting question arises about how to value assets where the expected cash flows are more uncertain, unclear or intricate in nature. As an example, in their study of acquisitions, Mangipudi et al. (2013) found that the appraisal of a company with intangible assets increased with the expertise that was associated with those assets. Their findings indicate that the knowledge within a firm, such as human capital, is indeed valuable to the future prospect and continued growth of the firm. This reasoning falls well in line with the argument proposed by Damodaran (2010), where he emphasizes the importance of analyzing the different cash flow generating resources within a firm, and their ability to generate growth as well as cash flows in the future. However, prior to arguing the differences in ways one may value the intangibles in a company, it is important to understand some fundamentals of how assets are reported in a financial statement. This is mainly determined by two frameworks that govern how firms report their financial statements, and thus communicate to investors how they have performed. These frameworks are known as the Generally Accepted Accounting Principles (GAAP), and the International Financial Reporting Standards (IFRS).

In principle, investors seek to separate a firm's operating expenses from its capital expenses in order to analyze the cash flows generated from the firm's operations (Damodaran, 2012). However, while adhering to the GAAP and IFRS regulations when trying to separate intangible investments, such as investments in R&D, brand recognition or knowledge, some misconceptions may arise (Deng & Lev, 2006). As an example, Coca-Cola may argue that some of their investments in advertising should be capitalized and considered an asset to the company, since brand value is considered to be a future cash flow generating asset (Damodaran, 2010). Albeit a justified

argument, the costs of advertisement is usually expensed under the year that it has occurred which ultimately neglects companies like Coca-Cola the opportunity to list investments in advertisement as an asset on their balance sheets. The same goes for R&D, training for consultants, recruiting for various of companies. Ultimately, this leads to an investor valuing firms with intangible assets having to amend their current methods with practices that take the immaterial value into account (Damodaran, 2010).

According to Anson, Noble and Samala (2014), most of the valuation theory used to value the intangible assets of a company stem from the same methods that are used for tangible assets. However, the authors do emphasize that it is not always a straightforward task to estimate what is needed, such as income streams or determining a proper discount rate to reflect the riskiness of the asset, in order to properly value the assets. Thus, it takes a lot of skill and knowledge about a certain intangible asset to be able to estimate its value. Albeit associated with a certain level of uncertainty and risk, Damodaran (2010) argues in favor of using a DCF approach to determine the value of an asset. In addition to the possibility of amending the model with one's own assumptions, it outlines the several cash flows estimated along with the amendments clearly to any observer (ibid.). This brings with it the ability to combat what Anson et al. (2014) view as the biggest shortcoming of the estimated income approach, namely the inability to differentiate the real intangible asset from the income generated by the total business. If outlined in a DCF model, then the ability to see clearly what one expects from the intangible asset to generate becomes more evident and is suggested by the authors as the best approach to valuation.

Using a market approach to valuation, where previous transactions for similar assets are used to compare the intangible assets in question, is a second way of determining the value of an intangible (Anson et al., 2014). However, seeing as the market for intangibles has not existed to a larger extent until recently, one would experience troubles when trying to estimate value solely based on this approach (ibid.). Although, as is argued by Watson (2010), should the market be more transparent about the purchases of intangible assets, this might be a preferable way of determining the real value. Indeed, the issue with publicly available information regarding the purchase of intangible assets is that more often than not, the underlying assets are subject to the scrutiny of secrecy (ibid.). Therefore, it is typically difficult to attain the information and all the specific elements of a

comparable transaction, thus making it an inferior model to value intangible assets (Anson et al., 2014).

3. Methodology

Following the preceding chapters, this chapter aims to outline how the research was conducted and discuss several benefits and drawbacks on the strategy and design employed to carry out the research. First, the research strategy will be presented and with it the several considerations regarding epistemological and ontological positions will be outlined. Second, the research design will be described along with the selection criteria upon which the respondents were selected. Lastly, the limitations of the generalizability of the results will be discussed.

3.1 Research Strategy

When selecting the strategy for the proposed research, the perceived connection between theory and research was taken into consideration based on the research question at hand. As is mentioned by Bryman and Bell (2011), this will inevitably impact the research strategy, as different viewpoints of epistemology and ontology comes with the choice of conducting either a qualitative or quantitative research. Where the qualitative research strategy entails an inductive approach to the research, insinuating that theory is aimed to be generated from the research carried out, this was deemed more prudent to the purpose of the research at hand. Seeing as the research question is exploratory in nature and is looking at understanding how investors are using several market practices to determine the value of intangible assets much like tangible ones, a qualitative approach was deemed most beneficial. Such a decision entails an epistemological position of interpretivism, where advocators claim that they are more interested in understanding behavior through the subjective meanings of social interaction (Bryman & Bell, 2011). Thus, in essence, one may gain a more deeper understanding of the intricate relationships regarding how investors utilize practices by conducting interviews with them regarding this dilemma. This is emphasized by Yin (2011) as cornerstones of the qualitative research, where the researcher aims to collect information regarding several contextual conditions as well as maintaining the views and perspectives of the participants. In addition, in the search for an answer to a *how* or *why* question, several proponents of research strategy would emphasize the utilization of a qualitative research strategy (Bryman & Bell, 2011; Eisenhardt, 1989; Yin, 2011).

The ontological position that casts a shade over the proposed research strategy is inevitably colored by constructionism, where one asserts that social phenomena are being accomplished by several

social actors (Bryman & Bell, 2011). In this study, this was important due to the fact that the respondents' choice of method to value intangible assets may be decided upon not merely through what the current work place dictates, but also through previous experiences. As several of the respondents had worked within the field over several years and are likely to have switched work places over this time period, one would be inclined to assume that their experiences are shaped by their history. Thus, in order to get a deeper understanding as to why the investors use the methods that they do, it was deemed more rewarding to include interview questions relating to previous experiences, as opposed to merely method-related questions.

3.2 Research Design

Within a qualitative research approach, several designs exist to how one actually conducts the research and may potentially lead to different outcomes and results (Bryman & Bell, 2011). Common research designs include the utilization of a case study, cross-sectional, longitudinal as well as a multiple-case design. As the answering of the research question does not entail any suggestive measurement over time, the research designs in which time is an important variable were excluded. This is of bigger importance in the longitudinal design, which makes it differ from the remaining designs (Bryman & Bell, 2011). However, as the three remaining designs have in common that the data is gathered at a single point in time, different selection criteria had to come into place. To start with, the cross-sectional design was excluded due to the inferred focus on variation within the results (Yin, 2011), a variable less important to the research at hand. Thus, the remaining designs of a case study design and a multiple-case design were more feasible to the conducted research. As can be understood by the virtue of their names, the case design focuses on a single case, whereas the multiple-case design incorporates the notion of several cases in the collected data (Bryman & Bell, 2011). Seeing as the research question unambiguously tries to search the answer to a question in which several different viewpoints could be beneficial, it was deemed more useful to go with a multiple-case design in the end. It has the advantage over the case study design that one may still understand the intricacies of contextual settings but offers up several different angles on which the combined answers of the respondents can answer the research question. However, it still falls victim to some of the scrutiny and criticism often referred to when dealing with case studies (Yin, 2011). Such criticism mostly reflects the inability to generalize and the lack of scientific rigor (ibid.). Albeit such criticism may be well established, proponents of a case study design still raise some advantages that come with this type of research. As an example,

George and Bennett (2005) mention that case studies have the potential of achieving high conceptual validity as well as examining the role of causal mechanisms in the context of individual cases and thus addressing causal complexity. Thus, with the intent of gaining multiple insights from different sources, a multiple-case research design was chosen.

3.2.1 Multiple-case design

With case studies, according to Yin (2003), there exist different approaches from which the researcher determines the suitability with his research. It could be descriptive, with the object to describe, exploratory, with the object to explore, or explanatory, with the object to explain theory. As the objective of this study was not to describe theory, nor to confirm theoretical positions, this study employed an approach that was more exploratory in nature with regards to an otherwise unchartered territory of academia.

3.2.1.1 Level of Analysis

A debated topic within the proponents of research designs pertains to the elaboration of the level of analysis wherein, according to Bryman and Bell (2011), the researcher stipulates at which level of aggregation the data is compiled. In this study, the level of aggregation constitutes of individuals representing organizations active in the Nordic market involved in valuation and investments. This level is derived from the theoretical framework and research question, as suggested by Liao (2011), and thus influences the empirical data collection at hand. Thus, whilst keeping the level of aggregation to an individual level, one must be cautious about inferences about another level of analysis. However, as described by Yin (2011), several units of data collections may have relationships between themselves and a main topic of a study. As an example, the levels of data collection in this study may span from the individuals studied on a narrower level to a broader level of the Nordic market of valuation and investments. Therefore, with caution being executed towards generalization, one still offers the reader the possibility of understanding the relationships between the empirically gathered material and theory.

3.2.1.2 Case selection

Upon deciding which companies to include in the study, several different factors came into play. An excerpt of the reasons to deciding which companies to contact were accessibility, time, money and industry niche. However, as is a recurring theme with case studies according to Bryman and Bell (2011), a non-probabilistic sampling strategy was used. This translates into a sample which

ultimately leads to the conclusions of the study not being subject to generalizability (ibid.). That being said, this does not imply that there are no strategies for selecting well suitable cases of analysis. Therefore, for this study, the strategy for case selection was based on the criteria stipulated by Miles and Huberman (1994) in that:

1. The sample should be relevant to your conceptual framework and research question.
2. The sample should be likely to generate rich information on the type of phenomena which need to be studied.
3. The sample should produce believable descriptions and explanations.
4. The sampling strategy should be ethical.
5. The sampling plan must be feasible.

Thus, the sample relevance to the research question at hand was determined by further choosing to contact companies prevalent in the market for valuation of other companies. With such a determination, in order to satisfy the second and third criteria, the companies subject to the study were chosen by revision of the members of private equity associations in Sweden (SVCA), Denmark (DVCA) and Norway (NVCA) respectively. Alas, as several companies were contacted, many declined to participate in the study. However, as the last criterion of Miles and Huberman (1994) sampling strategy involves feasibility, the rejection of the request to participate was anticipated as it would have been both too time consuming and difficult to cover all members of the associations. In effect, the sampling amongst the different associations resulted in a random selection of respondents based upon their acceptance in their respective responses. As this has no clear effect on the generalizability of the results of this study, it is still worth mentioning to the reader. In addition, whilst keeping the notion of feasibility in mind, the geographical scope was set to be limited to the Nordic markets due to the ease of which they could be contacted or visited for an interview.

3.3 Research process

The research process could be considered a nonlinear process as it was rather iterative in nature, going back and forth between the theoretical framework and the gathering of empirical data. From the outset, the theoretical framework was shaped to cover valuation of a firm in conjunction with innovation theory and a RBV. This enabled the identification of which companies that were possible candidates for interviews and led to subsequent requests being sent out. However, as

empirical data was gathered, the notion of successfully valuing a firm manifested itself through the utilization of valuation techniques that were not part of the theoretical framework. Therefore, after conducting and analyzing the interviews, the theoretical framework was somewhat expanded to cover the topics that were discussed in the interviews. Thus, as an example, the section of leveraged buyout was added to the theoretical framework to better understand the different ways of determining a company's value. This was determined as a prerequisite for the following analysis and discussion segments in this thesis. Such a way of refining the theoretical framework as the empirical data has been gathered is argued by Alvesson and Sköldberg (2008) as a way of giving the author a clearer picture of the study as the process progresses. In addition, it follows the process of grounded theory, as described by Bryman and Bell (2011), in the sense that it enables the comparison between theory and the empirically gathered data. Following this alternation of the theoretical framework, a second round of empirical analysis was carried out which ultimately led to the conclusions presented in this thesis.

3.4 Empirical data collection

The methods for gathering the empirical data was conducted through several qualitative interviews under which the respondents answered questions that were semi-structured, thus leaving room for a variety of answers and follow up questions. As is suggested by Yin (2011), this is a method for gathering empirical data which the qualitative researchers lean upon in order to grasp the depth and meanings of the respondents' responses. However, prior to diving into the descriptive statistics of the respondents, as well as how the interviews were conducted, some explanation can be offered as to how the interview guide came about.

3.4.1 The construction of the interview guide

The process of which this study followed could be considered a nonlinear one, as most of the stages of this research grew through an iterative process. Initially, as a review of existing literature formed the theoretical framework, this later dovetailed into what would guide the creation of a semi-structured interview guide. Guided by what had become a theoretical framework, these questions were meant to render responses that were as detailed and descriptive as necessary in order to answer the research question. Designing interview questions is a topic covered at large by Collis and Hussey (2009), and their recommendations of how to keep questions open yet at the same time sticking to pre-determined topics of interest shaped the outcome of the guide. As an example,

several of the questions in the interview guide served as open-ended questions, which allowed for the responses to offer insights into several of the topics researched. Inevitably, this was deemed a necessity as the theoretical framework shows that there exists complexity in valuing intangible assets, even amongst researchers. Thus, in order for the respondents to talk freely about all aspects of valuation, the open-ended questions were a tool to circle in on intangible aspects of the process. This technique of getting specific information through open-ended questions is referred to by Bryman and Bell (2011) as following up on "rambling" and, as they suggest, it is often useful in gaining valuable insights into the researched topic. Therefore, prior to the conducting of the interview, several probing questions were prepared in order to steer the responses towards the topics that were subject to research. The topics on which the interview guide was based were derived from the theoretical framework, where the valuation of companies, resources and innovative capabilities were included. Thus, in line with the recommendations by Guest (2012), the theoretical foundations are reflected in the interview questions, with the aim to unambiguously answer the research question at hand. The interview guide ultimately consisted of 19 questions which were covered in the several interviews and is presented in the appendix.

3.4.2 The sample

Although non-probability sampling has been under the scrutiny of criticism for its lack of generalizability, it is still employed in this study. This is due to two reasons where: (1) the study at hand focuses on extrapolating from current valuation practices utilized by investors whether there are grounds for further academic research within the theoretical framework of this thesis and; (2) the availability of respondents comes into play. Therefore, with said criteria the respondents within the sample were chosen by a combination of two sampling strategies, namely purposive and convenience sampling. The former, according to Yin (2011), involves the selection of respondents whom will yield the most relevant data to the researched topic. In contrast, the latter, according to Bryman and Bell (2011), is but merely a selection strategy based on accessibility to the researcher. As none of the respondents were previously known to the researcher, requests were sent out to several companies involved in the right industry and, where applicable, specific candidates were contacted. Thus, this represents a mixture of the two sampling strategies where in order to gain multiple insights from different perspectives, people involved with valuation were contacted and asked to partake in interviews.

In addition to the aforementioned criteria, requests to partake in interviews were only sent to companies active in the Nordic region. This was partly due to the possibility of sitting down face-to-face with the respondents, as well as the accessibility of conducting phone interviews in the respondent's native tongue if necessary.

Ultimately, the sample consisted of five participants who have been anonymized as per request during the interviews. Apart from the table below, a table containing more detailed description of the respondents is offered in section 4.1.

Respondent	Role	Years of experience	Date called	Duration of interview (mins)
Respondent A	Managerial	10-15	2018-03-23	30
Respondent B	Directorial	10-15	2018-03-28	60
Respondent C	Development	5-10	2018-04-06	30
Respondent D	Managerial	5-10	2018-04-18	36
Respondent E	Directorial	10-15	2018-04-18	31

Table 2 Information about the interviews conducted. Source: own.

3.4.3 Conducting the interviews

As previously mentioned, the interviews were conducted in a semi-structured way, where respondents were asked questions based on a topic or theme that was to be covered. The topics covered followed an interview guide with 19 questions to be covered, although the order in which they were asked was altered on a case by case basis. Primarily, the interviews were conducted over the phone as a means of saving both cost and time, but it also enabled the reach of the applied geographical scope of this thesis. However, conducting interviews over the phone brings with it its own caveats. As an example, as mentioned by Bryman and Bell (2011), neither the interviewer nor the interviewee may observe any body language communicated during the meeting. Since body language can be viewed as an instrument of communication, this is inevitably a drawback of conducting phone interviews. Albeit subject to some drawbacks, the telephone interview offers several benefits as well. With modern technology, the ease at which a phone call can be recorded is certainly one of them. In addition, the recorded phone call often offers a superior tape quality to that of a recorded conversation through the same device. This is of importance to the likes of Poland (2002) who argues that in order to ensure that the correct level of detail as to what was said in a conversation is properly transcribed, one should try to eliminate disturbing factors of noise. In an attempt at following Poland's (2002) directions, the interviews were all scheduled in advance so

that the respondents had time to get ready and find a pocket in their schedule for when they had time to sit down and talk without being disturbed.

The aspect of recording was used across all interviews, after informing the respondents of their anonymity as well as their choice of not being recorded at all. Ultimately, the recording aided in gaining a deeper understanding to what was said during the interviews, as well as enabling an in-depth analysis of the rich material afterwards. This is due to the fact that the interviews could thus be transcribed, enabling eventual audition and checking at a later point in time. According to Bryman and Bell (2011), this raises the reliability of the research as the data itself can be subject to scrutiny by other readers.

3.4.4 Methods for empirical analysis

To begin with, all the interviews were transcribed within 24 hours of their occurrence in order to minimize the effects of misinterpretations and memory loss, as well as ensuring minimal bias and interpretations by the author. In this way the gathered data could be analyzed continuously and throughout the process. This approach resembles the cycle of analytic phases that Yin (2011) describes as paramount to the analysis of qualitative data. In accordance with the author's description, this constitutes of the first step in a five-phase cycle of data analysis: compiling. Following this compilation, the data was disassembled into smaller fragments upon which a thematic code of significance was ascribed to the topic described in the interview. This is a tool used to reassemble data in a way that would allow for further analysis to be conducted and reviewed and is part of the second and third step of Yin's (2011) five-phase cycle. In addition, coding is considered a central process in the qualitative data analysis approach of grounded theory with the ultimate aim of revision and comparison with other codes found in the data (Bryman & Bell, 2011). The thematic coding and categorization of the interviews were conducted on the back of grounded theory in order to achieve the greatest level of comparison between theory and empirics. After this was done, the underlying data was then interpreted in order to find component parts with potential theoretical significance, as is recommended by Bryman and Bell (2011). Ultimately, drawing from the compilation and interpretation of the data, conclusions were drawn from the data set in order to provide an answer to the research question at hand.

3.5 Quality of the research

Normally, the quality of research is evaluated based upon three dimensions aimed at assessing business and management research (Bryman & Bell, 2011). These dimensions are reliability, replicability and validity and they are concerned with the consistency of measurement, the replication of a study and the integrity of the conclusions drawn from research respectively (ibid.). However, with the nature of qualitative studies being different from quantitative research, authors such as Guba and Lincoln (1994) suggest that other criteria ought to be used to assess the quality of the research. In essence, the authors suggest two criteria to assess the quality of qualitative research, namely trustworthiness and authenticity. The former is divided into four sub-criteria, referred to as credibility, transferability, dependability and conformability. As the criterion of authenticity is somewhat covered by the combination of the four sub-criteria of trustworthiness, only these criteria will be discussed and evaluated further in the following sections.

3.5.1 Credibility

Credibility is concerned with the notion that the qualitative research should be credible after it has been subject to the scrutiny of analysis by the researcher (Bryman & Bell, 2011). Thus, in order to satisfy this criterion, the respondents were invited to take part in the finished report per mail after the thesis was written. This was done to ensure the correctness of the interpretation of the interviews on the count of analysis and how the empirical data were used to draw conclusions.

3.5.2 Transferability

According to Bryman and Bell (2011), transferability evolves around the degree of which the findings of qualitative research can be transferred to other contexts. In order to satisfy this criterion for the thesis at hand, the elaboration under case selection (see chapter 3.2) aims to give an account of the types of companies included in the study. In addition, it enables the reader to examine the context of which the researched companies are operating within and thus get a sense for themselves of its characteristics. Ultimately, the notion of transferability is colored by the fact that generalizability is hindered outside the scope of this thesis. Thus, the possibility to confirm or test similar research in the same context as is prevalent in this thesis may be successful only to the extent that the degree of similarity between another context is high. Yet, however elaborate the description of a context may be, this is of no guarantee (Bryman & Bell, 2011).

3.5.3 Dependability

Dependability is, according to Guba and Lincoln (1994), parallel to reliability in the sense that it concerns the ability of establishing the merit of research by taking an auditing approach. Thus, a researcher is encouraged to offer complete records of the research process, including transcripts of interviews and an elaboration of the problem formulation as well as the data analysis methods (Bryman & Bell, 2011). Concerning this thesis, the chapter on the research process (see chapter 3.3) in combination with the descriptive chapter of empirical data gathering and analysis (see chapter 3.4) aims to quell this criterion. In addition, as the interviews were transcribed, this offers the possibility of audition of the empirical authenticity.

3.5.4 Conformability

The last of the sub-criteria of trustworthiness concerns the conformability, that is the demonstration that the researcher has acted in good faith (Bryman & Bell, 2011). This shows bearing in that the research has not been influenced by any personal values or theoretical inclinations of which the researcher wishes the research to be conducted, or any conclusions deduced thereof (ibid.). In order to prevent empirical findings which would lead to biased analysis, triangulation was used in which each respondents' answers were used as a check against the others, as encouraged by Bryman and Bell (2011). This method allows for the ensuring of a valid way in which the studied social reality was analyzed and later presented.

4. Empirical findings

This chapter aims to present the empirical findings gained from the conducted interviews. Apart from a brief description on the respective investment firms in which the different respondents were employed, respondents' views on how they go about valuing firms, intangible assets and innovative activities will be outlined below.

4.1 The companies and the respondents

In addition to being active in the industry of private equity, the respondents shared an average time of employment within the industry that exceeded five years. The respondents all had significant insight and oversight of the investment process in accounts of analyzing, buying, managing and selling companies. What's more, the prevalent industries in which the focal companies aimed at finding target companies in ranged from finance, technology, oil, gas, life science, construction to the more traditional industrial sector. A common range of turnover in which the companies usually acquired their target companies was 100 MSEK, but with considerable variation from the biggest to the smallest. However, the respondents all claimed to invest in companies that were currently in a growth stage that had about 50 to 100 employees, but the number of employees varied between the different investments. Amongst the focal companies, at least explicitly, several companies had an exit strategy with the investment horizon ranging from five to seven years, whereas one was more focused on buying and holding companies for a longer time span.

The respondents held positions that were of managerial, directorial or business development characteristics and were active in the Nordic market.

Respondent	Role	Years of experience	Capital under management (focal firm)	Range of target firm's turnover
Respondent A	Managerial	10-15	0-1 B SEK	0.05-0.15 B SEK
Respondent B	Directorial	10-15	25-50 B SEK	0.5-2 B SEK
Respondent C	Development	5-10	50-100 B SEK	0.05-5 B SEK
Respondent D	Managerial	5-10	1-10 B SEK	0.07-0.14 B SEK (EBITDA)
Respondent E	Directorial	10-15	50-100 B SEK	0.2-2 B SEK

Table 3 Descriptive characteristics of the respondents. Source: own.

4.2 The process of valuing firms, the initial step

The initial step that investors took when looking to value a target firm seemed to be of a holistic view, as they started to first look at an aggregated level of a target firm's assets and cash flows.

Amongst the respondents, several different methods were employed to arrive at a valuation price that they felt could be a fair price of a target firm, taking risk and forecasts into consideration. In some cases, the valuation relied on the price of previous transactions where similar companies had been acquired in order to use multiples as a common means of calculating a range in which the target company should be priced, given a forecasted exit price (Respondent C). In other cases, such as with the case of respondent B, companies were valued based upon a cash flow evaluation aimed at measuring the cash flows available to equity stakeholders over an estimated lifetime of the investment. Following this initial step, the respondent argued that one tries to create a market profile for the target firm and assess its positioning in the market. In addition, according to the respondent, this profile acted as a determinant of a target firm's uniqueness as well as the quality of its underlying assets. The respondent argued that what they were looking for were investments where the assets were of high quality but were cheaply priced. However, the respondents stressed the point of how they didn't necessarily rely on a single method to arrive at a fair value, but that it could be a combination of different approaches.

According to all of the respondents, a fundamental aspect of the valuation of a company relied upon the financial information, such as financial statements, forecasts, management reports etc., pertaining to the target company. This information could, according to Respondent A, be handed out either by the company itself or by its advisors. With the former, the respondent argued, one had to put in considerable effort towards ascertaining that financial information. This was due to the fact that instead of being handed a prepared bundle of financial information by advisors to the target firm, as an investor, one had to build this information yourself (Respondent A). Therefore, as was argued by respondent D, the major difference between receiving financial information from advisors of a target firm as opposed to generating that information yourself was the time it took to do so. However, it was upon this financial information that the respondents claimed to initially perform an analysis of the target company's worth, so it had to be received one way or the other. Other than the information received from the target firm, in order to collect the additional data to conduct the valuation, several different sources were utilized by the different respondents. In essence, all of the respondents relied on market information in the form of industry reports, industry analyses and experienced experts' opinions throughout the valuation process. From this combined data, and where possible, the respondents claimed to conduct a thorough analysis of similar products to the ones that were sold by the target company. In addition, all of the respondents

claimed that with enough practice, their own years of experience within the market also allowed for some detailed level of insight to the valuation at hand. Summarized by respondent C when talking about the initial screening of firms: *"We look to the historical data in order to get an understanding of the future".*

4.3 Assessing the different resources and risk

Following the covering of the initial step, the respondents were asked of whether in the valuation process one valued any specific resources explicitly at a more granular level, and not at the aggregated level of the firm. The answers to this question were a bit contrasting in nature. With respondent A, the answer reflected a desire to gain a deep understanding of where the cash flows generated in the future would come from. This, according to the respondent, would result in a detailed outlining of where, in the target firm, money was made and why it was made where it was. As was described by the respondent, such a methodology would ensure that one does get a grasp of the cash flow generating potential of different assets. In contrast, respondent B employed a method in which a target price was determined for the entirety of a firm and then, if the target price was above the target company's book value, one would allocate the excess amount to various assets acquired from the acquisition. Commonly this was referred to a purchase price allocation (PPA) from which the respondent argued one could gain significant insights of what it is that one is basing the valuation upon. However, according to the respondent, the PPA was usually conducted after the transaction went through and was thus often left out of the process of the valuation. In fact, as a suggestive measure of improving the valuation process of intangible assets, respondent B argued for bringing the PPA into the process of valuation at an earlier stage to gain a better understanding at a more granular level of the target price for a company. However, when talking to respondent D, while acknowledging the fact that this could have potential benefits to a more granular assessment of resources in a target firm, the respondent saw no practical reasons as to why the PPA would be included earlier on in the process. As the respondent was a proponent of valuing a company based on a holistic viewpoint, that is at the aggregated level of a firm, to the respondent the PPA was of no relevance to the outcome of the valuation of a target company. Instead, the respondent argued, it was a necessity required by accounting principles following the transaction which, in addition to being time consuming, carried little effect on the valuation process. In the words of respondent D: *"Unless you are buying out specific projects or specific soft assets of the company, I don't see a*

point in valuing them separately. I know a lot of accountants will probably do that, but I don't see value in it".

Respondent C argued that in order to arrive at a justified price range for a company, resources that are currently cash flow generating might have to be separated from those that are not yet there. Further, the respondent exemplified by giving a descriptive explanation of how one would attribute value to products or assets that were already in place, in contrast to those that were under development. According to the respondent, the latter were separated from the former with the intent of analyzing managers' assumptions about future cash flows generated from the innovation and compare that to one's own assumptions. This was echoed in the response of respondent E who claimed that in order to understand a business, one goes through the business model of the company under which it is currently operating to try to figure out where it is headed in the future. According to the respondent, if there were any projects underway that were assumed by the management of the target firm to generate increased returns in the future, these were thoroughly examined. In this examination, factors of whether the company had the necessary staff available to fill the new positions, had the appropriate levels of warehouses in place or if they had the necessary contracts in place were assessed. What's more, the respondent recalled a case in which the focal company decided to not invest in a target firm due to the overhanging risk of a project that was still in its infancy. This project was delayed, and not revenue generating, but was presented by management of the target firm as a greatly profitable project. The investment was thus considered too risky by the respondent and more substantial proof of concept was needed. However, in another valuation process of a target firm with similarities to the passed-up investment in respect to novelty and revenue generation of the projects, the focal firm decided to invest. The decision was based on the fact that the target firm had demonstrated to some extent that they could secure leasing contracts in a new market, as well as attract customers to their initially few stores. *"We believed in their ability to succeed and in the end, they did."* (Respondent E).

4.3.1 Dealing with risk of resources

In many ways this was connected to how the respondents claimed to deal with the inherent risks of an investment's assets, as multiple factors could inevitably affect the outcome of the valuation. Albeit not very granular, according to respondent C, the separation of different resources could enable the investors to attribute a certain risk premium to the case at hand. This premium, the

respondent argued, would then be representative of the underlying asset in question, be it the company's employees, management or superior products compared to similar offerings in the market. In addition, according to the respondent, this methodology was used when a company was developing a new product that was not yet released or ready for sale. When speaking to respondent A, the respondent argued that the risks tied to the investment were also valued based upon the different risk-mitigating factors in place connected to a target firm's assets. As an example, the respondent recalled that in one case, where contracts that had been signed with different clients to the target firm, this assured a lower level of risk tied to the target firm's assets. The respondent further elaborated that the contracts signed with customers to the target firm would be harder for other firms competing in the same market to win over. *"Unless there was a development of a superior technology, the risk of a no-name firm to win over a signed contract would be fairly low"* (Respondent A). Similarities in the response of respondent A was found in the response of respondent B who argued that the commercial due diligence conducted prior to acquiring a target firm included the assessment of contracts, intellectual property rights and the likes. However, the respondent elaborated, this was reflected in the valuation not specifically as a ground for, but rather as an explanation of why the estimated target price was established. According to the respondent, risk was not specifically assessed at the level of individual resources but was aggregated to a holistic level of the firm, where a base-, worst- and best case was outlined.

One of the most frequently mentioned risk factors concerning specific resources in the target companies by all respondents was the competence and intentions of management to stay on after the acquisition. In the words of respondent C: *"I'd much rather find a company with a product that is not too good but where the management is great, than the other way around."* A similar notion was made by respondent E in which the respondent stated that with management qualifying as an intangible resource, this was one of the most important factors in the valuation process. According to the respondent, this factor affected the credibility of the investment and reflected itself upon the valuation in the sense that one might require a higher return on that investment, ergo pay a lower price for the target firm, to go through with the investment. In one case, the respondent recalled, where the founder of a target firm was of rather old age and would eventually have to step down, the multiple on which that deal was made was 9 times the EBIT of the firm. Put in contrast by the respondent, comparable companies traded on a stock market were valued as high as 15 times their

EBIT. According to the respondent, this exemplified how risk of specific resources was factored into the valuation of the target firm.

4.4 Assessing innovative activities

When asked how one valued the innovative activities undertaken by target firms, such as new product development, respondent A described that this is something one goes into considerable depths to try to figure out. *"At a glance, one tries to establish whether the company is working on this project just because it is timely and cool, or if it has the potential of becoming a sellable product. Then you try to assess whether any new regulations may be put in place, such as the GDPR, to inhibit the ability of the product to be sold."* (Respondent A). Much in line with respondent A, respondent B argued that the estimated future cash flows of a firm are based on sectoral and industry knowledge pertaining to the assets and their distinct uniqueness. From that, the respondent explained, a market profile is built where one tries to assess the price of a valuation to the quality of the underlying assets where one wants to find an investment at a good price with high-quality assets. However, according to respondent B, with firms generating profit from intangible assets, the question of investment becomes intricate in nature. The respondent exemplified by describing an investment in which the focal company decided not to invest in a service company which had much assets tied in contracts, human capital etc., and less tied to tangible assets. However, according to the respondent, as such assets were not present on the traditional posts of a balance sheet, the senior management of the investment firm became hesitant to invest and ended up passing up the opportunity.

Albeit a firm believer in aggregating a company's assets to the level of the firm when performing a valuation, respondent D argued that if innovative projects were to be assessed, the respondent would rank them and then value the biggest ones. The valuation of such assets, the respondent continued, would be performed through the usage of a DCF model. However, the respondent added, that this would be dependent upon the nature of the business but recalled an example of when a company that the focal firm invested in assessed the large projects of the firm. As the respondent described, a typical case of when one goes into great detail of single projects is if a big amount of the target company's sales can be attributed to either a small number of customers or a few projects. According to the respondent, this was done both if the projects were currently up and running, or if they were in the target firm's pipeline for development. Albeit valid in theory, deploying a DCF

model for assessment of single projects was, according to the respondent, in itself risky. More specifically, the respondent raised concerns about the different parameters that would go into such a model. The respondent further explained that even the smallest changes to a discount rate that reflects the riskiness of a project could have huge ramifications to the valuation. *"…it is so highly dependable on the input parameters. You could basically say whatever you want to say, it's a huge difference when you use a WACC* [discount rate] *with 3 or 4 or 5 percent. It makes a complete difference, and no one can tell you what the right (discount rate) to use is."* (Respondent D).

For projects that were in the pipeline of development, respondent A expressed concerns about the scarcity of data to be able to value them with respects to expected cash flows. In the words of the respondent, specifically relating to software and hardware, was that things happen very quickly and unforeseeably. *"Something that is really difficult is to value a project that is expected to sell in a few years' time. Even if you currently have a software that is very good, someone could sit in a garage and develop the next revolutionary thing."* (Respondent A). When asked how one deals with such uncertainty, the respondent explained that this is dealt with by meeting with a target firm's managers and discussing their strategy towards continuously offering the best product for a customer. *"One has extensive meetings with managers in order to understand how they are working with the development of new products that would best fit the requirements of their customers."* (Respondent A).

In contrast to many of the other respondents, respondent C argued that in order to improve the valuation of innovative projects one may have to treat the valuation of the projects as a non-linear process. According to the respondent, a scenario-based model would enable the investor to outline the different ramifications of a success or failure of an innovative project throughout its development. In essence, such a non-linear process of looking at innovative projects could, according to the respondent, lead to a more true approach to the valuation of innovative projects. The respondent further elaborated that a scenario-based model might mitigate the gruesome effect that a scarcity of data has on the valuation of innovative efforts. However, according to respondent D, when dealing with little data upon which one can value an asset, the respondent argued for employing consultants or advisors with insight into the industry to develop a reference from which you could use a comparable transaction to value an asset. According to the respondent, advisors may have knowledge about transactions that are not publicly available but that may aid the

valuation process towards a fair valuation of innovative activities. In fact, this was also an argument raised by respondent C, but as a suggestive method of improving the valuation of innovative projects the respondent argued for the usage on scenario-based models. However, according to the respondent, a scenario-based model might be best applicable to specific industries. The respondent exemplified by listing both the industry for pharmaceuticals and oil as industries in which a scenario-based model of innovative projects is employed and suggested that it may work for other industries as well.

5. Analysis

With the purpose of this thesis in mind, this chapter aims to connect the empirically gathered material with the theoretical framework in assessing its relevance and linkages. Section 5.1 aims to outline the different findings related to valuation theory. In section 5.2 the different takes on how resources were valued by investors is discussed. Lastly, in section 5.3, the findings regarding the valuation of innovative efforts and activities are connected back to the theoretical framework. As many statements from the respondents offer viewpoints relevant to the theoretical framework in each respective section, empirical material may be referred to multiple times.

5.1 Valuation theory of the firm

Taken from the answers of the respondents, it seems as if they are in agreement with the philosophical basis for valuation proposed by Damodaran (2012) in that one ought not pay more for an asset than what it is worth. In essence, the author argues for an asset's worth to be represented by the expected future cash flows generated by that same asset. At a start, it was evident from the answers by the respondents that initially one analyzes a target firm from a holistic point of view. Practically, this meant that investors begun by analyzing a target firm's assets and their ability to generate cash flow as a bundle of resources, rather than assessing them individually. However, when investors moved along in their' valuation process, for most, an assessment of a more granular level of assets was necessary. Within such an assessment, investors had to separate and assess different assets in a target firm, including intangible assets, to later sum them up to achieve a representative value of a target firm. Specifically concerning intangible assets, the valuation approaches employed by investors were portrayed in different ways. One example was the recollection of a case by respondent E in which the investment firm decided to pay less for a target company due to the owner's inherent inability to stay on for much longer in the management of the firm. Keeping in mind the recent article written for Forbes (2017), one might argue that what the respondent was doing in effect was trying to value the change in future cash flows that might come from the changes in intangible assets. In this case, that would be represented by the departure of the owner of the target firm. According to proponents of valuation theory, such as Damodaran (2012), assessing the departure would then reflect a more just value of the target firm's worth as it would be justified by the estimation of future cash flows. Albeit an attempt at being as objective as possible at such a granular level, as is suggested by Berk and DeMarzo (2013) as preferable, it is

fairly easy to understand that objectivity in such a case is hard to achieve. However, the recollection of respondent E also resonates well with the findings of Mangipudi et al. (2013) in the sense that with the loss in expertise, a lower appraisal of the assets ought to follow. For both investors looking at a more holistic view as well as those delving into granular detail, the risk of losing an experienced and important part of the management of assets should play its part in the valuation process and affect its outcome.

It was made clear by the respondents that the process in which a price for a target firm was established followed several or all of the steps suggested by Macabacus (2018). These are reproduced below:

- Develop operating assumptions and projections for the standalone company to arrive at earnings before interest, depreciation and amortization (EBITDA) and cash flow available to refinance debt repayment over an investment horizon.
- Determine key leverage levels and capital structure that result in realistic financial coverage.
- Estimate the multiple at which the investor is expected to exit the investment.
- Calculate equity returns (IRR) to the financial sponsor and conduct a sensitivity analysis on a range of leverage and exit multiples, as well as investment horizons.
- Solve for the price that can be paid to meet the above parameters.

In many ways, when looking at the aggregated level of the firm, this was due to the fact that many of the respondents utilized an LBO strategy when trying to put a price on a target company. However, what was more interesting was to learn in which situations the respondents deviated from the steps outlined by Macabacus (2018), and to understand why that was. In general, this occurred only when looking at a more granular level of detail from where cash flows arose. Seemingly, assessing data on a much more granular level was dependent upon in which industry the investor was investing. With respondent A describing an investment within a software company, the respondent further elaborated on how one goes into great depths to find out where cash flows may come from in the future. Much like why respondent A deviated from the steps outlined by Macabacus (2018), respondent D argued in favor of doing so dependent upon the business of which the target firm was within, as well as if few projects could be attributed to large portions of revenue. As an example, respondent D argued that if one were to assess a company on the aggregated level

of projects, then one would instead utilize a DCF model for valuation. Following such an assessment, one would sum up the different projects worth to find the value of the company. However, as becomes evident with these ways of deviating from the steps of Macabacus (2018) is that investors are trying to appropriate value to assets along the principles of a market value balance sheet. As was argued by Berk and DeMarzo (2013), employing such an approach to appropriate value towards assets would lead to a more accurate reflection of each asset's inherent value. In addition, it ought to lead to the improvement of the results of valuation processes, as was argued by André et al. (2017).

5.2 Assets and resource valuation

As was evident from the empirically gathered material, the initial step of the valuation process implicitly included accounting for intangible assets, as all respondents argued for the assessment of cash flows at an aggregated level of the firm. From such a valuation process, investors ended up with an initial assessment of the market value of a firm that included the underlying assets of the target firm. Building on the position stated by NASDAQ (2017) that all activities undertaken by firms are reflected in a firm's market value, beginning with taking a holistic view of a firm's assets might be justified. However, one may have to keep in mind that for many of the investors that were interviewed, this was merely a first step in a long process. As was made clear from the interviews, the target firms subject to investment were under scrutiny of analysis from a multitude of sources including industry reports, experts' opinions and various analyses performed within the target market. Therefore, as was suggested by respondent A, the following analysis of the target firm included gaining an in depth understanding at a more granular level, suggesting a somewhat different approach to that of Toivanen et al. (2002). With this in mind, the valuation process seemingly took a turn towards a more resource-based view, as defined by Barney (1991), seeing as one explicitly took into account how underlying resources are generating growth and profitability for the firm. However, this was not something that was echoed in the same way throughout the answers from the respondents but was instead subject to contrasting views. In essence, respondent B argued in favor of not specifically analyzing resources and the subsequent cash flows generated from them, but to instead try to allocate their worth to different posts in the balance sheet after the acquisition. Albeit a contrasting view to respondent A, this method still comes with its benefits. As an example, in a satisfactory manner it combats the shortcomings of valuing intangible assets and resources as suggested by Anson et al. (2014) in the sense that it

grants the investor the ability to differentiate intangible assets from other assets. By this reasoning, investors would enable the outlining of the different resources and their intra-specific relationship in a firm's attempt to generate the most value for a firm. Based upon a RBV of a firm, in conjunction with the reasoning of Denrell et al. (2003), an investor could thus both outline the path-dependency of resources as well as value them separately. According to Berk and DeMarzo (2013), this would lead to a better appropriation of value inherent in specific assets and resources by investors. However, as not all the respondents were in favor of valuing resources separately, one is left with the assumption that not all investors see the value in an extensive outlining of assets and resources. Building upon the arguments of both respondent C and E, realizing the value of the separation of resources and assets might stem from which industry that investors are investing within. Based on their views, one may assert that for target firms active in some specific industries, the assessment of value from resources may be satisfactorily left at a holistic view of a firm. With the differences in granularity of the data, it might be that it is simply different ways of achieving the same goal of assessing the value of resources. However, according to the statement of respondent A, one runs the risk of not understanding which specific resources it is that will be generating cash flow in the future.

When asked of whether respondents had previously had any difficulties with finding comparable transactions upon which one could determine a price range for an intangible asset, most were firm in their positions about this not being a big issue. This somewhat contradicts the position of Watson (2010) that investors may struggle with the data availability of the transactions of other intangible assets in a marketplace. As an example, respondent D argued that if there was indeed a scarcity of data connected to an investment containing intangible assets, one would go to significant lengths to educate oneself on the industry and specific companies of that industry. In the respondent's words, one would create the reference data upon which one could base a fair pricing for a specific asset or investment. This was echoed in the response of respondent C who emphasized the importance of employing consultants with insights into previous transactions in order to triangulate your way to a fair value. However, one may assert that the necessity of employing consultants with insight does not equate with data being publicly available. Therefore, one might still be able to justify the strive argued for by André et al. (2017) to increase the transparency related to intangible assets and making publicly available to investors the information pertaining to those assets. However, as such a strive would still have to satisfy the requirements of secrecy, as described by

Watson (2010), it could potentially facilitate a better utilization of a market approach to value intangible assets.

5.2.1 Value within resources

The notion of value inherent in resources, given a RBV of a firm, did not go unmentioned by the respondents. Much in line with how Buchmann (2013) argues in favor of identifying opportunities where the cost of the acquired resources would outweigh the cost of the investment, the empirical material reflected similar desires amongst the investors. As an example, portrayed by respondent B, the notion that one seeks to find high-quality assets sold at a reasonable price supports the argument of Buchmann (2013). Further, the recollection of an investment in which the investment firm of the same respondent decided not to invest sheds light on the intricacies when dealing with intangible assets. Such intricacies are argued by Denrell et al. (2003) to be present in most resources, be it commodity resources or complex resources. However, taken altogether from the answers of the respondents, this was something that they worked on overcoming. Thus, it is safe to assume that notions of a RBV affects the investment in a target firm on an overall level.

Another more granular example of how resources could portray a change in the estimated price of a company was described by respondent E, where the inevitable down stepping of a founder of a target firm affected the multiple upon which the price was based for that investment. Much of the theory cited in this report could explain why this is of importance to the transaction. As an example, the notion of capabilities described by Helfat and Peteraf (2003) could be suitably reproduced to match the context of the situation. According to the authors, capabilities evolve around a company's ability to perform tasks and utilize organizational resources for the purpose of achieving an end result. In this instance, where the capabilities of the top management were under the stress of transitioning, the loss of a dire resource led to the establishment of a price that was below comparable valuations on the market. One may assume that the founder's replacement, whomever that would have been, would be subject to a learning curve, a process that is suggested by Teece et al. (1997) to be both time-consuming and tedious. Therefore, to safeguard one's own interests as an investor, it is not unfathomable to come up with a price for such an investment that is lower than that of its comparable companies. Should the investors be concerned with an exit strategy that spans over a shorter time period than what would be necessary to train a new manager, then the price for the transaction would be affected. However, this may differ from case to case, as was portrayed in

the reasoning of Povaly (2007) and Fürth and Rauch (2015). If instead one has a longer time period in mind for owning and managing the investment, this may not be cause for any alterations in the valuation price. Alas, as a longer investment horizon was employed by the investment firm of respondent C, management was still of concern to the respondent when valuing a target firm. It can thus be asserted that no matter the time span of the investment, to assess management as a resource still yields beneficial outcomes to the investor.

5.3 Valuation of novel intangible assets

After being asked how one valued the innovativeness of target firms, it was made clear by the respondents that the proposed DCF valuation model, as suggested by Damodaran (2010), was not employed to estimate the value of innovativeness. Instead, the responses more accurately reflected the argument stipulated by the OECD (2005) in the sense that investors mentioned the urge of understanding the innovation process within a target firm. As an example, respondent A mentioned that one goes into considerable depths to try to figure out what types of innovation that the target firm is working on, as well as its relevance in a market. Seemingly, the influences of a Schumpeterian view of innovation (Schumpeter, 1934) affect the viewpoint of investors to the degree that is exemplified by the statement of respondent A. That is, when a new product is being developed and investors realize the inherent risks with said project, a hint of healthy skepticism arises regarding its marketability and ability to sell in the future. Thus, while keeping the arguments of Buchmann (2013) in mind, one could assert that the assessment of innovative capabilities in a target firm was more prone to be based upon current and historical innovation management within the target firm. Basically, one is trying to make sure that the target firm is focusing on the right things and, in other words, utilize their resources in the most efficient way. This borders the arguments proposed by Barney (1991), Denrell et al. (2003) and Helfat and Peteraf (2003) on how it is of interest to investors to investigate both the utilization of resources as well as the specific intra-resource relationships. It is fathomable that this is done in order to understand the several risk-mitigating actions that target firms take in order to successfully be innovative. Such an understanding may be outlined much in the same way as Cooper (1990) references gates, where if investors believe that there is no marketability, nor any ability for a product under development to be sold, they may not go through with the investment. However, the opposite may also be true where the target firm is acquired in order for the focal firm to sway the utilization of resources into more profitable directions. Such an event was portrayed in the response of respondent E where the

respondent argued that one goes to considerable lengths, together with the management of the target firm, to understand the current and future business model. Possibly, according to the respondent, this could be tied to the development of existing or non-existing resources that would lead to a less risky path towards either seizing market shares or staying a market leader. Whether or not investors and managers of a target firm are in an agreement, the decisions pertaining to such a path may be more easily influenced after an acquisition rather than prior to.

When speaking of the issues related to the valuation of innovative activities, most respondents mentioned the issue of data availability upon which one could assess the activities in question. Taken altogether, the general consensus seemed to be that the less data you could acquire about the potential outcome of an innovative activity, the more risk averse investors became. However, when dealing with companies that are not publicly listed, one could argue that the data gathered prior to an investment might be more granular compared to the general data availability of a publicly listed firm. As is mentioned by Hall and Oriani (2006), data availability pertaining to innovation might complicate the valuation of innovative activity amongst firms due to differences in accounting principles in different geographical locations. Thus, as deduced from the reasoning of Strecker (2009), one could assume that with increased granularity would come a greater ease at which innovative activities could be valued. However, as target firms' projects could be in its infancy still at the time of a valuation, as was exemplified by respondent A, the availability of data might be sparse nonetheless. Thus, in order to ensure the inclusion of innovative capabilities and activities undertaken by target firms in a valuation process, investors may have to rely on a higher level of aggregation. Keeping in mind what was posited by NASDAQ (2017), until data availability increases with the progression of innovative activities undertaken by target firms, the market value of a firm may act as an indicator of their success. In fact, support of such an approach being utilized was found in the empirically gathered material. As an example, respondent D argued that although it may be theoretically possible to assess innovative activities separately, analyzing each and every one would not be practical. The respondent clarified by explaining that in putting a value to specific projects using a DCF model, the outcomes would be highly dependable upon which input parameters one uses. As a result, when using a DCF model as explained by Damodaran (2012), the respondent argued that the results of using a discount rate that differed with a small percentage could have huge ramifications to the valuation as a whole. One could therefore assert that the implications of such uncertainties could be better avoided when aggregating the valuation to the

level of the firm. These findings resonate well with the premise proposed by Toivanen et al. (2002) that in order to measure the performance of innovative activities in target firms, one aims to use market value as a proxy for performance. In essence, instead of dealing with the uncertainty of singled out projects, one would have to assess a general and more holistic uncertainty inherent in the firm. In doing so one might argue that it is easier to objectively assess the performance of innovative management, a term otherwise tied to subjectivity according to Griffin and Page (1996).

6. Conclusions

The first section of the conclusion outlines the findings of this study on how industry practitioners use industry practices to value intangible assets. Following the research's findings, suggestions for future research are discussed.

6.1 Findings of the research

In order to facilitate the understanding of the elaboration of the findings of this research to the reader, the research purpose and research questions are restated here.

With the emergence of a new era of value creation, evaluating strategies for how companies are continuously innovative and intrapreneurial will play a key role in better determining the real value of firms. Unlike much of the existing theory on valuation, this thesis aims to include the capabilities and resources concerning innovation to offer insights into appraising growth potential in target firms. According to recent research, the inclusion of such insights to valuation models may prove to be highly beneficial for the outcome of the valuation. Therefore, this study aims to investigate how professionals working with the valuation of target firms analyze intangible assets and resources to establish a price for an acquisition. In addition, innovative activities and their outcomes are subject to analysis and the thesis aims to understand how they are reflected in the financial valuation of companies. Thus, the research aims to answer the following questions:

How do private equity investors use industry practices to value intangible assets prior to acquiring a company?

And subsequently:

How do private equity investors take into account the value of future prospects and wealth generation from innovative activities in a target firm prior to acquiring a company?

This research has pointed out some of the ways in which private equity investors utilize industry practices to value companies as well as how they specifically value intangible assets and resources, both independently and their intra-specific relationships. What the empirically gathered material and analysis has shown is that as investors approach a more granular perspective on several aspects of intangibility, it may be beneficial to utilize valuation techniques that stem from other academic fields than valuation theory. That is, when investors are looking at value from the point of view of

intangible resources or assets in connection with other resources or assets, one may benefit from the outlining of their relationships. However, it is from the understanding of this thesis that one may combine different approaches in search for a more intangible-friendly model of valuation. From the analysis of this study it can be deduced that such a model would entail the outlining of assets, resources and intra-resource relationships of target firms in trying to determine their financial worth. The understanding of the respective resource, asset or intra-specific resource relationship can be modelled into a valuation process either as a risk-determining factor or as an explicit valuation itself. One way of doing the latter is to include what was mentioned in the empirical material as a purchase price allocation (PPA) in the valuation process prior to the execution of the transaction. This would inevitably bring with it the explicit outlining of the value of the different resources, where each would receive an appropriated value based on its respective discount rate and risk. However, notwithstanding that such a model may be beneficial to valuation practitioners targeting some industries, the valuation of assets, resources and their intra-specific relationships might better be valued through other methods of valuation. As has been shown in this study, this could either be done through a scenario-based model, a discounted cash flow (DCF) calculation or through the usage of multiples. However, through the findings of this thesis it is evident that practitioners realize the value in data that is not strictly financial, but in combination with financial data may be beneficial to the valuation process as a whole.

With regards to innovative activities, as has been shown in this study, it seems as if investors could benefit from utilizing an approach tied to the understanding of the management of a process of innovation inherent in the target firm. As an example, one could outline the different stages that an innovative activity has passed to gain an in-depth understanding of the processes that are needed to be put in place prior to an introduction to a market. However, for that to be possible and practical to analyze for investors, the data availability concerning innovative activities must increase. For managers of target firms, the recommendations would thus be that in addition to the managerial forecasts included in the briefings to potential investors, to outline the different managerial steps that have been taken to get to this point. In essence, one could suggest managers of target firms to outline the different resources put to use towards an innovative activity and how they perceive it to be beneficial for the firm in the future. This would inevitably allow investors to analyze a target firm's best utilization of their resources, whether it is in that specific innovative activity or not, and then adjust their assumptions accordingly.

6.2 Suggestions for further research

As has been mentioned in section 6.1, a noteworthy continuation in the search for a model that better incorporates and outlines the intangible aspects of a target firm into the valuation process would be to analyze what effects bringing in a PPA earlier into the process would have. From the understanding of this thesis, the PPA seems to be something that practitioners either see as a tedious necessity that only brings value from an accounting standpoint, or as a source of insight to the valuation process. This is intriguing for the suggestive future research since, albeit being outside the scope of this thesis, the empirically gathered material showed notions of potential benefits from viewing the PPA as a source of insight rather than a tedious process. Thus, adding to the current research the theoretical understandings covering the PPA might yield beneficial outcomes towards searching for a model that incorporates and outlines intangible aspects of a firm.

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Appendix

Interview Questions

Interview questionnaire:

(introduction of project, how gathered data will be analyzed, anonymity)

Introduction

1. What's your role in the firm?
2. For how long have you been active in this market?
3. What type of firms do you usually analyze and invest in?
4. How many of those that you analyze do you end up investing in?

Valuation

1. When gathering information about a target firm, what do you gather and what's crucial to gather?
2. Which methods do you use to value a target firm?
3. How do you evaluate the risk for the different target firms, and how does that reflect upon your valuation?

Intangibles

1. How do you gather information regarding a target firms' resources? Do you take intangible ones into account?
2. How do you value intangible assets?
3. Do you separately value resources in any way?
4. Based on the data that you gather, do you adjust your valuations based upon what potential you may find in resources?
5. In the valuation process, do you adjust for resources that may be deemed as assets, even though they might be classified as operating costs?

Innovation

1. Do you try to evaluate whether the target firm will be able to continue to grow its revenue and profitability by utilizing internal knowledge? (Human capital, specific training etc.)
2. Do you try to value the possibilities where firms are trying to be innovative? (E.g. projects that could generate novel revenue streams)
3. How does that reflect upon the complete valuation?
4. Do you try to appropriate a level of risk of the projects failing for the individual projects undertaken by firms?

Barriers

1. Are there any assets that you find specifically harder to value compared to another? Would you elaborate on the reasons to why you think that is?
2. What difficulties do you find when trying to value innovative efforts or intangible assets? Is it tied to the collection of data or the utilization of current financial models?
3. What would you suggest would be done if you were to improve the valuation of intangible assets?