‘Controlling instruments’ for price management:

a single case study on a B2B company in the OEM business operating in the German electrical/electronics industry

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The published version only provides the interview guide in the annex and not the entire coded interviews.

Abstract

Price management is a company's most significant profit lever. Business-to-business (B2B) companies frequently delegate pricing decisions to the sales force, which often results in information asymmetry and goal incongruence due to management and the sales force having different interests. This situation increases the risk that pricing plans created by management will not be executed. Efforts to improve price planning can be rendered meaningless if Price Control 1 is not implemented to ensure the execution of pricing plans. An effective Price Control 1 can ensure that the profit lever of price management can be utilised in a way that benefits the company. The current academic literature does not thoroughly address the topic of Price Control 1 despite its relevance to the profitability of companies and the need to implement it in practice.

This research adopts a social constructivist approach using semi-structured interviews with employees of a B2B company in the Original Equipment Manufacturer (OEM) business operating in the German electrical/electronics industry to develop a Price Control 1 model containing instruments for mitigating the Price Control 1 problem in the price management process for B2B in the OEM business operating in the electrical/electronics industry.

Although the researcher focuses on a single case study of a B2B company in the OEM business operating in the electrical/electronics industry, this Price Control 1 model can help practitioners of other similar B2B companies manage Price Control 1 at their companies. It can be used by practitioners to guide the evaluation, design or redesign of Price Control 1 models to better understand the Price Control 1 problem and improve the success of achieving pricing plans. Other researchers can use the created Price Control 1 model to better understand this phenomenon and/or produce Price Control 1 models in other contextual settings.

Declaration of Original Content

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas.

Any views expressed in the thesis are those of the author and in no way represent those of the University.

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List of Abbreviations

ASM	Area sales manager
B2B	Business-to-business
B2C	Business-to-consumer
BI	Business Intelligence
BMWi	Bundesministerium für Wirtschaft und Energie
BSC	Balanced Scorecard
CEO	Chief executive officer
CFO	Chief financial officer
CIO	Chief information officer
CRM	Customer relationship management
EBIT	Earnings before interest and taxes
EIS	Executive Information System
ERP	Enterprise-Resource-Planning
GDP	Gross domestic product
IT	Information technology
KAM	Key account management
KPI	Key performance indicator
LOC	Levers of control
M	Milestone
MCS	Management Control Systems
MOQ	Minimum order quantity

OEM	Original Equipment Manufacturer
P	Participant
p.	Page
pp.	Pages
R&D	Research and development
RO	Research objective
RQ	Research question
VDMA	Verband Deutscher Maschinen- und Anlagenbau
ZVEI	Zentralverband Elektrotechnik- und Elektronikindustrie e.V.

1 Introduction

1.1 Research background

There are only three primary ways in which a company can increase its profits: increasing its sales volume, increasing its prices or decreasing its costs (Dolgui & Proth, 2010; Roll, Pastuch & Buchwald, 2012; Smith, 2012). In recent years, companies have focused on reducing costs, with the result that there are fewer and more limited options for levering profits on the cost side. As a result, companies need to search for profit potential on the revenue side (Farrés, 2012; Homburg, Jensen & Schuppar, 2004; Hwang, Tsai, Yu & Chang, 2011; Lauszus & Kalka, 2006; Marn, Roegner & Zawada, 2004; Roll & Achterberg, 2010; Simon, Butscher & Sebastian, 2003). Increasing sales volume becomes more difficult as the market becomes saturated (Marn, Roegner & Zawada, 2004; Roll & Achterberg, 2010; Roll, Pastuch & Buchwald, 2012; Simon, 1992; Simon & Fassnacht, 2009). Price management is a remaining profit lever that still exhibits great potential with regard to increasing a company's profits (Roll, Pastuch & Buchwald, 2012). It is a process that consists of a planning phase, an execution phase and a controlling phase (Florissen, 2005; Hwang, Tsai, Yu & Chang, 2011).

Price management is particularly important for B2B (business-to-business) companies to remain profitable. Researchers have highlighted that price management has a significant effect on the profitability of a company (Avlonitis & Indounas, 2005; Dutta, Zbaracki & Bergen, 2003; Eugster, Kakkar & Roegner, 2000; Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2005; Liozu, Hinterhuber & Somers, 2014; Marn & Rosiello, 1992; Simon & Butscher, 2001), which also means that ineffective price management can endanger the profitability and even the survival of companies (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Marn, Roegner & Zawada, 2004). In B2B markets in particular, price pressure is high due to market saturation, overcapacity and the competitive environment. As a result there is a high risk of decreasing profitability via price erosion (Homburg, Jensen & Schuppar, 2005; Homburg, Jensen & Hahn, 2012; Miller & Krohmer, 2011). The German electrical/electronics industry is the fourth-largest industry branch in terms of sales in Germany (ZVEI, 2016). Price erosion can also be observed in the German electrical/electronics industry (Homburg, Jensen & Schuppar, 2005); the EBIT (Earnings before Interest and Taxes) margin has also decreased (ZVEI, 2015a; ZVEI, 2015b). Therefore, price management is particularly important for the profitability of companies in the electrical/electronics industry.

B2B price management is likely to have an agency problem in the relationship between management and sales force, which can reduce profitability. In B2B companies, it is commonplace for some level of pricing authority to be delegated to the sales force. The result is that prices are planned by management but executed and negotiated by the sales force (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012). In such a situation, there is a high risk that the sales force will not enforce planned prices due to their interests differing from those of management and due to information asymmetry between management and the sales force (Dolan & Simon, 1996; Homburg, Jensen & Hahn, 2012; Stephenson, Cron & Frazier, 1979). Management has the problem that it cannot judge whether the sales force has acted in the management's best interest to achieve the pricing plans (Chen, 2005; Homburg, Jensen & Hahn, 2012).

Therefore, it is crucial for B2B companies to implement price controlling instruments into the price management process to alleviate goal incongruence and information asymmetry between management and the sales force (Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012; Jaworski & MacInnis, 1989). The effort put into the planning phase is meaningless unless the resulting pricing plans are actually implemented by the sales force (Hwang, Tsai, Yu & Chang, 2011; Roll, 2011; Simon & Fassnacht, 2009; Sodhi & Sodhi, 2008). The execution of pricing plans by the sales force is controlled by Price Control 1, which is one form of various price controls (controls for pricing objectives and strategy, operational price setting, price realisation, Price Control 1, Price Control 2, Price Control 3), which are used during the entire price management process (Florissen, 2005). Price Control 1 makes use of various Price Control 1 instruments that fulfil specific tasks in order to achieve pricing plans (Bolte, 2008). Shortcomings in the management of Price Control 1 will lead to a loss in profitability (Farrés, 2012; Homburg, Jensen & Schuppar, 2005; Rullkötter, 2009; Sodhi & Sodhi, 2008).

1.2 Case study setting: B2B for OEM businesses operating in the German electrical/electronics industry

The researcher is a social constructivist and uses a single case study. As a result, this research will be context-bound.

The case study company (hereafter called Electronic) is a medium-sized German manufacturing company with approximately 320 employees and an annual turnover of approximately €120 million. It operates in the electrical/electronics industry (Electronic, 2014a; Electronic, 2014b). Electronic manufactures and sells premium power supplies and chargers mainly to original equipment manufacturers (OEMs) worldwide (Participant P3). Electronic has production facilities and sales offices in all major markets (e.g., Europe and China) (Electronic, 2012a). Its customers are market leaders and sell premium, high-quality products that are used in various market segments (e.g., medical technology, IT & communication, industrial automation, cordless power tools, domestic small appliances) (Electronic, 2012a; Electronic, 2013c; P3). Electronic conducts business in the product and OEM businesses (P1; P3). The OEM business is the most important business at Electronic and accounts for the largest share of sales (P1; P2; P3); the OEM business will therefore be the focus of this research.

There are many approaches to creating classification schemes for companies. The rationale for such classifications is that it is presumed that companies that operate in the same business area share a number of common traits. The reader will be provided with an overview of the B2B context and the main industry in which the research takes place, which will facilate interpretations of the findings (Messner, 2016). The results of this research are most likely to be applicable to companies that operate in the same setting as the case study company due to comparable situational contexts.

One common way to classify companies is to differentiate between B2C (business-to-consumer) and B2B activities (Monroe, Rikala & Somervuori, 2015). In B2C activities, companies sell products to the end customer. On the other hand, B2B companies do not sell their products to the end customer directly. Instead, they sell to other companies, institutions, or organisations and therefore conduct business with other businesses (Farrés, 2013; Grewal & Lilien, 2012; Kleinaltenkamp & Saab, 2009). Electronic is a B2B company. The distinction between B2B and B2C is relevant because researchers have reported that B2B specifics influence the price management process (Homburg & Totzek, 2011b; Miller & Krohmer, 2011; Titzkus, 2005). In the B2B sector, prices are negotiated by means of individual transactions with the customer, which requires an interaction between parties (Simon, 2004; Voeth & Rabe, 2004). Because pricing plans are executed by the sales force by means of price negotiations, the management and control of the sales force is necessary to ensure effective price management (Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012; Homburg, Schäfer & Schneider, 2008; Homburg & Totzek, 2011b). The price structures in B2B companies are complex because they are influenced by several factors and prices are individually negotiated. Therefore, the exact same product can be marketed at different prices to customers (Docters, Reopel, Sun & Tanny, 2004; Marn, Roegner & Zawada, 2004; Phillips, 2012). There is an enormous variety of different products due to individualised customer needs, which makes pricing and price calculation complex due to the number of price decisions (Herr, Beducker & Frahm, 2010; Homburg & Totzek, 2011b). Therefore, keeping control of prices becomes important in B2B companies (Sodhi & Sodhi, 2008).

In addition, B2B companies sell to different types of customers (e.g., governmental institutions, private companies and other organisations such as hospitals or universities) (Grewal & Lilien, 2012; Homburg, 2015; Siems, 2009). Electronic sells its products to private OEMs (P3). Original equipment manufacturers buy finished products and use them almost unchanged as part of their own product (Eckardt, 2010; Pförtsch & Godefroid, 2013).

Moreover, the marketing and B2B literature classifies B2B companies using different bases of classifications. In general, these classifications all use the degree of product customisation and the level of interaction with the customer as a basis for differentiation (Eckardt, 2010). In the German literature, the classification of Backhaus and Voeth (2010) appears to be the most established one. The researcher considers this approach to be the most suitable one to structure the business forms that appear in the case study company. Backhaus and Voeth (2010) employed two criteria to divide B2B types: the purchase combination and the transaction form. The purchase combination refers to the temporal extent of the relationship between purchase transactions. The transaction form differentiates whether the product is sold to an individual customer (individual transaction) or whether the offer is for the anonymous market (routine transaction) (Backhaus & Voeth, 2010). Four different types of B2B companies emerge (Figure 1.1).

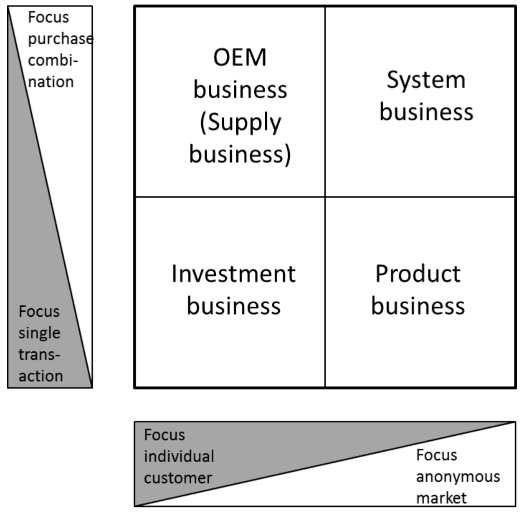


Figure 1.1: Classifications of B2B companies

(Source: researcher’s illustration as adapted from Backhaus & Voeth (2010), p.206; Pförtsch & Godefroid (2013), p.31 plus comments from Hofbauer & Hellweg (2009): Supply business=OEM business)

In the product business, the two criteria of individuality and purchase combination are not important. Normally, standardised products are sold to anonymous customers. The products are needed for an application, which does not require a business relationship with the seller. On the other hand, the investment business is characterised by complex projects with products that are tailored to the customer’s requirements. Transactions are not linked temporally and the specialised product can be sold only to the specific customer. In the system business, standardised products are sold to an anonymous market, but the first transaction requires additional transactions. A typical characteristic of an OEM business is that the producer develops customer-specific products for a client, which results in an extended business because the customer buys this product over a longer period of time (Backhaus & Voeth, 2010; Miller & Krohmer, 2011).

The classification of a B2B business impacts the design of the price management process (Homburg & Totzek, 2011b; Miller & Krohmer, 2011). A pricing-relevant distinction is that in the product business there are often list prices (as the products are standardised), but in the investment business or OEM businesses prices are calculated individually because the product is developed individually for a specific customer (Hofbauer & Hellwig, 2009). Furthermore, the transparency of market prices differs between the types of businesses. In the product business, market prices may be available due to standardised products, but in the investment business, for example, the products are highly customised, with the result that prices are not available to a third party. The product business therefore allows for purely market-oriented pricing. However, in investment businesses businesses costs also may need to be considered for price setting because there is an absence of prices for comparable products (Hofbauer & Hellwig, 2009).

With a worldwide market volume of more than €3.7 trillion in 2013, the electrical/electronics industry is one of the largest industries in the world (ZVEI, 2014; ZVEI, 2015c). The German electrical/electronics industry plays a prominent role worldwide (Ehmer, 2009). Germany is one of the world's leading manufacturing countries; in Europe, it is number one in the electrical/electronics industry (Ehmer, 2009; Milbredt, 2015; ZVEI, 2014; ZVEI, 2015).

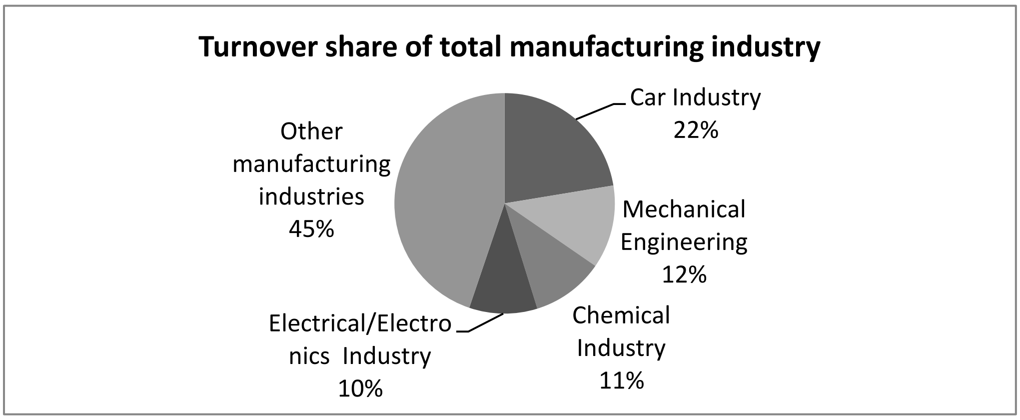


Figure 1.2: The four largest industry sectors in Germany

(Source: based on ZVEI, 2016)

With an employee share of 14% (848,892 employees) of the entire German manufacturing industry, the electrical/electronics industry is the second largest industry branch in Germany. With a sales share of 10% (€178 billion), it is the fourth largest industry branch in Germany (ZVEI, 2016). The industry accounts for roughly 3% of Germany's gross domestic product (GDP) (ZVEI, 2016a) and therefore has a considerable impact on the country's economy.

The German electrical/electronics industry produces more than 100,000 different products (Milbredt, 2015). Seventy-eight percent of these are industrial goods, which are used by other companies in their production lines, and 12% are intermediate products that are also used to produce other products. The customers of the industrial goods and intermediate goods are other industrial companies. Ten percent of the electrical/electronic manufactured goods are consumer goods; they are mostly for private consumers (Ehmer, 2009; Milbredt, 2015; ZVEI, 2016a). Most of the transactions in the electrical/electronics industry can therefore be characterised as B2B transactions.

The electrical/electronics industry is characterised by a number of medium-sized companies; 90% of the companies operating in the German electrical/electronics industry have fewer than 500 employees (BMWi, 2015; Ehmer, 2009). There are approximately 2,700 companies in the German electrical/electronics industry (Gesamtmetall, 2015).

1.3 Research rationale

Business-to-business companies have considerable economic power (Kleinaltenkamp & Saab, 2009; LaPlaca & Katrichis, 2009; LaPlaca, 2013; Lilien, 2016; Wiersema, 2013), and price management has gained significance for B2B companies (Homburg, Jensen & Schuppar, 2005; Liozu & Hinterhuber, 2013a; Reid & Plank, 2000). Even though researchers agree on the significant impact of price management on the profitability of those companies (e.g., Avlonitis & Indounas, 2005; Garda, 1992; Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2005; Hwang, Tsai, Yu & Chang, 2011; Kohli & Suri, 2011; Monroe, 2003; Monroe, Rikala & Somervuori, 2015; Phillips & Özer, 2012; Schindler, 2012), the significance of B2B and its price management is not reflected in the number of research studies related to B2B price management issues. Several researchers have claimed that price management for B2B is still an under-researched topic (Dant & Lapuka, 2008; Indounas, 2009; Iyer, Hong Xiao, Sharma & Nicholson, 2015; Kalafatis & Denton, 2000; Leone, Robinson, Bragge & Somervuori, 2012; Liozu & Hinterhuber, 2013a; Reid & Plank, 2000; Riekhof & Wacker, 2012; Roll, 2009; Sheth & Sharma, 2006; Totzek & Alavi, 2010). Therefore, researchers have called for more research on B2B price management (Leone, Robinson, Bragge & Somervuori, 2012; Roll, 2009). This study addresses price management issues in a B2B context.

Price controlling is one activity in the B2B price management process (Homburg & Totzek, 2011b). Because it controls pricing plans (Kohli & Suri, 2011; Sodhi & Sodhi, 2008), it has a large impact on pricing success and company performance for B2B companies (Homburg, Jensen & Schuppar, 2005; Rullkötter, 2009). However, price controlling is one step in the price management process that has received less academic attention (Fassnacht, 2009; Ivens, Stemmermann & Leisching, 2016; Köhler, 2003; Rullkötter, 2008). Therefore, there are calls for more research on price controlling issues (Bolte, 2008; Fassnacht, 2009; Rullkötter, 2009). In particular, there are calls to research various price controls in more detail to enhance understanding of these price controls (Rullkötter, 2009), to investigate price controlling instruments in more detail (Bolte, 2008) and to study how these instruments are able to help price controlling fulfil its functions (Florissen, 2005). In addition, there are calls for more empirical research (i.e., of how price controlling is conducted in practice and which instruments are truly applied) (Bolte, 2008; Rullkötter, 2009). This research addresses price controlling, studies one particular price control in-depth (Price Control 1) using a case study and sheds light on how price controlling instruments can be used to fulfil price controlling functions in order to achieve pricing plans.

Studies have shown that B2B companies frequently delegate a certain amount of pricing authority to the sales force (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Stephenson, Cron & Frazier, 1979). This delegation of pricing authority results in an agency problem due to information asymmetry and goal incongruence between the sales force and management (Baiman, 1990; Jensen & Meckling, 1976). This situation creates the risk that the sales force will substitute its selling efforts for unnecessary low prices (Hansen, Joseph & Krafft, 2008; Stephenson, Cron & Frazier, 1979). Therefore, researchers have proposed implementing price control because it has the potential to alleviate the agency problem to achieve pricing plans (Anderson & Oliver, 1987, Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012). Various price controls are located throughout the price management process (Bolte, 2008, Florissen, 2005; Ivens, Stemmermann & Leisching, 2016), but it is in Price Control 1 where the agency problem is located for B2B companies. Therefore, the agency problem is a problem of Price Control 1. This problem is due to delegating pricing decisions, which supports the researcher's choice to focus on a Price Control 1 model for mitigating the agency problem for B2B companies.

Control research widely acknowledges that management controls are systems and processes that are comprised of various control subsystems that do not operate isolated from one another (Bedford & Malmi, 2015; Flamholtz, 1996; Malmi & Brown, 2008; Otley, 1980; Simons, 1995; Widener, 2007). Prior studies have shown that various control subsystems need to be considered for an management control system to be effective (Simons, 2000; Widener, 2007). Therefore, control researchers do not present separate instruments such as budgeting. Rather, they establish frameworks for control systems that apply various instruments to achieve a company's objectives (Flamholtz, 1996; Simons, 1995). These models have the advantage that the control system of a company is made observable in order to manage it. These frameworks can be used by academics to study control systems and by practitioners to assess, implement and refine controls systems in practice (Flamholtz, 1996; Otley, 1999).

In contrast, the solutions that academic research has provided to alleviate the agency problem in price management via a Price Control 1 model for B2B companies are scant. The current literature on price controlling has established frameworks for price controlling by differentiating between various price controls throughout the entire price management process (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016), which makes it possible to understand where in the price management process a price controlling takes place and helps to classify different controls within the entire price management process. However, these price controlling frameworks address the entire price management process (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016) with the consequence that Price Control 1 is not researched in-depth. Moreover, these frameworks do not focus on B2B companies. To the best knowledge of the researcher, management control systems have not been used to create a model for Price Control 1, which would foster the visibility and understanding of Price Control 1 and help companies design their own systems (Flamholtz, 1996).

Instead, the current literature on price controlling (e.g, Bolte, 2008; Braun & Wiesen, 2012; Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009) identifies and discusses a selection of price controlling instruments without demonstrating how they can be combined in a Price Control 1 model to alleviate the Price Control 1 problem. These instruments can be found scattered throughout the price management literature and are not presented in one place. In other words, there is no comprehensive list of price controlling instruments available in the current literature that sufficiently addresses the Price Control 1 problem (Section 2.5.4.1). Most of these instruments are diagnostic tools. On the other hand, control researchers argue that various instruments, not limited to diagnostic tools, need to be used by companies to achieve their goals (Simons, 2000; Widener, 2007).

In addition, studies have sporadically focused on price controlling functions (Bolte, 2008; Florissen, 2005), provided price controlling instruments (e.g. Braun & Wiesen, 2012; Herr & Metzelaers, 2007; Sebastian, Maesen & Strasmann, 2009) and acknowledged that price controlling can alleviate the agency problem (Anderson & Oliver, 1987; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012). However, there has been only limited discussion as to how price controlling instruments can alleviate the agency problem to achieve pricing plans via fulfilling price control functions (Florissen, 2005; Rullkötter, 2009).

Even though it is known that B2B companies that have implemented systematic price controlling outperform those companies without price controlling (Homburg, Jensen & Schuppar, 2005; Schmidt, 2010), many B2B companies have not yet sufficiently implemented Price Control 1 and its instruments (Riekhof & Wacker, 2012; Rullkötter, 2009). Whilst the management control literature includes frameworks for management control systems to help companies implement and achieve their business strategy (Flamholtz, 1996; Simons, 1995), the price controlling literature only provides selective lists of price controlling instruments as guidance for Price Control 1 but does not demonstrate in a Price Control 1 model how these instruments can be implemented into the price management process to achieve pricing plans. Therefore, someone needs to create a Price Control 1 model containing instruments that can be used to support B2B companies with their implementation efforts of a Price Control 1. If not, those companies will be left to their own devices. A model for Price Control 1 is of use for practitioners considering that companies started to improve their price planning in the price management process. It is a logical next step to address Price Control 1 to ensure that the established pricing plans are truly implemented (Roll, 2011) to make use of the high profit lever pricing (Homburg, Jensen & Schuppar, 2005; Sodhi & Sodhi, 2008). This view is supported by surveys that have identified price controlling as one of the primary areas in the price management process that need improvement (European Pricing Platform, 2016; Roll, 2011).

It is widely acknowledged that the designs of management control systems are dependent on contextual factors such as the industry (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999). As a result, researchers have called for more context-bound research of control issues in real practice (Berry, Coad, Harris, Otley & Stringere, 2009; Merchant & van der Stede, 2006). In contrast, the current literature on price controlling tends to discuss price controlling independently of the context (Braun & Wiesen, 2012; Diller, 2008; Ivens, Stemmermann & Leisching, 2016; Simon & Fassnacht, 2009; Section 2.5.4.1). There is little research related to price controlling in B2B environments (Farrés, 2013; Homburg, Jensen & Schuppar, 2005; Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Riekhof & Wacker, 2012; Sebastian, Maessen & Strasmann, 2009; Section 2.5.4.1). To the best knowledge of the researcher, there is no price controlling research in the electrical/electronics industry nor the sphere of OEM businesses (Section 2.5.4.1). However, research on price controlling in the electrical/electronics industry is significant because this industry is large in Germany (ZVEI, 2013; ZVEI, 2014; ZVEI, 2016), and the industry faces price pressure and shrinking profitability (Gesamtmetall, 2016a; Gesamtmetall, 2016c; Homburg, Jensen & Schuppar, 2005; ZVEI, 2015a; ZVEI, 2015b). In addition, due to the relatively low margins of electrical/electronics companies (Hypovereinsbank, 2013; Kann, Vogt & Heidrich, 2015) an increase or decrease in price will have a considerable effect on the profitability of these companies (Roll, Pastuch & Buchwald, 2012; Schindler, 2012). Therefore, due to the size of the industry and the impact of pricing on profitability, Price Control 1 is significant for the electrical/electronics industry.

In summary, to the best knowledge of the researcher, the current research falls short in terms of developing a Price Control 1 model containing instruments for mitigating the Price Control 1 problem. This research addresses this gap by creating a Price Control 1 model containing instruments for mitigating the Price Control 1 problem in a specific context. The development of the model will be achieved using a single case study with a B2B company in the OEM business operating in the electrical/electronics industry. This choice was made because of the significance of B2B and the electrical/electronics industry and the potential impact that Price Control 1 can have on the profitability of companies in this field.

1.4 Research aim, questions and objectives

Given the limitations in the literature on Price Control 1 and the significance on the profitability of companies, the research aim of this study is to create a Price Control 1 model containing instruments for mitigating the Price Control 1 problem for B2B in the OEM business operating in the electrical/electronics industry.

The following research questions (RQs) will be answered in this thesis:

RQ 1) What controlling instruments can be used for a Price Control 1 system within the price management process for B2B companies in the OEM business operating in the electrical/electronics industry?

RQ 2) How can the instruments in a Price Control 1 system mitigate the Price Control 1 problem for B2B companies in the OEM business operating in the electrical/electronics industry?

RQ 3) What recommendations can be given for B2B companies in the OEM business operating in the electrical/electronics industry for the implementation of Price Control 1 instruments into the price management process?

To answer these RQs, the following research objectives (ROs) need to be achieved:

RO 1) To identify controlling instruments that can be used for a Price Control 1 system within the price management process for B2B companies in the OEM business operating in the electrical/electronics industry.

RO 2) To assess the capabilities of Price Control 1 instruments to reduce the Price Control 1 problem for B2B companies in the OEM business operating in the electrical/electronics industry.

RO 3) To recommend a Price Control 1 model for mitigating Price Control 1 problems in the price management process for B2B in the OEM business operating in the electrical/electronics industry.

1.5 Potential contribution to professional practice and academic knowledge

Given the practical significance of Price Control 1 on companies' profitability and the need to address the identified research gap to create a Price Control 1 model containing instruments for mitigating the Price Control 1 problem (Section 1.3), this thesis will most likely contribute to both professional practice and academic knowledge.

The primary contribution of this research will be the creation of a Price Control 1 model to mitigate the Price Control 1 problem. This model will examine Price Control 1 instruments from the perspective of combining these instruments into a Price Control 1 model for mitigating the Price Control 1 problem. This practice is in contrast to current price controlling literature that simply identifies price controlling instruments without demonstrating how they can be combined into a Price Control 1 model to mitigate the Price Control 1 problem.

First, the developed Price Control 1 model will most likely be of use for the research company because the created model improves the Price Control 1 at the case study company itself. The company applies price controlling instruments but has not yet developed a model that would make their conducted Price Control 1 visible. Control subsystems of a Price Control 1 model are developed based on the reviewed literature and will be used to develop the Price Control 1 model and make the Price Control 1 at the case study visible. The developed Price Control 1 model will include more than just the price controlling instruments that are currently in place at the case study company. The Price Control 1 at the case study company will be analysed and compared with the price controlling instruments that have been identified in the literature review. Based on this analysis, Price Control 1 at the case study company will be enhanced by adding suitable price controlling instruments from the literature review to improve the achievement of pricing plans. With reference to the literature review and the price controlling instruments used at the company, this research will develop a Price Control 1 model that makes the applied Price Control 1 at the case study company visible and can be used by the case study company to improve its pricing and consequently increase its profitability.

However, the Price Control 1 model will not only be of use for this specific case study company; practitioners at other companies can also benefit from this model. The model will enhance the understanding of Price Control 1 in their companies because the model will provide an analytical frame of Price Control 1 by dividing the complex Price Control 1 into its elements. The model will help practitioners analyse whether their Price Control 1 addresses all elements of the Price Control 1 model sufficiently or whether there are shortcomings. The model can then be used to improve the Price Control 1 at the companies with the consequence that the probability of pricing plan achievement will be increased.

Moreover, the model can be used in contexts beyond refining an already-existing Price Control model. It can also help practitioners implement a new Price Control 1 model because it makes the development process and the elements of a Price Control 1 model explicit, which will help practitioners produce their own Price Control 1 model. The results should be of interest to practitioners given the low implementation rate of Price Control 1 (Riekhof & Wacker, 2012; Rullkötter, 2009) and the strong need expressed in practice for improvement (European Pricing Platform, 2016; Roll, 2011).

This research will contribute to academic knowledge by addressesing the research gap of a missing Price Control 1 model. Other researchers can use the model as a framework to understand and systematically investigate Price Control 1 in other research settings and potentially produce a Price Control 1 model for other contexts.

This thesis focuses on Price Control 1 and the specific context of B2B companies in the OEM business operating in the electrical/electronics industry. The research is an in-depth investigation of the often-overlooked price management process step Price Control 1 and therefore will contribute to the pricing literature, which focuses on price management processes. Price Control 1 is investigated in a new context and context-bound, which will contribute to the B2B price controlling literature and industry-specific literature.

1.6 Structure of the thesis

This thesis contains five chapters. Chapter 1 presents the background to the research and discusses the research problem. It also explains the setting in which the research takes place. Next, the rationale for the research is discussed in detail. Chapter 1 presents the main aim of the research, the RQs and the ROs. A discussion of the potential contribution to academic knowledge and professional practice follows.

Chapter 2 provides a comprehensive review of the literature on the research topic. First, a definition of relevant topics is presented. Next, there is a discussion of relevant basic theories for this research. Chapter 2 then examines the price management process with its process steps. Price controlling with its separate price controls are discussed. Next, the chapter presents an evaluation of the problem and the importance of Price Control 1 and a solution to this problem. After Price Control 1 functions are discussed, the chapter reviews price controlling instruments and the implementation of price controlling. Finally, the chapter closes with a discussion of management control systems.

Chapter 3 covers the research design. The research philosophy of this thesis is discussed, and a research strategy suitable for answering the RQs is identified and presented. The data collection and the analyses used are explained. This chapter explains the measures applied to enhance the quality of the case study and the ethical issues considered in the research project.

Chapter 4 deals with the analysis and discussion of the case study. The case study company is introduced and the price management process at the case study company is analysed. Then, Price Control 1 instruments for a Price Control 1 model are identified and a Price Control 1 model is discussed. Next, this chapter evaluates how Price Control 1 instruments can support price controlling to mitigate the Price Control 1 problem. Subsequently, this chapter discusses the factors that need to be considered to implement Price Control 1 instruments into the price management process.

Chapter 5 concludes the research. It presents the contribution of this research to academic knowledge and professional practice and also discusses the limitations of the research and the avenues for future work.

2 Literature review

2.1 Introduction

This chapter reviews topics relevant to this thesis. It commences with the definition of relevant terms and continues with basic theories as theoretical underpinnings for this thesis. Next, it synthesises a price management process to shed light on the role of Price Control 1 in the B2B price management process. The agency problem in B2B price management is identified to highlight the importance of a Price Control 1 to alleviate the agency problem in the B2B price management process. Solutions to the Price Control 1 problem offered in the literature are discussed. Next, control functions are synthesised that a Price Control 1 needs to fulfil to address the Price Control 1 problem. An analysis and synthesis of price controlling instruments that are capable of fulfilling the identified Price Control 1 functions follows. This work yields a comprehensive list of price controlling instruments that are useful for a Price Control 1 model. This chapter also presents the implementation status of price controlling in practice to demonstrate the significance of a Price Control 1 model for practice. This section is followed by a review and discussion of frameworks for management control systems and their elements that are useful for the development of a Price Control 1 model.

2.2 Definitions and aspects relevant to price controlling

2.2.1 Price management

There is no consistency in the literature in terms of the wording used for price management—terms differ between theory and practice. The academic literature tends to use the terms “pricing” and “price policy” (e.g., Brectu, 2014; Dutta, Zbaracki & Bergen, 2003; Hinterhuber & Liozu, 2015; Monroe & Della Bitta, 1978; Oxenfeldt, 1973; Shipley & Jobber, 2001), and the term “price management” is frequently utilised in practice and its related literature (e.g., Reiner, 2002; Roth, 2010; Schuppar, 2006; Simon, 1995; Totzek & Alavi, 2010; Wiltinger, 1998). These terms are used interchangeably in this thesis. However, the term price management will be predominantly used because this thesis is practice-oriented.

Traditionally, the pricing literature focused on optimising prices (e.g., Simon & Fassnacht, 2009). But today researchers agree that price management includes not only the changing of prices but also the management of various complex pricing activities (e.g., Fassnacht, 2009; Hinterhuber, 2016; Schuppar, 2006). This view resulted in a wider range of activities a price management includes, starting from the definition of pricing objectives and strategy, over setting prices and implementing these prices towards a price controlling. These activities are frequently depicted in a sequence using a price management process (Bonnemeier, Burianek & Reichwald, 2010; Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Riekof & Wacker, 2012). Therefore, price controlling is considered to be a task of price management and is embedded into the price management process (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). It is accordingly important that this research discuss the price management process and the location of a price controlling (Section 2.4).

Even though there are many definitions of price management available in the literature (e.g., Schupper, 2006; Siems, 2009), these definitions have in common that price management contains strategic and operational decisions with regard to price and all activities that are concerned with price setting and price implementation (Schuppar, 2006). In addition, these activities are aligned with companies' goals (Diller, 2008; Simon, 1995). In this study price management is defined as a management task that includes strategic and operational decisions with regard to price and all activities concerning price setting and implementation of those prices in order to meet companies' goals. Price controlling as one activity of price management is discussed in the next section.

2.2.2 Price controlling and price controlling instruments

Price controlling includes all those functions that provide management with relevant information that monitors and analyses the pricing outcome in order to achieve pricing objectives. Price controlling researchers agree that a price controlling consists of various tasks that occur throughout the entire price management process (e.g., Sebastian, Maessen & Strasmann, 2009; Florissen, 2005; Rullkötter; 2009; Ivens, Stemmermann & Leisching, 2016); this view is also shared by price management researchers (e.g., Diller, 2008; Homburg & Totzek, 2011b; Simon & Fassnacht, 2009). For example, Diller (2008) noted that a price controlling provides opportunities for rationality throughout the price management process by providing decision makers with pricing-relevant information and analyses and by controlling the outcome of these decisions and preventing rationality deficits. Bolte (2008) argued similarly that price controlling encompasses all functions that aim to deliver pricing-relevant information for decisions to ensure that pricing goals are achieved. Similarly, Homburg and Totzek (2011b) noted that price controlling includes measures that ensure decision support and rationality in the entire price management process. These definitions all state that price controlling should deliver pricing-relevant information for decisions and ensure rationality throughout the entire price management process to achieve pricing goals.

Because price controlling involves tasks spread throughout the entire price management process, price controlling researchers have established price controlling frameworks that make it possible to place and differentiate various price controls at specific points in the price management process (Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). For this thesis it implies that there are different price controls throughout the entire price management process that serve different purposes, and these controls may also include different price controlling instruments (Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). Separating price controls makes it possible to locate Price Control 1 and focus on this specific price control. These various price controls are discussed in Section 2.4.5. In contrast, some researchers have argued that price controlling may be defined also in a narrower way. In a narrow definition, a price controlling simply refers to monitoring the realised results (Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009). However, the narrow view just describes an aspect of price controlling and therefore does not capture the entire extent of price controlling activities. Furthermore, the narrow view does not allow for the separation of price controls necessary to create a model specifically for Price Control 1.

Price controlling instruments—also referred to as techniques, concepts, or tools within the English-language literature (Zühlke, 2007)—include all methods used to fulfil price controlling functions in order to attain pricing objectives. There is a shared understanding in the literature that price controlling makes use of various price controlling instruments to conduct its functions (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009). This view is supported by the observation that most researchers use price controlling instruments to explain price controlling and its tasks (Section 2.5.4). Therefore, price controlling instruments constitute an important aspect of price controlling.

However, researchers seldom provide a definition for price controlling instruments. Florissen (2005) argued that the instruments for price management and price controlling are congruent. This situation may be one reason why Florissen (2005) did not define price controlling instruments. In contrast, Bolte (2008) argued that there are specific price controlling instruments, some of which overlap with price management instruments. Furthermore, Bolte (2008) stated that price controlling instruments are employed to fulfil price controlling functions in order to achieve pricing objectives. If only common price management instruments are applied for price controlling, research on price controlling and its instruments would not be justified. In contrast, the reviewed literature demonstrated that price controlling is often explained by describing price controlling instruments (Section 2.5.4.1; Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009). These instruments are not fully congruent with common price management instruments (Homburg & Totzek, 2011b; Simon & Fassnacht, 2009), which underpins the importance of price controlling instruments for price controlling. Therefore, consistent with the definition provided by Bolte (2008) price controlling instruments are defined in this research as all methods that are used to fulfil price controlling functions in order to attain pricing objectives.

Another aspect relevant to price controlling are management control systems; they are defined in the next section.

2.2.3 Management control systems

While the price controlling literature discusses selections of price controlling instruments (Section 2.5.4.1), management control researchers typically do not list separate controlling instruments (e.g., budgeting) but instead provide frameworks of management control systems in order to implement companies' business strategies. Into these frameworks specific instruments can be classified and subsumed (e.g., Herath, 2007; Simons, 1995; Tessier & Otley, 2012). These frameworks have the advantage that they do not list a finite number of potential instruments but these instruments can be grouped into different types of controls. As Bolte (2008) pointed out, lists of price controlling instruments are only selections because companies choose or create their own instruments in order to achieve their specific pricing plans. In other words, the specific instruments are contingent upon the specific context of the companies (Fisher, 1998; Florissen, 2005; Franco-Santos, Lucianetti & Bourne, 2012; Otley, 1999). In contrast, frameworks for management control systems can provide guidance about how to design or redesign management controls systems in order to implement a business strategy (Flamholtz, 1996; Simons, 1995), regardless from which specific instruments are employed. The frameworks for management control systems are discussed in detail in Section 2.6. For this research, these frameworks for management control systems are relevant because they help to create a Price Control 1 model that contains price controlling instruments.

These frameworks can be applied in this research because Price Control 1 can be subsumed under management control. Merchant and van der Stede (2012) separated control into strategic control and management control. While strategic control emphasises on examining the validity of the strategy and therefore is concerned with external issues such as the strengths and weaknesses of the company compared with its competition, management control is concerned with internal issues and how management can affect employee behaviour. Merchant and van der Stede (2012) compared management control with execution and implementing strategy. Management control is relevant to this thesis because Price Control 1 constitutes an internal control issue: Price Control 1 is concerned with the execution of pricing plans and how management ensures that the sales force achieves pricing plans (Florissen, 2005; Simon & Fasnnacht, 2009).

A management control system can be defined as a system or a process that influences the behaviours of employees in such a way that a company's goals can be achieved. According to Merchant and van der Stede (2012, p.6), management control systems are "all devices and systems manager use to ensure that the behaviors and decisions of their employees are consistent with the organization's objectives and strategies". They add that "[…] MCSs [management control systems] influence employee's behaviors in desirable ways, and consequently, increase the probability that the organization will achieve its goals" (Merchnant & van der Stede, 2012, p.6). Merchant and van der Stede (2012) therefore recognises that the likelihood to achieve organisational goals is increased by influencing the behaviour. Flamholtz (1996) shares this view and included the attainment of organisational goals directly in the definition of management control systems. This author defined management control systems as "a set of mechanisms—both processes and techniques—which are designed to increase the probability that people behave in ways that lead to the attainment of organizational objectives" (Flamholtz, 1996, p.598). Therefore, the ultimate aim of a control system is the attainment of company's goals that can be achieved by influencing behaviour. Similarly, Anthony and Govindarajan (2007, p.6) proposed that management control is "the process by which managers influence other members of the organization to implement the organization's strategy."

Based on these definitions, with regard to this research, a Price Control 1 system therefore can be defined as a system or process that influences the behaviour of the sales force in such a way that pricing plans are achieved. The ultimate goal of Price Control 1 system is therefore the achievement of pricing plans.

However, a challenge associated with this research is that the control system in companies is not typically transparent. What can be observed are specific instruments, but it is often invisible how these instruments constitute the entire control system (Flamholtz, 1996). As Flamholtz (1996, p.596–597) put it: "[…] control systems are ubitiquous but difficult to visualize, they are pervasive yet tenuous; they are invisible, but have a significant impact on people's behaviour." Therefore this research needs to explore the price controlling instruments at the case study company and demonstrate how these visible instruments can form a Price Control 1 model to alleviate the Price Control 1 problem.

There are two theories that are relevant for this thesis: agency theory and contingency theory. These theories are discussed below.

2.3 Basic theories and their relevance

2.3.1 Agency theory

Agency theory is relevant to this thesis because it can explain why pricing plans might not be executed in B2B companies and how this risk can be alleviated. It provides a theoretical underpinning of why Price Control 1 is necessary. According to Baiman (1990) and Jensen and Meckling (1976), agency theory focuses on situations in which one party (the principal) assigns a second party (the agent) to perform a task that is in the principal's interests. This process requires that a certain level of decision-making authority and responsibility be delegated (Jensen & Meckling, 1976). Agency theory describes the relationship between the principal and the agent using a contract (Baiman, 1990; Jensen & Meckling, 1976) and is used to investigate how the principal can monitor the delegated tasks (Anderson & Oliver, 1987).

Agency theory can be applied to two kinds of agent relations. First, it can examine the relationship between a firm's owner and the top managers. Second, it can be applied within the firm's organisation itself to the relationships between top managers and subordinate managers or any other relationship between a superior manager and his or her subordinate (Ekanayake, 2004; Kaplan & Atkinson, 1998).

Agency theory assumes that individuals are egotistical, opportunistic and utility maximisers and therefore that they perform in their own interests if conditions allow (Baiman, 1990; Eisenhardt, 1989; Jensen & Meckling, 1976). The goals of the principal and the agent can differ so that goal incongruence occurs (Eisenhardt, 1989). Moreover, typically the agent posseses more information than the principal. This situation results in information asymmetry between the principal and the agent (Baiman, 1990; Boučková, 2015) and creates the problem for the principal to assess whether the agent performed the delegated task towards the principal's goal (Baiman, 1990; Eisenhardt, 1989). The problem caused by goal incongruence and information asymmetry is called the agency problem that results in a high chance, that the agent will not conduct the assignment in the greatest favour of the principal (Eisenhardt, 1989; Jensen & Meckling 1976). Hence there is a risk that the principal's goals will not be achieved (Baiman, 1990; Jensen & Meckling, 1976).

Agency theory is relevant to this thesis for two reasons. First, it explains why there is an agency problem in the B2B price management process, and it can locate the agency problem within the B2B price management process. In B2B price management, price execution is often delegated from management to the sales force (Dutta, Zbaracki & Bergen 2003; Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Homburg, Jensen & Hahn, 2012; Hwang, Tsai, Yu & Chang, 2011; Joseph, 2001), which creates a relationship in which management is the principal and the sales force is the agent. Based on the premises of agency theory, it can be argued that there is an agency problem in the B2B price management process. Section 2.5.1 discusses the agency problem in the B2B price management process.

Second, agency theory provides insights into how the agency problem can be alleviated and accordingly suggests the theoretical underpinning to explain the necessity of price controlling. Researchers have proposed implement control systems to reduce the agency problem (Anderson & Oliver, 1987; Eisenhardt, 1985; Eisenhardt, 1989; Ekanayake, 2004; Jensen & Meckling 1976; Joseph & Thevaranjan, 1998). Control systems that provide information about the performance of the agent can alleviate the risk that the agent will behave inappropriately; incentive systems can be applied to bring the agent's interests into line with the management's to achieve goal congruence (Eisenhardt, 1989; Ekanayake, 2004). Agency theory therefore provides a theoretical underpinning of how the agency problem can be mitigated (Section 2.5.2) and is helpful to investigate the capabilities of price controlling instruments to alleviate the agency problem.

2.3.2 Contingency theory

Contingency theory postulates that both the application and form of control systems depend upon the specific situational context in which companies maneuver (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999). There are numerous contingent factors that can influence any outcome (Chenhall, 2003; Fisher, 1998; Hopper & Bui, 2016; Kuyumcu, 2007). For example, contingent factors can relate to the industry, the firm itself (e.g., its size, structure, strategy, mission and culture) and the external environment (e.g., the level of uncertainty). Otley (1999) noted that the applied control instruments depend on a company's strategy, objectives and plans. According to contingency theory, there is no single control system that fits all companies and settings; instead, companies need to choose their own specific range of control systems and instruments depending on various factors and their situational settings (Fisher, 1998; Franco-Santos, Lucianetti & Bourne, 2012; Otley, 1999).

Contingency theory implies that there is not one single Price Control 1 model containing price controlling instruments. It is relevant to this thesis because it explains that the specific price controlling instruments are contingent upon the specific context and situational factors of the company (e.g. business type, the industry and the particular design of the price management process). In addition, contingency theory underpins the approach of the researcher to develop a Price Control 1 model in and for a specific situational context as posed in the research questions. This approach is supported by other price controlling researchers. For example, Florissen (2005) noted that context factors such as market forms and industry can have an impact on the design of price controlling. This author suggested that the selection of suitable price controlling instruments depends on the context of the price management process; price controlling instruments that do not fit with the premises of the underlying price management process need to be excluded or modified. Similarly, researchers like Ivens, Stemmermann and Leischnig (2016), Rullkötter (2009) and Kuyumcu (2007) highlighted that price controlling needs to take into acount industry-specific requirements, the type of business model and company specifics to be effective. Herr, Beducker and Frahm (2010) share this opinion and pointed out that the success of implementing price management measures depends on recognizing different characteristics of business types. In addition, contingency theory implies that the price management process needs to be analysed because the applied instruments will be contingent on the specific design of the price management process (Florissen, 2005).

Moreover, researchers have called for more context-bound research in management accounting (e.g., Berry, Coad, Harris, Otley & Stringere, 2009; Merchant & van der Stede, 2006) to foster relevance for practice (Merchant & van der Stede, 2006; van der Stede, 2015). This viewpoint supports the context-bound approach adopted in this research.

Next, Section 2.4 synthesises a B2B price management process that considers various price controls; this enables the researcher to localise the agency problem and perceive where Price Control 1 is located and what needs to be controlled by Price Control 1.

2.4 Price management process

2.4.1 Introduction

Price management is a process that consists of different process steps. Pricing literature acknowledges the importance to see price management as a process with sequential process steps (Bonnemeier, Burianek & Reichwald, 2010; Fassnacht, 2009; Lancioni, 2005; Riekhof & Lohaus, 2009; Roth, 2010; Shipley & Jobber, 2001; Simon, 2004; Simon & Fassnacht, 2009), that resembles a decision making process (Liozu & Hinterhuber, 2012; Oxenfeldt, 1973; Sharp, 1994). This process viewpoint is commonly adopted in current price management literature (e.g., Bonnemeier, Burianek & Reichwald, 2010; Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Ivens, Stemmermann & Leisching, 2016). The price management process refers to how a price management is performed and specifies the process steps that need to be conducted to define and implement pricing strategies and to monitor how well these strategies could be (Ingenbleek & van der Lans, 2013; Simon & Fassnacht, 2009). According to Hwang, Tsai, Yu and Chang (2011, p.233), the pricing management process is “a set of business rules and operating procedures that enable a company to set and implement pricing strategy, and to monitor pricing performance.”

The price management process is essential because it allows the agency problem to be localised within the B2B price management process resulting from a delegation of pricing authority (Section 2.5.1.2). Second, it facilitates a differentiation of price controls along the price management process and therefore demonstrates what these different controls need to monitor within the price management process (Section 2.4.5). The location and specific task of Price Control 1 within the entire price management process can be specified; it enables the researcher to focus on a specific price control. Third, pricing plans are necessary to create a Price Control 1 model (Florissen, 2005; Simons, 1995). Price planning steps that are conducted before Price Control 1 determine the pricing plans that must be available to enable Price Control 1 instruments to monitor the achievement of pricing plans (Braun & Wiesen, 2012; Simon & Fassnacht, 2009; Sections 2.4.3 & 2.4.5). This requirement underpins a thorough understanding and analysis of these price planning steps within the price management process (Otley, 1999). Fourth, the price management process can provide a structured framework for the analysis of price management, which helps practitioners understand the context in which this research takes place to foster transferability (Patton & Applebaum, 2003). The process also provides a structured way of analysing pricing plans that helps companies produce their own Price Control 1 model. Fifth, the Price Control 1 model needs to be integrated into the price management process and the price controlling instruments need to be implemented into the price management process (Flamholtz, 1996; Hwang, Tsai, Yu & Chang, 2011; Simons, 1995)—this situation necessitates the existence of a systematic price management process.

Section 2.4 synthesises a price management process as an analytical framework for price controlling in a B2B price management process. This step is necessary because there is no B2B price management process that differentiates price controls in current literature available; the researcher needs to pull frameworks of price management processes together. The price management process helps to shed light on the location of price controlling in the B2B price management process and reveal various price controls. Finally, the relevance of the price management process to this thesis is summarised (Section 2.4.6).

2.4.2 Overview of the price management process

Price controlling researchers agree that there are different price controls throughout the price management process and thus present frameworks for price management processes that place distinct controls throughout the entire price management process (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). However, these price management processes are not developed specifically for a B2B environment (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). In contrast, frameworks for B2B price management processes only place price controlling at the end of the process (Bonnemeier, Burianek & Reichwald, 2010; Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Riekof & Wacker, 2012) and accordingly neglect the entire range of price controlling. Nevertheless, B2B pricing researchers share the opinion that price controlling occurs throughout the entire price management process (Bonnemeier, Burianek & Reichwald, 2010; Hwang, Tsai, Yu & Chang, 2011; Riekof & Wacker, 2012). There should accordingly be a B2B price management process that distinguishes between various price controls. To the best of the researcher's knowledge, there is no B2B price management framework that considers the differentiation of price controls. This thesis therefore synthesises B2B price management processes and different price controls to generate a B2B price management process that takes into account different price controls. This process allows placing Price Control 1 into the B2B price management process. With regard to the RQs it facilitates to identify Price Control 1 instruments and implement these into a B2B price management process.

Table 2.1 shows the treatment of price controlling in B2B price management processes (Bonnemeier, Burianek & Reichwald, 2010; Hwang, Tsai, Yu & Chang, 2011; Riekof & Wacker, 2012) and price management processes with a focus on price controlling issues (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016).

Author/ Year	B2B focus	Theoretical/ empirical	Differentiation of price controls in the framework	Number and position of price controls in the framework
		B2B price management processes		
Riekhof and Wacker (2012)	Yes	Empirical (quantitative survey on 92 German B2B companies operating as suppliers into the machine and plant construction industry)	No (however, acknowledge that price controlling takes place throughout the price management process)	One price control in the end of the price management process
Homburg and Totzek (2011b)	Yes	Theoretical	No (however, acknowledge that price controlling takes place throughout the price management process)	One price control in the end of the price management process
Hwang, Tsai, Yu and Chang (2011)	Yes	Empirical (single-case study on a B2B company in competitive industry/semiconductor manufacturing company)	No (however, acknowledge that price controlling takes place throughout the price management process)	One price control in the end of the price management process
Bonnemeier, Burianek and Reichwald (2010)	Yes	Empirical (qualitative interviews, 15 senior managers in various industries, including customer care service, semiconductors, industrial lighting, printing devices, telecommunications, information technology and mechanical engineering)	No (however, acknowledge that price controlling takes place throughout the price management process)	One price control in the end of the price management process
		Price management processes with focus on price controlling		
Ivens, Stemmermann and Leisching (2016)	No	Theoretical	Yes	Price controls between the price management steps and additionally price controlling along the price management process
Bolte (2008)	No	Theoretical	Yes	Price controls between the price management steps (Price Control 1, Price Control 2, Price Control 3); additionally price controlling along the price management process
Florissen (2005)	No	Theoretical	Yes	Price controls between the price management steps (Price Control 1, Price Control 2, Price Control 3); additionally price controlling along the price management process

Table 2.1: Treatment of price controlling in price management processes

(Source: researcher's own illustration)

Bonnemeier, Burianek and Reichwald (2010), Homburg and Totzek (2011b), Hwang, Tsai, Yu and Chang (2011) and Riekof and Wacker (2012) focused on price management processes in a B2B context. A mixture of research approaches characterises these processes. Homburg and Totzek (2011b) is a theoretical study, Hwang, Tsai, Yu and Chang (2011) used a single case study approach, Bonnemeier, Burianek and Reichwald (2010) used qualitative interviews and Riekhof and Wacker (2012) used a quantitative survey. The strength of these price management studies is that they focus on B2B companies and therefore shed light on price management processes in a B2B context. However, these processes do not separate price controlling into different price controls, which hinders a determination of the location of Price Control 1 in the price management process.

In contrast, Bolte (2008), Florissen (2005) and Ivens, Stemmermann and Leisching (2016) focused on price controlling issues and accordingly took a more differentiated theoretical look at price controls throughout the price management process. A weakness of these processes for this thesis is that they do not focus on the B2B context (i.e., the context of this research). However, a strength of these processes is that they distinguish different price controls within the price management process. Doing so allows Price Control 1 to be located. One can also focus on a specific price control in order to achieve the research aim of creating a model containing instruments for Price Control 1.

Figure 2.1 shows the price management processes of the authors noted above.

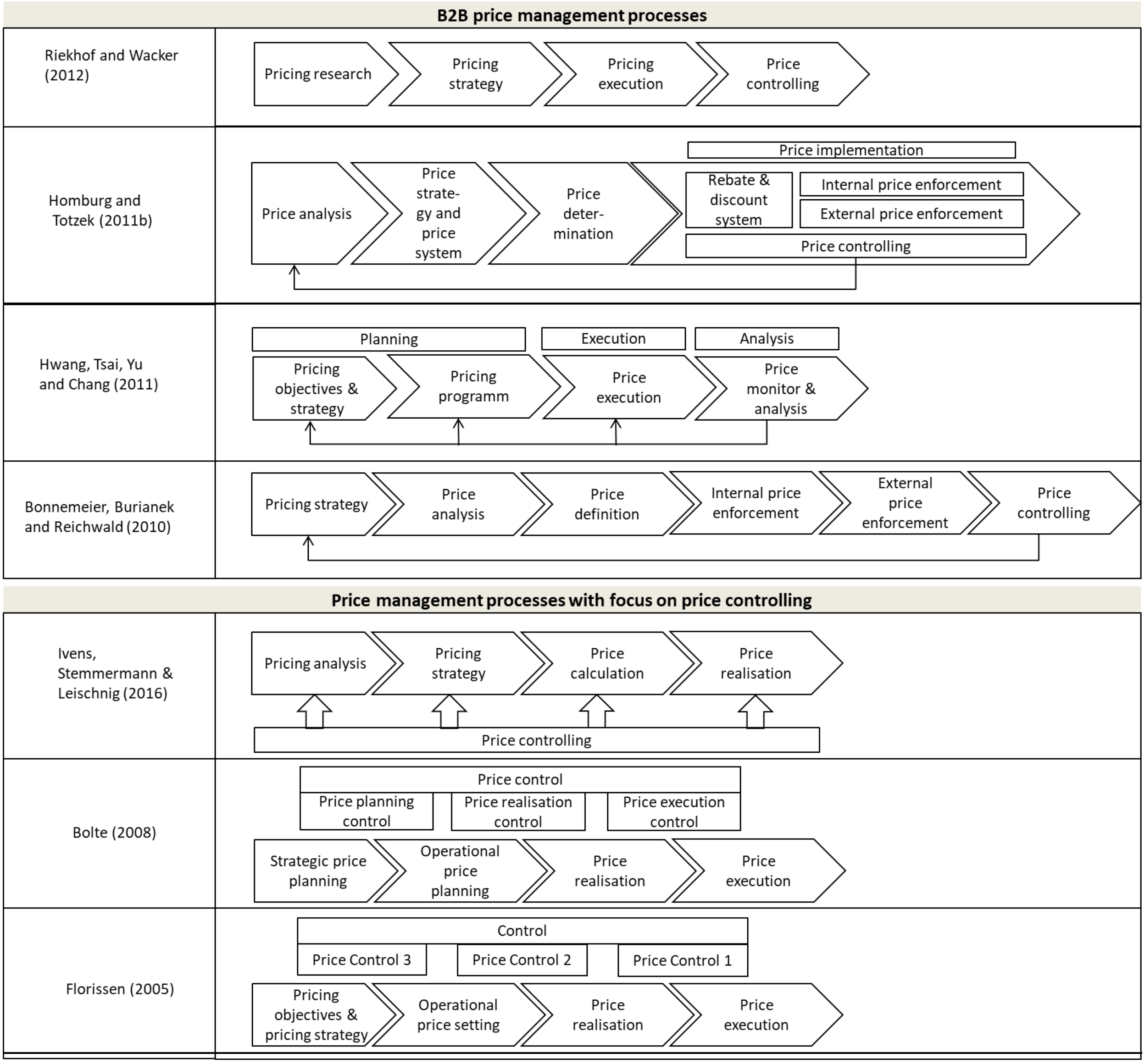


Figure 2.1: B2B price management processes and price management processes with a focus on price controlling

(Source: researcher’s own illustration based on the price management processes)

The particular process steps and the number of process steps may differ between price management processes for price controlling and the B2B price management processes (Figure 2.1). However, they share many similarities with regard to pricing steps and activities. This view is supported by Homburg and Totzek (2011b), who pointed out that the number of steps of alternative price management processes and into which process steps certain pricing decisions or activities are subsumed differ between alternative illustrations of the price management processes. However, the activities that a price management process contains are quite similar. In general, B2B price management processes and price management processes with a focus on price controlling resemble one other in terms of:

1) Pricing objectives and strategy

2) Operational price setting

3) Price realisation

4) Price execution.

Similar to Bonnemeier, Burianek and Reichwald (2010) and Hwang, Tsai, Yu and Chang (2011), the first pricing step for Florissen (2005) and Bolte (2008) was to define pricing objectives and strategy, which is a strategic task. In contrast to Bonnemeier, Burianek and Reichwald (2010), Homburg and Totzek (2011b) and Ivens, Stemmermann and Leisching (2016), Bolte (2008) and Florissen (2005) subsumed the step price analysis/pricing research into the steps of pricing strategy and operational price setting, respectively. This choice was made because strategic and operational analyses are necessary for deriving pricing strategies and price setting, respectively (Florissen, 2005). Researchers agree that the pricing step "operational price setting" follows after the pricing strategy is formulated. Riekhof and Wacker (2012) integrated price setting into a pricing step they called "pricing execution." Then it follows the step of price realisation. The steps "rebate and discount system" and "internal price enforcement (steering of internal price processes like pricing authority delegation and incentive system)" from Homburg and Totzek (2011b) and Bonnemeier, Burianek and Reichwald (2010) are similar to the process step "price realisation" from Bolte (2008) and Florissen (2005).

Next comes the process step “price execution,” which covers external price enforcement (price enforcement with the customer in negotiations) (Homburg & Totzek, 2011b; Bonnemeier, Burianek & Reichwald, 2010).

However, a major difference between B2B pricing processes and price management with a focus on price controlling is the treatment of price controlling issues. B2B price management processes do not distinguish between different price controls and place the price controlling at the end of the price management process. In contrast, the price management processes with a focus on price controlling suggest that there are different price controls throughout the entire price management process. According to Bolte (2008), Florissen (2005) and Ivens, Stemmermann and Leisching (2016), these price controls constitute the entire price controlling and serve different purposes. Bolte (2008), Florissen (2005) and Ivens, Stemmermann and Leisching (2016) take a differentiated view on the topic of price controlling by classifying price controls based on where in the pricing process they are conducted. These authors maintain that price controls can occur between the price management steps to control the achievement of plans and along the price management process to support each price management process step. These researchers therefore enhanced the price management process by distinguishing different price controls depending on where in the price management process the price control takes place. Even though Bonnemeier, Burianek and Reichwald (2010), Homburg and Totzek (2011b) and Riekhof and Wacker (2012) do not distinguish between different price control in their frameworks, they acknowledge that price controlling occurs throughout the entire price management process. This mindset confirms the argument that there are different price controls throughout the price management process.

When there are different price controls in the price management process serving different purposes, a price management process framework focused on price controlling in a B2B context should consider that fact. Therefore, price controlling should not be placed simply at the end of the price management process, as depicted by the B2B price management processes. Instead, different price controls should be placed between each step and along the price management process.

Based on the reviewed price management processes, Figure 2.2 shows the synthesised price management process as a B2B price management process framework taking into account the different price controls.

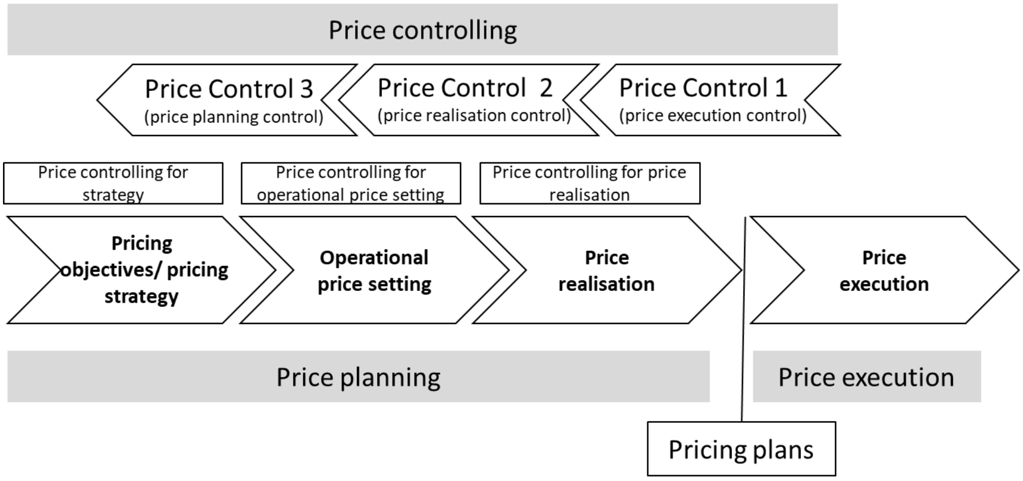


Figure 2.2: Price management process with price controlling

(Source: researcher's own illustration based on the reviewed literature)

Figure 2.2 depicts an overview of the price management process steps and is useful for locating the various price controls along and between the price management processes. However, the separate process steps contain various pricing activities (Homburg & Totzek, 2011b; Diller, 2008; Simon & Fassnacht, 2009). To understand the roles of distinct price controls and what type of controlling problems exists, a thorough understanding of these activities within the price management processes is necessary. It is essential to understand and analyse pricing plans for this research because these plans are controlled by Price Control 1 (Florissen, 2005) and are accordingly a prerequisite for developing a Price Control 1 model (Braun & Wiesen, 2012). Because these pricing plans are the outcome of the planning phase of the price management process (Section 2.4.3), an investigation of the planning phase of the price management process is required (Otley, 1999). An understanding of the separate price management process steps is also necessary to identify and derive these pricing plans at the case study company.

The following sections provide an overview of the planning and execution phase of the price management process by combining elements of the reviewed literature; this overview enables to explain what the separate price controls need to control and provide a systematic way on how to analyse the planning phase at the case study company.

2.4.3 Price planning phase

2.4.3.1 Pricing objectives and strategy

Price planning starts with making strategic decisions, which guide the design of the subsequent price management process steps. The primary pricing objectives that are consistent with the objectives of the company need to be set (Lancioni, 2005; Monroe, 2003; Shipley & Jobber, 2001) because these pricing objectives provide guidance for all succeeding price management process steps (Oxenfeldt, 1983; Tuusis, 2007; Tzokas, Hart, Argouslidis & Saren, 2000; Weber & Florissen, 2005). Pricing objectives include target profits, market share or sales volume (Avlonitis & Indounas, 2005; Hague, 1971; Lanzillotti, 1958; Morris & Morris, 1990; Oxenfeldt, 1973; Shipley, 1981).

After the pricing objectives are set, a strategy needs to be developed for achieving them (Florissen, 2005; Hanna & Dodge, 1995; Noble & Gruca, 1999; Oxenfeldt, 1983). Pricing strategies are selected based on strategic analysis with regard to customer characteristics, costs and competition (Simon & Fassnacht, 2009). Pricing strategies are commonly separated into three main categories: competitor (e.g., high-price & low-price strategy), customer (e.g., value pricing strategy, skimming and penetration strategy), and company (e.g., cost-oriented strategies) (e.g., Shapiro & Jackson, 1978; Weber & Florissen, 2005).

Pricing strategy results in a price positioning but not a specific price such as a list price, target price or transaction price (Sebastian & Maessen, 2003). The pricing literature often relies on a price/value matrix to depict these different price positions (Figure 2.3) (Homburg, Jensen & Schuppar, 2004; Shipley & Jobber, 2001; Simon & Fassnacht, 2009).

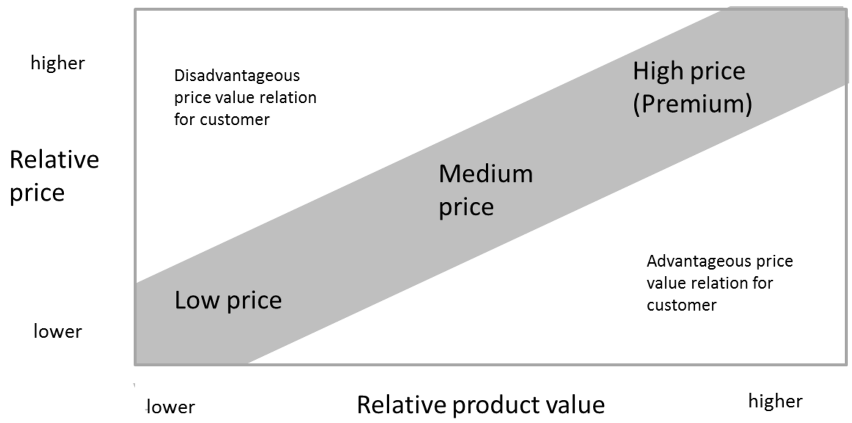


Figure 2.3: Price positioning in a price/value matrix

(Source: based on Homburg, Jensen & Schuppar, 2004, p.9; Sebastian & Maessen, 2003, p.58; Simon & Fassnacht, 2009, p.34).

The estimated value reflects the customer's willingness to pay and is the price that acompany can charge for its product (Hinterhuber, 2008; Kalafatis & Denton, 2000; Michel, 2014; Ross, 1984). When a company positions itself in the grey corridor in Figure 2.3, it is pursuing a value pricing strategy because pricing is oriented toward the willingness to pay of the customer (Simon, Bilstein & Luby, 2006). Other price positions outside the grey corridor are not a value pricing strategy because pricing is then not steered based on the customer's willingness to pay. Price positions above the grey corridor result in a loss of sales volume because customers perceive the price as beingtoo high and instead buy competitors' products. A price position below the grey corridor will boost sales volume due to a relatively low price but leaves potential profit on the table because the company could charge a higher price for the value it offers (Leszinski & Marn, 1997; Marn, Roegner & Zawada, 2004; Simon & Fassnacht, 2009).

2.4.3.2 Operational price setting

After pricing strategy, price management tasks become more operational and focus on concrete measures to implement pricing objectives and strategies (Florissen, 2005; Rullkötter, 2009). While the process step of pricing objectives and strategy delivers only a strategic price position (Sebastian & Maessen, 2003), the operational price setting has the task of determining concrete list prices or target prices for products (Bonnemeier, Burianek & Reichwald, 2010; Florissen, 2005; Oxenfeldt, 1983; Rullkötter, 2009).

Detailed information about the company itself and its competitors and customers is fundamental to set prices (Hinterhuber, 2004; Simon & Fassnacht, 2009). To process these data into concrete prices, researchers typically distinguish three primary price setting approaches: cost-oriented pricing, competitor-oriented pricing and customer-oriented pricing (e.g., Avlonitis & Indounas, 2005; Collins & Parsa, 2006; Cram, 2006; Hinterhuber, 2008; Homburg & Totzek, 2011b; Ingenbleek & van der Lans, 2013; Liozu & Hinterhuber, 2012; Shipley & Jobber, 2001).

With regard to profit potentials of these three noted approaches, customer-oriented pricing has advantages over other approaches. Even though cost-oriented pricing is often used by B2B companies (e.g., Fabiani et al., 2005; Forman & Lancioni, 2002; Füreder, Maier & Yaramova, 2014, Guerreiro, Cornachione & Kassai, 2012; Homburg & Totzek, 2011b; Rao & Kartono, 2009; Riekhof & Wacker, 2012; Shipley & Jobber, 2001), researchers have argued that the customer-oriented approach, also known as value pricing, is the best method with regard to yielding profit (Füreder, Maier & Yaramova, 2014; Ingenbleek, Debruyne, Frambach & Verhallen, 2003; Liozu & Hinterhuber, 2013b; Toni, Milan, Saciloto & Larentis, 2017).

In contrast, applying cost-oriented pricing or competitor-oriented pricing comes with disadvantages. Because cost-oriented pricing takes the variable or full costs of the product and adds an acceptable but constant mark-up that applies to all products and selling situations (Collins & Parsa, 2006; Dolgui & Proth, 2010; Hanna & Dodge, 1995; Kalafatis & Denton, 2000), this method does not consider the different levels of customers' willingness to pay because costs are not aligned with market prices. In other words, there is no differentiation of prices and mark-ups to extract the potential value of products (Cram, 2006; Dolgui & Proth, 2010; Hinterhuber, 2008). Therefore, profit is given away (Liozu & Hinterhuber, 2013b), and pure cost-oriented pricing should be avoided (Roll, Pastuch & Buchwald, 2012). Because companies using competitor-oriented pricing set their product prices relative to competitors' prices (Docters, Reopel, Sun & Tanny, 2004; Hinterhuber, 2008), there is little chance to extract the potential value of a company's own products (Cram, 2006; Hinterhuber, 2008). Profit is likely given away with this method (Hinterhuber, 2004; Toni, Milan, Saciloto & Larentis, 2017).

Value pricing sets the price in accordance with the customer's willingness to pay (Farrés, 2012; Hinterhuber, 2008; Rao & Kartono, 2009). The most suitable pricing method to implement a value pricing approach depends mainly on the amount and variety of products that need to be priced and whether a company is operating in a B2C or a B2B market (Roll, Pastuch & Buchwald, 2012). Because having a large number of products makes it difficult for a company to focus on each (Ivens, Stemmermann & Leischnig, 2016), Roll, Pastuch and Buchwald (2012) identified value driver pricing as one method for a value pricing approach suitable in the B2B context. The idea of value driver pricing is to identify specific characteristics—the so-called value drivers (e.g., product, the region or the customer)—that affect customers' willingness to pay. The characteristics of the value drivers are defined, and value-driven mark-ups are assigned to each characteristic to develop a value-based pricing logic. The value-oriented mark-ups are added to the cost base of the product to derive value-oriented prices, for example (Herr, Bedducker & Frahm, 2010; Roll, Pastuch & Buchwald, 2012).

Price is a complex construct; the construction of a pricing system can include different elements that vary from company to company (Hanna & Dodge, 1995; Roegner, Marn & Zawada, 2005; Simon & Fassnacht, 2009). Price systems for B2B companies can be categorised into 1) list price systems and 2) net price systems (Hofbauer & Hellwig, 2009; Homburg, Jensen & Schuppar, 2004; Miller & Krohmer, 2011; Roegner, Marn & Zawada, 2005). While a list price system has the list price as a starting point from which various discounts and rebates (e.g., order-size discount, payment terms discount, annual volume bonus) are deducted and communicated to the customer (Docters, Reopel, Sun & Tanny, 2004; Farrés, 2013; Garda, 1992; Marn & Rosiello, 1992; Roegner, Marn, & Zawada, 2005), a net price system communicates the net price directly to the customer; neither list prices nor deductions are available (Homburg, Jensen & Schuppar, 2004). Therefore, when a net price system is in place the price setting phase does not end up with a list price compared with a list price system. Instead, the target price already integrates customer-specific rebates and discounts (Herr, Beducker & Frahm, 2010; Roll, Pastuch & Buchwald, 2012). The results of the operational price setting are therefore list prices or target prices.

2.4.3.3 Price realisation

Companies that operate in a B2B context often delegate the setting of final prices to the sales force (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011). Therefore, the price realisation phase involves transforming the results of the operational price setting phase into targets, guidelines and policies for the sales force to execute. This process shall ensure that the sales force implements list or target prices similar to the targets set by management (Diller, 2008; Hinterhuber & Liozu, 2012). The price realisation step is important because it does not make sense to set list prices or target prices that reflect the pricing objectives when the sales force is not constrained in deviating massively from these defined prices (Hinterhuber & Liozu, 2012).

Three primary topics with regard to price realisation can be distinguished. Firstly, the level of authority is set that defines to what degree a sales person can establish the final transaction price (Fassnacht, 2009; Homburg, Jensen & Hahn, 2012; Simon, 2004). To constrain the price setting competencies of the sales force, a discount system (Bolte, 2008) and defined price corridors (Ivens, Stemmermann & Leischnig, 2016) can be applied. Secondly, an incentive system, which is aligned with the pricing objectives, needs to be developed that defines how the sales force is compensated in order to enforce the targeted prices (Bonnemeier, Burianek & Reichwald, 2010; Simon, 2004). Finally, targets, guidelines and policies are communicated to the sales force (Rullkötter, 2009; Shipley & Jobber, 2001) that provide guidance during the price execution phase (Simons, 1995).

Reviewing the price planning phase, all necessary price planning has been conducted by management. The planning phase transforms the pricing objectives via pricing strategy, pricing methods and price realisation measures into operational pricing plans that are communicated to the sales force for execution. Pricing plans are important because they are a prerequisite for a price controlling to perform analyses of actual vs. plan (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009). These pricing plans include authority regulations, list prices or target prices, discount and rebate guidelines, defined price corridors, pricing guidelines, etc.

2.4.4 Price execution phase

Price execution involves enacting pricing plans such as target and list prices with determined discounts and rebates within pre-set price authority levels (Hwang, Tsai, Yu & Chang, 2011). The results of this step is transaction prices (Bolte, 2008; Florissen, 2005), which are normally negotiated by the sales force in B2B companies (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Homburg & Totzek, 2011b). This phase is important for ensuring that a company achieves its objectives because in this phase the pre-set planned prices are captured (Kohli & Suri, 2011; Simonetto, Davenport & Olsen, 2004)—when price execution is poor, management’s pricing plans can be jeopardised (Hwang, Tsai, Yu & Chang, 2011; Simon & Fassnacht, 2009; Sodhi & Sodhi, 2008).

2.4.5 Price controlling phase

2.4.5.1 Price controls between the management process steps

In contrast to research on general price management processes (e.g., Bonnemeier, Burianek & Reichwald, 2010; Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011), price controlling research (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016) suggests that there are different controls in the price management process depending on where in the price management process price controls are located. These price controls can be classified into 1) price controls between the management process steps and 2) price controls along the price management process. Various problem areas within the price management process require price controlling and must be addressed with distinct price controls.

According to Ivens, Stemmermann and Leisching (2016), price controls between the process steps focus on monitoring whether the plans in previous steps have been achieved. Based on the synthesised price management process (Figure 2.2), there are three occasions in which price controls between the price management steps can be located to monitor the fulfilment of pre-set plans of the previous process step:

1) Between "price realisation" and "price execution" (price execution control; Price Control 1)
2) Between "operational price setting" and "price realisation" (price realisation control; Price Control 2)
3) Between "pricing strategy and objectives" and "operational price setting" (price setting control; Price Control 3) (Bolte, 2008; Florissen, 2005)

Price Control 1 monitors whether the pricing plans set by management are truly executed by the sales force (Florissen, 2005); the outcome of the price realisation phase is the pricing plans set by management within the planning phase of the price management process. Based on the price management process, pricing plans include, for example, target prices that should be implemented by the sales force. One example of price execution control is measuring the deviation of executed prices from planned target prices (Braun & Wiesen, 2012; Simon & Fassnacht, 2009). Defined price corridors that set target and limit prices are also a result of the price realisation phase. Therefore, price execution controls whether the sales force remains within the price corridor or undercuts the limit price (Sebastian, Maessen & Strasmann, 2009). Another example of price execution control is measuring how well the sales force implements price increases (Braun & Wiesen, 2012). According to Florissen (2005), price execution control mainly serves as feedback control, which means that it controls whether the plans set by management are truly enforced by the sales force. Price execution control also serves as a feedforward control (Florissen, 2005). Therefore, Price Control 1 includes preventing price errors before they occur. Thus, Price Control 1 ensures that the sales force executes the pricing plans that are the outcome of the planning phase in the price management process, because otherwise even though pricing plans are set, there is a risk that sales force does not enforce these plans (Homburg, Jensen & Hahn, 2012).

Price Control 2 is located between the price realisation and price execution steps and therefore involves monitoring whether the implementation measures, regulations and guidelines set in the price realisation process are sufficient to implement the plans of the operational price setting phase (Florissen, 2005). For example, this type of control examines whether rebate and discount systems are appropriate to implement the planned prices (Bolte, 2008). Another type of Price Control 2 involves checking whether the incentive system supports the realisation of the planned prices in the operational price setting. For example, if prices are set with the aim of maximising profits but the sales force is paid by achieved revenue but not price quality, the incentive system does not support the planned prices (Bonnemeier, Burianek & Reichwald, 2010).

Price Control 3 compares the result of the pricing objective and pricing strategy, which is expressed in the price positioning (plan) with the planned prices set in the operational price setting process (actual) (Florissen, 2005). Price Control 3 analyses whether the planned prices that are determined in the operational price setting process are consistent with the pricing objectives and pricing strategy. Price Control 3 accordingly checks whether the operational price setting is able to realise the pricing strategy and objectives (Braun & Wiesen, 2012). For example, price control could measure whether the set list prices are capable of achieving the aims of the value pricing strategy. If variances are detected, analysis should follow as to whether the pricing strategy is a valid framework for following the price management steps or whether the price determinants are correct (Bolte, 2008).

2.4.5.2 Price controls along the price management process

In contrast to the price controls between the price management process steps, the price controls along the price management process support and the price management within each price management process. These controls are closely linked to the tasks that are performed in each price management process (Ivens, Stemmermann & Leisching, 2016). Price controlling studies such as Bolte (2008) and Florissen (2005) distinguish between three controls:

1) Control for price realisation
2) Control for operational price setting
3) Control for pricing objectives and strategy

Within the "control for price realisation", price controlling needs to support management in conducting its tasks in the process step "price realisation." Based on the price management process, this support includes defining price authority regulations and incentives systems and communicating pricing plans to the sales force. Price controlling needs to provide the relevant information for each task (Florissen, 2005) to be able to define appropriate levels of price authority delegation and incentive systems. It involves analysis of the effects of the chosen price authority levels and the effects of the chosen incentive system on the behaviour of the sales force (Bolte, 2008).

Within the "control for operational price setting," price controlling helps management to perform its tasks in the price management process step "operational price setting" (Bolte, 2008). Based on the price management process, support is needed for the operational analysis and the price setting methods. Therefore, price controlling needs to provide operational analysis of customers, competition and the company and ensure that all pricing determinants are available to set the target price. Price controlling provides adequate price setting methods (e.g., cost-oriented, competitor-oriented or customer-oriented methods) and ensures that all relevant price determinants are considered (Florissen, 2005).

The “control for pricing objectives and strategy” supports management in selecting pricing objectives and defining pricing strategies. Because pricing objectives are derived from company objectives, price control needs to ensure that there are no conflicts between pricing and corporate objectives. Moreover, price controlling needs to involve analysis of customers, competition and the company to support management in its pricing strategy decisions. It must also prevent and identify errors related to strategy formulation (Bolte, 2008).

2.4.6 Importance of the price management process for this research

The current price controlling literature includes studies that have developed price controlling frameworks by identifying and placing various price controls throughout the entire price management process. These price management processes provide a good framework for classifying different price controls, allocating price controlling instruments to different price controls and analysing the pricing plans that need to be controlled by Price Control 1. However, these frameworks do not yet provide a model specifically for Price Control 1. Even so, these frameworks for the price management process contribute to achieving the research aim of this thesis for the following reasons.

First, the price management process provides an analytical framework to research the planning phase of the price management process at the case study company to determine the pricing plans that need to be controlled by Price Control 1. Otley (1999) proposed a framework to explore control systems that appear in practice. This author suggests starting with an investigation of the company’s objectives and then exploring strategies and plans to achieve these objectives before examining the instruments used to monitor the plans. The planning phase of the price management process needs to be studied first because the outcome of the planning phase is the pricing plans that are controlled by Price Control 1; these plans lay the basis for price controlling instruments.

Second, the process view provides a good way to demonstrate the context of the research. Drawing on contingency theory (Chenhall, 2003; Fisher, 1998; Otley, 1980;

Otley, 1999), it can be argued that price controlling instruments are contingent on specific situational factors, which include the form of the price management process and the pricing plans. For example, Ivens, Stemmermann and Leischnig (2016) argued that price controlling needs to be tailored to the specific needs of a company to support management in using profit lever pricing efficiently. The process view therefore help clarify the situational context in which the case study will be conducted because suitable Price Control 1 instruments can be selected based on the pricing plans to be achieved. Practitioners and other researchers therefore will find it easier to interpret the findings of this research when the specific price management process and the pricing plans are clear (Patton & Applebaum, 2003).

Third, the price management process makes it possible to separate Price Control 1 from other controls to focus on a specific control in contrast to studying price controlling in its entirety. The literature review of the price management processes revealed that price controlling consists of different price controls occurring at different stages during the price management process. Separating the price controls makes it possible to show where Price Control 1 is situated in the price management process and what Price Control 1 and its instruments control. Based on the location of the price control, specific requirements are required (Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). The price management process reveals that Price Control 1 is situated between the price realisation phase and the execution phase of the price management process and controls the pricing plans that are the outcome of the planning phase.

Fourth, the price management process is useful for practice as an analytical framework that can help practitioners analyse pricing plans to create their own Price Control 1 model. In practice, the process view is dominant and seen as a suitable way to address pricing issues in practice (Riekhof & Wacker, 2012; Simon, 2004; Simon & Fassnacht, 2009; Wiltinger, 1998). A 2012 empirical study of B2B companies by Riekhof and Wacker (2012) suggested that the process view is a good approach for B2B pricing in practice. The process view therefore fits with the practical orientation of this thesis in a B2B context and provides an analytical framework to cover pricing-related issues at the case study company and other companies.

In a next step, it is important to specify the control problem that appears in a B2B price management process and locate this problem within the price management process; this allows defining which of the price controls (Section 2.4.5) is suitable to address the problem.

2.5 Price controlling

2.5.1 Agency problem and the resulting importance of Price Control 1

2.5.1.1 Agency problem between the planning and execution phases

A B2B company has different options for delegating pricing authority to its sales force. One can choose the extent to which the final price is set by the sales force (Homburg, Jensen & Hahn, 2012; Joseph, 2001; Simon & Fassnacht, 2009), which is often referred to as vertical delegation of pricing authority (Homburg, Jensen & Hahn, 2012; Joseph, 2001). The literature (e.g., Joseph, 2001; Simon & Fassnacht, 2009; Stephenson, Cron & Frazier, 1979) commonly distinguishes among no pricing authority (the sales force is not allowed to deviate from list or target prices without approval from a higher level), limited pricing authority (the sales force is allowed to change prices within pre-set price ranges) and full pricing authority (there are no limits on pricing by the sales force; the sales force can decide freely what price to charge).

Previous empirical studies (e.g., Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Stephenson, Cron & Frazier, 1979) have shown that most B2B companies delegate some degree of pricing authority to the sales team. For example, Stephenson, Cron and Frazier (1979) found that 29% of their surveyed companies gave no pricing authority to the sales force, 48% gave limited pricing authority and 23% gave full pricing authority. Hansen, Joseph and Krafft (2008) came to a similar conclusion for a cohort of 222 German companies: 28% had no pricing authority, 61% had limited pricing authority and only 11% had full pricing authority. Moreover, a quantitative survey of 181 B2B companies in the industrial machinery and electrical industry in Germany conducted by Frenzen, Hansen, Krafft, Mantrala and Schmidt

(2010) found that only a minority of B2B companies granted no pricing authority (8.3%). According to this study, only a few companies (11.0%) gave full pricing authority to their sales force. Compared to the studies noted above, Frenzen, Hansen, Krafft, Mantrala and Schmidt (2010) used a four-level scale classification of pricing authority, so that for the rest of the polled companies these researchers report that 22.7% of the companies granted a limited pricing authority and 58.0% granted substantial pricing authority. Based on those empirical surveys (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Stephenson, Cron & Frazier, 1979), the sales force of most B2B companies negotiate final transaction prices with customers within restricted authority levels.

Delegating pricing authority to the sales force has advantages. The pricing literature provides two good reasons why the final price setting is often delegated to the sales team in B2B contexts. First, researchers such as Dolan and Simon (1996) and Frenzen, Hansen, Krafft, Mantrala and Schmidt (2010) pointed out that sales people are closer to the market and the customer than management, which means that the sales team is better situated to judge prices to win the deal. Therefore, delegation allows the sales force to customise prices based on the willingness to pay of the customer (Dolan & Simon, 1996; Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Joseph, 2001), which can have positive effects on firm performance (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010). Second, delegation has the advantage of allowing the sales force to reply quickly to the pricing requests of a particular customer without needing to go through a long-winded approval process, which may result in a loss of a deal because of time delays (e.g., Homburg, Jensen & Hahn, 2012).

Studies of the effect of price delegation on firm performance have reported contrasting results. Stephenson, Cron and Frazier (1979) concluded that delegating no pricing authority to the sales force yielded the best outcome in terms of firm performance; limited pricing authority should be granted only when required, these authors suggested. However, in a more recent study, Frenzen, Hansen, Krafft, Mantrala and Schmidt (2010) found that firms that delegate pricing to the sales force performed better, on average, than firms that did not delegate pricing authority. These authors argued that one reason for the different results may be that price customisation has gained importance in B2B markets, which results in one-price policies being inappropriate; more flexibility is required of the sales force. Frenzen, Hansen, Krafft, Mantrala and Schmidt (2010) concluded that giving sales forces pricing authority to set prices for special circumstances is the most appropriate and profitable route for most B2B companies. This evidence suggests that delegating pricing authority can bring about advantages for B2B companies with regard to firm performance.

However, delegating pricing authority to a sales force is also associated with a serious disadvantage: the creation of an agency problem because the delegation inreases information asymmetry and there is goal incongruence between management and the sales force. When pricing authority is delegated, the management is the principal and the sales force is the agent according to agency theory. Information asymmetry is increased because the sales force typically possesses more detailed information about the customer and the selling situation than management (Chen, 2005; Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010). Management can find it difficult to evaluate the effort of the sales force because they have problems judging whether low price performance is caused by the low performance of the sales force defending prices or changes in the market environment (Homburg, Jensen & Hahn, 2012). Using the premise of the agency theory—that the sales force acts in its own interest (Baiman, 1990; Eisenhardt, 1989; Jensen & Meckling, 1976)—the goals of sales force and management can differ, which results in goal conflict (Anderson & Oliver, 1987; Eisenhardt, 1989). According to Anderson and Oliver (1987), this goal conflict can arise, for example, when management wishes to increase the company's profits but the sales force wishes to maximise its salaries.

Due to the agency problem, management needs to take into consideration that delegation bears the risk that the sales force will substitute its selling effort with higher levels of discounting, which can contradict management's plans. A number of researchers have found that sales forces can shrink its effort and accept lower prices than necessary to make the sale (Homburg, Jensen & Hahn, 2012; Stephenson, Cron & Frazier, 1979) because the sales force has the tendency to "always play it safe to get the order" (Dolan

& Simon, 1996, p.313). For example, Homburg, Jensen and Hahn (2012) claimed that sales forces will give customers a larger discount to get the deal in order to circumvent exhausting negotiations. Similarly, Stephenson, Cron and Frazier (1979) found that delegating a degree of high pricing authority to the sales force resulted in high levels of discounts because the sales force would rather give discounts than increase their sales efforts. This situation can result in profit loss. Lancioni, Schau and Smith (2005) support this viewpoint by arguing that sales forces often impede the implementation of pricing plans because they are too quick to grant discounts and do not stick to existing company pricing plans.

In conclusion, delegating pricing to the sales force may be appropriate for B2B companies because doing so affords the advantage of the sales force customising prices to the willingness to pay of the customer, which can improve firm performance. However, delegation also poses a challenge to management due to the agency problem: management cannot reconstruct whether the sales force acted in their best interest or jeopardised management's pricing plans by following the easy path of getting an order using unnecessary discounting. The agency problem implies that management needs to employ measures to counter this risk (Anderson & Oliver, 1987; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012; Hansen, Joseph & Krafft, 2008).

2.5.1.2 Importance of Price Control 1

The agency problem in B2B price management processes makes Price Control 1 for B2B companies important for several reasons. First, Price Control 1 plays an important role in mitigating the agency problem. Based on the discussion in Section 2.5.1.1, the agency problem occurs between the planning and execution phase. This place is also where Price Control 1 is located (Figure 2.4). When the agency problem in price management is located in the same place as Price Control 1 and pricing authority is delegated, Price Control 1 is the relevant price control to address the agency problem for B2B companies.

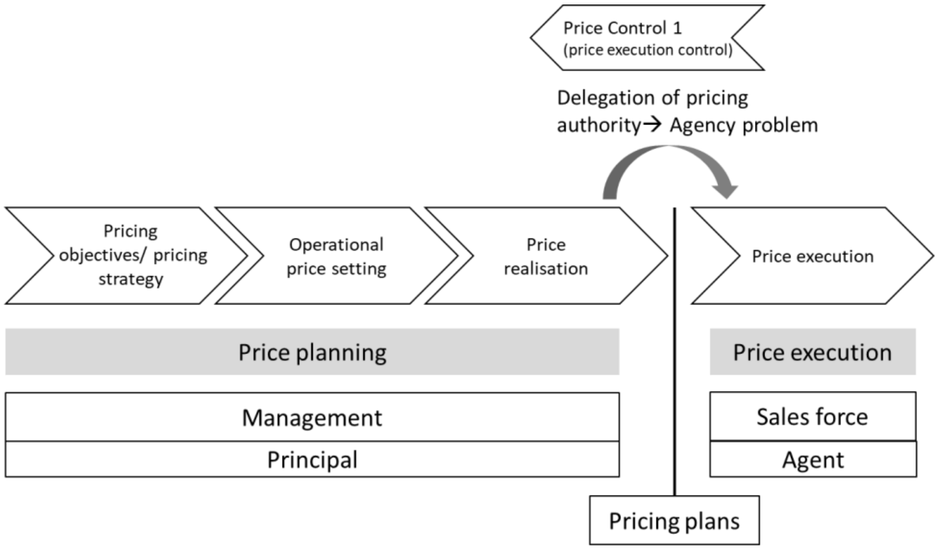


Figure 2.4: Agency problem in the B2B price management process

(Source: researcher's own illustration based on the price management process of Figure 2.2 and the discussion pertaining to the agency problem)

Second, price management is a strong profit lever for B2B companies (e.g., Avlonitis & Indounas, 2005; Garda, 1992; Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2005; Hwang, Tsai, Yu & Chang, 2011; Kohli & Suri, 2011; Monroe, 2003; Monroe, Rikala & Somervuori, 2015; Phillips & Özer, 2012; Schindler, 2012). Some scholars even regard price management as one of the most important levers for companies to boost their profits (e.g., Han, Gupta & Lehmann, 2001; Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2004; Philipps, 2005; Schindler, 2012; Simon & Fassnacht, 2009). Various studies have highlighted the significant effect of price management on profitability and the fact that an improvement in price management has larger effects on profitability than a decrease in costs or a growth in sales volume (Eugster, Kakkar & Roegner, 2000; Hinterhuber, 2004; Marn & Rosiello, 1992; Phillips, 2005). For example, Hinterhuber (2004) demonstrated for a sample of Fortune 500 companies that a price improvement of 5% would increase earnings before interest and taxes (EBIT) by 22%; the same improvement in sales volume and costs would only result in a 12% and 10% increase in EBIT, respectively. Calculations regarding how profit is affected by price improvements undertaken by Mohammed (2010) and Roll, Pastuch and Buchwald (2012) underpin Hinterhuber (2004) view. Moreover, a quantitative survey of 72 German B2B companies revealed that 14% of the variance of company success could be explained by pricing success (Rullkötter, 2009).

In addition, for the German electrical/electronics industry, the profit effect of pricing measures is relatively high due to relatively low margins (ZVEI, 2015a; ZVEI, 2015b) and the fact that the percentage profit improvement potential of pricing is higher for companies with lower margins (Roll, Pastuch & Buchwald, 2012; Schindler, 2012). Therefore, price management can have a considerable impact on the profitability of these companies.

Third, poor price management and a lack of price controlling can influence profitability negatively (e.g., Ingenbleek & van der Lans, 2013; Marn & Rosiello, 1992; Shipley & Jobber, 2001; Simon, 1992; Simon & Butscher; 2001; Smith, 2012). Price controlling plays a key role in the pricing success of companies (e.g., Homburg, Jensen & Schuppar, 2005; Rullkötter, 2009; Sodhi & Sodhi, 2008). Quantitative surveys conducted by Homburg, Jensen and Schuppar (2005) and Rullkötter (2009) found that absent or poor price control has a significant negative impact on the success of pricing for B2B companies and consequently on the success of the company as a whole. Absent price control can impact profits as negatively to the same degree as correct prices have a positive impact on profit (Ingenbleek & van der Lans, 2013; Marn, Roegner & Zawada, 2004; Marn & Rosiello, 1992; Kohli & Suri, 2011; Simon, 1992; Simon & Fassnacht, 2009). Furthermore, absent price control is considered to be a primary explanation for why companies suffer from profit leakages and do not achieve their pricing plans. This situation is particular true for B2B companies because of the pricing complexity in B2B markets (Kohli & Suri, 2011; Sodhi & Sodhi, 2008). Price Control 1 therefore needs to be in place to ensure that pricing plans are implemented to exploit the profit lever price. This viewpoint is supported by Homburg, Jensen and Schuppar (2005), who found that companies with systematic price controlling in place outperformed companies who did not have systematic price controlling in place. Similarly, Schmidt (2010) reported that companies in the chemical industry with systematic price controlling in place could overcome situations like crises (e.g. financial crises 2007), better than other companies.

Fourth, the literature suggests that Price Control 1 is of special importance among the various price controls. While price controlling has many tasks troughout the price management process, according to Simon and Fassnacht (2009) the most basic question that price controlling should answer is what transaction prices have been truly achieved. Riekhof and Lohaus (2009) noted that one major function of price controlling is to monitor the variance between executed prices and planned prices. In addition, empirical studies (e.g., European Pricing Platform, 2016; Roll, 2011) have indicated that the controlling and monitoring of the execution of pricing plans and the design of an effective price performance measurement are important. This opinion is congruent with the observation that most pricing researchers (e.g., Bonnemeier, Burianek & Reichwald, 2010; Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Riekhof & Lohaus, 2009; Shipley & Jobber, 2001; Simon & Fassnacht, 2009) place price controlling at the end of the price management process to monitor and analyse the execution of pricing plans.

In conclusion, Price Control 1 is important for companies to exploit the profit lever of pricing and is located where the agency problem in B2B companies occurs. Therefore, Price Control 1 can address the agency problem in B2B price management. The importance of Price Control 1 within price controlling and within the B2B price management process supports the researcher’s choice to focus on Price Control 1 in this study. The next section discusses how the agency problem could be reduced.

2.5.2 The Price Control 1 system as a solution to the agency problem

Companies can alleviate the risk of not achieving their pricing plans by mitigating the agency problem. Doing so involves implementing a Price Control 1 system, as suggested by a number of pricing researchers (e.g., Anderson & Oliver, 1987; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012). Even though delegating pricing authority has the drawback of creating an agency problem (Chen, 2005; Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010), Hansen, Joseph and Krafft (2008) maintain that those firms that are able to minimise the agency problem via a price control system can benefit from the advantages of delegating (e.g., price customisation) to the sales force.

It can be argued that companies that delegate pricing authority to a sales force can minimise information asymmetry and goal incongruence (Eisenhardt, 1989; Ekanayake, 2004) by implementing a Price Control 1 system. A Price Control 1 system increases the probability that the sales force will act in the management's interest of pricing plans. This viewpoint is underpinned by the work of Homburg, Jensen and Hahn (2012). These authors reported that controlling the price execution of the sales force helps to ensure achievement of pricing plans: management receives more information about the performance of the sales force and whether or not they are achieving their goals. This information in turn can assist management in directing the sales team towards plan achievement. Likewise, Hansen, Joseph and Krafft (2008) confirmed that close scrutiny of the sales team leads to fewer cases of discounting and abuse of pricing authority regulations. Jaworski and MacInnis (1989) noted that controls can be used to decrease the information asymmetry between management and a sales team. Similar prior research on management control systems has shown that a management control system has a positive effect on firm performance (e.g., Widener, 2007).

Even though these pricing authors (Anderson & Oliver, 1987; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012) noted that a price controlling can alleviate the agency problem, these authors do not develop a Price Control 1 model containing instruments that demonstrates how Price Control 1 can alleviate the agency problem.

In summary, Price Control 1 can address the agency problem in the B2B price management process. Companies can minimise suboptimal behaviour of the sales force to benefit from the advantages of pricing authority delegation by implementing a Price Control 1 system.

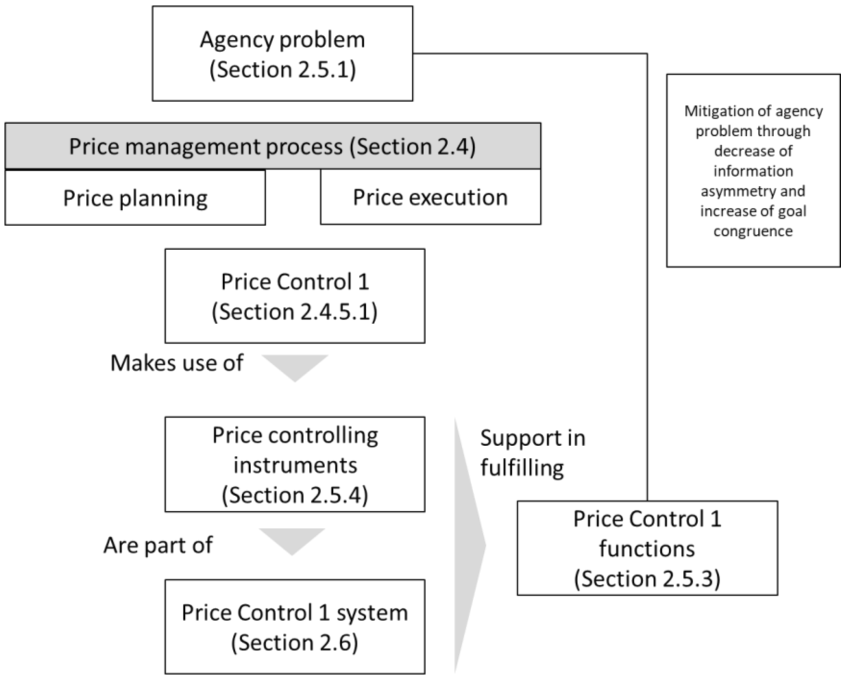


Figure 2.5: Overview: Price Control 1, functions, intruments and systems

(Source: researcher’s own illustration)

This research therefore develops a Price Control 1 model containing instruments that can mitigate the Price Control 1 problem. The location of Price Control 1 in the price management process (Section 2.4.2) and what needs to be controlled by a Price Control 1 (Section 2.4.5.1) have been identified. It has been discussed that Price Control 1 can alleviate the agency problem (Sections 2.5.1 & 2.5.2). Next, that functions that Price Control 1 needs to fulfil in order to alleviate the Price Control 1 problem and thereby increase the probability that pricing plans are achieved will be discussed (Section 2.5.3; Florissen, 2005; Flamholtz, 1996). Then, price controlling instruments will be identified that can be used to fulfil these price controlling functions (Section 2.5.4; Bolte, 2008; Florissen, 2005). The management control literature provides frameworks for management control systems as a set of control subsystems into which controlling instruments can be subsumed (Section 2.6; Malmi & Brown, 2008; Otley, 1980; Simons, 1995). Therefore, controlling instruments are part of control systems (Flamholtz, 1996).

As shown in Figure 2.5, the next sections discuss the topics of price control functions (Section 2.5.3), price controlling instruments (Section 2.5.4) and frameworks for management control systems (Section 2.6). These are those elements that help the researcher to develop a Price Control 1 model. These elements need to be pulled together in order to develop a Price Control 1 model; current literature on price controlling lacks doing so.

2.5.3 Control functions

2.5.3.1 Overview of price control functions

The primary problem of Price Control 1 is that there is an agency problem that needs to be mitigated to achieve pricing plans (Sections 2.5.1 & 2.5.2). Developing a Price Control 1 model requires understanding which Price Control 1 functions need to be fulfilled by this model to alleviate the Price Control 1 problem. This research adopts the approach taken by Flamholtz (1996), who proposed that a control system needs to fulfil certain sub-functions to achieve the ultimate goal of a control system, which is to ensure the achievement of company goals by having subordinates behave in a goal-congruent manner. This view is supported by Camman (1976). This author also divided the functions of a control system into sub-functions to achieve a company’s goals. This approach has the advantage for this research that the primary goal of Price Control 1 (i.e. ensure that pricing plans are achieved) is broken down into more tangible functions that need be addressed by price controlling instruments to achieve the pricing plans. This methodology is also supported by Bolte (2008) who subdivides the main aim of achieving pricing plans into various sub-functions and argues that price controlling instruments are employed to address these functions. Dividing Price Control 1 into sub-functions makes it possible to explain how the created model containing price controlling instruments can support these functions to alleviate the Price Control 1 problem. This approach helps the researcher to answer RQ 2.

Bolte (2008) laid the foundation for addressing the Price Control 1 problem by identifying that it has to fulfil the following functions: monitoring of plan achievement, detection of causes of variance for countersteering, ensuring error-free controls, and provision of planned and actual data. However, this study is a theoretical dissertation and does not consider all functions to alleviate the Price Control 1 problem. Other researchers (e.g., Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leisching, 2016, Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008) have identified additional functions (prevention of variances, motivation of plan achievement) that are required to achieve pricing plans (Table. 2.2).

Therefore, with the goal of developing a Price Control 1 model that fulfils all functions to alleviate the Price Control 1 problem, the researcher synthesises the findings of the literature review into one comprehensive and singular list of Price Control 1 functions. The researcher identified the following functions that address the research problem:

- Prevention of variances (Section 2.5.3.2)
- Monitoring of plan achievement (Section 2.5.3.3)
- Detection of causes of variance for countersteering (Section 2.5.3.4)
- Motivation of plan achievement (Section 2.5.3.5)
- Ensuring error-free controls (Section 2.5.3.6)
- Provision of planned and actual data (Section 2.5.3.7)

These functions and why they need to be included in the Price Control 1 model are addressed in the following sections (Sections 2.5.3.2–2.5.3.7).

Function	Authors	Key insights
Prevention of variances	Diller, 2008; Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leischnig, 2016; Köhler, 2003; Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008	Variances need to be prevented so that potential profit leakages are minimised
Monitoring of plan achievement	Bolte, 2008; Braun & Wiesen, 2012; Diller, 2008; Florissen, 2005; Homburg & Totzek, 2011b; Homburg, Jensen & Schuppar, 2004; Hwang, Tsai, Yu & Chang, 2011; Sebastian, Maessen & Strasmann, 2009, Simon & Fassnacht, 2009	The achievement of management's plans need to be monitored continuously to have transparency about the level of plan achievement to steer pricing and enable a learning process
Detection of causes of variance for countersteering	Bolte, 2008; Braun & Wiesen, 2012; Florissen, 2005; Homburg, Jensen & Schuppar, 2005; Ivens, Stemmermann, & Leischnig, 2016; Rullkötter, 2009; Shipley & Jobber, 2001; Simon & Fassnacht, 2009; Sid, 2003	Variances need to be analysed in order to be able to find causes of variance and initiate countermeasures that feed back into the price management process to enable a learning process
Motivation of plan achievement	Diller, 2008; Florissen, 2005; Homburg, Jensen & Schuppar, 2004; Köhler, 2003, Kohli & Suri, 2012; Lauszus & Kalka, 2006; Riekhof & Wurr, 2013; Simon & Fassnacht, 2009; Simonetto, Davenport & Olsen, 2004; van Veen-Dirks & Molenaar, 2009	Sales people need to be motivated in order to behave in a way that leads to plan achievement
Ensuring error-free controls	Bolte, 2008; Diller, 2008; Florissen, 2005; Ivens, Stemmermann, Leischnig, 2016; Roll, Pastuch & Buchwald, 2012; Rullkötter, 2009; Sebastian, Maessen & Strasmann, 2009; Sid, 2003	Error-free controls need to be ensured in order to be of use for management and prevent wrong counteractions; data quality is needed for price control
Provision of planned and actual data	Bolte, 2008; Braun & Wiesen, 2012; Diller, 2008; Köhler, 2003; Florissen, 2005; Homburg & Totzek, 2011b; Ivens, Stemmermann, & Leischnig, 2016;; Sid, 2003; Simon & Fassnacht, 2009	Planned and actual data needs to be provided as they form the basis for price control

Table 2.2: Price Control 1 functions

(Source: researcher's own illustration)

2.5.3.2 Prevention of variances

Price Control 1 needs to include the function of "prevention of variances" to decrease pricing variances before they occur, which increases the possibility that pricing plans will be achieved.

Many companies provide their sales forces with planned prices for execution when delegating pricing authority (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Riekhof & Wacker, 2012; Stephenson, Cron & Frazier, 1979), but these plans are frequently breached by the sales force (Riekhof & Lohaus, 2009; Riekhof & Wacker, 2012; Riekhof & Wurr, 2013). Riekhof and Wacker (2012) found in a quantitative survey on 92 German B2B companies that 70% of the polled companies made use of planned prices for steering purposes. However, they also found that these planned prices are frequently breached when finally implemented in the market. Only 6% of the surveyed companies realised the pricing plans fully, and only about 35% realised more than 90% of the prices (Riekhof & Wacker, 2012). These findings have been confirmed by similar quantitative surveys by Riekhof and Lohaus (2009) and Riekhof and Wurr (2013).

When the execution of pricing plans is delegated, there need to be limits imposed on the sales force to prevent these plans from being breached. This viewpoint is supported by Köhler (2003). This author suggested that if pricing authority is delegated then price controlling must be enacted to make sure that this pricing authority is not abused. In other words, it is important to impose some limits for the sales force (e.g., by defining price corridors or minimum prices) within which they can manoeuvre (Homburg, Jensen & Schuppar, 2004). Similarly, Simons (1995) confirmed that control needs to set boundaries by setting minimum standards for the actions of subordinates to prevent variances. On the other hand, imposing limits on the sales force can also have negative effects in terms of motivation because it restricts employee autonomy (Homburg, Jensen & Hahn, 2012; Merchant & van der Stede, 2012).

Price controlling researchers such as Diller (2008), Ivens, Stemmermann and Leisching (2016), Meehan, Simonetto, Montan and Goodin (2011) and Sodhi and Sodhi (2008) have proposed that sales forces need to ask for approval of a higher level if they need to breach their limits. This situation ensures that pricing below pre-set limits without approval is prevented. Preventing undesired results, such a low pricing, has the advantage that variances can be minimised, which can help eliminate the negative consequences of plan variances (Merchant & van der Stede, 2012). Consequently, one function of Price Control 1 is to prevent variances because it decreases the likelihood that pricing plan variances will occur and ensures that management has the chance to correct sales force's pricing actions before plan variances occur and not only after plan variance has happened.

2.5.3.3 Monitoring of plan achievement

A second function of Price Control 1 is to monitor and assess whether the sales force truly executes the pricing plans set by management (Homburg & Totzek, 2011b; Lancioni, 2005; Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009). There are three reasons why this function needs to be included. First, monitoring ensures that management can receive feedback as to whether pricing plans have been achieved, which makes the level of price implementation transparent (Diller, 2008; Sebastian, Maessen & Strasmann, 2009) and enables pricing steering (Homburg, Jensen & Schuppar, 2004). Second, monitoring pricing plan achievement is a prerequisite for learning from past decisions so that pricing can be improved further (Florissen, 2005; Rullkötter, 2009). Monitoring results can trigger corrective actions in the price management process (Bolte, 2008; Hwang, Tsai, Yu & Chang, 2011). Third, monitoring plan achievement gives the sales force feedback about plan achievement to close potential pricing plans gaps (Meehan, Simonetto, Montan & Goodin, 2011) and provides data for goal-oriented incentive systems (Diller, 2008; Sebastian, Maessen & Strasmann, 2009). Moreover, monitoring plan achievement is a prerequisite for delegating pricing decisions because without these feedback controls management would not have any information about pricing plan achievement (Merchant & van der Stede, 2012). In such cases, management would be unable to judge whether the sales force acted in management's best interests (Chen, 2005; Homburg, Jensen & Hahn, 2012).

2.5.3.4 Detection of causes of variance for countersteering

Price Control 1 needs to detect causes of variance, which enables companies to prepare countermeasures that reduce plan variances; the likelihood of pricing plan achievement is increased. Researchers have agreed that variances do not only need to be detected but such variances also need to be analysed to formulate appropriate countermeasures for providing feedback to the price management process to improve pricing (Braun & Wiesen, 2012; Florissen, 2005; Ivens, Stemmermann, Leischnig, 2016; Rullkötter, 2009; Shipley & Jobber, 2001; Sid, 2003; Simon & Fassnacht, 2009). Rullkötter (2009) found that the majority (59%) of polled 72 B2B companies initiate countermeasures based on the price controlling results. However, this percentage is low considering that a taking no countermeasures will have the consequence that companies will miss learning processes; detected variances will not be used to countersteer, and feedback corrective actions will not be inserted into the price management process. This situation can result in incorrect pricing decisions that could have been prevented by learning processes (Florissen, 2005).

2.5.3.5 Motivation of plan achievement

Another function of Price Control 1 is the motivation of plan achievement; this function increases the likelihood that the sales force will act in a way that is congruent with pricing plans (Florissen, 2005; Simon & Fassnacht, 2009). According to agency theory, there can be goal incongruence between management and sales forces because of the two groups' different interests (Eisenhardt, 1985; Eisenhardt, 1989; Jensen & Meckling 1976; Joseph & Thevaranjan, 1998). This situation requires that the goals of the sales force and the management be aligned, which can be achieved by motivating the sales force (Camman, 1976; Flamholtz, 1996; Merchant & van der Stede, 2012). Motivation is a fundamental control function (Anthony, 1988).

Researchers agree that pricing plan-aligned incentives need to be in place to motivate sales forces to execute planned prices in negotiations with customers (Diller, 2008; Homburg, Jensen & Schuppar, 2004; Kohli & Suri, 2012; Köhler, 2003; Simon & Fassnacht, 2009). For example, Kohli and Suri (2012) explained that a sales force whose incentives are based on sales is motivated to give maximum discounts to secure a deal rather than exerting extra effort to achieve a higher price. This behaviour can undermine a company's pricing and profit goals (Kohli & Suri, 2012). Therefore, it is important that the sales force be motivated to enforce higher prices even though customers might exert price pressure (Lauszus & Kalka, 2006). One way to motivate a sales force is to provide incentives that are coupled to pricing plans (Diller, 2008; Köhler, 2003; Homburg, Jensen & Schuppar, 2004; Simon & Fassnacht, 2009). The rationale behind plan-oriented incentives is that employees will act in a way that supports plan achievement because their rewards are linked to the extent of plan achievement (Flamholtz, 1996; Marn & Rosiello, 1992). Therefore, Price Control 1 needs to provide motivation for plan achievement because this motivation increases the likelihood that the sales force will act in the best interests of management to achieve pricing plans.

2.5.3.6 Ensuring error-free control

An additional function of Price Control 1 is to ensure error-free controls, which ensures correct analyses and the application of price controlling instruments to take corrective actions to achieve pricing plans. It is widely acknowledged that pricing information plays a crucial role in successful price controlling (Bonnemeier, Burianek & Reichwald, 2010; Diller, 2008; Ingenbleek, 2007; Roll & Achterberg, 2010; Roll, Pastuch & Buchwald, 2012). Price controlling requires a complete and correct database to ensure the quality of a price control (Ivens, Stemmermann, Leischnig, 2016; Simons, 1995). If price controls are conducted with incorrect data, the price control results may be incorrect. This situation can result in incorrect countermeasures. Missing data can prevent price control from being conducted, which in turn can prevent a company from taking counteractions in the case of plan variances (Florissen, 2005). This mindset is supported, for example, by a case study by Hwang, Tsai, Yu and Chang (2011) of a B2B company. These authors found that poor data quality limited the application of a price controlling and prevented timely corrections within the price management process from being performed. Data quality therefore has an impact on the quality of pricing decisions (Roll, Pastuch & Buchwald, 2012) and on the achievement of pricing plans (Rullkötter, 2009). One function of Price Control 1 is to ensure that controls are error-free. As Stiving (2013, p.122) puts it, the saying “garbage in, garbage out” also applies to price management.

2.5.3.7 Provision of planned and actual data

Another function of Price Control 1 is to provide pricing-relevant data (Diller, 2008; Homburg & Totzek, 2011b; Köhler, 2003) (i.e., Price Control 1 results for Price Control 1). Both planned data and actual data need to be available to conduct Price Control 1 because a comparison is made between the two (Bolte, 2008; Braun & Wiesen, 2012). Without this information, Price Control 1 would not be able to operate (Florissen, 2005). In addition, price controlling needs to provide the results of the price controls to the relevant decision makers so they can make informed pricing decisions (Riekhof & Lohaus, 2009). Furthermore, the performance results need to be delivered for a goal-oriented incentive system (Diller, 2008). Due to the complexity of the data involved in pricing, price controlling requires information systems that can handle the data for price controlling purposes (Bolte, 2008; Simon & Fassnacht 2009).

Price controlling instruments are employed to fulfil price controlling functions (Section 2.2.2). Therefore in a next step price controlling instruments need to be reviewed that are capable to fulfil the price control functions noted above to alleviate the Price Control 1 problem.

2.5.4 Price controlling instruments

2.5.4.1 Overview

To create a Price Control 1 model containing instruments for B2B companies in the OEM business operating in the electrical/electronics industry, a comprehensive understanding of price controlling instruments that can fulfil the price control functions and alleviate the Price Control 1 problem is necessary. Such a comprehensive list of price controlling instruments is helpful to specify the price controlling instruments that can be used in a Price Control 1 model to answer which price controlling instruments can be used in a Price Control 1 system. However, the current literature contains only limited selections of price controlling instruments; price controlling instruments are scattered throughout the price controlling and price management literature. In other words researchers looked at specific price controlling instruments but no one has examined all of these instruments at once to thoroughly address the Price Control 1 problem. That situation motivated this work—the researcher needed to synthesise price controlling instruments to produce a more comprehensive list. Such a list enables the researcher to compare the findings of the case study with the identified price controlling instruments and discuss the suitability of price controlling instruments for a Price Control 1 for B2B companies in the OEM business operating in the electrical/electronics industry. Therefore, the purpose of this section is to review the pertinent literature on price management and price controlling to pull out price controlling instruments.

Price controlling instruments both in a general and B2B context have been reviewed because price controlling instruments that appear in a general environment may also be of use for fulfilling price controlling functions in a B2B environment. However, Table 2.3 has been divided into a 1) B2B and 2) general environment because this thesis focuses on price controlling instruments in a B2B environment. Furthermore, such a division makes it possible to provide an overview of instruments noted in a B2B context and highlights the limited body of research related to price controlling topics for B2B companies. In addition, the reviewed literature has also been analysed to determine whether it uses agency theory, establishes a model of aligning price controlling instruments to price controlling functions and establishes a Price Control 1 model.

Confusingly, some researchers have used different names for the same price controlling instrument (e.g., Bolte, 2008; Sebastian, Maessen & Strasmann, 2009) or just described instruments without giving names. This situation required that the instruments be summarised under a common name. Price controlling instruments were synthesised and have been subsumed under the relevant price control functions that were identified in Section 2.5.3.

Author (Year)	B2B context	General context	Farrés (2013)	Riekhof & Wacker (2012)	Homburg & Totzek (2011b)	Hwang, Tsai, Yu & Chang (2011)	Sebastian, Maessen & Strasmann (2009)	Homburg, Jensen & Schuppar (2005)	Ivens, Stemmermann & Leisching (2016)	Coppoolse (2013)	Riekhof & Wurr (2013)	Braun & Wiesen (2012)	Roll, Pastuch & Buchwald (2012)	Meehan, Simonetto, Montan & Goodin (2011)	Kohli & Suri (2011)	Riekhof & Lohaus (2009)	Simon & Fassnacht (2009)	van Veen-Dirks & Molenaar (2009)	Fassnacht (2009)	Bolte (2008)	Diller (2008)	Sodhi & Sodhi (2008)	Florissen (2008)	Herr & Metzelaers (2007)	Mengen (2007)	Lauzus & Kalka (2006)	Simonetto, Davenport & Olsen (2004)	Homburg, Jensen & Schuppar (2004)	Köhler (2003)	Sid (2003)	Shipley & Jobber (2001)	Marn & Rosiello (1992)
			B2B context						General context																							
Research methods																																
Theoretical (academic)			x		x				x						x		x		x	x	x		x		x	x		x	x		x	x
Theoretical (practitioner)							x			x		x	x	x								x		x			x			x		
Empirical (quantitative survey)				x				x			x					x		x														
Empirical (single case study)						x																										
Usage of concepts/ development of models																																
Usage of agency theory			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Model with alignment of Price Control 1 instruments to functions			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Development of a Price Control 1 system/model			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Instruments for prevention of variances																																
Escalation instrument		x							x					x							x	x			x			x				
Instruments for monitoring of plan achievement																																
Performance measurement (general)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Price quality (undercutting price floor)		x								x						x	x				x	x								x		
Price quality (actual vs. planned prices)	x	x		x			x			x	x	x					x			x	x			x					x			
Price quality (price corridor coverage)	x	x			x		x					x																x		x		
Project monitoring		x										x												x								
Management of changes		x																						x								
Sales agreement monitoring		x								x				x																x		
Price increase monitoring	x	x		x						x	x	x				x					x											
Trend analyses	x	x			x		x			x		x					x											x				
Price reports	x	x			x		x			x				x				x		x												x
Cockpits/dashboards		x												x			x					x										
Instruments for detection of causes of variance for countersteering																																
Price band	x	x			x	x	x			x		x		x	x		x	x		x							x	x				x
Price-waterfall analysis	x	x	x	x	x	x	x			x	x				x	x	x	x	x	x	x						x	x	x			x
Sales segment analysis		x												x						x								x	x			
Variance analysis	x	x	x						x	x										x	x								x			
Won-lost order analysis	x	x						x					x				x							x								
Check-lists		x																								x			x			
Fishbone diagram		x																				x										
Instruments for motivation of plan achievement																																
Incentives	x	x			x			x	x		x			x	x	x	x	x			x		x			x	x	x	x			x
Instruments for ensuring error-free controls																																
Process quality/data quality		x							x			x		x						x										x		
Instruments for provision of planned and actual data																																
Information systems	x	x				x	x					x		x			x			x	x		x						x	x		x
Target system		x																		x												
Accounting		x																		x												
Instruments for price controls other than Price Control 1																																
Competitor-pricing knowledge		x																						x								
Customer-satisfaction analysis		x																						x								
Analysis of buying criteria		x																						x								
Balanced scorecard		x																		x	x											

Table 2.3: Review of price controlling instruments

(Source: researcher's own illustration)

The literature review on price controlling instruments revealed the following. First, many price controlling instruments have been identified in the literature. However, they are largely scattered across many studies (Table 2.3). Researchers produced different lists of price controlling instruments (Table 2.3), which is possible due to authors only providing a selection of instruments (e.g., Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009) or some research not focusing on price controlling instruments (i.e., selective instruments can be found within general price management frameworks) (e.g., Farrés, 2013; Hwang, Tsai, Yu & Chang, 2011; Simon & Fassnacht, 2009; Mengen, 2007). Therefore, one cannot conclude that a particular instrument is not useful for price controlling simply because it is not noted by the specific author. In addition, no researcher looked at all instruments; the current literature only provides bits of instruments and incomplete lists to alleviate the Price Control 1 problem. This research was necessary to build on the foundations laid by other researchers and synthesise their identified instruments to generate a comprehensive set of price controlling instruments. This list sheds light on which price controlling instruments can be used for a Price Control 1 model (RQ 1) and help develop a Price Control 1 model containing instruments.

Second, the literature that notes price controlling instruments is characterised by a plethora of theoretical work but fewer empirical studies. Most of the literature is theoretical work from an academic point of view (Bolte, 2008; Diller, 2008; Farrés, 2013; Fassnacht, 2009; Florissen, 2008; Homburg & Totzek, 2011b; Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leisching, 2016; Kohli & Suri, 2011; Köhler, 2003; Lauzus & Kalka, 2006; Marn & Rosiello, 1992; Mengen, 2007; Shipley & Jobber, 2001; Simon & Fassnacht, 2009). There is also theoretical work from a practitioner point of view (Braun & Wiesen, 2012; Coppoolse, 2013; Herr & Metzelaers, 2007; Meehan, Simonetto, Montan & Goodin, 2011; Roll, Pastuch & Buchwald, 2012; Sebastian, Maessen & Strasmann, 2009; Simonetto, Davenport & Olsen, 2004; Sid, 2003; Sodhi & Sodhi, 2008) that includes price controlling instruments for achieving pricing plans by drawing on the experiences of many conducted projects and practicing. In contrast, there have been only a few empirical studies related to the field of price controlling instruments. While there are some quantitative surveys (Homburg, Jensen & Schuppar, 2005; Riekhof & Lohaus, 2009; Riekhof & Wacker, 2012; Riekhof & Wurr, 2013; van Veen-Dirks & Molenaar, 2009), only one case study could be found (Hwang, Tsai, Yu & Chang, 2011). However, these empirical studies are not focused on price controlling issues but rather touch on the field of price controlling by researching the entire price management process. This situation also applies to the case study of Hwang, Tsai, Yu & Chang (2011); this study only mentions a few price controlling instruments. In summary, no empirical study focusing on price controlling instruments and Price Control 1 together with price management in the specific context of this research project could be found in the reviewed literature.

Third, the review revealed that many instruments have been noted by various authors, which confirmed the usability of those instruments. Based on Table 2.3, in general researchers agree that price controlling needs to measure the performance of pricing plan achievement, which means that planned prices are compared with actual prices. Other instruments that have been noted frequently include price-waterfall analysis and the price band. The literature review also revealed that the bulk of instruments highlighted in studies could be classified as traditional diagnostic instruments. In addition, incentives were noted quite often. Based on their frequency of mention, the instruments outlines above can be considered to be basic instruments for price controlling. However, they are not complete to address all price controlling functions. In contrast, other instruments such as the fishbone diagram (Sodhi & Sodhi, 2008) and check-lists (Köhler, 2003; Lauszus & Kalka, 2006) are noted less frequently. However, also these less frequently noted instruments are of use to fulfil price control functions, which will be discussed later in this thesis. In contrast, some instruments found in the reviewed literature are considered to be applicable to other types of price controls rather than to Price Control 1; these instruments will be discussed later.

Fourth, Table 2.3 lists the many instruments that have been noted in a general context; such a list is far more extensive than the list of instruments noted in a B2B context (Table 2.3). One explanation for this situation may be the relative lack of research related to price controlling instruments in a B2B context. In addition, with regard to the reviewed literature related to B2B contexts, only Sebastian, Maessen and Strasman (2009) focused on price controlling and price controlling instruments; other authors (Farrés, 2013; Homburg & Totzek, 2011b; Homburg, Jensen & Schuppar, 2005; Hwang, Tsai, Yu & Chang, 2011; Riekhof & Wacker, 2012) noted just a few price controlling instruments in their research on the entire price management process (i.e., price controlling was only a small part of their research). In addition, research on price controlling instruments specifically for B2B companies in realms other than the electrical/electronics industry and OEM businesses was found in the reviewed literature. The industry is unclear in the theoretical studies of Farrés (2013), Homburg and Totzek (2011b) and Sebastian, Maessen and Strasmann (2009). Hwang, Tsai, Yu and Chang (2011) is a qualitative single case study research on a B2B company in the semi-conductor manufacturing industry. Homburg, Jensen and Schuppar (2005) conducted a quantitative survey of 346 German companies spanning various industries (chemical, electronical, rubber, plastic and construction supply), and Riekhof & Wacker (2012) conducted distributed quantitative surveys to 92 German B2B suppliers in the machine and plant construction industry. Therefore, even though price controlling instruments have been noted for B2B markets and general contexts, it is not clear from the reviewed literature which instruments can be used specifically for B2B companies in the OEM business operating in the electrical/electronics industry.

However, context-bound research is important because contingency theory dictates that price controlling instruments are dependent upon the specific context of companies (Section 2.3.2; Chenhall, 2003; Florissen, 2005; Fisher, 1998; Otley, 1980; Otley, 1999; Rullkötter, 2009). Therefore, an in-depth study of the specific context of B2B companies in the OEM business operating in the electrical/electronics industry is required to answer the research questions.

Fifth, the price controlling literature provides price controlling instruments, but it does not demonstrate using agency theory how these instruments are able to solve the agency problem in the price management process. No model was found in the reviewed literature that aligned price controlling instruments with price control functions to demonstrate how the agency problem can be mitigated. Nevertheless, researchers have described the functionality of instruments, and some authors have noted the purpose of the instruments, which enabled the researcher to analyse the instruments with regard to the price control function that they can support and subsume them under the relevant control functions (Section 2.5.3). This process yielded a comprehensive list of price controlling instruments aligned with Price Control 1 functions. Assessing how these instruments help to fulfil price control functions aids in answering the RQ how price controlling instruments can mitigate the Price Control 1 problem (RQ 2).

Sixth, the literature review of price controlling instruments revealed that current research only identifies price controlling instruments but it lacks demonstrating as to how such instruments can be combined into a Price Control 1 model. This situation is in contrast to research on management control systems, which provides frameworks for management control systems in which instruments can be subsumed and be used as guidance for designing or redesigning control systems at companies (Flamholtz, 1996; Simons, 1995). The researcher was able to find price controlling frameworks for the entire price management process that allowed price controls to be separated (Section 2.4; Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). However, the current price controlling literature falls short in terms of creating a model particularly for Price Control 1. Therefore, this research is unique because it develops a model for Price Control 1 into which the identified Price Control 1 instruments can be integrated.

The following sections discuss the identified price controlling instruments from the reviewed literature (Table 2.3). These instruments, are mapped to the Price Control 1 functions identified in Section 2.5.3—these functions are:

- Prevention of variances
- Monitoring of plan achievement
- Detection of causes of variance for countersteering
- Motivation of plan achievement
- Ensuring error-free controls
- Provision of planned and actual data

2.5.4.2 Instruments for preventing variances

An escalation instrument is an instrument of Price Control 1 because it can prevent pricing variances before they occur. When pricing authority is delegated to the sales force, companies often use limit prices or price corridors to restrict authority (Homburg, Jensen & Schuppar, 2004). However, the sales force must also stay within these limits; therefore, an escalation system needs to be coupled to the limit prices. If the sales force wishes to undercut the limit price, it needs to obtain approval from a higher level in a pre-set escalation hierarchy (Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leischnig, 2016; Meehan, Simonetto, Montan & Goodin, 2011). This situation ensures that management is informed when limit prices are breached. In contrast to a detective control that allows the sales force to set a price below the limit price, an escalation system can prevent prices being made below defined limits without approval from a higher level. That is, an escalation system has the potential to prevent variances before they occur (Sodhi & Sodhi, 2008).

2.5.4.3 Instruments for monitoring plan achievement

Researchers agree that monitoring pricing plan achievement is critical for price management (Meehan, Simonetto, Montan & Goodin, 2011; Homburg, Jensen & Schuppar, 2005). Suitable *performance measurement* instruments need to be employed (Ivens, Stemmermann & Leischnig, 2016) in order to learn from variances ex-post to enable improvements in pricing plan achievement (Florissen, 2008). Neely, Gregory and Platts (2005, p.1229) defined a performance measurement as a “process of quantifying the efficiency and effectiveness of action.” Metrics that are “used to quantify the efficiency and/or effectiveness of an action” measure peformance (Neely, Gregory & Platts, 2005, p.1229). These performance measures depend on which aspect of performance is being monitored (Neely, Gregory & Platts, 2005). Below, several performance measurement instruments for Price Control 1 are discussed that can monitor plan achievement.

Price Control 1 measures whether planned prices in the form of target or minimum prices can be achieved by the sales force. This process is often referred to as measuring the *price quality* in the literature (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009). The price quality compares the planned price to the real price (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009). Different approaches to measuring price quality can be found in the reviewed literature (Braun & Wiesen, 2012; Diller, 2008; Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009). These approaches include 1) undercutting the price floor, 2) actual vs. planned prices and 3) price corridor coverage.

The first approach to measuring whether the sales force has achieved planned prices is to track the *undercutting of the price floor* or minimum prices (Diller, 2008; Simon & Fassnacht, 2009; Sodhi & Sodhi, 2008). This approach requires a pre-set minimum price, which is provided to the sales force as guidance (Coppoolse, 2013). Therefore, the measure is tightly connected to the escalation system and authority guidelines that define minimum prices (Sodhi & Sodhi, 2008). The purpose of this measure is to track whether the sales force has complied with the pre-set minimum prices, how often the minimum prices have been breached and if there are trends relating to the offending personnel (Diller, 2008; Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008). This instrument monitors and provides insights into pricing plan achievement for price controlling by revealing how often planned minimum prices have been undercut. In addition, this instrument can trigger further analysis and corrective actions (Simon & Fassnacht, 2009). For example, when also measured to which level it has been escalated and who finally approved the price, one can raise the questions whether there are people who are too lenient about approving prices or whether the minimum prices are set too strictly (Simon & Fassnacht, 2009).

The second approach involves calculating the variance between *actual and planned prices*, which is often referred to as the "price gap" (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009). Like the instrument discussed above, this instrument requires a pre-set target or minimum price to operate (Braun & Wiesen, 2012; Coppoolse, 2013). However, this measure is different because in contrast to counting how often limit prices have been breached, it calculates the variance of the realised price from the target or minimum price. The purpose of this tool is to provide transparency about the achieved price quality during the price execution phase (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009 Simon & Fassnacht, 2009), which makes this instrument relevant for monitoring pricing plan achievement. However, in practice there appears to be improvement potential with regard to monitoring the implementation of planned prices (Riekhof & Wacker, 2012). Riekhof and Wacker (2012) found that only 32% of the polled B2B companies monitor granted discounts, which made it hard for companies to judge how well planned prices could be achieved. It is important that price quality be reported on an aggregated level when the variants of product, price parameters and customers are complex (Braun & Wiesen, 2012; Simon & Fassnacht, 2009). This feature is provided by this measure of price quality because it allows for price indexing, which sets all realised prices in relation to the relevant target price (Coppoolse, 2013).

A third instrument to measure price quality is *price corridor coverage*. Sebastian, Maessen and Strasmann (2009) and Homburg and Totzek (2011b) pointed out that companies that have defined price corridors with a limit and target price should monitor to what extent their executed prices truly remain within that corridor. Sales volume or sales can be analysed that are above the target price, between the target and limit price and below the limit price (Sebastian, Maessen & Strasmann, 2009), which makes this instrument relevant for monitoring pricing plan achievement. In contrast to the two instruments noted above, this instrument includes both target and limit prices. However, Braun and Wiesen (2012) added that companies without pre-defined price corridors in place can use a similar instrument. These authors call this instrument “peer pricing.” Instead of pre-defined target and minimum prices, this instrument uses percentiles of achieved prices for comparable products as target and minimum prices. However, “peer pricing” has a drawback that it only can compare comparable products, which restricts its use (Braun & Wiesen, 2012) (e.g., in the case of B2B businesses, that often have a large number of product variants (Herr, Beducker & Frahm, 2010; Homburg & Totzek, 2011b)). Because no plans are formulated beforehand about what the actual prices will be compared with, peer pricing is inadequate for monitoring plan achievement because it does not measure against plans.

An additional aspect to consider when monitoring plan achievement is that in case of large transactions and development projects it is not sufficient to monitor the achievement of pricing plans only ex-post; *continuous project controlling* is required. Because planned figures such as costs can change during proejcts, only a continuous comparison of actual vs. planned figures can ensure that plans are monitored throughout the entire project to make plan achievement transparent and initiate corrective actions early (Herr & Metzelaers, 2007).

The instrument *management of changes* can be used to monitor the achievement of pricing plans in case of additional requests or changes by the customer (Herr & Metzelaers, 2007; Herr & Wagner, 2007). This instrument includes process and controlling about how changes initiated by the customer are passed on to the customer because these changes can have negative consequences on planned profit levels. It often happens that customers make changes that result in additional effort and boost costs; these costs have not been considered in the price. Therefore, these additional costs should be passed along to the customer in a monitored process (Herr & Metzelaers, 2007) because these costs endanger planned profits (Herr & Wagner, 2007).

Another way to monitor pricing plan achievement involves monitoring *sales agreement fulfilment* by the customer (Coppoolse, 2013; Meehan, Simonetto, Montan & Goodin, 2011; Sid, 2003). Companies often permit discounted prices based on a customer's commitment to purchase a certain volume (Tillmann, Schulz & Ying Yang, 2007). If the customer fulfils the agreement, the price can be justified. However, when the customer does not fulfil their commitments the price they pay is too low. Therefore, the fulfilment of sales agreements needs to be monitored to ensure that the planned price is not impeded (Coppoolse, 2013; Meehan, Simonetto, Montan & Goodin, 2011; Sid, 2003).

Another instrument for monitoring pricing plan achievement involves monitoring *price increases*. Studies have reported that price increases are commonly used (e.g., Riekhof & Wacker, 2012; Riekhof & Wurr, 2013). For instance, Riekhof and Wacker (2012) reported that 53% of surveyed B2B companies increased their prices in 2012; price increases were the most popular pricing measure. However, Riekhof and Wacker (2012) reported that only one third of those companies monitored the execution of the planned price increases. This percentage is quite low considering the large number of price increases (Riekhof & Wacker, 2012) and the risk that the sales force may not implement them (Dolan & Simon, 1996; Homburg, Jensen & Hahn, 2012; Stephenson, Cron & Frazier, 1979). Therefore, several researchers (Braun & Wiesen, 2012; Diller, 2008; Coppoolse, 2013; Riekhof & Wacker, 2012; Riekhof & Wurr, 2013) have proposed measuring the implementation level of price increases. Monitoring price increases includes comparing the realised price increase vs. the targeted price increase (Braun & Wiesen, 2012). The realisation of price increases is important because prices need to be adjusted to maintain a company's margin when costs increase (Sebastian, Maessen & Strasmann, 2009). Furthermore, the number of products priced too low can be decreased via price increases (Coppoolse, 2013).

To depict pricing-related measures and monitor pricing plan achievement over time, *trend analysis* can be employed (e.g., Braun & Wiesen, 2012; Homburg Jensen & Schuppar, 2004; Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009). Trend analysis plots measures over time. By comparing current pricing performance measures with past pricing performance measures, it is possible to get an idea about the direction of pricing plan achievement (Coppoolse, 2013), which provides helpful insights as to where deeper analysis should be focused to prevent additional variances (Simon & Fassnacht, 2009).

Two instruments have been proposed to convey the results of price controlling analyses to information receivers: 1) price reports (Bolte, 2008; Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009) and 2) cockpits/dashboards (Meehan, Simonetto, Montan & Goodin, 2011; Simon & Fassnacht, 2009; Sodhi & Sodhi, 2008). Rullkötter (2008) found that only 51% of the surveyed B2B companies had integrated transaction price reporting into their reporting systems. A lack of price reporting is associated with a drawback: the priority of price controls decreases and therefore price controls are often not conducted, with the consequence that no corrective actions are triggered (Rullkötter, 2009). The benefit of price reporting is supported by work by Homburg, Jensen and Schuppar (2005). These authors found that companies with successful price management reported both costs and pricing issues. Therefore, price reporting should be included in a company's reporting (Florissen, 2005; Rullkötter, 2009).

To convey relevant information to stakeholders, *price reports* are used (Bolte, 2008; Coppoolse, 2013; Meehan, Simonetto, Montan & Goodin, 2011). Price reports add transparency about pricing plan achievement and allow companies to focus on price realisation (Coppoolse, 2013). Management obtains feedback about price performance variances (Marn & Rosiliello, 1992) and can initiate corrective actions to achieve pricing plans (Meehan, Simonetto, Montan & Goodin, 2011). Price reports should be designed in a way that they are easy to understand, which increases the probability that they are interpreted correctly and used for pricing decisions (Bolte, 2008).

Another instrument that conveys Price Control 1 results is *cockpits/dashboards*. A dashboard is a graphical tool that displays only the most crucial performance information at one glance, which enables management to rapidly monitor plan achievement to take countermeasures (Bremser & Wagner, 2013; Galloway, 2010; Winkelmann, 2012). For example, Meehan, Simonetto, Montan and Goodin (2011), Sodhi and Sodhi (2008) and Simon and Fassnacht (2009) proposed using cockpits/dashboards for price controlling. Companies are increasingly using dashboards to monitor performance increased (Bremser & Wagner, 2013). This technique can mitigate data overload in an efficient way (Bremser & Wagner, 2013; Hanselman, 2009).

Another function of Price Control 1 is to detect causes of variance for countersteering measures (Section 2.5.3.4). The next section identifies which price controlling instruments can be employed to fulfil this function.

2.5.4.4 Instruments for detecting of cause of variance for countersteering

Price band is widely noted throughout the pricing literature (Hwang, Tsai, Yu & Chang, 2011; Homburg, Jensen & Schuppar, 2004; Homburg & Totzek, 2011b; Marn & Rosiello, 1992; Sebastian, Maessen & Strasmann, 2009) and can be used for Price Control 1 to detect causes of variance. Researchers such as Marn & Rosiello (1992) and Hwang, Tsai, Yu and Chang (2011) have presented the price band as a tool that displays the distribution of transaction prices of a single product in order to gain insights into price differentiation of the analysed product to detect price improvement opportunities. However, there are limitations to using the transaction price. It requires that products and customers be comparable to draw sound conclusions based on the width of the price band (Coppoolse, 2013); the width could have been desired by management through differentiated list or target prices that are given to the sales force, which needs to be taken into consideration (Florissen, 2005). However, the price band can also be used with other price elements (Bolte, 2008; Meehan, Simonetto, Montan & Goodin, 2011) that counter this limitation associated with using transaction prices. For example, Simon and Fassnacht (2009) demonstrated how the price band can be used with discounts to analyse whether discounts are mostly given close to the maximum discount level that discount authority guidelines allow.

Therefore, a price band can yield insights into the level of price implementation (Homburg, Jensen & Schuppar, 2004; Homburg & Totzek, 2011b) and detect starting points for possible causes of variance (Simon & Fassnacht, 2009). By pinpointing outliers of the price band, the price band analysis provides management with insights about where corrective actions are necessary. This method also identifies opportunities to adjust prices and to increase profitability (Eugster, Kakkar & Roegner, 2000; Hwang, Tsai, Yu & Chang, 2011; Marn & Rosiello, 1992; Simonetto, Davenport & Olsen, 2004).

Price-waterfall analysis is widely discussed throughout the pricing literature as an instrument for price controlling (e.g., Hwang, Tsai, Yu & Chang, 2011; Marn & Rosiello, 1992; Sebastian, Maessen & Strasmann, 2009). It is a relevant tool for Price Control 1 because it is not sufficient to measure the variance of actual vs. planned price; deeper analysis is required to understand how and why this variance occurred (Simon & Fassnacht, 2009). Deeper analyses can be achieved using price-waterfall analysis, which examines how the variance between a list price and the actually realised price (pocket price) occurred. Price-waterfall analysis examines given discounts and rebates (Fassnacht, 2009; Hwang, Tsai, Yu & Chang, 2011; Marn & Rosiello, 1992; Roll & Achterberg, 2010). By illustrating each element that was deducted off the list price (Farrés, 2013), it accordingly provides management with detailed information for understanding how the final price was constructed (Simon & Fassnacht, 2009). Price-waterfall analysis is a Price Control 1 instrument because it enables management to identify where the profit leakage occurred (Sebastian, Maessen & Strasmann, 2009; Simonetto, Davenport & Olsen, 2004; van Veen-Dirks & Molenaar, 2009) and provides starting points for corrective actions (Diller, 2008; Farrés, 2013).

An additional instrument to detect causes of variance is *sales segment analysis* (Bolte, 2008; Köhler, 2003). This instrument systematically identifies sources for variances and analyses causes of variance to generate countermeasures by aligning costs and revenues to various sales segments (Hoffjan & Reinemann, 2000; Köhler, 1993). Various parameters (e.g., products or product groups, customer or customer groups, sales regions or sales persons, responsibility areas, orders or order size and time) may function as sales segments for price controlling purposes (Homburg, Jensen & Schuppar, 2004; Küpper, 2005; Preißner, 1999). Through the alignment of revenues with the sales segment, also planned and actual prices are assigned to these sales segments; this instrument can be used for deeper analysis of pricing plan variances on the level of different sales segments (Bolte, 2008). This process makes it possible to identify the particular sales segments in which Price Control 1 variances have occurred in order to identify causes of those variances to generate corrective actions (Hoffjan & Reinemann, 2000; Homburg, Jensen & Schuppar, 2004; Köhler, 2003).

Another instrument is *variance analysis*, which is often applied to analysing variances of margins or revenues (Bolte, 2008; Diller, 2008; Ivens, Stemmermann & Leischnig, 2016; Köhler, 2003). This instrument subdivides variances into sub-variances that occur due to, for example, sales volume, sales mix, sales price or cost variances (Bukovinsky & Talbott, 2010; Shank & Churchill, 1977) and possible currency variances for international firms (Coppoolse 2013; Ivens, Stemmermann & Leischnig, 2016). It has the benefit of rendering visible the components that have an impact on the variance (Diller, 2008). In doing so, this instrument reveals each element's contribution to the total variance (Bolte, 2008; Diller, 2008). Variance analysis highlights the cause for the variance (Bolte, 2008; Köhler, 2003) and provides insights for corrective actions (Bolte, 2008;

Coppoolse, 2013), so that it can be used to detect causes for countersteering in Price Control 1.

Won-lost order analysis is another tool to analyse variances to detect causes (Homburg, Jensen & Schuppar, 2005; Roll, Pastuch & Buchwald, 2012) and therefore is an instrument for Price Control 1. It analyses orders to determine whether, in which situations and potentially why they were won or lost (Culver, 2006; Garda, 1992a; Laker & Oswald-Chen, 2007; Homburg, Jensen & Schuppar, 2005; Roll, Pastuch & Buchwald, 2012). The analyses facilitate fixing the detected problems and establishing future actions (Link & Weiser, 2011; Reichheld, 1996). Furthermore, won-lost order analysis reveals areas where corrective action is necessary (Naylor, 2002; Simon & Fassnacht, 2009). A lost order analysis should be applied because lowering prices without conducting additional deeper cause analysis runs the risk of reducing profits without solving the problem (i.e., factors other than price may have been the reason for the lost orders) (Herr & Metzelaers, 2007; Roll, Pastuch & Buchwald, 2012). While Simon and Fassnacht (2009) and Herr and Metzelaers (2007) only proposed analysing lost orders, Roll, Pastuch and Buchwald (2012) and Homburg, Jensen and Schuppar (2005) maintain that it is also important to track won orders. Won order analysis should be conducted because it can reveal that price is not always the reason for a won order (Roll, Pastuch & Buchwald, 2012). This method can also highlight other potential price improvements (Homburg, Jensen & Schuppar, 2005).

Köhler (2003), Kalka (2008) and Lauszus and Kalka (2006) noted *check-lists* as an instrument. Köhler (2003) proposed using check-lists to detect causes for variances within the framework of pricing audits, and Kalka (2008) for the implementation of price increases. A check-list is a systematic process that makes it possible to search for improvement potentials and strengths and weaknesses (Lauszus & Kalka, 2006). For that, a check-list with crucial questions and key points is prepared and the current situation is analysed for these points (Ahmed, Kayis & Amornsawadwatana, 2007; Ehrmann, 2008). With help of a check-list and comparisons with the actual situation, a focus for deeper cause analysis can be localised and/or the cause of the problem can be identified

(Blohm, 1977). Because check-lists can detect causes of variance they are an instrument for Price Control 1.

Sodhi and Sodhi (2008) also noted that *fishbone diagrams* were capable of detecting causes of price leakages for Price Control 1. These authors pointed out that this instrument can graphically depict and analyse possible causes and find the root cause among the possible causes. The head of the fishbone is the problem (i.e., price leakage), and the fishbones are possible reasons, which may be divided into first-level reasons, second-level reasons, etc. Sodhi and Sodhi (2008) identified three approaches to finding the root cause. They examined second-level causes how often they appeared in the diagram and affected the first-level causes. Another method consists of gathering and analysing data where the problem often occurs to derive the root cause. A third approach is to poll the relevant team members and to use the most frequently occurring answers as the basis for discussion (Sodhi & Sodhi, 2008). Even though this instrument could not be found elsewhere in the reviewed literature, it is regarded as useful for this thesis and Price Control 1 because a fishbone diagram helps to structure the problem and find the root cause of the pricing plan variance among the possible causes (Sodhi & Sodhi, 2008). Furthermore, researchers such as Ishikawa (1985) have supported the usefulness of this instrument; Kristianto, Ajmal & Sandhu (2012) demonstrated that a fishbone diagram can be successfully used in practice to determine the cause for delayed product deliveries.

Another function of Price Control 1 is to motivate plan achievement (Section 2.5.3.5). Instruments that can be used to fulfil this function are discussed in the next section.

2.5.4.5 Instruments for motivating plan achievement

There is a common understanding in the pricing literature that an incentive system can motivate a sales force to achieve pricing plans (e.g., Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leisching, 2016; Lauzus & Kalka, 2006; Marn & Rosiello, 1992). For example, Homburg, Jensen and Schuppar (2005) found in a survey of B2B companies that those companies that had pricing-related incentives in place performed better in pricing matters than companies that did not. In the same vein, agency theory suggests that proper rewards will motivate a sales force to act in the interest of the management in order to receive the reward (Eisenhardt, 1985; Jensen & Meckling 1976; Joseph & Thevaranjan, 1998).

However, many companies do not have pricing-oriented incentive systems in place; a quantitative survey conducted by Riekhof and Wurr (2013) found that only 44% of 231 companies from various industries had such pricing-related incentives. Instead incentives are often based on revenue, and only revenue incentives can lead to a sales force establishing lower prices to get an order (Köhler, 2003; Marn & Rosiello, 1992). This situation can jeopardise pricing plans (Meehan, Simonetto, Montan & Goodin, 2011).

Instead of having revenue-based incentives, incentives should be coupled to pricing plans (Lauzus & Kalka, 2006; van Veen-Dirks & Molenaar, 2009). While some authors have proposed implementing margin-based incentives to account for pricing-related incentives (e.g., Hinterhuber, 2004; Simonetto, Davenport & Olsen, 2004), other authors have also highlighted the problems of implementing margin-based incentives into practice (Diller, 2008; Simon & Fassnacht, 2009) or have proposed price quality as a better basis for incentives (e.g., Ludewig, Wübker & Engelke, 2008; Simon & Fassnacht, 2009). Researchers have argued that companies can be reluctant to provide margin information to salespeople because of the risk of this information being conveyed to customers or competitors (Diller, 2008; Hinterhuber, 2004; Simon & Fassnacht, 2009).

To overcome the margin-based problem, two possibilities have been proposed. First, profits can be coded into classes, so that the real profit is not shown (Diller, 2008; Hinterhuber, 2004). Second, the incentive system can be linked directly to the achievement of the target price. For example, Simon and Fassnacht (2009) suggested incorporating a price execution reward that compares target with realised prices. In the same vein, Ludewig, Wübker and Engelke (2008) advised aligning incentives directly with achieved prices because doing so has positive effects on performance. Focusing on price and not margin is also supported by Coppoolse (2013). This author argued that margin is not optimal for price steering because margin mixes up price and costs effects. Using the sales price has the advantage that salespeople who achieve better prices are rewarded and sales people with low quality prices are punished. In other words, the incentive is directly linked to performance with regard to price quality (Ludewig, Wübker & Engelke, 2008; Simon & Fassnacht, 2009).

In summary, Price Control 1 requires incentives, which can motivate a sales force to achieve a plan. However, the incentives need to reflect the pricing plans. Therefore, one element of the incentive system should be the achievement of target prices or margin/profit goals.

An additional function of Price Control 1 is to ensure error-free controls (Section 2.5.3.6). Instruments that address this function will be discussed in the next section.

2.5.4.6 Instruments for ensuring error-free controls

As discussed in Section 2.5.3.6, correct and complete information plays a crucial role in price controlling. Consequently, Price Control 1 should also include instruments for measuring process and data quality (Meehan, Simonetto, Montan & Goodin, 2011). For example, Bolte (2008) noted that process audits should be applied to control to determine whether defined processes have been followed and whether these processes are sufficient to achieve pricing plans. These audits include monitoring whether the sales force has used the defined processes for price management and whether the available information is supportive for decision-making. Meehan, Simonetto, Montan and Goodin (2011) support this view based on their assertion of checking the process efficiency and data quality. They pointed out that it is important to have pricing quality assurance reports and measures in place that can check the correctness of the pricing data entered (e.g., the number of pricing overrides, pricing errors and corrections and the quality of pricing data and information analysis). Employees often enter incorrect data or even work around the restrictions of the system, which can result in data errors (Marsh, 2005). Instruments to ensure data quality are therefore required because only high-quality data are useful for a control and accurate management decisions (Ivens, Stemmermann & Leischnig, 2016; Schläfke, Silvi & Möller, 2012; Simons, 1995). If analysis is based on incorrect data then wrong decisions might be made by management, which could lead to negative consequences for the company (Kay, 1997; Lindsey, 2011; Simons, 1995). Therefore, processes and data quality need to be controlled (Cindea & Ciurariu, 2014; Marsh, 2005) to ensure error-free controls for Price Control 1.

A final function of Price Control 1 is the provision of planned and actual data (Section 2.5.3.7). How price controlling instruments can support this function is discussed in the following section.

2.5.4.7 Instruments for provision of planned and actual data

Various researchers agree that price controlling requires the support of IT-based *information systems* to conduct its functions (Braun & Wiesen, 2012; Florissen, 2008; Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009). An information system collects, stores and provides the pricing-relevant data (Florissen, 2008; Meehan, Simonetto, Montan & Goodin, 2011) and therefore enables price controlling to be performed efficiently and in a timely manner (Hwang, Tsai, Yu & Chang, 2011; Sebastian, Maessen & Strasmann, 2009). For example, Hwang, Tsai, Yu and Chang (2011) found in their case study that the implementation of an information system could accelerate price reporting and facilitate in-depth price analysis. Generally, an information system consists of a pricing data warehouse that collects all pricing-relevant information from different sources (Diller, 2008). Information for the pricing data warehouse can stem from, for example, accounting systems that provide costs and sales data or target systems that provide pricing plans (Bolte, 2008; Rullkötter, 2009). The pricing information system then delivers relevant data to support pricing decisions (Diller, 2008). Companies can either use pricing information systems offered by vendors as standardised pricing software solutions or they can use their own individual solutions (Simon & Fassnacht, 2009). These information systems support Price Control 1 with provision of planned and actual data (Bolte, 2008; Diller, 2008) and provide the technical equipment to perform Price Control 1 (Meehan, Simonetto, Montan & Goodin, 2011; Simon & Fassnacht, 2009).

A *target system* can deliver the necessary data for Price Control 1. A target system defines the pricing targets (Bolte, 2008) and is embedded into overall pricing objectives and company objectives in a hierarchical manner (Sander, 1997). For Price Control 1, a target system can deliver pricing plans as a benchmark to monitor performance. As such, the target system can deliver the planned data for Price Control 1 (Bolte, 2008).

In addition, *accounting* is required to deliver necessary data for Price Control 1. Accounting delivers the cost data and the sales data for price management. As such, it can be used to deliver actual data for Price Control 1 (Bolte, 2008; Rullkötter, 2009).

There are also other instruments noted in the literature that were excluded from this list because they are aligned with price controls other than Price Control 1. These instruments are discussed in the following section.

2.5.4.8 Instruments for price controls other than Price Control 1

First, the instrument *competitor-pricing knowledge* gathers information regarding the prices at which competitors offer equivalent products. This instrument provides information about the possible price premium and competitor advantage so that competitor strategies and list prices can be derived, which is required for price setting (Herr & Metzelaers, 2007). Based on the price management process this controlling instrument can be used for the price controls "control for pricing objectives and strategy" and "control for operational price setting" because it provides analyses of competitors, which can be used for deriving pricing strategy or the operational prices.

Second, *customer satisfaction surveys* are customer surveys that are used to derive information about how well a company performed according to defined criteria. Based on those information, countermeasures can be derived to reduce weaknesses concerning product, price or service issues, which can improve customer loyalty (Herr & Metzelaers, 2007). Based on the price management process, this instrument provides information to support operational price setting and is therefore an instrument that can support the function of the price control "control for operational price setting." It was accordingly excluded as an instrument for Price Control 1.

Third, the *analysis of buying criteria* is conducted to obtain information about how important specific buying criteria are to customers and how well the company performed with regard to these criteria in comparison with its competition. The analysis is depicted in a so-called "competition advantage matrix" to derive information to determine strategic decisions concerning price positioning (Herr & Metzelaers, 2007). Based on the price management process, this instrument supports the definition of the price positioning, which is part of the process step "Pricing objectives/strategy" and therefore was excluded as an instrument for Price Control 1.

Fourth, the *balanced scorecard* (BSC) was noted as an instrument for price controlling (Diller, 2008). In general, the BSC is a strategic planning and management tool that converts a company's strategy into a mixture of performance measures. Beside the financial perspective with traditional financial measures, the BSC includes non-financial operating measures for three other perspectives that contribute to the achievement of strategy: customer perspective, internal business perspective and innovation and learning perspective (Kaplan & Norton, 1992; Kaplan & Norton, 1996). The BSC also depicts the cause-effect relationship between the perspectives and therefore explains the logic of a strategy (Kaplan & Norton, 1996b; Kaplan & Norton, 2004; Kaplan & Norton, 2004b). Therefore, Bolte (2008) proposed that this cause-effect relationship can also be used by price controlling to examine the relationships of objectives, measures, targets and initiatives within price management and the relation to other objectives in other functional areas. This is important to foster the alignment to other company objectives and price decisions. (Bolte, 2008). However, because a BSC is focused to implement the overall strategy of a company (Kaplan & Norton, 1996), it focuses more on controlling the entire organisation and using many perspectives; in contrast the scope of Price Control 1 is narrower. Therefore, a BSC is more appropriate for use on a higher strategy level than Price Control 1; dashboards/cockpits more appropriate for Price Control 1 (Sodhi & Sodhi, 2008). For example, measures such as the learning and innovation perspective lie beyond the scope of Price Control 1. It is not inherently impossible to apply a BSC—measures of Price Control 1 may be included in a BSC for the entire organisation rather than setting up a BSC only for Price Control 1. In addition, a cause-effect relationship needs to be established that does not include only Price Control 1 measures, which will affect other pricing, marketing and company-wide measures on a higher level (Bolte, 2008).

2.5.4.9 Summary

There are various price controlling instruments that can be used to fulfil Price Control 1 functions and are accordingly helpful for the creation of a Price Control 1 model. Based on the reviewed literature, these instruments have been synthesised to generate a set of Price Control 1 instruments (Table 2.3).

In summary, an escalation instrument is able to prevent variances before they occur by restricting the sales force to quoting prices below a pre-set limit when these prices are approved by personnel at a higher level (Section 2.5.4.2).

Second, the literature review revealed that there are various instruments that can monitor pricing plan achievement; the achieved price quality can be measured by monitoring the undercutting of price floors, by measuring the relation of planned prices with actual prices and by monitoring whether the sales force remained within pre-set price corridors. In addition, also other pricing-relevant topics emerged that are important for monitoring pricing plan achievement. Project monitoring is relevant with longer projects because conducting only ex-post monitoring is too late for countersteering when, for example, costs may have changed that impede pricing plans. The charging of additional costs due to change requests of the customer needs to be monitored because these additional costs were not considered in the original quotation price and should accordingly be charged to the customer to maintain pricing plans. Measuring the fulfilment of the sales agreement is necessary to monitor plan achievement because when a customer fails not live up to an agreement the price he or she pays is not correct. Moreover, the execution of price increases need to be monitored to achieve pricing plans. Trend analyses can be used to plot measures over time to analyse the development of pricing plan execution. To convey the analyses of pricing plan achievement to relevant information receivers, pricing reports or cockpits/dashboards can be used (Section 2.5.4.3).

Third, to detect causes of variance price bands, price-waterfall analysis, sales segment analysis, variance analysis, won-lost order analysis, check-lists and fishbone diagrams can be used because they analyse variances in more depth. These measures can also help practitioners formulate countermeasures to redirect pricing actions towards pricing plan achievement (Section 2.5.4.4).

Fourth, incentives motivate the sales force to achieve the pricing plans because they can align the goals of management with the goals of the sales force (Section 2.5.4.5).

Fifth, correct and complete pricing data are imperative for price controlling. Therefore, there need to be instruments employed that measure the process and data quality. These instruments can ensure error-free controls (Section 2.5.4.6).

Sixth, pricing data are complex and accordingly require IT support. Information systems are necessary to enable price controlling to handle complex data and deliver the required planned and actual data (Section 2.5.4.7).

This section identified price controlling instruments that can be used for a Price Control 1 model. However, the literature was unable to answer which of these instruments can be used for Price Control 1 of B2B companies in the OEM business operating in the electrical/electronics industry because there is no research available that specifically focuses on this context. In addition, even though the literature identified several price controlling instruments previous studies have not revealed how these instruments form a Price Control 1 model; instruments are noted as lists or single instruments instead of combining them into a Price Control 1 model to mitigate the Price Control 1 problem. Companies in practice still have to implement these price controlling instruments into their price management process. The next section therefore discusses the implementation status of price controlling in practice and the approaches that are provided by the price controlling literature as guidance for companies to implement price controlling instruments (apart from price controlling frameworks for the entire price management process (Section 2.4.2) or providing selections of price controlling instruments (Section 2.5.4)).

2.5.5 Price controlling and implementation

Price controlling is not yet thoroughly implemented in practice (European Pricing Platform, 2016; Riekhof & Lohaus, 2009; Riekhof &Wacker, 2012; Roll, 2011; Rullkötter, 2009). But it is widely accepted that price controlling is a crucial part of effective price management and the profitability of a firm (Homburg, Jensen & Schuppar, 2005; Roll, 2011; Rullkötter, 2009; Sodhi & Sodhi, 2008). There is still much improvement potential with regard to Price Control 1. For example, Rullkötter (2009) examined B2B companies in the machinery construction and chemical industries using a survey. This author found that roughly half of the companies considered price controls in their reporting and that only 52% had a formalised price control process in place. Rullkötter (2009) proposed that companies should focus more on price control and implement a process for it. Similar results were noted in an empirical study of 377 German companies from different industries conducted by Riekhof and Lohaus (2009). These authors reported that only one quarter of companies surveyed monitored the implementation of price increases, and only one third monitored the discounts given to customers by the sales force. Therefore, Riekhof and Lohaus (2009) concluded that the methods employed in practice are insufficient and that advancement in this field is needed. Their findings were supported by a similar survey of 92 German B2B companies operating as suppliers in the machine and plant construction industry (Riekhof & Wacker, 2012). In addition, a 2010/2011 European pricing quantitative survey of European companies found that price controlling is an area with improvement potential because many companies do not have any pricing KPIs in place or do not control them (Roll, 2011). These KPIs would help ensure that decisions made in the pricing process are truly executed (Roll, 2011). Similarly, a survey study conducted in 2016 by the European Pricing Platform focusing on manufacturing companies reported that price reporting is the area with the largest gap between the current level and the targeted level of pricing professionalisation (European Pricing Platform, 2016).

Based on the studies noted above, one can conclude that the implementation status of mature price controlling is low in practice and that there is a need for improvement. This situation also means that practice would benefit from research that provides recommendations about implementing price controlling instruments into the price management process (e.g., providing Price Control 1 models).

Even if B2B companies knew what controlling instruments could be applied for Price Control 1, these companies would still need to implement the instruments successfully into their price management process. However, the current literature on price controlling provides only selections of price controlling instruments (Section 2.5.4.1) or price controlling frameworks for the entire price management process (Section 2.4.2). Little work has addressed the topic of implementing Price Control 1 instruments into the price management process.

Hwang, Tsai, Yu and Chang (2011) proposed implementation guidelines for a pricing process for companies that operate in highly competitive industries. These authors suggested implementation instructions structured by the price management process phases (planning, execution and analysis). Based on their investigation of a single case study, for the analysis phase (which can be compared with the price controlling phase), they suggested that price controlling should be accurate (i.e., analyses of the pocket price and the price band are high quality and are interpreted correctly). Price analyses and price performance measurement should also be timely, Hwang, Tsai, Yu and Chang (2011) noted, because analyses should be conducted and price analyses should give feedback to the prior process phases of the price management process to ensure that corrective actions can be taken. Price analyses should be kept flexible so that they can be conducted for different analysis objects. Hwang, Tsai, Yu and Chang (2011) proposed that an IT system support the price controlling to manage the complexity of the pricing data and the price management process and to ensure that the data are complete. The research and implementation guidelines presented by Hwang, Tsai, Yu and Chang (2011) are a first step towards practical guidelines for the implementation of price controlling. However, these guidelines are rather broad and do not provide companies with a comprehensive Price Control 1 model containing instruments.

Other pricing researchers have noted additional general factors that are crucial for the implementation of price management (e.g., Eugster, Kakkar & Roegner, 2000; Liozu & Hinterhuber, 2013a; Roll, 2009). However, these authors did not focus on Price Control 1. Therefore, these factors are not explicitly aligned with the implementation of price controlling or price controlling instruments; they are for price management in general. For example, Roll (2009) stressed that management focuses on the implementation of price management and not on single pricing methods. Based on a survey of 81 European pricing managers, this author argued that sustainable price management requires that price management be the focus of and supported by top management. This situation is imperative due to the differing interests between the departments involved in pricing issues. Price management requires that pricing processes be established for enduring pricing success and that the responsibilities for pricing tasks be clearly defined (Roll, 2009). Eugster, Kakkar and Roegner (2000) added that the implementation of a proper price management process requires that systems be set up, that sufficient resources be allocated to pricing and that suitable employee rewards are availabe. Similar to Roll (2009), Eugster, Kakkar and Roegner (2000) and Liozu and Hinterhuber (2013a) noted that top-management support has a strong impact on the success of pricing. Similar to Hwang, Tsai, Yu and Chang (2011), Bonnemeier, Burianek and Reichwald (2010) found that data need to be gathered electronically during the entire price management process. However, although these factors are relevant for implementation issues, these approaches do not provide a Price Control 1 model to help companies implement price controlling instruments into their price management process.

Despite the importance of Price Control 1 to the profitability of a company (Homburg, Jensen & Schuppar, 2005; Rullkötter, 2009) and the low implementation level of Price Control 1 in practice (European Pricing Platform, 2016; Riekhof & Lohaus, 2009; Riekhof & Wacker, 2012; Rullkötter, 2009), it is surprising that the academic literature has not provided a model for Price Control 1 containing instruments. In other words, current price controlling literature lacks a Price Control 1 model that provides guidance for companies that support them with their implementation efforts of a Price Control 1.

In contrast to the current research on price controlling, research on management control has created frameworks for management control systems that help companies implement and achieve their business strategies (Simons, 1995; Flamholtz, 1996). These frameworks can assist other companies in designing and redesigning their own management control systems as well (Flamholtz, 1996; Otley, 1999). The thinking of management control researchers is of benefit to this research because the literature on management control systems can provide approaches to create a Price Control 1 model and help to give recommendations as to how price controlling instruments can be implemented into the price management process. Such a model can provide guidance for companies to design or redesign their own Price Control 1. Therefore, Section 2.6 discusses frameworks for management control systems with regard to how they can be of use for a Price Control 1 model.

2.6 Frameworks for management control systems

2.6.1 Introduction

The current literature on price controlling either consists of individual price controlling instruments (Section 2.5.4) or frameworks for price controlling for the entire price management process (Section 2.4). Even though these approaches provide input to produce a Price Control 1 model, to the best knowledge of the researcher there is no Price Control 1 model yet available in the literature.

Because specific price controlling instruments may change based on the context of the companies (Section 2.3.2) there is a need to create a Price Control 1 model that provide guidance for companies on a higher level than these specific price controlling instruments. This model then can be used to enhance the understanding, visualisation and analysis of Price Control 1 topics and additionally can be used as a guide to produce or improve a Price Control 1 model at other companies (Flamholtz, 1996). Moreover, defining control categories based on the literature in advance of the empirical research has merit for this research—these categories can be used as guidance for classifying the price controlling instruments that are found in practice. This process facilitates how the research findings can be reported in a structured way (Malmi & Brown, 2008).

In contrast to current price controlling research, researchers of the management control do not list specific controlling instruments but have instead established frameworks for management control systems that provide control categories into which instruments can be subsumed. These frameworks therefore can lend insights into control categories that are helpful for achieving pricing plans and systemising price controlling instruments, which enables the researcher to develop a Price Control 1 model that contains price controlling instruments. Therefore, the purpose of the following sections is to obtain a deeper understanding of management control systems and discuss the process and the control categories of a control system and how they can be of use to a Price Control 1 model.

Management control systems (MCS) steer the behaviour of employees towards management's goals and provide information as to whether goals have been achieved (Anthony, 1988; Anthony & Govindarajan, 2007; Flamholtz, 1996). Merchant and van der Stede (2012, p.9) stated that "if all employees could always be relied on to do what is best for the organization, there would be no need for an MCS." However, goal congruence is not always the case because people act in their own interests. Therefore, it becomes necessary for management to implement controls that countersteer undesirable behaviours (Sections 2.5.1.1 & 2.5.2; Flamholtz, 1996; Merchant & van der Stede, 2012). Otley (2003) noted that there are two primary issues of management control to achieve organisational goals: 1) employees are motivated towards achieving goals and 2) management control systems ensure transparency as to whether goals have been achieved. Beside the behavioural aspect to ensure goal congruence, information also plays a role in a control system, which reduces information asymmetry.

A management control system combines various instruments, and is therefore not just a loose collection of a few instruments, which is how such systems are currently presented in the price controlling literature (Section 2.5.4.1). According to Flamholtz (1996), company personnel can employ various controlling instruments to attain their objectives. However a loose collection of instruments does not constitute a control system. Instead, control researchers agree that management control systems are comprised of a combination of various control subsystems and instruments to achieve a company's objectives (Abernethy & Chua, 1996; Bedford & Malmi, 2015; Malmi & Brown, 2008; Otley, 1980; Simons, 1995). This viewpoint suggests that companies use combinations of different controlling instruments and that the subsystems of the entire management control system are not isolated from on another (Flamholtz, 1996; Malmi & Brown, 2008; Widener, 2007). For example, Simons (1995) argued that the balance between different control subsystems that control different aspects of plan implementation is the strength of a control system and is vital for implementing a business strategy. Widener (2007) demonstrated using quantitative research that a combination of various control subsystems increases firm performance more so than the isolated use of these systems. Therefore, managers should use various control subsystems together when implementing control systems.

The implication for this research is that Price Control 1 instruments should be studied not in insolation (i.e., studying a selection of price controlling instruments for themselves as currently approached in the price controlling literature) but rather in combination to create a Price Control 1 model that is capable of helping management achieve pricing plans. This view is supported by Malmi and Brown (2008) who criticised that studying individual instruments makes it difficult to draw appropriate conclusions of their effects because these instruments are embedded into a wider control system and the instruments are related to this system. In the same vein, Otley (1999) criticised that control instruments are researched separately but they should be researched within the context as part of the company's control system.

Control researchers have noted different approaches to constructing management control frameworks (e.g., Anthony & Govindarajan, 2007; Otley, 1999; Simons, 1995). For instance, Otley (1999) structured the framework around central management control issues and questions, Anthony and Govindarajan (2007) adopted a formal control process and Simons (1995)'s management control framework constituted different subsystems. In the following sections, pertinent management control systems for this research will be discussed as a theoretical foundation. Their usefulness for the development of a Price Control 1 model will be noted and used to categorise the identified price controlling instruments of the case study company.

2.6.2 Control system as questions relevant to management control systems

A first approach to control systems that provides insights for this research is Otley (1999). This author proposed a framework for the design and analysis of control systems. His incentive to develop a new framework was that earlier frameworks—such as the one developed by Anthony (1965)—neglected internal processes and failed to provide assistance about how to design a management control system. Otley (1999) noted that a control system needs to be linked to a company's strategy and plans because they influence the design of the control system; there is no single management control system that fits all companies—the design depends on the context of the company. The design can change when the context changes. Otley (1999)'s thinking its therefore closely related to contingency theory, which also postulates that the design of control systems is dependent on contextual factors. This work underpins the context-bound approach of this research.

Based on fieldwork, Otley (1999) structured his framework around five central questions that are relevant to a management control system. This author started with an investigation of the company's objectives. He then studied the strategies and plans the company selected to achieve its objective. The third question dealt with performance targets, which need to be set to achieve a company's objectives, strategy and plans. Fourth, Otley (1999) suggests looking at the consequences (i.e. the form of rewards and punishments), which are tied to the levels of performance achievement. A fifth point is concerned with information, which needs to be available via feedforward and feedback controls to close the control loop and foster a learning process. This point includes the comparison of actual performance with planned performance and the derivation of corrective actions to achieve a company's goals (Otley, 1999). In addition, Otley (1999) stated that companies have to address these questions continuously because strategies and plans can change over time. This mindset suggests that the price control system can change in case of alternations.

Otley's (1999) framework suggests that the strategy and plans of a company needs to be studied first because they lay the foundation for the design of the control system. Based on contingency theory (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999), different strategies and plans require different configurations of control systems (Otley, 1999). Based on the price management process shown in Figure 2.2, it is imperative for this research to analyse the planning phase of the price management process first because the planning phase determines what needs to be controlled by Price Control 1 and therefore influences the types of price controlling instruments that are employed. The first three questions of Otley (1999) can accordingly be compared with researching the planning phase of the price management process, the fourth question covers the incentive system and the fifth question covers the instruments of how to ensure and measure pricing plan achievement and provide feedback to management. However, even though these questions are helpful for guiding the analysis of control systems they do not specify what types of controls are necessary to achieve a company's goals.

2.6.3 Control system as a process

In contrast to Otley (1999), some control researchers have presented management control as a process. For instance, Anthony (1988) and Anthony and Govindarajan (2007) defined management control as a process that is used by managers to steer employees towards the achievement of goals. This process-oriented approach is relevant to this thesis because it can depict the Price Control 1 process and provide insights into which process steps are necessary to achieve pricing plans. The presented management control processes resembles a cybernetic structure (Flamholtz, 1996). Green and Welsh (1988) defined cybernetic controls as "a process in which a feedback loop is represented by using standards of performance, measuring system performance, comparing that performance to standards, feeding back information about unwanted variances in the systems, and modifying the system's comportment." Green and Welsh (1988) argued that all of these elements of the cybernetic process need to work properly for an effective control in order to achieve the goal.

Anthony (1988) presented a framework for management control that consists of planning (including programming and budgeting), execution and an evaluation phase. Anthony (1988) outlined the process of control as follows: performance standards for plans are set, plans are executed and the resulting performance is measured by comparing actual performance with the plans. If there are differences between the actual and planned performance, corrective actions are initiated. Feedback is given pertaining to the different process phases.

Anthony and Govindarajan (2007) adopted a similar approach to study controls in a control process. These authors focused on formal control systems, which consist of rules and mechanisms for planning and controlling. Formal controls are those controls that are written down; informal controls are not written down (Jaworski, 1988). Similar to Anthony (1998), the formal control process of Anthony and Govindarajan (2007) included a plan and targets (e.g. ,in form of budgets) for the responsibility areas. In addition, also rules and other information directed the action of these centres of responsibility. After the responsibility areas have conducted their tasks, deviations from the plan are measured using, for example, performance measurements. The measurement results are reported. Responsibility centres are rewarded on their performance. In the case of large deviations from the plan and poor performance, countermeasures are investigated that can address the centres of responsibility and adjust plans (Anthony & Govindarajan, 2007).

Similar to Anthony (1988) and Anthony and Govindarajan (2007), Flamholtz, Das and Tsui (1985) and Flamholtz (1996) followed this methodology and presented their core control system framework as a process. These authors defined the steps of planning, measurement, feedback and evaluation-reward as the core mechanism of control. Planning establishes goals, which serve to direct the behaviour of subordinates. Measurement mechanisms detect variances between the outcomes and the goals, which were set in the planning phase. Feedback delivers information about goal achievement to the relevant persons in order to improve performance via corrective actions. Evaluation/rewards are designed to assess and reward individual goal achievement from the results of the measurement mechanisms (Flamholtz, Das & Tsui, 1985).

These frameworks share several commonalities, such as management control being treated as a process. Key elements of the management control process are that first plans are set, then plans are executed, then there is a comparison of actual vs. planned figures, which is reflected in feedback (e.g., by reporting). If necessary, countermeasures are prepared and enacted to improve performance. The performance of individuals serves as the basis for rewards. In addition, to be more detailed the process should not only detect variances by comparing actual vs. plan, but it should also analyse the variances to be able to detect the causes of variance for countersteering (Anthony, 1988; Bolte, 2008; Lauszus & Kalka, 2006; Simon & Fassnacht, 2009).

Based on these management control processes (Anthony, 1988; Anthony & Govindarajan, 2007; Flamholtz, Das & Tsui, 1985; Flamholtz, 1996), it can be argued that a Price Control 1 process includes the following steps: price planning, execution, a comparison of actual vs. planned figures, reporting as feedback and analysis of variances to take corrective actions and distribute rewards. Corrective actions can address the execution phase or control mechanisms but also can imply that plans need to be revised (Anthony & Govindarajan, 2007; Green & Welsh, 1988). Feedback on the individual performance measurement by a comparison actual vs. planned figures provides a basis for rewards (Flamholtz, 1996). Transferred to the price management process discussed in Section 2.4, price planning is encompassed in the steps of the planning phase that include "pricing objectives/pricing strategy," "operational price setting" and "price realisation." Execution is covered by price execution in the price management process, and the remaining steps (comparison of actual vs. plan, reporting as feedback, analysis of variances to take corrective actions and distribute rewards) need to be integrated into the price management process. Corrective actions need to address the price planning phase, the price execution phase in the price management process and can affect the control mechanisms themselves.

Figure 2.6 depicts how the Price Control 1 process can be integrated into the price management process:

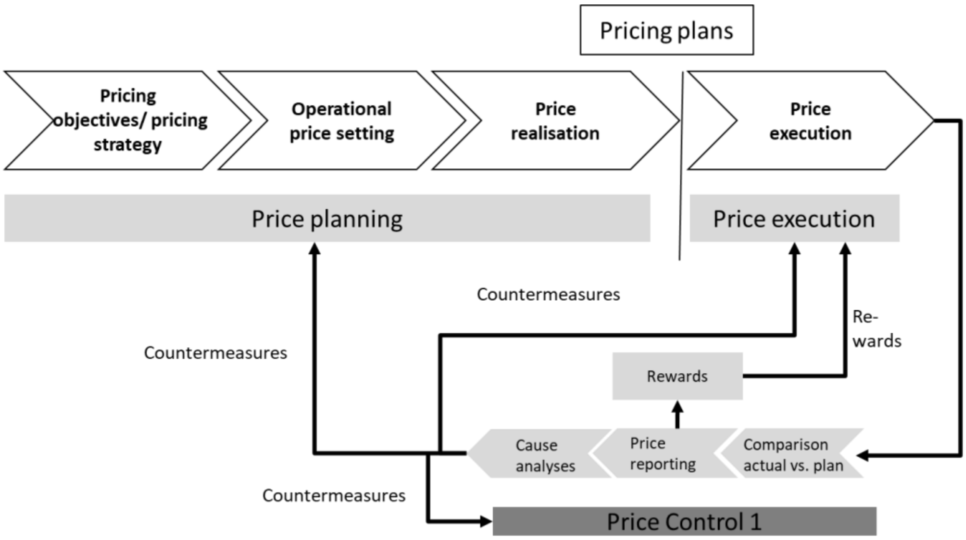


Figure 2.6: Price Control 1 process

(Source: researcher's own illustration)

2.6.4 Control system as subsystems

2.6.4.1 Overview

In contrast to researchers that have discussed control systems as questions (Otley, 1999) or processes (Anthony, 1988; Anthony & Govindarajan, 2007; Flamholtz, Das & Tsui, 1985; Flamholtz, 1996), other control researchers have presented control systems as a system that is made up of different control subsystems, which, taken together, constitute the entire management control system (Malmi & Brown, 2008; Simons, 1995). These subsystems work together in order to achieve a company's objectives (Simons, 1995). These approaches are helpful for the development of a Price Control 1 model because these approaches can lend control subsystems into which the specific price controlling instruments can be subsumed.

Therefore, four approaches that are pertinent for the development of a Price Control 1 model are presented and discussed. These approaches are the levers of control (LOC) noted by Simons (1995), Tessier and Otley (2012)'s revised LOC framework, the organisational management control system by Herath (2007) and the management control systems package by Malmi and Brown (2008).

Work by Simons (1995) has been selected as the main framework because Simon's (1995) approach best fits with the purpose of Price Control 1 to control the execution of pricing plans—the subsystems of the framework are perceived as well suited to fulfil the price controlling functions that have been identified in Section 2.5.3. Moreover, this framework is frequently used in the literature (Tessier & Otley, 2012) and in empirical studies to analyse management control systems (e.g., Kruis, Spekle & Widener, 2016; Mundy, 2010; Tuomela, 2005; Plesner Rossing, 2013). In addition, it has been developed out of experience in practice so that it is practice-oriented; other frameworks (Herath, 2007; Malmi & Brown, 2008; Tessier & Otley, 2012) have been developed based on theoretical knowledge. Therefore, the Simons (1995) framework is perceived to be well suited for the practice-oriented approach of this thesis.

However, the framework of Simons (1995) was constructed to implement business strategies and not specifically developed for Price Control 1. Therefore, this framework needed to be shaped for use for Price Control 1. The other frameworks were selected because they could provide further input useful for the development of a Price Control 1 model. There was not the control system readily available that best fit the purpose of Price Control 1; aspects of the reviewed frameworks needed to be pulled together to develop more comprehensive subsystems that could better address the Price Control 1 problem. Even though Simon's (1995) LOC framework laid the foundation for the subsystems, they had to be adjusted and synthesised based on insights from the other frameworks.

To do so, the pertinent frameworks are reviewed and their relevant differences compared with the LOC framework are discussed. Then, the subsystems are discussed with regard to how they can be used for the development of a Price Control 1 model to achieve pricing plans (Sections 2.6.4.2–2.6.4.7).

Based on the reviewed frameworks, Simons' (1995) framework has been adjusted as follows: diagnostic and interactive control systems have been merged into measurement systems (Tessier & Otley, 2012). Incentive systems (Malmi & Brown, 2006) and information systems (Herath, 2007) have been added. Six relevant control subsystems were synthesised for a Price Control 1 model because they are useful for fulfilling Price Control 1 functions and achieving pricing plans. These control subsystems include: beliefs systems, boundary systems, measurement systems, incentive systems, internal control systems and information systems. Transferred to Price Control 1, the business strategy in Simon's (1995) framework is represented by the pricing plans.

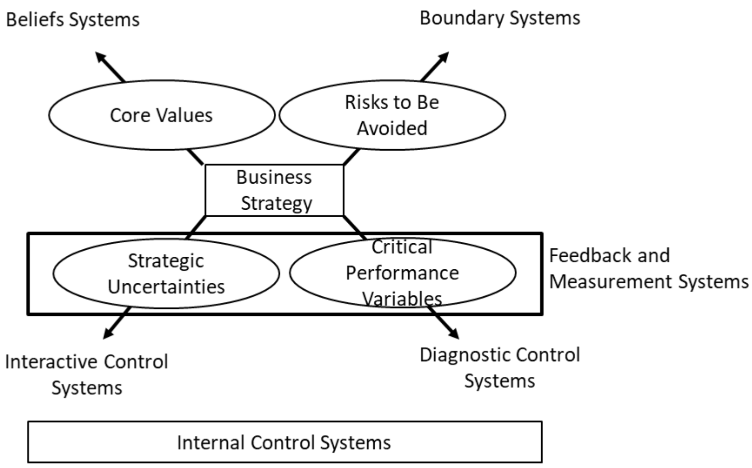


Figure 2.7: Levers of Control (LOC) of Simons (1995)

(Source: researcher's own illustration adapted from Simons, 1995, p.7, p.86, p.180)

Simons (1995) proposed the LOC framework, which is depicted in Figure 2.7. It was derived out of practice (Bisbe, Batista-Foguet & Chenhall, 2007) and is based on 10 years of professional experience and empirical case studies of various industries (Simons, 1995). It has gained a lot of attention in the current management control research (Kruis, Speklé & Widener, 2016). The LOC framework concentrates on controlling the implementation of a firm's strategy and as such includes the firm's strategy as its core element and first level of the control system. Simons (1995) regards core values, risks to be avoided, critical performance variables, and strategic uncertainties as major aspects belonging to the second level, aspects that need to be evaluated to implement a firm's strategy. Each of these points is addressed and monitored by a distinct subsystem, which include beliefs systems, boundary systems, and feedback and measurement systems. Feedback and measurement systems are further divided into diagnostic control systems and interactive control systems (Bisbe & Otley, 2004; Simons, 1991; Simons, 1994; Simons, 1995). According to Simons (1995), the balance of these subsystems is important and a control system should use all levers to work properly. A further subsystem noted by Simons (1995) are internal control systems. Such systems are not directly linked to strategy implementation and are therefore not included in the original framework, which is composed of the four levers noted above. However, these internal controls are fundamental for control systems to work; without these controls information may be inaccurate, which can lead to control failure (Simons, 1995).

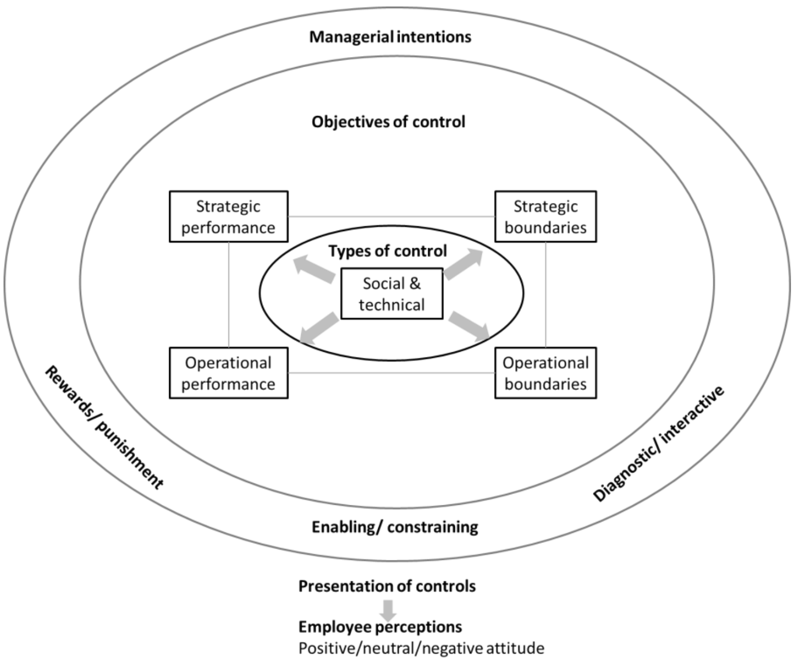


Figure 2.8: Control framework of Tessier & Otley (2012)

(Source: Tessier & Otley, 2012, p.173)

Tessier and Otley (2012) proposed a revised framework of the work by Simons (1995) based on a literature review (Figure 2.8). Tessier and Otley (2012) criticised the vague definitions of the LOC framework. They reorganised the LOC framework into a new form and divided their framework into five elements, each of which can have different forms. These elements and forms (in brackets) are: types of controls (social vs. technical), objectives of controls that constitute the different control systems (strategic performance, strategic boundaries, operational boundaries and operational performance), managerial intentions (rewards/punishment, enabling/constraining, diagnostic/interactive), presentation of controls and employee perceptions. Tessier and Otley (2012) retained the controls systems of boundary systems and feedback and measurement systems proposed by Simons (1995), but these authors did not distinguish between diagnostic and interacticve controls as subsystems and did not include beliefs systems as a separate control subsystem.

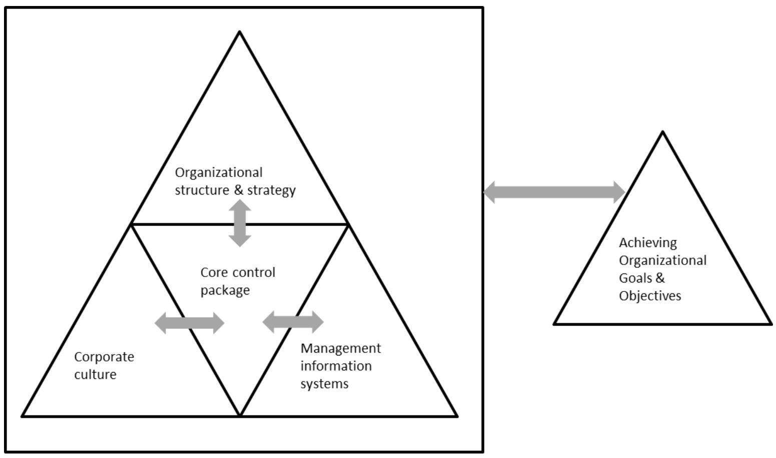


Figure 2.9: Organisational management control system of Herath (2007)

(Source: Adapted from Herath, 2007, p.905)

Herath (2007) proposed a framework for management control research based on a literature review (Figure 2.9). Her framework consists of two major dimensions—the management control system and a second pertaining to achieving organisational goals and objectives. According to Herath (2007), a properly working control system will lead to the achievement of company goals and objectives. However, this relationship is bi-directional because organisational goals and objectives will also shape the control system. Herath (2007) suggested that a control system consists of four components: the core control package, organisational structure & strategy, corporate culture and management information systems. In contrast to Simons (1995), Herath (2007) proposed that management information systems constitute their own component in a control system. Herath (2007) accordingly took into account the emerging significance of information systems for operating control systems.

Cultural controls		
Planning	Cybernetic controls	Reward & compensation
Administrative controls		

Figure 2.10: Management control systems package of Malmi & Brown (2008)

(Source: Adapted from Malmi & Brown, 2008, p.291)

Malmi and Brown (2008) proposed a management control systems package that consists of five major systems: cultural controls, planning, cybernetic controls, rewards & compensation and administrative controls (Figure 2.10). In contrast to the framework of Simons (1995), these authors added a specific component for reward and compensation as a subsystem into the framework. Simons (1995) views rewards as important but does not treat them as a separate subsystem.

The usefulness of these six identified control subsystems (beliefs systems, boundary systems, measurement systems, incentive systems, internal control systems and information systems) for the development of a Price Control 1 model is discussed in the following sections.

2.6.4.2 Beliefs systems

A beliefs system is helpful as a control subsystem in a Price Control 1 model because it can prevent pricing plan variances by providing the sales force with direction for their pricing activities. It can accordingly steer the behaviour of the sales force towards pricing plan achievement.

Several researchers consider beliefs systems to be a component of a control system (e.g., Herath, 2007; Malmi & Brown, 2008; Simons, 1995). Beliefs and culture are often discussed as context in which organisations are embedded and aspects that influence the design of a control system (Ismail, Zainuddin & Sapiei, 2010; Kruis, Spekle & Widener, 2016). However, beliefs can be influenced by managers and therefore have the potential to influence the behaviour of employees; this situation renders beliefs systems a control subsystem (Brown & Malmi, 2008). In the framework of Simons (1995), beliefs systems control core values and are "the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization" (p.34). In that way, they drive the commitment to and adoption of management's values by subordinates (Simons, 1995) and accordingly motivate and direct employees to act in favour of management's values (Marginson, 2002; Simons, 1995; Widener, 2007). The positive effects of a beliefs systems on the behaviour of employees is supported by prior empirical studies of control systems (e.g., Bruining, Bonnet & Wright, 2004; Marginson, 2002). Mundy (2010) noted that any system that has the capacity to convey organisational values or directions to subordinates can be used as a beliefs system. Such systems are typically value-laden and defined generally to motivate subordinates (Mundy, 2010). Beliefs systems provide employees with a framework for their decisions because these values incorporate management's goals that may not be covered by other control systems (Mundy, 2010).

In contrast, Tessier and Otley (2012) excluded beliefs systems in their framework. Even though strategic boundaries and operational boundaries represent the boundary system and the performance measurement on strategic and operational level include the diagnostic and interactive systems of the LOC framework, Tessier and Otley (2012) reorganised the beliefs systems to a social type of control. These authors argued that values, which are determined by beliefs systems, can also be used to set boundaries. This situation has been demonstrated in a case study conducted by Mundy (2010). Therefore, Tessier and Otley (2012) suggest that values are a type of control and not a control subsystem in and of itself.

However, the original distinction of Simons (1995) was retained for this research because the distinction between beliefs system and boundary system is perceived to be more suitable to represent the control subsystems in a Price Control 1 model. First, the distinction between beliefs and boundary systems is supported by many other case studies that also used this distinction (e.g., Plesner Rossing, 2013; Tuomela, 2005). In addition, Malmi and Brown (2008) also considered beliefs systems in their control system and used cultural controls that include beliefs systems. Second, according to Simons (1995), beliefs systems are necessary to motivate employees to search for opportunities to meet management's values in order to achieve organisational goals; boundary systems restrict that search. With regard to price controlling, it can be argued that, for example, even though the pricing plans may set minimum prices that the sales force should not undercut through an escalation system (which is a boundary system; Section 2.5.4.2), the escalation system still does not communicate the values of management to adjust the price close to the willingness to pay of the customer. For instance, Roll, Pastuch and Buchwald (2012) noted that a pure minimum price leads the sales force toward setting prices approaching this minimum price because the sales force believed that this price is accepted by management. Therefore, to counter this behaviour a beliefs system can be used to steer the sales force's actions towards the willingness to pay of the customer, which reflects management's values and in consequence the pricing plans. Therefore, a Price Control 1 model distinguishes between beliefs systems and boundary systems.

2.6.4.3 Boundary systems

Boundary systems assist management in achieve pricing plans in a Price Control 1 model because these systems restrict the pricing actions of the sales force, which prevents undesirable behaviour and consequently decreases the probability of plan variances.

In contrast to beliefs systems, which motivate the search for opportunities, boundary systems restrict the search (Simons, 1994; Simons, 1995) and control the risks to be avoided (Simons, 1995; Tessier & Otley, 2012). Therefore, Simons (1995) call boundary systems negative controls, in contrast to beliefs system, which are positive controls. Boundary systems set and communicate clear limits and minimum standards and requirements for subordinates via the definition of, for example, rules or guidelines (Simons, 1994). Boundary systems are necessary because beliefs systems are vague and guide employees, but they still provide an unlimited space of opportunities. When managers wish to delegate decisions and avoid company risks, there needs to be some limits imposed on the actions of subordinates, which can be achieved by boundary systems (Simons, 1995). Examples of boundary systems include policies and procedures (Malmi & Brown, 2008; Simons, 1995), which outline how tasks are to be conducted and state the boundaries of acceptable behaviour (Bedford & Malmi, 2015). Therefore, boundary systems ensure that employees are still able to act in certain ways to respond to specific circumstances, but their actions are restricted (Simons, 1995; Mundy, 2010). In other words, these control systems constrain the behaviour of subordinates (Bedford, 2015) and restrict their actions within a predetermined range (Widener, 2007). They are accordingly able to ex ante prevent variances from the goals (Simons, 1995).

Boundary systems can be used to achieve the Price Control 1 function of "prevention of variances" (Ivens, Stemmermann & Leisching, 2016; Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008). For example, the escalation instrument discussed in Section 2.5.4.2 is an instrument that sets clear boundaries on the actions of the sales force when pricing authority is delegated. When the sales force wishes to set a price below the set minimum price, it needs to ask for approval from a higher level (Ivens, Stemmermann & Leischnig, 2016; Homburg, Jensen & Schuppar, 2004; Meehan, Simonetto, Montan & Goodin, 2011). In that way, the acceptable behaviour of the sales force is clearly stated via the minimum price; the escalation system restricts the price setting of the sales force, which prevents prices being set below the minimum price.

Beliefs and boundary systems are useful in a Price Control 1 model for preventing variances (Sheehan, 2010; Simons, 1995) because these two systems are designed to ensure that the sales force is not engaging in setting prices that could jeopardise pricing plans (Simons, 1995). As Widener (2007, p.763) put it "Firms use both beliefs and boundary systems to manage risk since they help ensure the alignment of employee behavior, which minimizes the possibility that the organisation can get harmed." In a framework for Price Control 1, beliefs systems represent the pricing values and objectives, which are communicated throughout the company for direction concerning pricing matters.

Boundary systems constitute limits, which are imposed on the pricing behaviour of employees with regard to pricing activities to avoid pricing risks and unwanted pricing plan variances. Because these systems steer the behaviour of the sales force before pricing action is conducted (Simons, 1995), they can prevent pricing plan variances before they occur. Because these systems have the capacity to pevent variances they are effective controls (Merchant & van der Stede, 2012).

2.6.4.4 Measurement systems

Measurement systems are helpful for a Price Control 1 model to achieve the Price Control 1 functions of "monitoring plan achievement" and "detection of causes of variance for countersteering" to attain pricing plans. Control researchers agree that measurement systems are a central subsystem of a control system (Simons, 1995; Malmi & Brown, 2008; Tessier & Otley, 2012; Herath, 2007) because measurement systems are essential for implementing companies' objectives (Simons, 1995). A measurement system basically can be described as a system that assigns "numbers to represent aspects of organizational behaviour and performance" (Flamholtz, 1996, p.601). To be more specific, these controls are used to measure the outcomes by comparing actuals with pre-set plans. According to Simons (1995) measurement systems require that plans be available against which outcomes can be compared; outcomes should also be measured. Additionally, corrections to the system can be made. When there are plan variances, the system is said to be out of control. Counteractions need to be conducted so that future outcomes are closer to the plans (Simons, 1995), which means that the variances from plans are reduced. Measurement systems therefore provide goal achievement information for corrective actions and evaluation, which Flamholtz (1996) calls the informational function on measurement and is an ex-post control (Flamholtz, Das & Tsui, 1985). Flamholtz, Das and Tsui (1985) pointed out that measurement systems can also serve as an ex-ante control because the sheer fact that performance is being monitored impacts the behaviour of the employees, which Flamholtz (1996) refers to as a process function of measurement.

Although there is agreement that a measurement system is a vital part in the control systems (Simons, 1995; Malmi & Brown, 2008; Tessier & Otley, 2012; Herath, 2007), there is inconsistency in the literature as to how the subsystems of measurement are separated within control frameworks (Simons, 1995; Tessier & Otley, 2012). Simons (1995) proposed distinguishing between diagnostic and interactive control systems. This author argued that diagnostic control systems control critical performance variables. These systems are “formal feedback systems used to monitor organizational outcomes and correct deviations from pre-set standards of performance” (Simons, 1994, p.170) so they include traditional feedback techniques (Fisher, 1995; Henri, 2006; Otley, 2003; Simons, 1994, Simons, 1995). As such, these systems set targets, the variance from these targets is measured and reported and corrective action is taken by adjusting the actions or the targets (Simons, 1995; Simons, 2000). These systems have been included in the LOC framework because they inform subordinates about critical targets to motivate and steer their behaviour towards the company’s targets. These systems also monitor the execution of the firm’s strategy. They inform management about the achievement of these variables in order for managment to be able to take countermeasures to redirect the company towards plan achievement (Henri, 2006; Simons, 1995; Widener, 2007). In contrast, “interactive control systems” monitor strategic uncertainties (Simons, 1995) and are instruments that are employed by managers to “regularly and personally involve themselves in the decision activities of subordinates” (Simons, 1994, p.171).

The difference between diagnostic and interactive instruments is the attention that management devotes to them and the extent of the usage of control instruments (Bisbe, Batista-Foguet & Chenhall, 2007; Simons, 1994; Simons, 1995). This viewpoint also means that any diagnostic control tool can be changed into an interactive tool via persistent use and a high degree of management attention (Mundy, 2010; Simons, 1994). Interactive tools convey variables that are of strong interest to management; they are mostly discussed personally or in meetings with responsible persons and foster dialogue and discussion between management and subordinates (Heinicke, Guenther & Widener, 2016; Simons, 1995). Simons (1995) included these systems because they trigger learning procedures and help to formulate new strategies (Simons, 1994; Simons, 1995).

In contrast, Tessier and Otley (2012) criticised the framework of Simons (1995) in its distinguishing between interactive and diagnostic systems. Tessier and Otley (2012) have the opinion that interactive and diagnostic control systems are not separate control systems. Rather, diagnostic and interactive describe how management makes use of specific control instruments. That is the reason why Tessier and Otley (2012) only include strategic performance and operational performance as control systems but make the distinction between interactive and diagnostic on the level of managerial intentions.

Therefore, when the difference between diagnostic and interactive systems is simply the way that they are used by management (i.e., the instruments are the same), then a Price Control 1 model should also not make this distinction. This viewpoint, consistent with Tessier & Otley (2012), does not contradict completely Simons' (1995) framework. Simons (1995) distinguished design attributes of controls between beliefs, boundary and feedback and measurements systems; feedback and measurement systems were separated into diagnostic and interactive control systems based on how much attention managers devoted to them. In addition, Simons (2000) stated that diagnostic and interactive controls may use the same instruments and look the same; the difference between these systems is their purpose and how they are used by management (Simons, 2000). This situation suggests that these instruments are differentiated by their usage rather then being distinct instruments. This viewpoint is supported by Marginson (2002), who distinguished between the control systems on the level of beliefs and boundary systems, administrative controls and performance measurement systems and used the terms diagnostic and interactive to define how these control systems are used. Therefore, a control system for this research will not distinguish between diagnostic and interactive systems; they will be taken together as measurement systems.

Measurement systems can be used to fulfil the functions of "monitoring plan achievement" and "detection of causes of variance for countersteering" (Meehan, Simonetto, Montan & Goodin, 2011; Homburg, Jensen & Schuppar, 2005; Simon & Fassnacht, 2009) because measurement systems monitor plan achievement and inform management about achievement in order for them to take countermeasures to redirect the company towards plan achievement (Henri, 2006; Simons, 1995; Widener, 2007). This situation implies that a measurement system is a component of a Price Control 1 model that can provide feedback about pricing plan achievement by comparing actual and planned prices. A measurement system can also provide input for corrective action.

2.6.4.5 Incentive systems

Incentives systems are helpful as a subsystem for Price Control 1 because they motivate the sales force to achieve pricing plans. Employees are motivated to act in such a way that company goals are achieved (Flamholtz, 1996). The underlying rationale behind this situation is that incentive systems foster goal congruence between management and subordinates (Eisenhardt, 1989); the application of incentives can influence behaviour and has a positive effect on performance (Bonner & Sprinkle, 2002). Incentive systems are both ex-ante and ex-post controls (Flamholtz, Das & Tsui, 1985). They are ex-post controls because employees obtain feedback about their actions and are rewarded based on their performance. In that way, incentive systems strengthen or alter behaviour. However, they are also ex-ante controls because they influence the behaviour of employees due to the staff's expectation of obtaining a remuneration. To be effective, rewards need to be coupled to the organisational goals to be achieved (Flamholtz, Das & Tsui, 1985; Flamholtz, 1996).

However, there is inconsistency as to how incentive systems are depicted in the frameworks of management control systems. Even though they are viewed as important for control, Simons (1995), Tessier and Otley (2012) and Herath (2007) did not have separate control systems for rewards and compensation in their control system; Malmi and Brown (2008) did. Malmi and Braun (2008) argued that rewards are often linked to cybernetic controls. However, rewards are also given for other purposes and therefore should form their own control system; rewards can then be linked to other controls than cybernetic controls (Malmi & Braun, 2008). Incentive systems can be treated as their own control subsystem, consistent with Malmi and Braun (2008).

Because incentive systems influence the behaviour of employees towards plan achievement and serve a motivational function (Flamholtz, Das & Tsui, 1985; Simons, 1995), it can be said that incentive systems can fulfil the function of “motivation of plan achievement.” This view is supported by the pricing literature, which confirms that incentives have a motivational function on the sales force to achieve pricing plans (Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2004; Marn & Rosiello, 1992). Therefore, consistent with Malmi and Brown (2008), incentive systems are a control subsystem in a Price Control 1 model, which support fulfilling the function of motivating the sales force to achieve pricing plans.

2.6.4.6 Internal control systems

As discussed in Section 2.5.3.6 and 2.5.4.6, price controlling requires a complete and correct database to be of use to management. In the case of a lacking or inaccurate database, decisions are made based on incorrect price control analyses that can result in suboptimal pricing decisions. Simons (1995) took account of the importance of correct and complete data for the operation of a control system by introducing internal control systems. Simons (1995) stated that internal controls are fundamental for other control systems to work. Without these internal control mechanisms, information may be inaccurate, which can lead to control failure. Therefore even though internal control systems are not directly connected to business strategy implementation and are not used directly by management but are performed by staff, they are significant. Without internal control systems, other control systems may be based on incorrect data, which would lead to incorrect analyses and conclusions (Simons, 1995). This situation suggests that internal controls systems are also a vital part of a control system.

Internal control systems should be a component of a Price Control 1 model because they can fulfil the function of “ensuring error-free controls” (Bolte, 2008; Meehan, Simonetto, Montan & Goodin, 2011). Therefore internal controls support the development of a Price Control 1 model. Without internal controls, Price Control 1 analyses may be based on wrong data, with the consequence that management can make incorrect decisions. Such decisions may have negative consequences on pricing plans or pricing issues overall. This view is supported in the pricing literature by pricing researchers such as Bolte (2008) and Meehan, Simonetto, Montan & Goodin (2011). These authors presented price controlling instruments that can be subsumed under internal controls to ensure error-free controls.

2.6.4.7 Information systems

As discussed in Section 2.5.4.7, the importance of IT-supported information systems for price controlling is widely acknowledged in the pricing literature. Therefore, information systems need to be included in Price Control 1 because they can provide the necessary planned and actual data.

Herath (2007) took account of this importance by including a separate component for information systems into her control system framework. Information systems are critical to a control system because they provide management with information about plan achievement, which is used to make company decisions (Herath, 2007). It is best to have an integrated system that combines all relevant data together for a control (Anthony, 1988). For a price controlling, a price controlling instrument could be a price information system (e.g., the one described by Diller (2008)). A pricing data warehouse collects and combines relevant data from various systems, and the price information system displays this information (Diller, 2008).

Because price controlling cannot operate efficiently without an IT-supported information system (Braun & Wiesen, 2012; Diller, 2008; Florissen, 2008; Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009), information systems are a component of a Price Control 1 model. An information system provides the necessary data for a price controlling so that it can help support the function of “providing planned and actual data” (Florissen, 2008; Meehan, Simonetto, Montan & Goodin, 2011).

3 Research design

3.1 Introduction

This chapter discusses the appropriateness of the chosen research design in light of achieving the research aim to create a Price Control 1 model containing instruments for mitigating the Price Control 1 problem for B2B in OEM businesses operating in the electrical/electronics industry and answering the research questions as outlined in Section 1.4.

The research design defines how the research is conducted to achieve the research aim (Creswell, 2009). Creswell (2009) divides the research design into three components: the research philosophy, the research strategy and the research methods. The research philosophy makes assumptions as to how the researcher views the world and underpins the strategy and methods chosen for the research (Saunders, Lewis & Thornhill, 2009). The underlying research philosophy will be discussed in Section 3.2. Section 3.3 then discusses the research strategy as the overall strategy of inquiry; Sections 3.4 and 3.5 are concerned with the methods that are employed to put the selected strategy into practice (Creswell, 2009). The evidence needs to be assessed and its rigour and validity established (Ryan, Scapens & Theobald, 2002; Scapens, 1990; Yin, 2009). Section 3.6 focuses on this topic. Ethical considerations that are important for this research project to ensure that there are no negative consequences for the case study company or any other research participants (Saunders, Lewis & Thornhill, 2009) are discussed in Section 3.7.

3.2 Research philosophy

Researchers base their work on specific beliefs and assumptions about how the world operates (ontology) and how valid knowledge is produced (epistemology). These beliefs and assumptions are collectively termed "research philosophy". The research philosophy influences how the research project and the derivation of knowledge are approached and therefore guides the research process (Saunders, Lewis & Thornhill, 2009). A variety of research philosophies are discussed throughout the literature (e.g., Crotty, 1998).

However, positivism and social constructivism (often also called interpretivism) emerge as the most highly contrasted philosophies in management research (Easterby-Smith, Thorpe & Jackson, 2008) and are important and frequently used philosophies in management accounting research (Bisman, 2010; Parker, 2012; Tomás Lopes, 2014).

Social constructivists hold the position that there are multiple "realities" that are socially constructed and that meaning is determined and created by people and their subjective and individual understanding, interpretation and experiences of certain issues and situations (Creswell, 2009; Crotty, 1998; Easterby-Smith, Thorpe & Jackson, 2008; Hopper & Powell, 1985; Parker, 2012; Saunders, Lewis & Thornhill, 2009; Schwandt, 1994). Social constructivists therefore wish to understand the meaning of experiences in specific contexts. As such, reality is constructed in a relationship between the participants and the researchers; the researcher interacts closely with the case (Stake, 1995). Social constructivism implies certain characteristics regarding how the research is approached. The primary data source in interpretative philosophies is interviews (Walsham, 1995), and these interviews are less structured to give the participants the opportunity to share their personal and subjective views of the particular topic and situation. These individual views and meanings are gathered personally (i.e., interactions occur between people), and the meanings and their interpretation are constructed on the collected data in an inductive manner (Creswell, 2009; Crotty, 1998).

On the other hand, positivism is the philosophy that is most common in business research and applies research methods that have their roots in the natural and social sciences. A positivist researcher assumes that there is one objective and value-free reality that is shared by everyone and is not dependent on the social actors involved (Myers, 2013; Saunders, Lewis & Thornhill, 2009). To generalise their findings across people, scenarios and periods, positivists normally use large samples and quantitative approaches to develop or prove a hypothesis through statistical generalisations (Bryman & Bell, 2011; Carson, Gilmore, Perry & Gronhaug, 2001; Saunders, Lewis & Thornhill, 2009). Positivists reduce the complexity of the topic to specific fundamental elements (Saunders, Lewis & Thornhill, 2009). They use deductive research processes, which means that a theory comes first and then hypotheses are generated and tested to generalise statistically and explain relations between certain variables (Saunders, Lewis & Thornhill, 2009). One example of positivist research on price controlling is Rullkötter (2009). This author developed causal hypotheses regarding the relationship between rationality deficits in price management and the effects on the pricing success using regression models and a large sample of 72 B2B companies operating in the chemical and machinery construction industry. According to the positivist view, Rulkötter (2009) is objective and assumes that there is one reality. The knowledge is generated using only a little information from many different companies, which results in the study not being in-depth and not being context-bound.

A social constructivist view was adopted for this research because this philosophy best suits the nature of this research and enabled the researcher to achieve the research aim and answer the research questions. The researcher believes that organisations and price controlling are complex constructs that are not universal but instead are contingent on specific circumstances and the actors in the company; they are a social construct (Saunders, Lewis & Thornhill, 2009). This situation also applies to the subject matter of this research because employees can alter Price Control 1 based on the specific context and perceive it differently based on their subjective experiences. Therefore, Price Control 1 is a social construct by the employees and is unique to the specific situation rather than being a natural phenomen (Berry, Coad, Harris, Otley & Stringer, 2008; Scapens, 1990). This view implies that there cannot be just one objective truth with regard to Price Control 1. Instead, there are multiple realities that are dependent on the specific situation, context and social actors. Due to the researcher's belief, the researcher sought to understand Price Control 1 in its context in which Price Control 1 is applied. Therefore, this research collects the meaning of experiences in a specific context rather than facts that then are quantified. The model is constructed via interactions of the researcher with participants. Social constructivism aims to understand a phenomenon in a specific context that can lead to multiple realities (Creswell, 2009; Stake, 1995). Therefore, the nature of this research favours a social constructivism approach.

To construct a Price Control 1 model, an in-depth understanding of the topic of Price Control 1 is necessary. For example, the price management process and the different price controlling instruments to achieve the pricing plans need to be understood. This situation favours detailed subjective data from a small group in a specific context due to the complex nature of Price Control 1, which cannot be reduced to simple relationships (Ryan, Scapens & Theobald, 2002). Positivists rely on reductions to simple relationships (Saunders, Lewis & Thornhill, 2009). Price Control 1 can only be understood by people who directly work with it and possess understanding and experience in a special context (Bryman & Bell, 2011). The consequence is that Price Control 1 is socially constructed (Scapens, 1990). Therefore, this research collects the individual meaning of the participants in their practical environment to make sense of Price Control 1 and construct reality. For that purpose, the details of the situation needs to be researched, which can be achieved by social constructivism (Scapens, 1990).

In contrast to positivism, social constructivism typically uses only a limited number of cases that are chosen purposefully. The observer often visits the partcipants in person to generate rich data to focus on the details and particularities of the context and situation (Easterby-Smith, Thorpe & Jackson, 2008). Focusing on a small sample made it possible to understand Price Control 1 in-depth and consider the context of this research. Due to the personal interactions of the interviewer with the informants implied by social constructivism, the researcher was able to understand Price Control 1 in detail. Due to the belief that Price Control 1 is socially constructed, social constructivism gave the researcher the opportunity to construct the Price Control 1 model based on interactions with the participants and the experiences that were collected.

Due to the social constructivist stance and the interpretive nature of this work the researcher believes that the research cannot be completely value free because the researcher is part of the research (Saunders, Lewis & Thornhill, 2009). There is a risk that the researcher's own knowledge, experience and background influences the researcher's interpretations and findings; the research cannot be completely neutral (Easterby-Smith, Thorpe & Jackson, 2008; Creswell, 2009). This situation makes it necessary to reflect on potential biases to provide readers with context for interpreting the findings. This potential risk is related to the knowledge and experiences the researcher gained through 10 years of employment in the field of price management and management accounting.

The researcher has been employed in the field of price management and has observed many price management processes at a range of companies. In addition, the researcher was employed in the field of management accounting and accordingly has a deep understanding of management accounting topics in practice. Moreover, the researcher conducted an intensive literature review on the topic of Price Control 1; the researcher also possesses some pre-knowledge on the specific topic of this research. Therefore, the risk for personal bias was present. However, the researcher has taken steps that safeguarded against these personal biases that improved the reliability and validity of this research (Section 3.6).

In summary, by adopting a social constructivsm postition the researcher can socially construct the meaning of Price Control 1 by gathering subjective views of the participants. This position enabled the researcher to gain an in-depth understanding of Price Control 1 in a specific context and to acquire new knowledge of Price Control 1, which helped the researcher to answer the research questions and to create a Price Control 1 model. Therefore, social constructivism is suitable to achieve the research aim and answer the research questions.

3.3 Research strategy

3.3.1 Introduction

The purpose of this section is to discuss and justify the chosen research strategy. The research strategy was chosen based on the highest likelihood of achieving the research aim to create a Price Control 1 model containing instruments for mitigating the Price Control 1 problem for B2B in the OEM business operating in the electrical/electronics industry, achieving the specific objectives and answering the research questions. It was also based on the extent of the existing knowledge and the researcher’s philosophical stance, as was discussed in Section 3.2 (Saunders, Lewis & Thornhill, 2009). Research strategies are often classified as either quantitative or qualitative approaches (Easterby-Smith, Thorpe & Jackson, 2008; Gelo, Braakmann & Benetka, 2008; Gog, 2015; Myers, 2013). Section 3.3.2 discusses these two major approaches with regard to their suitability for this research. However, researchers are more specific about research strategies. For example, Creswell (2009) divided research strategies into experiment, survey, ethnography, grounded theory, case studies, phenomenological research and narrative research. According to Creswell (2009), survey research and experimental research are quantitative strategies. In contrast, ethnography, grounded theory, case studies, phenomenological research and narrative research belong to the class of qualitative strategies. The qualitative case study approach, selected as the best strategy given the specific aim, objectives and research questions of this study, will be discussed and justified in Section 3.3.3.

3.3.2 Quantitative vs qualitative approaches

According to Bryman and Bell (2011), quantitative research and qualitative research differ in many ways. There is quantitative research in the form of surveys that touch on the field of price controlling within the area of price management in the literature, as listed in Table 3.1.

Author	Sample	Used methods	Research (outcome with regard to price controlling)
Rullkötter (2009)	72 German B2B companies (machinery construction and chemical industry)	Quantitative: Survey method, analysis with regression methods	Relationship between rationality deficits and pricing success
Roll (2011)	116 European companies	Quantitative: Survey method, analysis with frequency tables	Implementation level of success factors for price management in practice
Riekhof & Wacker (2012)	92 German B2B companies (operating as suppliers into the machine and plant construction industry)	Quantitative: Survey method, analyses with frequency tables	Implementation level of certain price controlling instruments in practice
Riekhof & Lohaus (2009)	377 German companies from different industries	Quantitative: Survey method, analysis with frequency tables	Implementation level of certain price controlling instruments in practice

Table 3.1: Quantitative approaches to research on price controlling

(Source: researcher's own illustration)

Table 3.1 shows that authors who apply quantitative approaches use large samples and that the research is not bound to a certain context. For example, Rullkötter (2009) used surveys from 72 companies to examine rationality deficits in price management and the relationship between pricing success and rationality deficits. However, this research does not focus on examining causal relationships and does not intend to prove or disprove statistically hypotheses. Therefore, using a quantitative approach similar to that employed by Rullkötter (2009) will not answer the research questions. Another example of a quantitative approach is Roll (2011), who used a scale-based questionnaire in which the participants answered questions by ticking a point depending on how much the statement applied to the participant's company. A similar approach was used by Riekhof and Lohaus (2009) and Riekhof and Wacker (2012). The outcome of these studies was frequency charts of how often the surveyed companies responded that pre-defined price controlling instruments were used in their companies. A similar approach can be taken to answer the research question “What price controlling instruments can be used in Price Control 1?” with the aim of generalising the findings statistically. For this quantitative approach, a large number of companies need to be surveyed so that the questionnaire can be analysed using statistical methods. However, quantitative research proved not to be the best approach to answer the research questions due to the following reasons.

First, a quantitative approach applies research methods that are rooted in natural science and that are closely linked to positivism that views the world as having one objective truth (Bryman & Bell, 2011; Saunders, Lewis & Thornhill, 2009). This view contradicts the philosophical position of the researcher, who believes that there are multiple realities that are socially constructed. The researcher regards Price Control 1 as a social construct—reality is constructed based on the participant’s meaning that is attached to the topic, which can lead to multiple realities.

Second, quantitative research focuses on numbered data that can be measured (Myers, 2013; Silverman, 2005; Veal, 2005). This kind of research typically tests hypotheses by analysing the relationships between certain measurable variables using statistical instruments (Creswell, 2009). In contrast, the research questions posed are not formulated as hypotheses that can be tested using statistical instruments in order to establish an objective truth. In addition, the research aim is not to analyse relationships between measurable variables. Instead, the research questions posed require a deep understanding and exploration of the topic, which favours personal interactions and not the collection of numbered data. This research project requires an in-depth understanding of the price management process, an exploration of how the price controlling instruments function and how they can solve the Price Control 1 problem. These research requirements cannot be achieved using numbers but requires words (Ahrens & Dent, 1998; Marginson, 2002; van Maanen, 1979). Consequently, statistical instruments are less suitable to answer the research questions posed here.

Third, a quantitative approach would require that hypotheses be created based on the literature that can then be tested statistically. For that situation, a certain stage of knowledge about Price Control 1 is required (see the literature review). A quantitative approach would have the consequence that only instruments found in the price controlling literature could be asked for, which would neglect other instruments that are useful and can be applied to Price Control 1. The consequence is that a quantitative approach using statistical instruments is less likely to answer the research questions. Collecting subjective meaning and experiences from participants is a better way of addressing the research questions fully.

Fourth, quantitative methods typically collect little information from a large sample with the purpose of generalising the findings (Flick, 2002; Myers, 2013; Silverman, 2005; Veal, 2005). For example, a quantitative approach typically employs surveys (Balnaves & Caputi, 2001) to collect standardised and not-detailed data from a larger set of people using interviews or questionnaires (Robson, 2002). In contrast, to answer the research questions, gaining an in-depth understanding of the price management process, knowledge of the functionalities of the price controlling instruments and how these price controlling instruments can mitigate the Price Control 1 problem is necessary. Such knowledge is not easily gained by collecting limited information from a large sample, which then is quantified. Instead, doing so requires an in-depth investigation into a small sample. Therefore, based on the given research aim, objectives and questions and considering the philosophical view of the researcher, a quantitative approach is not suited well for this research project.

In contrast, the qualitative approach is well suited for this research because first qualitative methodologies are often associated with social constructivists who are interested in the meaning and interpretations constructed by individuals and prefer inductive approaches (Bryman & Bell, 2011; Creswell, 2009; Easterby-Smith, Thorpe & Jackson, 2008). Qualitative research therefore tends to be not objective but subjective and bound to a specific context. The researcher holds a social constructivism viewpoint in that the researcher assumes that there are multiple realities. Therefore, a qualitative approach fits the researcher’s world view. The researcher is interested in the meaning that the participants attach to Price Control 1, which enabled him to create a Price Control 1 model that was socially constructed. Even though the researcher conducted a literature review on the topic that helped when discussing the findings and providing structure for the data analysis and interpretation (Saunders, Lewis & Thornhill, 2009), socially constructed meaning and interpretation were needed to answer the research questions. For example, research question two asked how price controlling instruments can help to alleviate the Price Control 1 problem. To answer this research question, a deep understanding of the functionalities of the Price Control 1 instruments was needed, which could be derived from the collected experiences of the participants. This collected data could answer the question how Price Control 1 instruments can alleviate the Price Control 1 problem. Therefore, a qualitative approach fits well with the research philosophy of the researcher and the research aims of this work.

Second, qualitative approaches typically research real-world problems through using fieldwork (e.g., with companies or organisations) and make it possible to conduct research on real-life business cases and problems (Patton, 2002; Silverman, 1998; Vaivio, 2008). The research problem is a real-life problem because many B2B companies face the agency problem (Section 2.5.1), and there is a perceived need in practice to solve the problem (Section 2.5.5). To understand and solve such problems, qualitative approaches collect detailed information from only a small number of cases or even just from one case (Holliday, 2007; Myers, 2013; Patton, 2002; Veal, 2005) in a particular setting and context (Creswell, 2009; van Maanen, 1979) to gain a deep understanding of the phenomenon (Veal, 2005). Qualitative research focuses on generating a theory instead of testing a theory (Bryman & Bell, 2011). A qualitative approach enabled the researcher to explore Price Control 1 in real life at a specific company, which operates as a B2B company in the OEM business operating in the electrical/electronics industry. The research problem is not easily quantifiable, and a qualitative approach facilitated to make sense of the complex situation of Price Control 1 at the company. A small sample in a specific context could provide detailed information to understand Price Control 1 and create a Price Control 1 model.

Third, researchers acknowldege that qualitative approaches are useful for understanding social and organisational processes such as control processes via interactions with practitioners. These processes cannot be easily measured using quantitative methods

(Ahrens & Dent, 1998; Atkinson & Shaffir, 1998; Cassell & Symon, 1994; Marginson, 2002; Parker, 2012; van Maanen, 1979). Moreover, according to Maxwell (2005), qualitative research focuses on understanding how things work and does not research dependencies between variables. This research necessitated understanding processes and how Price Control 1 functions. Price Control 1 and its instruments are embedded into the price management process (Section 2.4.5); it was necessary to explore and understand this process. The price management process and its pricing plans served as a basis to identify which price controlling instruments can be used for Price Control 1. Additionally, the Price Control 1 process at the company needed to be understood. To investigate these processes, the researcher needed to become involved into the field and interact with practitioners, which favors a qualitative approach. Moreover, to assess how price controlling instruments can alleviate the Price Control 1 problem, the functionalities of these instruments need to be understood, which could be achieved by a qualitative approach (Maxwell, 2005).

Fourth, qualitative approaches are characterised by the collection and analyses of words and pictures instead of numbers to explain a situation (Easterby-Smith, Thorpe & Jackson, 2008); these approaches use non-quantitative data collection methods (Atkinson & Shaffir, 1998). The most common methods are observations (descriptions of processes and actions within the organisation), documents (e.g., written reports) and interviews (collections of relevant information in a conversation or discussion) (Patton, 2002; Stake, 2010; Yin, 2009). Qualitative data collection methods are better suited to a comprehensive and deep understanding of the topic of Price Control 1 than quantitative methods (Creswell, 2013) because the research questions cannot be easily answered with numbers, but they require words. The nature of this research required the collection of experiences of the participants and documents. The interviewees needed to explain in detail using words what the price management process at the company looks like, which price controlling instruments are employed and how they function in order to achieve pricing plans. This situation favored in-depth interviews with the participants, which was possible using a qualitative approach (Patton, 2002; Stake, 2010; Yin, 2009). In addition, the nature of the research required collecting documents and price controlling instruments in order to facilitate and deepen understanding of Price Control 1. A qualitative approach allowed for using these data collection methods.

In summary, the specific research aim, ROs and RQs of this work favoured a qualitative approach. The qualitative approach is most suitable for this research project for the following reasons: it matches the philosophical position of the researcher, the research questions require words instead of numbers, subjective meaning and experiences of the participants could be gathered, Price Control 1 could be explored in a specific context, and the approach facilitated researching the processes and price controlling instruments relevant to Price Control 1. The next section discusses the qualitative case study approach as a qualitative approach (Creswell, 2009) and the best research strategy to answer the research questions.

3.3.3 Qualitative case study approach

3.3.3.1 Introduction

Definitions of case studies abound in the existing literature. Robson (2002, p.178) defined the case study as "…a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence." Stake (1995, p.xi) described the case study "…as the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances." Ryan, Scapens and Theobald (2002) defined a case study as normally having only a single unit that is investigated. Based on these definitions, the researcher defines a case study as a research approach using one case in a specific situation to conduct an in-depth investigation using various approaches to collect data.

The case study approach is often used in management accounting to study this field in a specific context and to add practice-relevant knowledge. In management accounting, the use of case studies has increased and represents an important method in management accounting (Bromwich & Scapens, 2016; Hesford, Lee, van der Stede & Young, 2006;

Hopper & Bui, 2016; Merchant & van der Stede, 2006; Otley & Berry, 1998; Scapens, 1990; Scapens & Bromwich, 2010). Management accounting research is often claimed to lack practical relevance (Hopwood, 2007; Ratnatunga, 2012) and the specific context that would make it relevant for practice (Merchant & van der Stede, 2006; van der Stede, 2015). To counter these shortcomings, the case study method has bee noted as adding knowledge that has practical relevance (Cooper & Morgan, 2008; Keating, 1995; Ratnatunga, 2012). There have been calls for more context-bound case studies in management accounting research (Humphrey & Scapens, 1996; Merchant & van der Stede, 2006; Otley & Berry, 1998; Scapens, 1990); this case study approach is an answer to those calls.

3.3.3.2 Justification of a qualitative case study strategy

The qualitative case study is the best research strategy for this research project for the following reasons. First, the case study approach is a preferred method for theory building (Bonoma, 1985; Eisenhardt, 1989; Eisenhardt & Graebner, 2007); it can expand or create new theory about complex phenomena in a particular context (Harisson, Birks, Franklin & Mills, 2017). Therefore, the case study approach is a good fit to the research aim to create a Price Control 1 model for B2B companies in OEM businesses operating in the electrical/electronics industry. The literature review provided the theoretical framework in which the case study data could be interpreted. The insights of the literature review and the collected case study data can be combined to create a Price Control 1 model. The combination of literature and case study findings was necessary because the literature only could provide a fraction of the information necessary to answer the research questions; the case study could balance out the missing information (e.g., Table 4.2). Therefore, based on the literature review and the additional insights from the case study company it was possible to create a Price Control 1 model in order to achieve the research aim. This approach is supported by Scapens (1990). This author argued that a case study approach in management accounting is particularly appropriate when little is known about the research area.

Second, according to Stake (1994), the aim of case studies can be either intrinsic or instrumental. While an intrinsic case focuses on understanding the particular case itself, an instrumental case is used because the case can provide insights into a specific topic and therefore enhance understanding of an issue to generate theory (Stake, 1995). This case study is of an instrumental nature; the instrumental purpose of case studies fit well with this research. To create a Price Control 1 model, it was a necessary to research a case that had implemented a price management process and Price Control 1 in a specific context. The case study approach gave the researcher the opportunity to investigate the price management process (Section 4.1.2) and Price Control 1 (Sections 4.2, 4.3 and 4.4) at the specific case. This investigation helped the researcher to understand the price management process, what price controlling instruments can be applied, how they function, how they support to alleviate the Price Control 1 problem and how they can be implemented into the price management process. Based on the interaction with the case study and the literature review, the researcher was able to create a Price Control 1 model for B2B companies in OEM business operating in the electrical/electronics industry using the case study company as an instrument and example for those companies.

Third, according to Yin (2009, p.18), a case study is "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context." This statement is supported by management accounting researchers who acknowledge that case studies are particularly appropriate for gaining an in-depth understanding of management accounting processes and practices in action within a particular context and for a particular case (Cooper & Morgan, 2008; Parker, 2012; Ryan, Scapens & Theobald, 2002; Scapens, 1990). Due to the scant research on Price Control 1 in a B2B context, the subject matter required that the researcher go into the field by studying a case in the specific context that had implemented a price management process. According to contingency theory, the context influences the design of Price Control 1 (Section 2.3.2); contextual conditions are relevant for the phenomenon being studied (Yin, 2009). The literature research revealed that price controlling instruments are noted but that research on B2B companies is rare; no price controlling research related to the electrical/electronics industry could be found. To answer the research questions, Price Control 1 needed to be studied in the context of the research question, which required an investigation into a B2B company in OEM businesses operating in the electrical/electronics industry. The selected case study company provides this contextual environment to answer the research questions because the case study approach enabled the researcher to explore Price Control 1 as part of the broader organisational context and not independently of the context (Ryan, Scapens & Theobald, 2002; Yin, 2009).

In addition, the price management process in place constitutes a contextual factor because it provided the pricing plans that Price Control 1 needs to control (Florissen, 2005). The case study approach facilitated researching a price management process in-depth at one case study company, which provided the context in which Price Control 1 embedded and the basis to create a Price Control 1 model. This situation in turn made it possible to investigate the price controlling instruments that can be used to achieve pricing plans and how Price Control 1 can be embedded into this process. Therefore, without the knowledge of the price management process it would not have been possible to analyse which price controlling instruments were useful in a Price Control 1 model to alleviate the Price Control 1 problem.

Fourth, the case study approach is a good fit with the needs of an in-depth investigation of a complex topic for a particular case (Cooper & Morgan, 2008; Parker, 2012). Based on an in-depth investigation of the selected organisation, the case study approach facilitated understanding what Price Control 1 instruments can be a applied in a Price Control 1 system and how these instruments support to alleviate the Price Control 1 problem. Therefore, the case study approach helped the researcher to understand the role and function of Price Control 1 in a single organisation (Ahrens & Dent, 1998; Mundy, 2010) and to illuminate the complex phenomenom of Price Control 1 (Merriam, 2009; Yin, 2009).

Fifth, researchers have proposed that case studies are research strategies that are suitable to explore and understand processes and practices in management accounting and in specific contexts in detail (Creswell, 2009; Cooper & Morgan, 2008; Harisson, Birks, Franklin & Mills, 2017; Parker, 2012). This assertion is supported by previous studies that used the case study approach to research management control systems (e.g., Marginson, 2002; Mundy, 2010; Plesner Rossing, 2013; Sandelin, 2008). Moreover, price management researchers applied the case study approach to illuminate price management processes (e.g., Dutta, Zbaracki & Bergen, 2003; Hwang, Tsai, Yu & Chang, 2011). The ability of the case study approach to investigate processes and activities was a good fit to this research project. The case study approach was helpful for understanding and analysing the price management process, which was required to provide the context in which Price Control 1 was embedded and form the basis for the price controlling instruments. In addition, this approach made it possible to investigate activities related to Price Control 1, which included a detailed understanding of the functionalities of the price controlling instruments and the underlying processes to assess how instruments can alleviate the Price Control 1 problem.

Sixth, the case study approach favours the use of qualitative methods (Bryman & Bell, 2011; Merriam, 2009; Verschuren, 2003), which is supported by Creswell (2009), who aligned the case study approach with a qualitative approaches and Parker (2012) and Tomás Lopes (2014), who reported that in management accounting case studies often use qualitative approaches. Section 3.3.2 discusses that qualitative approaches are best suited to answer the research questions of this study because the subjective meaning of the participants are needed, which requires words rather than numbered data. Therefore, the case study approach also fits with the qualitative methods that are suitable for answering the research questions.

Seventh, the case study approach possesses the advantage of combining different types of qualitative data collection methods such as interviews and documents as sources of evidence to gain an in-depth and holistic understanding of a topic (Eisenhardt, 1989b; Johnston, Leach & Liu, 1999; Otley & Berry, 1998; Robson, 2002; Yin, 2009). The combination of various qualitative methods helped the research answer the research questions. First, qualitative in-depth interviews were needed to collect the subjective meaning of the price management process, the price controlling instruments and factors that need to be considered when Price Control 1 is implemented into the price management process. In addition, the nature of the topic required that documents be collected (e.g., reports and price controlling instruments). Documents have an advantage over only using interviews that they deepen understanding and complement and substantiate the evidence collected from interviews. Using various data sources enabled the researcher to see the topic from different lenses to gain a deeper understanding of the topic (Yin, 2009). This situation is supported by the findings of Baxter and Jack (2008). These authors suggested that each data source provides elements about the whole phenomenon to facilitate an understanding of the subject matter. For example, without having Excel for the minimum price calculator in hand, it would have been hard to understand the minimum price system because the calculation method is quite complex (P3). Therefore, the combination of various qualitative approaches was a good fit to the nature of the research project and made it possible to answer the research questions using interviews and documents.

Finally, according to Merriam (2009) and Stake (1995), the qualitative case study approach is located in the constructivist philosophy that is consistent with the philosophical stance of the researcher (Easterby-Smith, Thorpe & Jackson, 2008; Section 3.2). The researcher sought meaning and understanding by interacting with the participants in a specific context. The researcher believes that there is no single reality but that Price Control 1 is socially constructed (Section 3.2). Therefore, the case study approach is consistent with the researcher's philosophy and supports the deep understanding of the topic that is gained from interactions with the practitioners. The approach also fits the practice-oriented requirements of organisations (Tomás Lopes, 2014) to deliver context-bound research (Merchant & van der Stede, 2006; van der Stede, 2015).

In summary, the qualitative case study approach was well suited to answering the RQs and creating a Price Control 1 model in the specific context to achieve the research aim. In a next step, the case needs to be designed and specified (Yin, 2009). Sections 3.3.3.3 and 3.3.3.4 will justify why the chosen context and the specific case study company, respectively, are appropriate for answering the RQs. An additional step is to identify the relevant data, to select the correct data collection method and to determine how these data are analysed (Yin, 2009). Sections 3.4 and 3.5 deal with these topics.

3.3.3.3 Justification of the context of the case study company

The selection of the case study company is important because the case study provides the context of the research (Creswell, 2013). The context of the case study was selected for following reasons.

First, B2B companies contribute a major portion of all economic transactions (Kleinaltenkamp & Saab, 2009; LaPlace & Katrichis, 2009; LaPlaca, 2013; Lilien, 2016; Wiersema, 2013). The electrical/electronics industry is one of the largest industries worldwide, one of the largest in terms of revenue and employee share in the German manufacturing industry (ZVEI, 2013; ZVEI, 2014; ZVEI, 2016) and many companies operate in the German electrical/electronics industry (Gesamtmetall, 2014; Gesamtmetall, 2015). Therefore, the research context is significant because the findings relate and will be of use to many companies. Shortcomings of the management of Price Control 1 in the chosen context accordingly have considerable negative consequences.

Second, Price Control 1 is important to those companies in the chosen context because they face margin decrease (ZVEI, 2015a; ZVEI, 2015b) and price erosion (Gesamtmetall, 2016a; Gesamtmetall, 2016c), which is relatively high compared with that in other industries (Homburg, Jensen & Schuppar, 2005; Kann, Vogt & Heidrich, 2015). Aggravating this situation, growth in the German electrical/electronics industry is currently viewed as stagnant (Auer & Heymann, 2015); increasing profits via price management is becoming more important (Roll, Pastuch & Buchwald, 2012). Therefore, Price Control 1 is relevant for these companies to countersteer a potential profitability loss caused by authority delegation to the sales force (Homburg, Jensen & Hahn, 2012; Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012). This situation means that research in this context is significant.

Third, the impact of Price Control 1 on the EBIT margin in the chosen context is relatively high because the margin in the electrical/electronics industry is lower than that of other large German manufacturing industries like the chemical industry or mechanical engineering (Hypovereinsbank, 2013; Kann, Vogt & Heidrich, 2015). For example, the ZVEI (Zentralverband Elektrotechnik- und Elektronikindustrie e.V.) reported an EBIT margin of 5.7% for the German electrical/electronics industry in 2014 (ZVEI, 2015a;

ZVEI, 2015b). In comparison, German car manufacturers achieve average EBIT margins of over 7% (Lacroix & Boeckelmann, 2014), and the chemical industry mostly achieves two-digit EBIT margins (Bug, 2015). The German mechanical engineering industry averages EBIT margins of over 6% (Michailov, 2014; VDMA, 2014). Due to the relatively low margins of the electrical/electronics industry, Price Control 1 will have a considerable effect on the improvement of the EBIT margin for companies in this field because the magnitude of the effect of a price change is strongly dependent on the size of the margin a company possesses. This situation implies that lower current margins correspond to larger margin increases when prices are increased (Roll, Pastuch & Buchwald, 2012; Schindler, 2012). For example, a 1% price increase will increase the current 5.7% margin by 17.5%. If the current EBIT margin was, for example, already 10% (which the chemical industry often exceeds (Bug, 2015)), the EBIT margin would be improved by 10%. In other words, possible effects on the EBIT margin via an improvement of Price Control 1 in the German electrical/electronics industry would be higher than that in industries that already have a higher EBIT margin. In addition, a decrease in price would also have similar significant effects, but negative ones (Ingenbleek & van der Lans, 2013; Marn, Roegner & Zawada, 2004; Simon, 1992; Simon & Fassnacht, 2009).

Therefore the chosen context is suitable for answering the research questions because Price Control 1 will have a considerable effect on the EBIT margin and is important for the profitability of these companies in the chosen context. Moreover, the chosen B2B business and the electrical/electronics industry have significant economic power.

3.3.3.4 Justification of Electronic as the case study company

According to Merriam (2009), Stake (1995) and Yin (2009), cases are selected based on what the case can reveal about the issue of interest. In other words, the selection of the case is dependent on the research aim and research questions. Therefore, consistent with the methodology of Eisenhardt and Graebner (2007), theoretical sampling has been applied to select a case study company that can provide the rich and necessary data to answer the research questions and create a Price Control 1 model.

Yin (2009) proposed that a single case study is a proper research method. However, good reasons need to be provided for choosing this approach and the specific case. One reason for choosing a single case study approach is that Price Control 1 instruments are context-bound (Ryan, Scapens & Theobald, 2002). As a result, Price Control 1 needs to be studied in the particular environment of a specific case. According to Yin (2009), reasons for focusing on a single case study include the representative case (other organisations face similar problems in a comparable situation; the findings of the research could be used in other organisations) and the revelatory case (the researcher has to examine an issue that other researchers may find difficult to access).

The chosen case study company is a representative case because it shares many characteristics with the companies that operate in the German electrical/electronics industry. Ninety percent of the companies operating in the German electrical/electronics industry have fewer than 500 employees (BMWi 2015; Ehmer, 2009). The case study company has approximately 320 employees (Electronic, 2014a; Electronic, 2014b) and therefore is representative in terms of size. Electronic has an international focus (Electronic, 2012a), like most of the companies in the electrical/electronics industry (ZVEI, 2013). Like most B2B companies (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012), Electronic delegates a certain degree of pricing authority to their sales force (P1; P3; P4), which requires control of the excecution of pricing plans (Homburg, Jensen & Hahn, 2012). Because Electronic shares many characteristics with other companies in the German electrical/electronics industry, it can be considered to be a representative case, that enhances the transferability of the research results to other companies (Yin, 2009).

Moreover, Electronic is a revelatory case. The case study company granted access to all of the necessary data that were necessary to answer the research questions, which makes Electronic appropriate as a single case study. Electronic was selected because this case study company permitted the researcher to closely examine its price management process. Individuals on both the management and participant levels were helpful in providing all of the data that were necessary to do this research. The ability to gain in-depth and sufficient insights into the price management process and its controlling was a prerequisite for conducting a single case study and for answering the research questions; the price management process constitutes the basis for Price Control 1 instruments (Bolte, 2008). Companies tend to be restrictive with data concerning pricing and their price management process (Wiltinger, 1998); other researchers may have difficulty examining the pricing process of other companies because of the sensitive nature of this subject. This situation is due to the significance of pricing as a profit lever for companies (Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2004; Philipps, 2005; Schindler, 2012; Simon & Fassnacht, 2009; Wiltinger 1998); pricing issues are kept confidential in order to sustain the competitive edge of the company (Wiltinger, 1998). Therefore, finding a company prepared to share sensitive pricing information with external parties is not an easy task. The researcher believes that he was given the opportunity to study an area in-depth in the practical world that at other companies may have caused difficulties in terms of accessing the necessary in-depth and sensitive pricing data.

There are also other reasons as to why the chosen case study company is an appropriate unit of analysis to answer the research questions. First, it was necessary to select a case that had implemented a price management process. The literature review has revealed that in B2B companies the implementation level of systematic price management processes is low (Riekhof & Wacker, 2012; Rullkötter, 2009), which limits the choice of available companies as a unit of analysis. Electronic has implemented a price management, which renders the chosen case study company suitable for answering the research questions. The engagement in a systematic price planning is necessary because the basic assumptions of price planning in the literature needs to be matched; otherwise research on Price Control 1 is not meaningful. Price Control 1 controls the pricing plans, which are the outcome of the preceding steps of Price Control 1 in the price management process (Bolte, 2008). Therefore, Price Control 1 requires pricing plans to be controlled (Simons, 2000). If the company does not have established pricing plans, then benchmarks for Price Control 1 are missing. As a result, Price Control 1 cannot be performed and consequently a Price Control 1 model for the price management process cannot be created. The case study company has conducted a pricing project that addressed the steps of the price planning (e.g., value-oriented minimum prices have been established using a value driver pricing approach). In that way, the pricing plans that serve as a foundation for Price Control 1 and to assess which price controlling instruments are suitable to achieve pricing plans are available at the case study company.

Moreover, it was necessary to study a case that conducted price controlling and Price Control 1. The literature review showed that the implementation level of price controlling and its instruments is low in B2B companies (Section 2.5.5). Due to its implemented price management process and pricing plans, Electronic conducts Price Control 1 and employs a variety of Price Control 1 instruments to achieve set pricing plans. Electronic was therefore suitable to investigate Price Control 1 in a real-life context. The case study company had implemented a variety of price controlling instruments, which helped the researcher to answer the research question of what instruments can be used. In addition, the functionalities of the price controlling instruments could be explored to answer the research question as to how price controlling instruments can alleviate the Price Control 1 problem. Moreover, the case study company had experience with the implementation of Price Control 1 instruments in the price management process, which helped the researcher gain deeper insights into implementation issues associated with Price Control 1 instruments.

Beside engaging in price management and Price Control 1 in its everyday business, Electronic has conducted a pricing project and tackled the challenge of pricing already. The participants have therefore already been exposed to pricing issues in detail. This experience and knowledge of the participants of this chosen case study company constituted a good basis for productive and fruitful interviews and generated valuable insights into the topic of pricing and Price Control 1.

Moreover, the research questions focus on B2B companies in the OEM business in the electrical/electronics industry. Therefore, only a company in that context could be selected to answer the research questions. Electronic is a company that operates in this context.

There were also reasons related to the specific design of the price management process that rendered Electronic a suitable case study. First, Electronic engages in a value pricing approach (P1; P3; P4), which is considered to be a superior approach compared with cost-based or competition-based approaches in terms of yielding profitability (Füreder, Maier, Yaramova, 2014; Ingenbleek, Debruyne, Frambach & Verhallen, 2003; Liozu & Hinterhuber, 2013b; Mühlberger, 2013; Toni, Milan, Saciloto & Larentis, 2017). As a result controlling a value pricing approach via Price Control 1 improves a company's profits more so than controlling via other approaches (Toni, Milan, Saciloto & Larentis, 2017). Therefore, the findings for Price Control 1 in a value pricing context are more significant for the profitability of a company and accordingly a suitable context for researching Price Control 1. Second, Electronic engages in developing customer specific products with the result that project controlling is also relevant for Price Control 1. This situation extends the price controlling instruments that are in use and can be used for Price Control 1 at the case study company.

In addition, Price Control 1 is important for Electronic's profitability; Electronic delegates pricing authority to the sales force, which requires monitoring to ensure business transparency (Homburg, Jensen & Hahn, 2012). Moreover, due to the low EBIT margin (i.e., below 3% in 2014) (Electronic, 2014b), shortcomings in the management of Price Control 1 have a considerable impact on Electronic's margins (Roll, Pastuch & Buchwald, 2012; Schindler, 2012). The management of Electronic reported some shortcomings in the management of Price Control 1, which had negative effects on the transparency of how well pricing plans were implemented. Therefore, the development of a Price Control 1 model that combines the literature review and the case study findings will be of use to Electronic because such a model can improve its price controlling and solve practical problems, which can have a significant impact on Electronic's profitability.

In summary, due to the reasons noted above, the context and the specific company being studied have helped answer the research questions and create a Price Control 1 model. Having justified the appropriateness of the case study approach and the chosen case study company in its specific context, the researcher now needs to specify how the sources of evidence are collected from the case study company. The next sections address this topic.

3.4 Data collection

3.4.1 Introduction

Various data collection methods are available for doing case study research (Eisenhardt, 1989b; Eisenhardt & Graebner, 2007). For example, Scapens (1990, p.274) suggested "interviews, documentation, direct observation and participant observation" as typical sources of evidence in case studies in the management accounting field. Otley and Berry (1998) reported five common methods they found that were used by case study researchers in management control. These researchers used documents pertaining to control systems, semi-structured interviews with personnel in different levels in the organisation, observations, data related to the external context of the company and questionnaires to confirm that the findings were applicable throughout the firm. Ryan, Scapens and Theobald (2002, p.154) mentioned artefacts, questionnaires, interviews, observation of actions and meetings and outcome assessment of actions as sources of evidence. Case studies typically make use of various methods to gather the necessary evidence (Ryan, Scapens & Theobald, 2002) and substantiate and triangulate data (Yin, 2009). However, for interpretive case studies Walsham (1995) suggested that interviews are the most important source because the meanings created by the participants need to be collected. For this research, the primary source of evidence was qualitative interviews that are discussed in Section 3.4.2. However, documents were also collected and are addressed in Section 3.4.3.

3.4.2 Interviews

3.4.2.1 Qualitative interviews as the main data collection method

For the interviews themselves, qualitative, semi-structured interviews collected face-to-face with one interviewee were chosen. A qualitative interview is a conversation between the interviewer (who queries and listens) and the interviewee (who replies in their own words) to obtain the necessary information to achieve the research aims (Robson, 2002; Rubin & Rubin, 2012). These types of interviews are frequently used as the primary data collection method for in-depth research on control systems (e.g., Marginson, 2002; Mundy, 2010, Plesner Rossing, 2013; Sandelin, 2008) and pricing processes (e.g., Dutta, Zbaracki & Bergen, 2003) in a single case study design, which supports the decision of the researcher to use qualitative interviews as a main data collection method in this single case study design.

Qualitative interviews were selected because interactions with the participants and an in-depth understanding of the subject matter were required to achieve the research aim. Qualitative interviews allowed the interviewees to explain, in their own words, how the price management process functions, what instruments are applied and how such instruments are applied to achieve pricing plans. Qualitative interviews allowed the participants could freely share their experiences with regard to the implementation of price controlling instruments into the price management process (Qu & Dumay, 2011). Therefore, using qualitative interviews helped the researcher to generate a rich and comprehensive understanding of Price Control 1 at the case study company and adopt the interviewees' perspectives to research their subjective thoughts and meaning about Price Control 1 (Bryman & Bell, 2011; Marshall & Rossman, 2011; Patton, 2002). An additional advantage of this data collection technique was that qualitative interviews helped to examine and expand upon the responses of the participants (Rubin & Rubin, 2012; Swain, 2018), which facilitated a better understanding of Price Control 1 topics.

Moreover, due to the subjective and qualitative nature of this research, qualitative interviews helped the researcher to determine the subjective meaning and experiences that the participants attached to Price Control 1 (Bryman & Bell, 2011; Lodico, Spaulding &

Voegtle, 2010). Qualitative interviewing seeks to obtain meaning that is socially constructed (Bryman & Bell, 2011), which is consistent with the philosophical stance of the researcher (Section 3.2) and the qualitative approach of this research (Bryman & Bell, 2011; Section 3.3.3.2).

According to Bryman and Bell (2011), there are various types of interviews (e.g., structured interviews, unstructured interviews and semi-structured interviews). This research used a semi-structured interview approach, which is a commonly applied method in case study research in management control (Otley & Berry, 1998).

Structured interviews (e.g., surveys or standardised closed-end questionnaires) are not suitable for this research because they belong to the class of quantitative approaches and are associated with positivism. They accordingly are not a good fit for answering the type of research questions in this research (Saunders, Lewis & Thornhill, 2009; Section 3.3.2). They are not suitable because they require a predefined questionnaire with boundaries that are imposed by the researcher (Bryman & Bell, 2011; Saunders, Lewis & Thornhill, 2009). This situation does not allow the interviewees to share their ideas freely; with a closed-end questionnaires the individual meaning attached by the interviewees is hard to gather. As a consequence, Price Control 1 cannot be understood comprehensively.

In contrast, unstructured and semi-structured interviews belong to the class of qualitative approaches (Bryman & Bell, 2011) and do not predefine answer classes (open-ended questions). They have the advantage that an interviewee can respond in great detail using his or her own words (Burns, 2000; Patton, 2002). A semi-structured approach was chosen for this work because, based on the literature review, the formulation of the research aim and the research questions, an initial conversation with the chief financial officer (CFO) and management accounting and the review of documentation from a pricing project, key topics and issues that need to be addressed to understand Price Control 1 were available (Bryman & Bell, 2011). Therefore, semi-structured interviews, in combination with an interview guide, helped the researcher to address the relevant topics to understand Price Control 1 in order to answer the researcher questions. This methodology also allowed the researcher to expand on the topics (Patton, 2002). In contrast, the researcher felt that a fully unstructured interview would incorporate a danger of drifting into topics of conversation that were not pertinent to the research questions; a lot of information would be generated that was not useful to answering the research questions.

Moreover, a semi-structured, open-ended style gave the interviewees the chance to answer the questions in their own words, share their subjective experience and ideas more freely and easily bring up topics of importance (Hesse-Biber & Leavy, 2010). This type of interview approach was important because in that way new knowledge about Price Control 1 could be generated to create a comprehensive Price Control 1 model. In addition, during the data collection process, semi-structured interviews made it possible to deviate from the prepared list of questions in case one topic needed to be understood in more detail or unexpected relevant topics emerged that were relevant to answering the research questions (Bell, 2005; Mitchell & Jolley, 2013). A semi-structured, open-ended style fits well with the philosophy of social constructivism (Creswell, 2009).

According to Saunders, Lewis and Thornhill (2009), interviews differ in how the conversation takes place (e.g., face-to-face or via telephone). The face-to-face interview format (i.e., the interviewer is with the interviewee in person) (Salkind, 2010) was chosen because only a few interviews were conducted and the interviewees were located in Germany; they were geographically close to the researcher. In addition, due to the complexity of the questions on Price Control 1 a face-to-face interaction made it easier to give explanations (Bloch, 2004). The respondent was able to show documents and Price Control 1 instruments and to clarify his or her answers. Moreover, the researcher could show documents and discuss them with the interviewee. There were occasions when the respondent asked a colleague for help or for opinions or supporting documents that were not at hand. Doing so increased the accuracy of the interviewees' responses and a yielded a deep understanding of the subject matter on the part of the interviewer (Hague, Hague & Morgan, 2004).

According to Saunders, Lewis and Thornhill (2009), interviews differ in the number of interviewees per interview (e.g., only one interviewee or group interviews that include multiple interviewees). The interviews were mainly conducted one-on-one because the subjective views and opinions of the single interviewee needed to be collected to construct meaning to answer the research questions. Each interviewee possessed special knowledge, which meant that the questions could be tailored to the specific interviewee and some topics could be discussed in more depth. A one-on-one situation removed peer pressure and allowed the interviewee to communicate his or her individual views and opinions about price management and price controlling (Wiid & Diggines, 2009). In addition, collecting individual viewpoints made it possible to compare the findings among the different interviews, which enhanced the validity of the research (Creswell, 2009).

Having specified the type of interviews, the appropriate interviewees needed to be selected. The next section addresses this topic.

3.4.2.2 Selection of interviewees

Appropriate interviewees were selected by purposeful sampling. In qualitative research, the aim of sampling is not to find a representative group from which to generalise but to find appropriate people who can provide rich and relevant information (Miller & Crabtree, 1999). Therefore, those persons working at Electronic were identified who had the knowledge to answer the research questions (Patton, 2002; Maxwell, 2005). Purposeful sampling helped ensure that the selected interviewees were able to provide enough information in order to answer the research questions.

The criteria for selecting interviewees took into account their position at Electronic, their expertise and their experience and involvement with pricing and price controlling. To ensure that the appropriate interviewees were chosen, the CFO and the head of controlling were enlisted to help; the researcher did not know which persons possessed the knowledge most relevant to the study's research aims. Both of these individuals had worked at the company for a long time (14 and 23 years, respectively) and are are immensily involved into pricing issues. This approach ensured that participants were selected who possessed knowledge about the subject matter; less-knowledgeable people whose responses might have biased the findings were not interviewed.

There is no consensus in the literature as to how many interviews a researcher ought to conduct (Johnson, 2002). The researcher continued searching for interviewees during the research process until all relevant Price Control 1 topics were covered and the research questions had been answered (Dicicco-Bloom & Crabtree, 2006; Robson, 2002). This approach ensured that enough information and evidence was collected to answer the research questions.

Seven employees from the case study company were interviewed. They came from different departments and different organisational levels. Covering different positions and levels ensured that the data collected were rich and covered different perspectives of Price Control 1. In addition, due to the medium size of Electronic, these interviewees were the most knowledgeable people in terms of knowing about pricing and price controlling in the company. They were additionally most involved in price controlling. These seven participants were able to cover all issues of price controlling in the company; the number of interviewees was sufficient to provide information to understand Price Control 1 in an in-depth manner and to answer the research questions. The participants and their role in Price Control 1 are specified in the next section.

3.4.2.3 Interviewees

The interviewees included the CFO, the sales director, the head of internal sales, the chief information officer (CIO), the head of controlling, the sales controller and the controller for budgeting and internal audits. These participants were able to provide all of the information needed to answer the research questions because price controlling is a management task and the management accounting informs management about the achievement of plans. The management accounting department played a major role in answering the research questions because these persons are most involved in price controlling and in its instruments. The CFO, the head of controlling, the sales controller and the controller for budgeting and internal audit are the most important employees in management accounting for pricing purposes and constitute most of the staff in controlling due to the medium size of the company (P3). The sales department was represented by the sales director and the head of internal controls due to their immense involvement in price controlling. Sales force personnel were not included among the interviewees because they did not perform Price Control 1 (Florissen, 2005). This research did not focus on understanding how Price Control 1 is perceived by the sales force. Instead, it focused on how Price Control 1 works. Therefore, the persons that perform and use a Price Control 1 are the most valuable informants for understanding Price Control 1.

The CFO is accountable for all finance aspects, information technology, human resources and management accounting, including price controlling. The CFO uses and reviews the price controlling figures but also is a major driver for improving the price management process and establishing sales and price controlling. The CFO takes part in several pricing meetings and is responsible for the approval of prices in case of escalations and the approval of pricing plans and budgets.

The head of controlling is responsible for calculating prices; input for the price calculation scheme is provided to the sales team so that it can calculate products' minimum prices. In particular, the cost information is provided by the head of controlling. Furthermore, the head of controlling prepares various price controlling instruments and reports and discusses the requirements for price increases. The head of controlling also takes part in several meetings that focus on pricing issues. The sales controller is responsible for the sales/price controlling. He or she prepares various price controlling instruments and reports and takes part in pricing-relevant discussions and meetings. The controller for budgets and internal audits controls the general budgets (mainly overheads) and conducts internal audits.

The CIO is the head of the information technology (IT) department and is the most knowledgeable person in the company when it comes to IT issues. The CIO is also involved in price controlling issues because the information system needs to be set up so that data for price controlling are available and reports can be generated. The CIO furthermore helps with setting up pricing tools and reports.

The sales director is responsible for the entire OEM business and directs the area sales managers (ASMs). The sales director approves prices and projects and evaluates strategic prices. He or she is involved in price planning and makes use of pricing instruments and reports. He or she also reviews and discusses the price controlling reports with the responsible persons and attends all pricing-relevant meetings. The head of internal sales is responsible for sales support and is involved in price controlling issues. For example, the head of internal sales prepares measurements for price escalations, conducts won-lost order analysis and establishes measurements for framework contracts (P3).

The researcher felt that interviewing this group of individuals provided sufficient, in-depth insights into the company's price management and price controlling and covered all relevant topics and that these individuals were representative of the organisation in general (Johnson, 2002).

3.4.2.4 Preparation of the interview guide

An interview guide has been prepared which provided guidance in the interviews to cover the relevant topics about the subject matter. An interview agenda is "…a set of topical areas and questions that the interviewer brings to the interview" (Hesse-Biber & Leavy, 2010, p.103). An interview guide was prepared, because there was some pre-knowledge of the researcher about the subject topic available (Patton, 2002). The preparation of the interview agenda was based on the findings of the literature review, the research questions, objectives and aim, a first review of the pricing project documentation and a first conversation with the CFO and the head of controlling. It included the main topics which were to be covered in the interviews (Hesse-Biber & Leavy, 2010; Weiss, 1994). The researcher refrained from using a very detailed interview guide which predetermined all questions in detail. The most important topics and questions were covered to elicit the information needed to answer the research questions. The less detailed interview guide was used as a tool for guidance and made it possible to focus on the interview and interviewee rather than on the guide. It enabled the researcher to receive the relevant and in-depth subjective information and when necessary to add questions which were not written down on the guide (Thomas, 2011; Weiss, 1994). Because each interviewee possesses unique knowledge, the interview guide was not intended to work in exactly the same manner in each interview (Thomas, 2011; Weiss, 1994). For topics which were brought up in the first interviews and which needed more in-depth understanding, the relevant interviewees were consulted again. The used interview guide can be found in Appendix 1 and covers the following topics which are discussed in the following.

Interview agenda

Contextual setting (Price management process)

- Pricing strategy & objectives?
- Methods of price setting?
- Price ralisation? (Authority regulations, escalation system, incentive system?)
- Responsibility areas?
- Targets given to the sales force as outcome of planning?

RQ 1: Price control 1 instruments

- Control process for price control 1 ?
- Price control instruments in place to control the execution of pricing plans?
- Measures and reports generated?
- If there are variances what is done/ any countermeasures?
- Weaknesses of current price controlling instruments/ improvements/ ideas?

RQ 2: Price control 1 problem

- Transparency towards management?
- Functions a price controlling should fulfill?
- Support of price controlling instruments?

RQ 3: Price control 1 implementation

- Factors / prerequisites for a price controlling?
- How is price controlling implemented so far? How can price control 1 instruments be implemented into the price management process/ what needs to be considered?

Figure 3.1: Interview agenda

(Source: researcher’s own illustration)

To understand the contextual setting of Price Control 1, the price management process at Electronic needs to be understood. The literature review shows that the price management process consists of different process steps and Price Control 1 is one step within the entire price management process (Florissen, 2005; Section 2.4). The planning phase determines the pricing plans which need to be controlled by Price Control 1 (Bolte, 2008; Simons, 1995). Drawing on the contingency theory, different controls and instruments are used in different situations, which means that they are contingent on the specific price management process (Franco-Santos, Lucianetti, & Bourne, 2012; Otley, 1999; Section 2.3.3). The pricing plans are the result of the planning phase of the price management process and thus determine the design and use of Price Control 1 instruments which will be used. Therefore the planning phase of the price management process at the case study company has been investigated according to its different process steps, these are: pricing strategy and pricing objectives, operational price setting with its pricing methods and price realisation in which the pricing authority and the incentive system are determined (Florissen, 2005; Section 2.4.3). The level of delegation of pricing authority to the sales force has a major impact on the extent to which the Price Control 1 problem is apparent (Chen, 2005; Homburg, Jensen & Hahn, 2012; Section 2.5.1.1). In addition to the delegation of pricing authorities it has been asked what the responsibilities areas are, because they determine who is responsible for the pricing and the performance results (Anthony, 1988). Responsible areas determine who is monitored. Then it has been asked what pricing plans are actually prepared and communicated to the sales force. The pricing plans are the core of the Price Control 1 model, like the business strategy is the core of the control system in Simons' (1995) LOC framework (Section 2.6.4.1). The pricing plans determine what plans a Price Control 1 should monitor and control to attain the pricing goals set by management (Florissen, 2005; Simons, 1995). This approach can be compared to the proposed approach by Otley (1999) for researching and analysing performance management systems. Otley (1999) examines the plans to be controlled first (Section 2.6.2).

Second, questions have been asked to address RO 1 and RQ 1. The literature review in Sections 2.5.4 and 2.6 identified a research need which Price Control 1 systems and which Price Control 1 instruments for B2B in the OEM business operating in the electrical/electronic industry can be used. The literature review in Section 2.6 showed that various control systems are mentioned in the literature. A mixture of the management control frameworks of Simons (1995) and a process oriented management control view (Anthony, 1988; Anthony & Govindarajan, 2007; Flamholtz, 1996) is thought to be a good approach to research Price Control 1 instruments and to analyse the case study findings (Section 2.6). The process view postulates that Price Control 1 is also a process that consists of different steps (Anthony, 1988; Riekhof & Lohaus, 2009; Rullkötter, 2009; Section 2.6.3). Price Control 1 instruments are used in the different process phases. To align the Price Control 1 instruments to the control phases, the Price Control 1 process at the case study company needs to be investigated. Section 2.5.4.1 showed that there is a research need regarding what Price Control 1 instruments can be applied in B2B companies in the OEM business in the electrical/electronic industry. To explore the Price Control 1 instruments, a major question was what Price Control 1 instruments are in place at the company, because Price Control 1 instruments are applied in Price Control 1 (Bolte, 2008). Performance measures and reports are also part of the Price Control 1 instruments and it has been explicitly asked for them (Bolte, 2008; Section 2.5.4.3). The literature review showed that Price Control 1 does not stop with reporting the variances (Section 2.5.4.4), therefore questions were asked regarding the action taken if variances were spotted. Knowing from the literature review in Section 2.5.5 that the implementation of price controlling is only at its beginning in B2B companies (Riekhof & Lohaus, 2009; Riekhof & Wacker, 2012) questions were also asked regarding the current weaknesses of a price controlling and possible improvements and further ideas for Price Control 1 instruments so as not to exclude the interviewees offering further ideas regarding Price Control 1 instruments.

Third, questions were asked to evaluate the Price Control 1 problem at the research company and to assess how Price Control 1 instruments can help to reduce the Price Control 1 problem. These questions address RQ 2 and RO 2. A major problem which occurs at the step between the planning phase and the execution phase is that of information asymmetry (Chen, 2005; Homburg, Jensen & Hahn, 2012; Section 2.5.1.1). Interviewees were asked how transparent the performance of the sales team is to the management in order to investigate information asymmetry problems. Furthermore the literature review showed that Price Control 1 ought to have several functions (Cammann, 1976; Bolte, 2008; Flamholtz, 1996; Section 2.5.3). Price Control 1 and its functions serve to mitigate the Price Control 1 problem (Sections 2.5.2 & 2.5.3). Because functions can be context-specific, the interviewees were asked what functions are fulfilled by Price Control 1 at the case study company. The literature review in Section 2.5.4.1 revealed that there was a research need regarding how Price Control 1 instruments could mitigate the Price Control 1 problem for B2B companies in the OEM business operating in the electrical/electronics industry. Therefore one interview question related to how the Price Control 1 instruments can support the fulfilment of Price Control 1 functions to attain pricing plans.

Fourth, questions were asked to investigate factors which need to be considered for an implementation of Price Control 1 instruments into the price management process. These questions address RQ 3 and RO 3. The literature review in Section 2.5.5 showed that there are deficits in the implementation of price controlling in practice (Riekhof & Lohaus, 2009; Riekhof & Wacker, 2012). A need to provide a sufficient guide for B2B companies to support the implementation of the Price Control 1 instruments has been identified (Section 2.5.5). To explore factors which are important for an implementation, the interviewees have been asked about the prerequisites for price controlling, for example the literature states that plans need to be available for a control (Anthony, 1988). Furthermore questions were asked regarding how price controlling had been implemented up to that point and what important factors needed to be considered for an implementation. The reviewed literature does not refer to Price Control 1 in particular, but to implementing price management successfully. For example factors such as processes (Roll, 2009) and management support (Liozu & Hinterhuber, 2013a) are mentioned in the literature (Section 2.5.5).

Prior to the interviews, the interview guide was reviewed and tested with the head of controlling (Bryman & Bell, 2011; Ghauri & Grønhaug, 2005) to ensure that the interview guide was understandable for the interviewees and covered the relevant topics to answer the research questions. Because the interview guide served only as a rough guide, the coverage of important issues was the main focus. No adjustments of the interview guide were necessary. The pilot interview also showed that it would not be possible to cover all topics in-depth using the first round of interviews but that some more in-depth interviews to particular issues would need to follow to understand fully Price Control 1 at the case study company.

3.4.2.5 Conducting and recording of the interviews

The interviews were conducted in each interviewee's office or in a meeting room at the company; the interviewees selected the location of this interview. This situation afforded the advantage that the interviewees felt comfortable (King & Horrocks, 2010; Sarantakos, 2005). The locations were well suited to interviews because they were quiet and there were no major interruptions or disturbances (Wilson, 2010). The first round of interviews was scheduled for a 1–3-hour time period. Some interviews took longer than scheduled (especially in the controlling department) to cover the relevant interview questions and discuss further issues; this extension was with the permission of the interviewee.

The manner in which the interviews were conducted can be described as follows. First, the topic, aim and research questions were introduced. Permission was requested how to record the data, and the researcher explained how the data would be treated for ethical reasons. Then, the topics noted in the interview guide were addressed.

The interviews were conducted in German. Language plays a significant role in the interviewing process and needs to be discussed. Different languages were used for conducting the interviews and for generating the interpretation; the case study was conducted in Germany and the thesis was submitted in the United Kingdom (Hennink, 2008). German is the dominant business language at Electronic's headquarters. The researcher and all of the interviewees are native German speakers. The researcher conducted the interviews in German for several reasons. It was easier for interviewees to understand the questions and to formulate their answers in their native language, which meant that their responses were more detailed and accurate (Hollingshead & Poole, 2012; Marschan-Piekkari & Reis, 2004). The risk of misunderstanding was reduced because both the researcher and the participants spoke in their native language. Possible power balance issues due to different English language skills between the researcher and the informants were avoided (Piekkari, Welch & Welch, 2014).

According to Rubin & Rubin (2012), an interview can be video- or audio-recorded (the most common approach), or the researcher can take notes of key points to record the interview data. However, audio recording is only possible with the permission of the interviewee for ethical reasons (Saunders, Lewis & Thornhill, 2009), which means that the informant can choose how the data are recorded. Because of confidentiality concerns and the sensitivity of the topic of pricing, the interviewees preferred that the researcher take notes rather than make an audio recording. Therefore, note taking was the method of choice for recording the interviews in this research (King & Horrocks, 2010).

The handwritten interview notes were reread and reflected upon by the researcher. When necessary, points were added from memory shortly after the interview. If details were unclear or seemed to be incomplete, these points were addressed and the interviewee was contacted again. Doing so helped to clarify issues. The handwritten notes were word-processed, and a file with the notes of the responses of each informant was produced.

There are different ways to manage interviews conducted in a different language. One is to translate the notes into English before the data analysis (Hennink, Hutter & Bailey, 2011). That technique was adopted here. For the follow-up interviews, vital notes were word-processed immediately in English.

When new issues occurred in the interviews that could not be covered or that needed to be clarified or discussed in greater depth, a follow-up in-person interview or telephone call was conducted. A workshop was conducted with the head of controlling and the sales controller to understand the performance measures and reports that were important for Price Control 1 at Electronic. This approach provided a deep understanding of suitable measures and gave feedback regarding the suitability of the price controlling instruments for a Price Control 1 model. The management accounting employees in particular dominated the in-depth discussion because they were the most involved in preparing the price controlling instruments.

Before the actual interviews started, an initial conservation was conducted with the CFO and the head of controlling at Electronic. This conversation was aimed at clarifying whether Electronic was a good case study for the research. It also covered the aims, duration, necessary resources and confidentiality issues of the research. This conversation ensured that the case study company was appropriate to answer the research questions, that the data needed to answer the research questions were available at Electronic and that the company provided sufficient resources and information to answer the research questions (Section 3.3.3.4).

Then, the real interview phase started. The seven informants were interviewed, and the researcher conducted follow-up conversations with some of the interviewees to clarify points. In total, 11 face-to-face interviews were conducted; each interviewee had a minimum of one, but the head of controlling and the sales controller had three face-to-face interviews. A workshop, with the head of controlling and the sales controller, was used to investigate performance measures for price controlling and pricing reports. There was another telephone conversation with the CFO, the head of controlling and the sales controller to understand open issues. These interviews added up to a total of 15 with seven different people.

In addition, the interviewees were contacted in person or by telephone to check and confirm the interview notes to enhance reliability and to confirm the interpretation to establish validity, to ask for missing information and to present and discuss results to get feedback whether the created Price Control 1 model was also shared by the participants. The CFO and head of controlling read a final draft of the thesis; this document was shared with the intent that these individuals could verify that the interpretations of the findings were accurate and were shared by the company. This process contributed to the validity of the case study. Due to the nature of the research, company documents were also collected. This topic is discussed in the next section.

3.4.3 Documents

Documents are often used in addition to interviews to study management control systems in a single case study (e.g., Marginson, 2002; Mundy, 2010; Otley & Berry, 1998; Plesner Rossing, 2013; Sandelin, 2008). Wolff (2004, p.284) provided a general definition: “Documents are standardized artefacts, in so far as they typically occur in particular formats: as notes, case reports, contracts, drafts, death certificates, diaries, statistics, annual reports, certificates, letters or expert opinions.” Therefore, documents are produced for particular objectives and reasons in particular situations so that they have various and many forms (Prior, 2003; Yin, 2009).

According to Yin (2009), documents are often used in case studies to add detail. The documents used in this study provided information about the company and included pricing project documentation, mission statements and price controlling instruments/reports. These documents enabled the researcher to see the price controlling instruments and reports in real life in addition to learning about them via conversations with the participants. In addition, the interviewees could explain the instruments with the help of the documents; this enhanced the understanding of the instruments. Moreover, the ability to read about the company and its pricing project before the interviews was helpful to get an overview of the context and pricing at Electronic. This procedure helped during the interviews because it facilitated understanding and enhanced the discussion of Price Control 1 topics. The collected instruments gave the researcher the ability to compare interview notes with the documents to establish reliability and validity (Marginson, 2002; Plesner Rossing, 2013; Yin, 2009). To analyse both the collected interview and document data, the research had to choose an appropriate data analysis method to answer the research questions (Bryman & Bell, 2011). This data analysis method is discussed in the next section.

3.5 Data analysis

In general, data analysis consists of “…examining, categorizing, tabulating, testing, or otherwise recombining evidence, to draw empirically based conclusions.” (Yin, 2009, p.126). To analyse the data in this study, the researcher engaged in thematic analysis as a form of qualitative content analysis (Bryman & Bell, 2011). Thematic analysis is a qualitative method that searches for themes in the generated data that are perceived to be important with regard to the phenomenon being studied (Daly, Kellehear, & Gliksman, 1997), and as such the aim is to identify patterns in qualitative data (Braun & Clarke, 2006). Being a qualitative method, thematic analysis fits with the qualitative approach of this research. Moreover, thematic analysis was appropriate because it allowed the interviews and documents data to be structured and also facilitated identification of the patterns that are important for Price Control 1, which enabled the development of the associated model.

According to Braun and Clarke (2006), there are different coding approaches that can be applied to conduct thematic analysis. The coding can be more theory-driven, more data-driven or can also be a hybrid form drawing on the two former approaches. Consistent with the approaches of Fereday and Muir-Cochrane (2006) and Swain (2018), this research applied a hybrid approach of thematic analysis. This statement means that some code categories were available a priori (those that emerged from the literature review and were prepared in a template), and additional codes emerged from the data themselves (Fereday & Muir-Cochrane, 2006).

Thematic analysis is said to be a flexible approach with regard to the research philosophy that underpins its approach and application, and as such is also suitable for a constructivist and interpretivist position (Braun & Clarke, 2006). However, the researcher recognises that the hybrid approach moves away from the norms and traditions of social constructivism. The majority of social constructivists tend to prefer inductive approaches and consequently do not bring a priori codes to data analysis (Creswell, 2009). The themes are primarily data-driven, which reflects that constructivists seek to discover and generate themes from participants' subjective meaning and experiences and a researcher's interactions with the participants (Creswell, 2009). In contrast, when using a hybrid approach that combines the application of a template with a priori codes and the development of emerging codes, the researcher brings presumptions from the literature review, research aim and/or research questions to the data analysis. Consequently, this approach moves away somewhat from social constructivism's norms, as it might be suggested that a priori codes are a deductive approach– often associated with positivism (Creswell, 2009; Swain, 2018).

However, there are social constructivist or interpretivist researchers that apply a hybrid approach with a template of a priori codes from the literature and the research aim to identify themes in data sets (e.g., Boling, Hough, Krisnsky, Saleem & Stevens, 2012;

Fereday & Muir-Cochrane, 2006; Lecuyer, White, Schmook, Lemay & Calme, 2018; Mitchell, 2014; Swain, 2018). These researchers argue that a hybrid approach is applied to reflect that researchers have certain pre-knowledge and theoretical positions that they bring to data analysis as a frame and structure. They also suggest, on the other hand, that themes are grounded in the data by allowing flexibility, particularly in the fact that the preliminary codes can be combined with the development of inductive coding. This process also allows for the preliminary codes to be deleted, modified and extended based on what best captures subjective meaning (Fereday & Muir-Cochrane, 2006; Lecuyer, White, Schmook, Lemay & Calme, 2018; Mitchell, 2014; Pica-Smith & Veloria, 2012). The hybrid approach enabled the development of frameworks that account for participants' subjective meaning and experiences and the researcher's theoretical pre-knowledge (Lecuyer, White, Schmook, Lemay & Calme, 2018; Mitchell, 2014). Mitchell (2014) claimed that in constructivism researchers help to co-construct theory that is based on the data by bringing a theoretical frame to the data. Even though the researcher brings a theoretical framework that guides the analysis, the findings are still grounded in the participants' subjective experience; inductive coding is facilitated to reflect patterns emerging from the data (Mitchell, 2014).

The hybrid approach was appropriate for this research because the aim of this research was to develop a Price Control 1 model that was partially based on the literature review and the case study findings. The hybrid approach made it possible to explore and acknowledge major topics from the literature review in terms of Price Control 1, and it also allowed important Price Control 1 themes to emerge from the data (Lecuyer, White, Schmook, Lemay & Calme, 2018; Willig, 2013). The a priori codes of the hybrid approach helped the researcher to initially structure the data based on the findings of the literature review (Crabtree & Miller, 1999). For example, the code categories that the researcher used as preliminary codes included the steps of the price management process, the subsystems of the Price Control 1 and functions and instruments. This organisation made it possible to, for example, categorise the instrument mission statement below the subsystem of beliefs systems. Data-driven codes were used because they expanded the preliminary codes, formed new codes or modified codes in the template based on the collected data (Brooks, McCluskey, Turley & King, 2014; Fereday &

Muir-Cochrane, 2006). The coding was an iterative, reflexive and open-minded process. There was much back and forth in the data, and many rounds of coding ensured that the created themes reflected the perspectives of the participants and the collected data (Brooks, McCluskey, Turley & King, 2014; Fereday & Muir-Cochrane, 2006). In addition, methods such as member checking were applied to be true to the participants (Creswell, 2009); these employed methods will be discussed later in the thesis. Therefore, the hybrid approach ensured flexibility to account for the participants' perspectives and allowed the researcher to consider pre-knowledge to enable the development of the Price Control 1 model.

As suggested by Braun and Clarke (2006), the researcher first read through all of the data to get an overview of the entire data set. The researcher also noted some preliminary ideas during this step. This pre-reading ensured that the researcher had an idea of the content and range of the collected data (Braun & Clarke, 2006).

Next, broad initial codes that emerged from the literature review were prepared in a template (Crabtree & Miller, 1999; Fereday & Muir-Cochrane, 2006), which was tested with two sets of interview data that supported the applicability of the preliminary codes to the data set (Braun & Clarke, 2006).

Then, the entire data set, including the interview data and the documents, was coded using hybrid thematic analysis. The interview notes were read, and preliminary codes were assigned to the data segments. The decision to assign data segments to the codes was based on the content of the data (e.g., the interviewees directly referred to an instrument or described an instrument or process that fit into the code). Consistent with the techniques of Braun and Clarke (2006) and Fereday & Muir-Cochrane (2006), codes were refined or expanded to fully analyse and reflect the data when data chunks did not fit into the preliminary codes. In that way, new ideas and knowledge that were not covered by the preliminary codes emerged (Drisko & Maschi, 2016; Willig, 2013). This means although guided by preliminary codes the coding process was data-driven by allowing flexibility. As proposed by Braun and Clarke (2006), data chunks can have as many codes as necessary for a thorough analysis. This coding technique ensured that the data chunks were aligned with all of the codes they belonged to; this process facilitated a comprehensive data analysis. For example, instruments fit into a relevant instrument code but the data chunk also expressed the function of the instrument. Therefore, the same data chunk was aligned also with the function code. In addition, it was rechecked that the entire data set was coded.

Various tools are available for coding. Coding can either be done manually or with the help of a software programme (Braun & Clarke, 2006). According to Meyer and Avery (2008) and Ose (2016), Microsoft Excel is one appropriate tool for analysing qualitative data. Excel was appropriate as a coding tool for this research project because it made it possible to code and categorise the interview data sets and documents. Furthermore, the researcher possessed good knowledge of Excel (Ose, 2016). Excel allowed the researcher to align codes with the collected data and organise the data below each code. The steps were as follows. The word-processed interview data were transferred into Excel. The researcher aligned a number code with each code, which facilitated the data analysis because only a number needed to be attached to the data chunks and not the entire code. A long list of all codes was produced after the first round of data coding was completed. Several rounds were necessary to derive the codes and categories,the long list was reviewed, and comparable topics were clustered together.

The document types listed below were also analysed and coded.

Pricing project documentation: These documents provided insights into the pricing process and price thinking of Electronic. They also included information about pricing strategy, value driver pricing and escalation guidelines. The project documentation described the process for price increases. The documentation was helpful to get an overview of Electronic’s pricing and facilitated a deeper understanding of price management and the underlying price thinking at Electronic.

Company information (e.g., annual reports, financial statements, product information, organisation chart): These documents provided information about the type of business of Electronic and financial and company data such as the number of employees and revenue. The product catalogue provided information about the variety of products that Electronic sells. The organisation chart provided information about how Electronic is organised (i.e., how the management accounting and sales department is organised). These documents provided valuable information for understanding the context in which the research takes place.

Mission statement: The mission statement provided information about the mission, vision and company values that guide the behaviour of Electronic's management and employees. This document was especially useful for understanding Electronic's corporate objectives, and it also provided information about Electronic's control subsystem of the "beliefs systems" in the Price Control 1 model.

Price controlling instruments/reports: Several price controlling instruments and reports were collected and analysed. They provided a deeper understanding of how the price controlling instruments function and were used to validate the statements of the interviewees. For example, the value price calculator tool provided insights into how minimum prices at Electronic were calculated. It provided the costs types that were considered, the value drivers and the minimum profits. It also included an escalation sheet with the escalation thresholds and information that needed to be filled in for an escalation. The tool "margin bridge" revealed the calculation and separation of the variance between planned and actual margins. Screenshots of the Lotus workflow for development projects facilitated an understanding of the controlling process in development projects and what types of additional costs are monitored at Electronic. The instrument used to measure the implementation of price increases gave insights into how Electronic approached the monitoring of price increases. In addition, several reports were analysed that gave insights into how Electronic monitors pricing plans. These reports included reports for escalations, won/lost rates, implementation of price increases, profit development, sales budget reports and project reports. All of the documents were valuable to the researcher, and they were compared with the interview notes to enhance the quality of the case study.

The documents also have been coded. The codes that have been derived from the coding of the interview data have been used for the documents analysis. However, it was also allowed that new codes emerge or codes are expanded. Except from the company information no new codes emerged from the document analysis. The documents have been aligned to the codes based on the content. Similar to the interview data analysis a document could be aligned to more than one code. For example the value-driver pricing tool was aligned to the code of price setting but also to the code for escalation system, because on the one hand it calculates the minimum prices for price setting and on the other hand it displays the escalation when a price below minimum price is quoted. The documents were aligned to the relevant codes by writing the codes onto printed documents and sorting them or attaching the coding numbers to the electronic files and sorting them. This ensured that the interview data and documents shared the same codes and therefore could be analysed and interpreted together in one place. Applying the same codes to the interview data and documents facilitated a comparison of these two data, a process called "triangulation" that enhanced the qulity of the case study (Scapens, 1990; Yin, 2009). The documents supported the statements of the interviewees and thereby enhanced the validity of the case study (Marginson, 2002; Yin, 2009).

Then, the researcher analysed the codes with regard to how codes combined together, which enabled the researcher to search for themes in the data. The themes were judged on how they reflected the meaning of the interviews (Braun & Clarke, 2006). The researcher returned to the data and assigned the topics to the relevant note segments. The topics were reviewed and analysed again and then clustered into categories that were directly linked to the research questions and objectives. This process yielded a list of primary categories and subcategories. Finally, the relevant note segments were labelled with the main categories and subcategories (Creswell, 2009). The coded data were extracted and transferred into a second Excel file. Since the codes were assigned to the data chunks, it was possible using the Excel function of Pivot table to list all of the labelled data under the related category and subcategory. In this way, a structured and manageable Excel file was produced that assembled the interview data belonging to each category and subcategory (Creswell, 2009). The source of the data was also included so that the researcher could track data chunks back to the original data (Saunders, Lewis & Thornhill, 2009). Through the coding process, complex interview data could be structured in a way that facilitated interpretation because the relevant data chunks were listed below each category.

Finally, the researcher prepared diagrams and charts in order to review the data and to facilitate recognising themes and key points (Ryan, Scapens & Theobald, 2002). Figures and tables for separate categories and subcategories were prepared to visualise the data and support its understanding and interpretation (Eisenhardt & Graebner, 2007). The established models were constantly compared with theories found in the literature review (Scapens, 1990). Throughout the entire duration of the thesis, the researcher reflected on the interpretations of the data. The process of data analysis was an iterative rather than a sequential process that always connected the collected data, the codes and the themes, which means that the researcher went forth and back through the steps of data analysis. The steps how the themes have been derived were checked before interpretation to make sure that the data reflected the meaning of the participants.

In addition to these systematic procedures for the data analysis, additional steps were taken to reduce potential personal biases. In contrast with quantitative approaches, qualitative approaches are subjective as the researcher is involved in the field and interprets the data. As a result, the researcher is part of the research (Saunders, Lewis & Thornhill, 2009). Thus, there is a risk of bias and subjectivity in the data analysis phase. This risk cannot be avoided completely (Sutton & Austin, 2015), but the researcher applied several methods to minimise this risk as much as possible to ensure that the findings represent the interviewees' perspectives (Creswell, 2009).

First, the data were triangulated (i.e., the interview data were compared with one another and with the documents). Thus the themes are based on corroborated participants' views and documents collected from the company. Second, member checking was applied, which gave the participants the opportunity to provide feedback when there were any concerns (Atkinson & Shaffir, 1998; Creswell, 2009; Maxwell, 2007). The themes were taken back to the participants so that they could comment on them and decide whether they perceived the themes to be an appropriate representation of their issues. The participants confirmed the themes. Furthermore, the developed Price Control 1 model was presented to the participants for feedback. The participants were positive about the developed Price Control 1 model and stated that it reflected their understanding and meaning. Moreover, the thesis was read by the head of controlling and the CFO;

both individuals gave positive feedback. These steps safeguarded against the risk of personal bias in the findings and in the creation of the Price Control 1 model.

3.6 Establishing the rigour and validity of the research approach

Case studies are often viewed, largely from positivist quantitative point of view, as lacking reliability and validity (Patton & Appelbaum, 2003; Verschuren, 2003). According to Ryan, Scapens and Theobald (2002), the criteria used for quantitative research are not fit for assessing qualitative case study research because an interpretative approach is not objective; the researcher is involved in the case study and meanings are socially constructed. Scapens (1990) stated that there is no such thing as an objective case study; meanings are always interpreted and constructed with the result that researcher bias may occur. Biases in qualitative case study research can be found in the entire research process of case studies (Johnston, Leach & Liu, 1999).

Various methods can be applied to reduce bias and establish the rigour and validity of case studies (Creswell, 2009; Mariotto, Pinto Zanni & Moraes, 2014; Yin, 2009). For Ryan, Scapens and Theobald (2002) and Creswell (2009), suitable criteria for assessing a qualitative case study include reliability (procedural reliability), validity (contextual validity) and generalisability (transferability).

In a qualitative case study, the researcher is involved in the field and interprets the data collected (Parker, 2012). Biases could stem from the researcher's background (Atkinson & Shaffir, 1998; Stuart, McCutcheon, Handfield, McLachlin & Samson, 2002). In the context of this study, the researcher worked as a controller and is currently working as a price management consultant. Due to this background, the researcher has a certain level of prior knowledge of price management and controlling, and his background and beliefs could influence the interpretations of the findings.

Additional bias could stem from the researcher's involvement with Electronic and the interviewees (Ryan, Scapens & Theobald, 2002). Ryan, Scapens and Theobald (2002, p.152) stated five different roles a researcher could play in a case: outsider, visitor, facilitator, participant and actor. At Electronic, the researcher was a visitor. The researcher was present at the company for the interviews. Ryan, Scapens and Theobald (2002) noted that even without the visitor having direct involvement in the subject of the research, it is still possible for there to be bias due to influence created by the action of speaking about the topic.

According to interpretative philosophy, there is no objective reality (Creswell, 2009) and hence the conclusions of qualitative case studies are based on the interpretations of the meanings of the interviewees. Therefore, there was a risk that the researcher would interpret the findings incorrectly or that his background might have influenced his perspective. Biases might also have arisen from the interviewees. If only the sales department had been interviewed, the results might have been biased because only one perspective on price controlling would have been considered. Furthermore, less-experienced informants could have biased the results (Eisenhardt & Graebner, 2007). In every step of the research process, the researcher made decisions, and the choices made by the researcher could have influenced the research results. The researcher has attempted to mitigate possible biases and to increase rigour and validity.

To increase reliability of the case study, a case study database has been established to store sources of evidence (Yin, 2009). Creswell (2009) proposed enhancing reliability by checking interview notes. In this case, the researcher had the interviewees check his notes. Each informant was provided with his or her interview's field notes and asked to confirm whether the notes were correct and whether anything was missing. This procedure ensured that the data for analysis were written down correctly. The research design, including the research questions and the research approach and methods applied to conduct the research, were presented in the thesis. This process ensured that the procedure of the research is explicit to the reader (Atkinson & Shaffir, 1998; Ryan, Scapens & Theobald, 2002).

In addition, strategies have been employed to increase validity of the case study. First, a triangulation strategy has been applied (Creswell, 2009; Yin, 2009). Seven different people were interviewed about Price Control 1. The data from each of the interviewees were compared with one another. The informants, who came from different organisational levels and different departments at Electronic. This situation ensured that price controlling was viewed from different perspectives. They were all considered to be the people in the company with the most knowledge about price controlling (Eisenhardt & Graebner, 2007; P3). Moreover, different sources of evidence were used for triangulation. In addition to the interviews, documents were used. Doing so increased the validity of the discovered themes and findings by allowing the researcher to compare the sources and substantiate the findings (Creswell, 2009; Dubois & Gibbert, 2010; Pettigrew, 1990; Scapens, 1990; Stake, 1995).

Second, respondent-checking of the interpretations was applied (Atkinson & Shaffir, 1998; Creswell, 2009). Beside the field notes, the primary themes that emerged from the data were presented to the participants. The participants confirmed the themes, which ensured that the researcher's interpretations were correct (Ryan, Scapens & Theobald, 2002). The model was also presented to the participants. This process ensured that the model was shared by the participants. In addition, the head of controlling and the CFO read the entire draft of the thesis. This review ensured that the interpretations of the findings of the case study were accurate and were shared by the company (Atkinson & Shaffir, 1998). Moreover, the case study presented details of the research setting to enhance validity (Creswell, 2009; Patton & Appelbaum, 2003).

The intent of this case study was not to generalise the findings to a broader population (i.e., to say that Price Control 1 with its specific instruments can be applied across all B2B companies in OEM businesses operating in the electrical/electronics industry). Rather, the findings are context-bound to the specific situation. Case study research is often criticised by quantitative researchers for lacking the potential for generalisation (Tsang, 2014; Verschuren, 2003). For Ryan, Scapens and Theobald (2002), statistical generalisation (generalising findings from a sample to the broader population) can hardly be achieved using an interpretative research method in which the findings are bound to the research's context. Therefore, there is a difference between statistical generalisations and theoretical generalisations (Ryan, Scapens & Theobald, 2002). Statistical generalisation cannot be achieved through single case studies (Yin, 2009). For case studies, theoretical generalisation is more appropriate (Ryan, Scapens & Theobald, 2002). This statement means that the findings are generalised to form a broader theory (Yin, 2009).

A Price Control 1 model was created as part of this thesis. The context of the research has been described in depth, and the boundaries of the research are clear because the case study examined a particular situation (i.e., Price Control 1 at B2B companies operating in OEM businesses in the electrical/electronics industry) in a particular situational setting at a company. A detailed description of the context of this research has been provided (Section 4.1). Based on an in-depth description of the context, other researchers and practitioners can evaluate to what extent the created Price Control 1 model can be applied to their own situations (Patton & Applebaum, 2003). This means that transferability of the Price Control 1 model to other companies was ensured.

3.7 Ethical considerations

Ethics was important in this research and guided the behaviour of the researcher during the entire research project. The ultimate goal was to ensure that the conducted case study research had no negative consequences for the case study company or any research participant (Saunders, Lewis & Thornhill, 2009). The case study followed the ethical principles stated by the University of Gloucestershire in "Research Ethics - The Principal Issues of Research Ethics: A Handbook of Principles and Procedures."

One important principle applied during the research was that of informed consent. The case study participants and Electronic were fully informed of the research's aims and objectives; the methods of data collection (documents and interviews with the option to refuse audio recording); how the data would be processed, stored and handled (handling of anonymity and privacy) and how the findings were to be presented. The participants were informed and aware that they had the right to refuse participation, to decline to answer particular questions and to withdraw from the research without any negative consequences to them. There were no power balance issues because the researcher was external and because there was no pressure to participate applied by the company or by other managers on a higher level (Saunders, Lewis & Thornhill, 2009). The participants were also informed about the data-gathering method. Before each interview, permission to make an audio recording of the interview was requested. All participants preferred that the interview be recorded only with hand-written notes. The right of the participants to refuse audio recording and their choice to do so were both accepted (i.e., only written notes were taken during the interviews). Because the participants were informed and it was their own choice to participate, the ethical requirement of free and informed consent was met by this case study.

Moreover, steps were applied to consider anonymity and confidentiality issues. Scapens (1990) and Ryan, Scapens and Theobald (2002) stated that conducting a case study in management accounting research may require the consideration of confidentiality issues as they relate to the subject company. Pricing is a sensitive topic because it has such an enormous effect on a company's profits (Section 2.5.1.2). The release of pricing information can therefore damage a company. A prerequisite for conducting the case study was an agreement with the company that the sensitive data collected were treated as confidential whenever possible (Darke, Shanks & Broadbent, 1998). Steps were also taken to ensure the confidentiality and anonymity of the participants and the company. The anonymity of the participants was ensured by substituting numbers for their given names (e.g., participant 1 (P1), participant 2 (P2) and so on). Due to the sensitivity that surrounds the topic of price management, the real name of the company could not be revealed in this thesis; a pseudonym was used. The company was named "Electronic." Using pseudonyms in case studies is common practice; for example, pseudonyms have been used for single case studies in transfer pricing by Perera, McKinnon and Harrisson (2003) and Plesner Rossing (2013), in price management by Hwang, Tsai, Yu and Chang (2011), in B2B marketing management by Meqdadi, Johnsen and Johnsen (2016) and in management accounting by Goretzki, Strauss and Weber (2013). Some other single case studies relating to pricing—such as those by Dutta, Zbaracki and Bergen (2003) and single case studies such as those by Barquet, Oliveira, Amigo, Cunha and Rozenfeld (2013) and Munksgaard and Freytag (2011)—even just used the name "firm" when referring to the single case study company. For reasons of confidentiality and anonymity, it is therefore common practice to conceal a company's name and simply describe a company's characteristics and setting. This research also took this approach and used a pseudonym but described the contextual setting.

The next chapter discusses the case study setting (Section 4.1), the price controlling instruments (Section 4.2), and how these instruments can alleviate the Price Control 1 problem (Section 4.3). Then it gives recommendations on how they can be implemented into the price management process (Section 4.4). Section 4.5 provides feedback that has been received from the participants. In a first step the case study setting is discussed, because according to contingency theory the price controlling instruments in the Price Control 1 model are dependent on contextual factors (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999). Presenting the context helps other practitioners and researchers to judge in how far the finding are transferrable to their own specific context and help them design their own Price Control 1 model (Patton & Applebaum, 2003).

4 Case study analysis and discussion

4.1 Case study setting

4.1.1 Electronic as a single case study

Electronic is a medium-sized company, head-quartered in Germany, operating in the German electrical/electronics industry (Electronic, 2014b). The electrical/electronics industry is a significant manufacturing industry in Germany (Section 1.2; ZVEI, 2016). In 2013, Electronic experienced a turnover of approximately €120 million and employed approximately 320 employees, most of whom work in Germany (Electronic, 2014a; Electronic, 2014b). The German electrical/electronics industry is characterised by medium-sized companies such as Electronic (BMWi, 2015; Ehmer, 2009). Electronic is a global player and has development, production and sales units residing in all major markets (Europe and Asia) (Electronic, 2012a). Germany is the largest market for Electronic (P3). An international focus is one characteristic of German companies operating in the electrical/electronics industry (ZVEI, 2013). Electronic is one of the leading manufactures in the production of power supplies and chargers in the electrical/electronics industry (Electronic, 2013a; P3). The electrical/electronics industry contributes 16% of the many hidden champions among German companies (ZVEI, 2016a). Electronic develops, designs, manufactures and sells power supplies and chargers worldwide (Electronic, 2012a). Its customers, roughly 200 in total, are diverse and vary in size (P3). Electronic's customers are leading producers in their market segments and sell products of above-average quality at appropriate prices in premium segments (P3). Electronic's customers mainly operate in the market segments of medical technology, information technology (IT) & communication, industrial automation, cordless power tools and domestic small appliances (Electronic, 2012a; Electronic, 2013c; P3).

Electronic sells through different sales channels. Standard products are normally sold via distributors, which in turn sell products to the end customer. Distributors normally handle orders that involve small quantities. Electronic's primary customers are original equipment manufacturers, which buy in larger quantities, implant Electronic's devices into their own product(s) and sell those products to the end customer (P3). As such, Electronic is conducting B2B transactions and is not involved in the B2C arena (Farrés, 2013; Grewal & Lilien, 2012; Kleinaltenkamp & Saab, 2009; Section 1.2). Most transactions in the German electrical/electronics industry are B2B transactions (Ehmer, 2009; Milbredt, 2015; ZVEI, 2016a).

Electronic's product portfolio can be considered to be broad because the needs of B2B customers vary. Electronic sells approximately 500 different products, most of which are platform or customer-specific products (P3). Electronic produces and sells standard "off the shelf" products, customises standard products (referred to as "platform products" below) and develops and sells customer-specific solutions (referred to as "customer-specific products" below) depending on the needs of the customer. Standard products are produced for customers Electronic does not know because such products are normally sold to distributors who resell them. These products can basically be delivered "off the shelf." In contrast, platform products are products that are based on existing platforms and are equipped with certain components. If necessary, platform products can be customised to the customer's needs by configuring certain elements of the platform. In contrast to platform products, customer-specific products have to be created from scratch and developed in close collaboration with the customer (P1; P3). Both platform and customer-specific products are unique to the customer and are sold directly to OEM customers (P3). The distributor business with standard products can therefore be best classified as the product business type of the classification of B2B types introduced in Section 1.2. Platform products and customer-specific products are customer-specific and directly sold to the OEM over a longer period (P3). They can most appropriately be classified as OEM businesses (Backhaus & Voeth, 2010; Miller & Krohmer, 2011). Standard products only account for a small part of the business at Electronic; most transactions involve platform and customer-specific products (P1; P2; P3; P4).

The interviewees reported that the pricing approaches for OEM and distribution business differ at Electronic (P1; P2; P3; P4). For standard products and distribution business, there are list prices for products, which differ between countries. Discounts and rebates are given based on quantities and annual sales (P3; P4). In contrast, for the OEM business, Electronic has no list prices in place; prices are calculated individually using a price calculation scheme that considers costs and individual mark-ups for price setting (P1; P3; P4). The price structure of Electronic's product business can be compared with a list price system (Marn & Rosiello, 1992); the OEM business has a net price structure (Homburg, Jensen & Schuppar, 2004; Roll, Pastuch & Buchwald, 2012; Section 2.4.3.2).

The pricing approach is different for OEM and product business. The type of B2B business impacts the price management process (Homburg & Totzek, 2011b; Miller & Krohmer, 2011), which is apparent in the pricing methods used by Electronic. In conjunction with a list price system, the pricing literature often references price-waterfall analysis as a key tool for price controlling (e.g., Diller, 2008; Simon & Fassnacht, 2009). Price-waterfall analysis is frequently discussed in the literature (e.g., Doctors, Reopel, Sun & Tanny, 2004; Farrés, 2013; Marn, Roegner & Zawada, 2004), but requires a list price system that is not applied in the OEM business at the case study company. P3 and P5 reported that frame contracts are used at Electronic, which are only apparent in the OEM business due to the presence of a longer relationship with the customer (Backhaus & Voeth, 2010). In the OEM business, customer-specific products are developed. As a result, a longer project with the customer is initiated. More time passes between the first quote and the final price to the customer, so product costs may change. For the OEM business, project controlling is therefore necessary (P1; P3; P4), which is not the case for the product business. List prices and quantity discounts define clear prices to the sales team, and customers buy at these prices. As a result, these prices are less subject to negotiations (P3). The minimum price system in the OEM business is adjusted in negotiations with the sales force (P4). In the product business, standard "off-the-shelf" products are sold (P1). The variety of products is smaller than in OEM business and it is easier to find similar products to compare price quality. In the OEM business, the products are customer-specific and individually calculated and negotiated; differentiated reference prices are required to measure price quality (P3).

Drawing on the contingency theory price controlling instruments differs depending on the price management process and the pricing system in use (Section 2.3.2). Due to the different characteristics and approaches in the product and the OEM business observed at Electronic, this thesis focuses on the OEM business at Electronic. This business is consistent with the context that is posed in the research questions. In addition, the focus on the OEM business is reasonable because the distribution business is an insignificant business at Electronic due to its low transaction volume (P1; P2; P4).

Electronic has constantly initiated projects on the cost side. It recently decided also to act on the revenue/price side (P3). Prior to 2009, the pricing approach for the OEM business was a pure cost-plus approach, which adds a fixed standard margin onto the full costs (P1; P3). To improve the pricing, Electronic conducted a pricing project in 2009 with the help of external pricing consultants. A signicant number of measures concerning pricing have been defined and implemented since then. The major outcome of that work has been a minimum price system for the OEM business, which defines minimum prices for products based on costs and certain value drivers. A pure cost-based approach has been transformed into market-oriented pricing (P1).

Organisationally, Electronic is structured as follows. The CEO (chief executive officer) has management responsibility for the vice president of key account management (KAM) and the sales director. The vice president of KAM has a team of several key account managers. The key account managers are responsible for managing key customers worldwide. The sales director has management responsibility for the head of distribution, the head of sales support and the sales managers. The distribution department handles all small-quantity orders for standard products that are received from distributors. The sales support is responsible for supporting the sales area managers, processing orders and providing support for project management. The sales area managers acquire new customers and are responsible for direct sales to customers within their particular sales areas. The administration can be divided into treasury, human resources, IT, financial accounting, and management accounting (called “Controlling” in Germany). These departments are led by the CFO. The IT department and the controlling department of Electronic were most relevant to this thesis. The IT department is responsible for all IT-related tasks. It establishes, administrates and maintains the Enterprise-Resource-Planning (ERP) system and the Business Intelligence (BI) system. If ideas or plans need to be implemented that require the support of IT, the IT department is the department that will prepare the necessary IT environment and implement plans and ideas. The primary task of the controlling department is budgeting and internal reporting. Among other tasks, the controlling department is responsible for calculating the product costs and for preparing various reports (P3). One employee of the controlling department is focused on sales controlling, which also includes price controlling (P1).

4.1.2 Price management process

4.1.2.1 Overview

Price Control 1 is embedded into the price management process (Bolte, 2008; Florissen, 2005; Ivens, Stemmermann & Leisching, 2016; Section 2.4.2), which means that the price management process is a contextual factor that needs to be considered for the development of a Price Control 1 model (Chenhall, 2003; Florissen, 2005; Otley, 1980; Otley, 1999; Section 2.3.2). In addition, the price management process constitutes an element in the Price Control 1 model because the planning phase provides the pricing plans that need to be controlled by Price Control 1 instruments (Florissen, 2005; Ivens, Stemmermann & Leisching, 2016). Consequently, the application of price controlling instruments are dependent on the pricing plans to be controlled. Therefore, the price management process and its pricing plans need to be analysed first in order to create a Price Control 1 model (Otley, 1999; Sections 2.4.6 & 2.6.2). The price management process for Electronic is analysed and discussed in the following sections.

Based on interviews that systematically investigated the price management process, Figure 4.1 shows the price management process for the OEM business at Electronic.

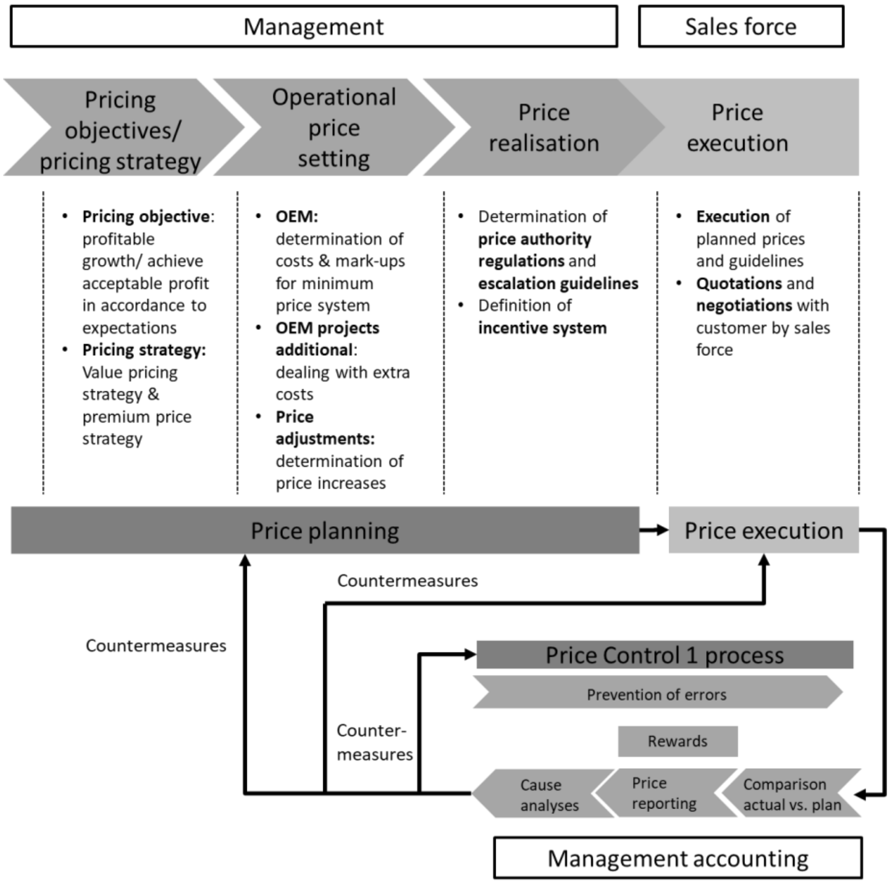


Figure 4.1: Price management process for the OEM business at Electronic

(Source: researcher's own illustration based on interviews at Electronic and the information presented in Sections 2.4.2 & 2.6.3)

The price management process resembles the major steps of the price management process (Figure 2.2). It can be separated into a planning, an execution and a controlling phase. Due to the fact that the interviews and the research were both focused on Price Control 1 issues, only Price Control 1 is depicted.

4.1.2.2 Pricing objectives and pricing strategy

P1 reported that the pricing objectives at Electronic had not been explicitly defined. However, the general aim of the firm is profitable growth, which means that both growth and profit is targeted (P1; P3). In the literature, this goal is often criticised, especially for pricing, because maximising profit and maximising growth are typically contradictory aims (Roll, Pastuch & Buchwald, 2012). In addition, P1 and P3 stated that the company aims to meet the expectations of its shareholders. These expectations are expressed in terms of profit goals (P1; P3). This statement can be interpreted as the objective of the company being to achieve an acceptable profit, which means satisfying shareholders' profit expectations rather than maximising profits (Florissen, 2005; Rullkötter, 2009). These statements are congruent with Electronic's mission statement, which also notes profitable growth and adding value for shareholders as being aims of the company (Electronic, 2013c). Satisfying shareholders' expectations by achieving acceptable profitable growth can be viewed as a pricing objective of Electronic.

A documented pricing strategy could not be found at Electronic. However, P1 and P3 reported that Electronic's products are high quality with prices are higher than those of competitors', particularly Asian sellers. The value of a product should be extracted using market-oriented pricing, which reflects the customers' willingness to pay (P3). This strategy can be best categorised as a value pricing strategy because it considers a customer's willingness to pay (Farrés, 2012; Hinterhuber, 2008; Michel, 2014; Simon & Fassnacht, 2009). A value pricing strategy has not always been the case at Electronic. However, in 2009 Electronic changed from pure cost-based pricing to value-oriented pricing in order to improve its pricing and profitability (P1; P3). A value pricing strategy has the potential to increase profitability because it can generate more profit than a cost-based pricing strategy (Füreder, Maier & Yaramova, 2014; Liozu & Hinterhuber, 2013b; Toni, Milan, Saciloto & Larentis, 2017). P1 reported that sometimes prices were purposefully set low to secure a new customer or enter a new market. In other words, occasionally a penetration strategy was pursued (Roll, Pastuch & Buchwald, 2012). Using the price/value matrix (Figure 2.3), Electronic's strategy with regard to pricing is summarised in Figure 4.2.

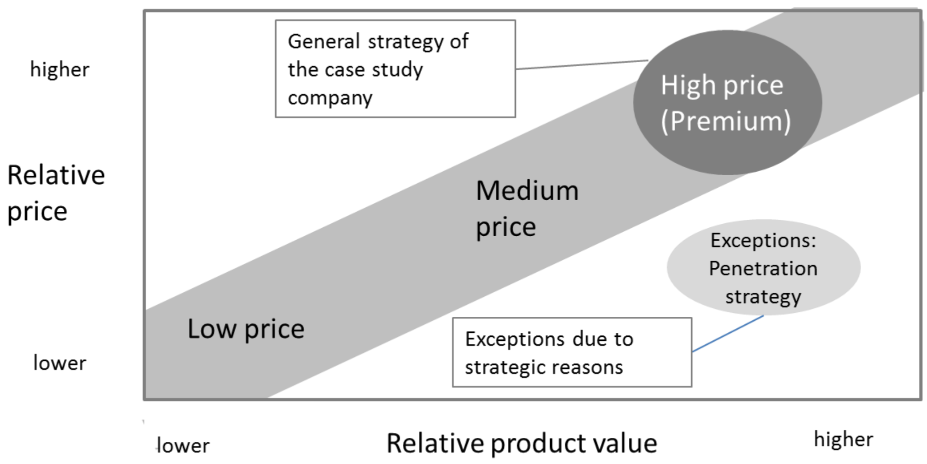


Figure 4.2: Pricing strategy at Electronic

(Source: researcher's own illustration based on interviews and Homburg, Jensen & Schuppar, 2004, p.9; Sebastian & Maessen, 2003, p.58; Simon & Fassnacht, 2009, p.34)

For Electronic, controlling the execution of value-oriented prices is crucial to pursuing a value pricing strategy and meeting objectives of achieving an acceptable profit. Lower-than-value-oriented prices would reflect a penetration strategy, which is not the intended strategy.

4.1.2.3 Operational price setting

To implement and achieve the pricing objectives and the pricing strategy (Florissen, 2005), Electronic introduced a value driver pricing approach in the form of a minimum price system (P1; P2; P3). Considering the OEM business at Electronic, one can differentiate made between the pricing for platform products (existing products) and that for customer-specific products, which are newly developed (P3; P4). Additional price adjustments are also conducted throughout the year (P1).

For platform products, the pricing method can be best compared with the value driver pricing approach noted by Herr, Beducker and Frahm (2010) and Roll, Pastuch and Buchwald (2012) and discussed in Section 2.4.3.2. This pricing approach was introduced when Electronic switched from a cost-based strategy to a value pricing strategy (P1; P3). This pricing method is suitable for the pursued pricing strategy of Electronic because it belongs to the category of value pricing instruments and aims to extract product value (Roll, Pastuch & Buchwald, 2012). In addition, many products need to be priced at Electronic, and competitor prices are seldom available (P3). Therefore, a value driver pricing approach constitutes an efficient way to handle this complexity and these constraints (Roll, Pastuch & Buchwald, 2012).

The value driver pricing method at Electronic takes the full costs as a springboard (P3; P4). Four value drivers were determined that best estimated customers' willingness to pay (P1). The characteristics for these drivers were specified, and specific market-oriented mark-ups were defined for each characteristic (P1; P3; P4). Therefore, for each combination of characteristics a certain minimum profit could be calculated by adding up the mark-up of each characteristic. The total costs and the combination-specific minimum profit added up to an individual minimum price (P1; P4).

P1 and P4 pointed out that such a pricing system provides only a minimum price, which should not be undercut by the sales force. In contrast to what is often noted in the pricing literature for B2B (e.g., Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009), the pricing system at Electronic has only a minimum price but no target price and can be classified as a net price system with a limit/minimum price (Homburg, Jensen & Schuppar, 2004; Section 2.4.3.2). The sales force has the task of adjusting this minimum price towards the willingness to pay of the customer (P1; P4). However, using only minimum prices has drawbacks because sales people often interpret the minimum price as a price that is acceptable for management. Sales people therefore tend to quote closer to or exactly the minimum price (Roll, Pastuch & Buchwald, 2012). Monitoring price quality is important for Electronic to determine to what extent prices have been adjusted towards the willingness to pay of the customer by the sales force or whether only the minimum prices have been quoted to make easy sales (Homburg, Jensen & Hahn, 2012; Stephenson, Cron & Frazier, 1979).

In contrast to platform products, customer-specific products have yet to be created at Electronic because no appropriate platform exists (P1; P3). To solve the customers' problems, a longer development project in close collaboration with customers needs to be initiated (P1). Electronic uses the same minimum price system for customer-specific products (P2; P3; P4). To manage the development process efficiently, Electronic introduced a structured, IT-enabled Lotus work-flow process (P1;P3). First, the process integrates different milestones (M1–M7) to review the status of a project and to determine the time necessary to complete the task (P4). Second, the process helps with monitoring the project with regard to pricing because milestones M2 and M4 define points at which the developing projects are monitored (P1; P4). Milestone M2 defines the period before a binding offer, and milestone M4 defines the period before production. At M2, a minimum price is generated using the minimum price system. This minimum price is adjusted, and a price is quoted for the offer to the customer after M2. The profit for the quote is calculated. During the course of the development project, adjustments to the product occur frequently to adapt it to the customer's needs (P4). Adjustments to products normally drive up costs, and one often observes that the profit calculated at M2 slowly decreases (P1). Therefore, at M4 product costs are updated and profits are calculated again. Profits between M2 and M4 are compared (P1; P4). The work-flow process steers the process and includes the minimum price system and approval calculations (P4).

During the development of projects, additional costs are frequently incurred that have not been considered in the final price. For Electronic, these costs can be classified as falling into the following categories: R&D costs, tooling costs and approval costs (P1; P4). In the past, the industry standard assumed that these costs could not be passed on to the customer. However, customers generally accept that they will be held partially responsible for these costs. The sales force at Electronic is asked to do its best to charge additional costs to the customer (P1). The sales force needs to input both the additional costs incurred according to their category and how much these additional costs are passed on to the customer (P4).

Moreover, Electronic sets targets for price increases. Price adaptations are triggered primarily by cost increases (especially through labour-cost increases) (P1). As a result, price adaptations can occur more frequently than once per year. The management at Electronic sets targets for price increases (P2). These price targets normally differ among customers, products and regions (P1; P4). The sales force is tasked with implementing the set price adaptations (P5).

The results of the price setting are minimum profits and prices and targets for price increases. In the price realisation process, authority guidelines and the escalation system are established and pricing plans are communicated to the sales force for execution.

4.1.2.4 Price realisation

At Electronic, limited pricing authority, supported by an escalation system, is given to the sales force. When the sales force is working above the minimum price established minimum price system, it can decide independently what price to offer and can adjust minimum prices based on the willingness to pay of the customer (P1; P3). If the sales force needs to undercut the minimum price, the sales force needs to escalate these prices. Depending on the level of variance, the pricing authority lies with the sales director/vice president of KAM or the CFO/CEO (P1; P3). Authority regulation at Electronic can be classified as a limited pricing authority because the minimum price sets the price floor for the sales force and hence limits the pricing authority of the sales force (Hansen, Joseph & Krafft, 2008; Joseph, 2001; Stephenson, Cron & Frazier, 1979; Section 2.4.3.3), which is a typical practice at B2B companies (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Stephenson, Cron & Frazier, 1979; Section 2.5.1.1). Limited pricing authority confers an advantage to Electronic in that the sales force can still customise the minimum price to the willingness to pay of the customer due to its proximity to the customer (Dolan & Simon, 1996; Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Joseph, 2001). At the same time, limited pricing authority restricts the freedom of the sales force to defined limits (Ivens, Stemmermann & Leischnig, 2016; Homburg, Jensen & Schuppar, 2004; Meehan, Simonetto, Montan & Goodin, 2011).

The incentive system at Electronic contains both fixed and variable components. The variable part is based on the achievement of revenue and profit targets by the sales manager. Furthermore, there is variable compensation for area sales managers who achieve personal targets (P1; P3). Compensation related to profit ensures that the price quality is taken into consideration by the sales force and not just the quantity of sales (Hinterhuber, 2004). Compensation for revenue and profit reflects the company's goals of profitable growth and achieving an acceptable profit. However, it was not possible to find an incentive system that is aligned directly with the primary pricing plan of achieving value-oriented prices that are determined by the value driver pricing approach. However, this alignment is viewed as important for supporting the execution of value-oriented minimum prices (Bonnemeier, Burianek & Reichwald, 2010; Ludewig, Wübker & Engelke, 2008; Simon & Fassnacht, 2009).

Pricing plans emerge at the end of the price planning process (Bolte, 2008; Section 2.4.3.3). These pricing plans, which form the basis for deciding what should be monitored by Price Control 1 (Simons, 1995), will be discussed in more detail in Section 4.2.2.

4.1.2.5 Price execution

The sales team executes the pricing plans and creates and negotiates prices with the customers within the limits of their authority. To create prices, the sales force makes use of an Excel-based minimum-price calculator and the authority guidelines (P1; P3; P4).

4.1.2.6 Price Control 1

Price Control 1 controls the pricing plans, which act as benchmarks for measuring performance and judging whether goals have been achieved (P1). These plans are regarded as a prerequisite for Price Control 1 (P1; P2; P3). P1 reported that there was no documented Price Control 1 process. Instead, a formalised process was viewed as important. P1 and P3 described the controlling at Electronic as follows. Firstly, plans are prepared with the support of management accounting. After execution, these plans are compared with the actual situation, and reports are prepared and delivered to the responsible persons. In case of variances, it is sometimes necessary to undertake a deeper analysis to determine the cause of the variance and to prepare and initiate countermeasures. In addition, the sales force receives rewards dependent on their performance (P1; P3). These process steps resemble the general control process that has been described by Anthony (1988) and Anthony and Govindarajan (2007). Similar to those reseachers' control process, a Price Control 1 process at Electronic includes the following process steps (Figure 4.1): planning, execution, comparison actual vs. plan, price reporting, cause analyses and rewards. Feedback in the form of countermeasures is entered into the process to improve the pricing. These process steps of Price Control 1 are used to align the Price Control 1 instruments in the Price Control 1 model with the process steps of Price Control 1.

In addition, Price Control 1 also includes the prevention of price errors before they occur (P3). Figure 4.1 shows not only feedback control after execution but also control for the prevention of price errors before execution is considered. The instruments noted in the reviewed price controlling literature (Section 2.5.4.1) can be mostly classified as instruments that are used after the price error has occurred. However, Price Control 1 also includes a feedforward function and takes place before prices are quoted to the customer (Köhler, 2003). This process is similar to the controls before plan execution reported by Anderson and Oliver (1987) and Flamholtz (1996).

In lieu of a Price Control 1 model being readily available at Electronic, the researcher found price controlling instruments that served as the observable parts of the model (Flamholtz, 1996). The Price Control 1 instruments found at Electronic are listed in Table 4.1. They have been matched with the price controlling instruments in the price controlling literature (Table 2.3; Section 2.5.4.1). Table 4.1 distinguishes between price controlling instruments found in the literature and price controlling instruments that are applied at the case study company, which enables a quick analysis of the status quo at Electronic. These instruments will be further discussed in Section 4.2. Based on the interviews and the literature review, the researcher will suggest a Price Control 1 model that can alleviate the Price Control 1 problem at Electronic.

Price Control 1 instruments	Price controlling instruments in price controlling literature	Instruments applied at Electronic	Comments from case study
Pricing beliefs systems			
Pricing strategy		x	
Mission statement/pricing values		x	
Pricing boundary systems			
Escalation instrument	x	x	
Project control		x	
Processes		x	Only few processes (e.g. escalation**)**
Measurement systems			
Performance measurement (general)	x	x	Budget is monitored
Price quality (undercutting price floor)	x	x	
Price quality (actual vs. planned prices)	x		
Price quality (price corridor coverage)	x		
Project monitoring	x	x	
Management of changes	x	x	
Sales agreement monitoring	x	x	
Price increase monitoring	x	x	
Trend analyses	x	x	Only few trend analyses
Price reports	x	x	
Cockpits/dashboards	x		
Price band	x		
Price-waterfall analysis	x		
Sales segment analysis	x	x	
Variance analysis	x	x	Margin bridge is applied
Won-lost order analysis	x	x	Only won/loss rates are reported
Check-lists	x		
Fishbone diagram	x		
Incentive systems			
Incentives	x	x	Not aligned to price quality
Internal control systems			
Process quality/data quality	x	x	Mandatory data inputs
Information systems			
Information systems	x	x	IFS, EIS, Lotus workflow, Excel
Target system	x	x	
Accounting	x	x	

Table 4.1: Price Control 1 instruments currently employed at Electronic

(Source: researcher’s own illustration)

The researcher’s analysis of the price controlling instruments at Electronic revealed instruments already noted in the price controlling literature and currently in use at the case study company. However, there are also price controlling instruments in use at

Electronic to achieve pricing plans, that are not noted in the reviewed price controlling literature (pricing strategy, mission statement/ pricing values, project control, processes). Moreover, there are price controlling instruments that have been noted in the reviewed price controlling literature but are currently not applied at Electronic (e.g., price quality (actual vs. planned prices), fishbone diagram, price band); these instruments would help Electronic achieve its pricing plans. In the following sections, a Price Control 1 model will be developed that integrates both the price controlling instruments found at Electronic and those found in the literature review in order to achieve pricing plans.

Section 4.1 presents an analysis of the setting of the case study company and the price management process into which Price Control 1 is embedded. It also focuses on the status of the Price Control 1 instruments in use at Electronic and provides a comparison of these instruments with price controlling instruments found in the reviewed literature. The next sections discuss which Price Control 1 instruments can be used at Electronic to achieve the pricing plans in order to answer the following RQ: what controlling instruments can be used for Price Control 1 system within the price management process for B2B companies in the OEM business operating in the electrical/electronics industry?

4.2 RQ 1: Price Control 1 instruments

4.2.1 Price Control 1 framework

Various price control subsystems and Price Control 1 instruments can be applied to ensure that pricing plans are achieved. These Price Control 1 instruments are included in the Price Control 1 model because they appear in the reviewed literature and/or are applied at Electronic to solve Price Control 1 problems; they are accordingly useful for achieving pricing plans. Table 4.2 summarises the analysis of the Price Control 1 instruments found at Electronic. It provides a clear distinction where the instruments for the created Price Control 1 model come from:

1) Comparison of instruments

Column 1 “Comparison instruments” compares the instruments found in the reviewed price controlling literature (Table 2.3; Section 2.5.4) and at Electronic (Table 4.1). It distinguishes between:

(A) instruments that the researcher found in the reviewed price controlling literature (Table 2.3; Section 2.5.4) and at the case study company (Table 4.1) that mitigate Price Control 1 problems,

(B) instruments that the researcher found at Electronic (Table 4.1) that mitigate Price Control 1 problems but are not noted in the reviewed price controlling literature (Table 2.3; Section 2.5.4),

(C) instruments that the researcher found in the reviewed price controlling literature that mitigate Price Control 1 problems (Table 2.3; Section 2.2.5) but are not applied at Electronic (Table 4.1).

2) Instruments added to the price controlling literature

Column 2) “Instruments added to the price controlling literature” lists which instruments have been added to the price controlling literature. These instruments were not noted in the reviewed price controlling literature but are important for Price Control 1 to mitigate Price Control 1 problems and accordingly to achieve pricing plans based on the case of Electronic.

3) Instruments added/improved for the case study company

Column 3) “Instruments added/improved for the case study company” lists which instruments have been added (A) to the case study company and which have been improved (I) at the case study company to mitigate Price Control 1 problems.

	1	2	3
Price Control 1 instruments	**Comparison of instru-ments**	**Instruments added to price control-ling literature**	**Instruments add-ed/improved for case study company**
Pricing beliefs systems			
Pricing strategy	**B**	**A**	
Mission statement/pricing values	**B**	**A**	
Pricing boundary systems			
Escalation instrument	**B**		
Project control	**B**	**A**	
Processes	**B**	**A**	
Measurement systems			
Performance measurement (general)	**A**		
Price quality (undercutting price floor)	**A**		
Price quality (actual vs. planned prices)	**C**		**A**
Price quality (price corridor coverage)	**C**		**A***
Project monitoring	**A**		
Management of changes	**A**		
Sales agreement monitoring	**A**		
Price increase monitoring	**A**		
Trend analyses	**A**		
Price reports	**A**		
Cockpits/dashboards	**C**		**A**
Price band	**C**		**A**
Price-waterfall analysis	**C**		**A****
Sales segment analysis	**A**		
Variance analysis	**A**		
Won-lost order analysis	**A**		**I**
Check-lists	**C**		**A**
Fishbone diagram	**C**		**A**
Incentive systems			
Incentives	**A**		**I**
Internal control systems			
Process quality/data quality	**A**		**I**
Information systems			
Information systems	**A**		
Target system	**A**		
Accounting	**A**		

Table 4.2: Price Control 1 instruments for the Price Control 1 model

(Source: researcher's own illustration)

* Electronic needs to define a target price to make use of this instrument

**Electronic needs to define a list price and discounts and rebates to make use of this instrument

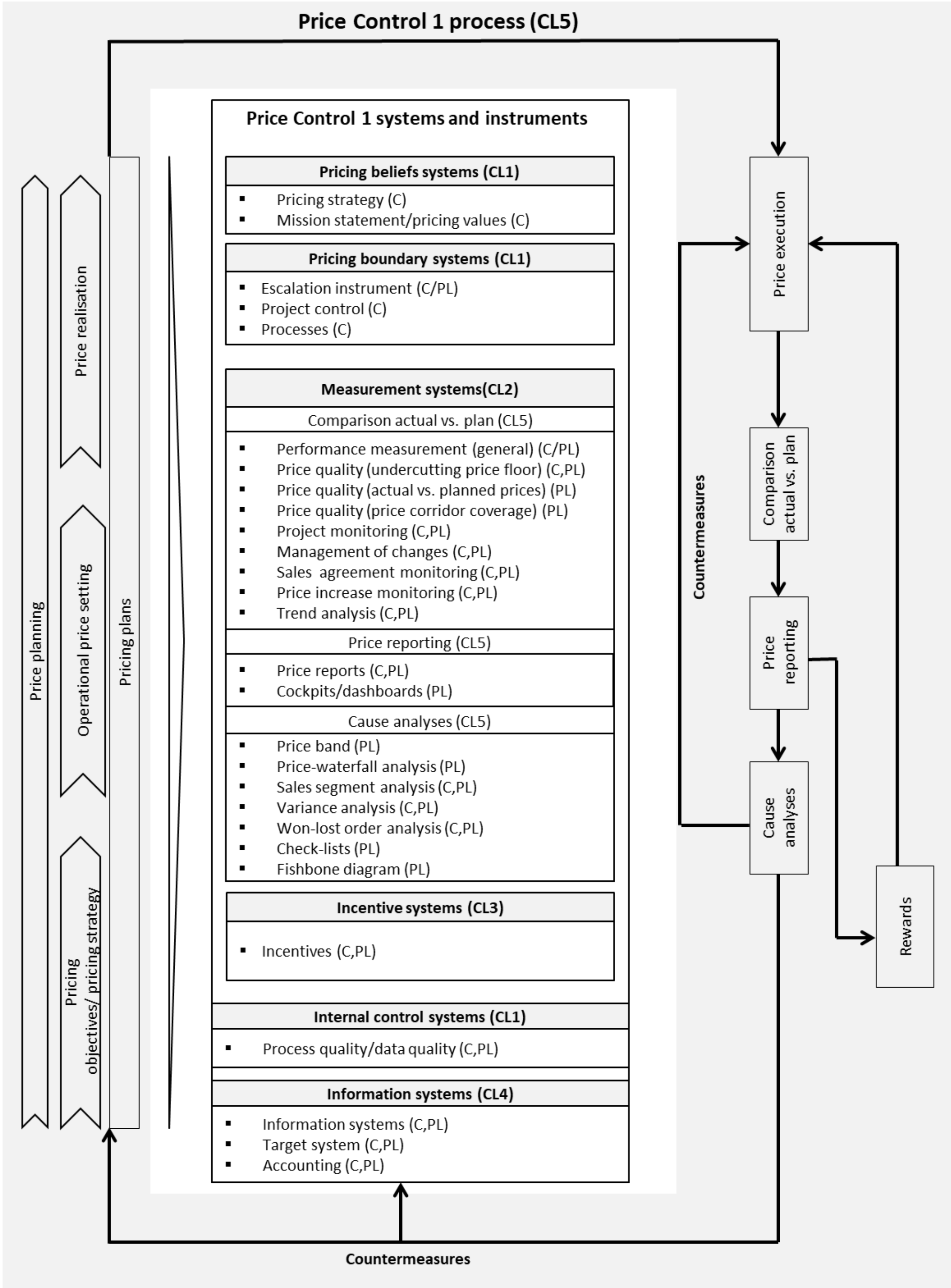


Figure 4.3: Price Control 1 model containing instruments

(Source: researcher’s own illustration)

The illustration of the created Price Control 1 model also shows where the elements of the created Price Control 1 model come from, as explained below:

C: Price Control 1 instruments that originate from case study investigation (Table 4.1).

PL: Price Control 1 instruments that originate from the literature review pertaining to price controlling instruments (Table 2.3).

CL1: Control subsystems noted by Simons (1995) (Section 2.6.4.1).

CL2: Control subsystems for measurement based on the frameworks of Simons (1995), Tessier and Otley (2012) and Marginson (2002) (Section 2.6.4.4).

CL3: Incentive systems added to the framework of Simons (1995) based on work by Malmi and Brown (2008) (Section 2.6.4.5).

CL4: Information systems added to the framework of Simons (1995) based on work by Herath (2007) and Diller (2008) (Section 2.6.4.7).

CL5: Control process based on work by Flamholtz, Das and Tsui (1985), Flamholtz (1996), Anthony and Govindarajan (2007) and Anthony (1988) (Section 2.6.3). Price planning process as discussed in Section 2.4.3.

The outer frame in Figure 4.3 shows the Price Control 1 process (Sections 4.1.2.1 & 4.1.2.6), which includes the price planning phase and the resulting pricing plans (Section 4.2.2), price execution by the sales force (Sections 4.2.3 and 4.2.4), the comparison of actual vs. plan (Section 4.2.5.2), price reporting (Section 4.2.5.3), cause analyses (Section 4.2.5.4), rewards (Section 4.2.6) and countermeasures (Section 4.2.9).

The control subsystems for a Price Control 1 are shown in the inner frame (Figure 4.3). These control systems include the pricing beliefs systems (Section 4.2.3), the pricing boundary systems (Section 4.2.4), the measurement systems (Section 4.2.5), the incentive systems (Section 4.2.6), the internal control systems (Section 4.2.7) and the information systems (Section 4.2.8). The Price Control 1 instruments for Electronic have been subsumed into these control subsystems.

The Price Control 1 subsystems and Price Control 1 process with its Price Control 1 instruments are discussed in depth in the following sections.

4.2.2 Pricing plans

Electronic's pricing plans were analysed as a first step because these plans specify what the company wishes to achieve (Flamholtz, 1996) and accordingly determine what Price Control 1 needs to control (Braun & Wiesen, 2012; Florissen, 2005; Sebastian, Maessen & Strasmann, 2009). These pricing plans are comparable to the business strategy of Simons' (1995) LOC framework; pricing plans sit at the core of the Price Control 1 model (Simons, 1995). For this thesis, the current pricing plans at Electronic were used for the discussion and development of the Price Control 1 model. However, pricing plans and therefore also Price Control 1 instruments may change due to the evolution of pricing plans in the planning phase of the price management process. The arrows in Figure 4.3 that go back into the planning phase of the price management process indicate this process. Pricing plans may be also changed for other reasons (e.g., a shift in pricing strategy in the case of Electronic). This strategic change also had an effect on the applied Price Control 1 instruments for Price Control 1.

As discussed in Section 2.4.3, pricing plans are the outcome of the planning phase of the price management process. The price planning phase and the pricing plans were analysed in Sections 4.1.2.2-4.1.2.4 for the case of Electronic. Several pricing plans could be identified at Electronic, which act as benchmarks for measuring performance (P1; P5). These pricing plans are as follows:

Prices made by the sales force should reflect the willingness to pay of the customer (P3; P4). Minimum prices and profits are set by the minimum price system, which must not be undercut by sales force without approval from staff at a higher level (P1; P2; P5). Escalation thresholds and pricing authority regulations are defined, which require compliance (P1; P3; P5). Minimum prices and profits, escalation thresholds and pricing authority regulations apply to both platform- and customer-specific OEM products (P2;

P4). For new development projects, additional costs and the charges passed on to the customer play a crucial role. The additional costs charged to customers are a recent development, and monitoring of these costs has only just started. No quantified plans are available at this time, and the sales force at Electronic has been asked to pass along these costs to the customer to the largest degree possible (P1). Price adjustments are normally triggered by cost increases and targets are planned for price increases (P1; P2). The quantities stated in the frame contracts with the customer need to be achieved (P5). In the budgetary process, budgets for sales, sales volume and margin are planned (P1; P2). Furthermore, information availability and quality are important and are a prerequisite for Price Control 1 (P3; P4).

Below, various Price Control 1 instruments are discussed that can be used for Price Control 1 to achieve these pricing plans.

4.2.3 Pricing beliefs systems

4.2.3.1 Introduction

At the case study company, various price controlling instruments were found to play a role in controlling pricing plans before the sales force establishes a quote for a customer. To be more specific, Electronic uses beliefs systems and boundary systems to prevent pricing plan variances before they occur. In other words, Electronic has established price controlling instruments that provide the sales force with direction but at the same time also constrain the sales force before prices are quoted to the customer (Simons, 1995).

At Electronic, communication of the pricing strategy and mission statement/pricing values is an instrument belonging to the beliefs systems. In general, beliefs systems are mechanisms that are used to communicate the pricing values, pricing objectives and pricing strategy throughout the organisation (Simons, 1995; Widener, 2007). These mechanisms can take on different forms and communicate directions and strategies that cannot be communicated via other control systems (Mundy, 2010).

4.2.3.2 Pricing strategy

One primary instrument that is used at Electronic to provide the sales force with a clear direction for pricing is the communication of the pricing strategy. Such communication was used to transform a cost-oriented pricing scheme into a value-oriented pricing scheme. This transformation was necessary because there was a shift in the pricing strategy; the beliefs systems were used to communicate the new direction and values of the management to the sales force. P1 and P3 reported that in 2009 Electronic conducted a pricing project and moved from cost-based thinking to a value pricing approach. Before the pricing project began, costs were taken as the springboard, and a fixed percentage mark-up was added onto the cost base to calculate the selling. Because this approach had been used for several years, a cost-plus thinking in pricing was established at Electronic (P1). P3 noted that this cost-plus thinking needed to be broken and that it has not been easy to transform cost-based thinking into a more market-oriented pricing. Therefore, consistent with other studies related to control systems (Bruining, Bonnet &Wright, 2004; Plesner Rossing, 2013), the shift in the pricing strategy at Electronic required a change in the beliefs systems to direct the sales force towards the new pricing direction.

To communicate the new pricing direction, the majority of the sales force first participated in a pricing project. The sales force was involved in developing the new strategy. This process had the advantage of involving the sales force and ensuring that its members were commited to implementing the new strategy (P3). For example, the sales force was involved in the estimation of the customers' willingness to pay, which was then translated into the minimum price system (P4). Therefore, the minimum prices reflected the estimation of the sales force, which enhanced the acceptance of the new pricing strategy by the sales. Second, the new pricing approach was communicated throughout the company (e.g., via presentations, meetings and the company magazine) (P3). P1 stated that that new mindset of establishing prices based on the willingness to pay of the customer rather than just adding a percentage to the costs to generate the quotation price was constantly emphasised. Doing so showed the commitment of the management and their attention on implementing the new strategy. The applied instruments of the beliefs systems had a positive effect on the behaviour of the sales force. For example, P1 concluded that a shift in thinking became evident. Meetings focused more on value and market-driven prices than before, this participant reported. The sales force did not rely only on quote prices simply based on costs but instead thought more about what the customer was willing to pay. The pricing culture at Electronic is now different, one of the participants noted (P3). This assertion is supported by prior studies on control systems that beliefs systems have a positive effect on the behaviour of employees (Bruining, Bonnet & Wright, 2004; Marginson, 2002).

In conclusion, Electronic used beliefs systems to support the shift in its pricing strategy. Electronic integrated the sales force in debating and developing the new pricing strategy, which had the effect that the sales force was aware of the new direction and largely accepted it (Mundy, 2010). The strategic change then was communicated through the beliefs system to the sales force (Marginson, 2002); the sales force knew what the management valued and likely directions in pricing; this influenced the behaviour of the sales force.

4.2.3.3 Mission statement/pricing values

Another instrument found at Electronic to influence the behaviour of the sales force is the mission statement, which supports the achievement of Electronic's pricing plans. The case study company established a mission statement that includes and communicates its mission, vision and goals, the company's values and how employees should act (P1; P3; Electronic, 2013a). P1 stated that these principles are used by employees to guide their actions. P3 stated that the mission statement expresses the expectations and values of the company and management. The mission statement has been communicated throughout the company by handing out leaflets to the employees, and it can also be found on the notice board at the company (P3). The mission statement is well communicated throughout the company and reaches various levels within the organisation.

The mission statement is relevant to providing sales force with a direction for pricing (Simons, 1995). For example, P1 explained that Electronic's mission statement forms the basis for actions. This participant also expressed that prices should be established that reflect the company's values and ensure long-term sustainability. As a result, unreasonably low prices should be avoided. It is important to convey a clear message to the sales force about the values and expectations of the management to ensure that guidance is provided (P1). In the same vein, P3 argued that the mission statement reflects the management's expectations and provide the sales force with direction for their pricing (i.e., pricing should be value driven). P3 explained that Electronic's mission referred to profitable growth; prices should not be set low just to get an order. Electronic's mission also references that value should be built for shareholders and that Electronic wants to be a market leader and be superior in quality and profitability. The company aims for above-average and enduring profitable growth; short-term success is not an aim (Electronic, 2013c). Therefore, the statements clearly communicate that Electronic wishes to be a market leader with high-quality products that are superior to competitors'. Electronic wants to charge a price for these products that leads to above-average and sustainable profitability.

Electronic uses its mission statement as a more formalised way to communicate the expectations and values of management, which form the basis for pricing actions in the company and accordingly serves to provide broad direction for the sales force of how to establish pricing. This approach is consistent with other studies related to control systems (e.g., Simons (1994)) that have reported that management established mission statements in order to communicate strategic changes to subordinates, which facilitated the implementation of the strategy.

In addition, the applied price controlling instruments of the beliefs systems help Electronic to ensure that the chosen minimum price system is applied properly by the sales force to achieve the pricing plans. The minimum price system bears the risk that the sales force will quote prices that are close or exactly the minimum price (Roll, Pastuch & Buchwald, 2012). Minimum prices set a limit that should not be undercut by the sales force (P3; P4; P5; Farrés, 2013). The sales force still has to adjust the minimum price based on the willingness to pay of the customer, which normally results in a price above the minimum price (P1; P4). This process requires that this expectation of pricing strategy be clear to the sales force (P3). Therefore, Electronic uses beliefs systems to communicate management's expectations, which encourages the sales force to adjust the minimum prices to the willingness to pay of the customer. If these expectations are not communicated, there is a risk that the sales force will adopt minimum prices (Roll, Pastuch & Buchwald, 2012), which jeopardises pricing plan achievement at Electronic. The applied beliefs systems aim to motivate sales people to adjust prices towards a higher price than the minimum price and provide guidance and direction (Simons, 1995b) as to how pricing should be consistent with management's pricing values and expectations (Michel, 2007). Therefore, beliefs systems are used by Electronic to balance out the imposed limits by the minimum price system (Mundy, 2010) in order to inspire the sales force to establish value-based prices.

4.2.3.4 Summary

In conclusion, these instruments of the beliefs systems help Electronic to communicate pricing strategy, pricing values and expectations of management to the sales force. As a result, the sales force is provided with direction for their pricing activities. This direction helps the company to decrease quoted prices that are not based on the willingness to pay of its customers. It also helps the company to implement new pricing strategies by changing the pricing culture towards value-based thinking. The communicated management expectations and values make the priority of the pricing strategy clear to the sales force (Mundy, 2010). This suggests that beliefs systems need to reflect pricing plans to direct the behaviour of the sales force towards achieving the pricing plans. This mindset is also supported by the findings of Chenhall and Euske (2007). These authors showed that inconsistent beliefs systems can have negative impacts on strategy implementation efforts. Beliefs systems are therefore both vital to support the implementation of a pricing strategy change and to maintain the strategic pricing direction (Mundy, 2010).

These instruments of the beliefs systems are included in a Price Control 1 model because they are essential to communicating the core pricing values of management to the sales force (Heinecke, Guenther & Widener, 2016). Such instruments accordingly convey management's pricing values and strategy to the sales force (Mundy, 2010; P1; P3). These core values and pricing values direct and motivate the sales force in their pricing activities to be consistent with managements' values and expectations (Heinicke, Guenther & Widener, 2016; Simons, 2000), which prevents variances from pricing plans, before prices are quoted by the sales force.

However, beliefs systems only serve as a guide and motivation for the sales force in their pricing activities; they are constructed with the goal of fostering the adoption of core values (Mundy, 2010; Simons, 1995; Widener, 2007). Beliefs systems are not precise enough to serve as plans to measure the performance of the sales force (Simons, 1995). Even though the positive effect of beliefs systems on firm performance has been acknowledged (Pearce & David, 1987; Widener, 2007), researchers note that beliefs systems alone are not effective but need to be supported by other instruments (Bart, Bontis & Taggar, 2001; Pearce & David, 1987; Widener, 2007). Therefore, it is crucial to outline clearly which pricing activities are undesirable and which pose a risk to the achievement of pricing plans (Bedford, 2015; Simons, 1995). This situation is achieved by boundary systems, which are discussed in the next section.

4.2.4 Pricing boundary systems

4.2.4.1 Introduction

The pricing strategy and direction that was communicated through the beliefs systems is also translated into more specific pricing limits for the sales force at Electronic. Because Eletronic communicates a wide range of pricing actions to its sales force (e.g., prices should be value-oriented), there also need to be instruments in place that constrain this wide pricing decision space of the sales force to avoid pricing risks and unwanted pricing activities (Simons, 1995). Therefore, Electronic implemented price controlling instruments that restrict the sales force in engaging in behaviour that could pose a risk to achieving certain pricing plans (Simons, 2000; Widener, 2007).

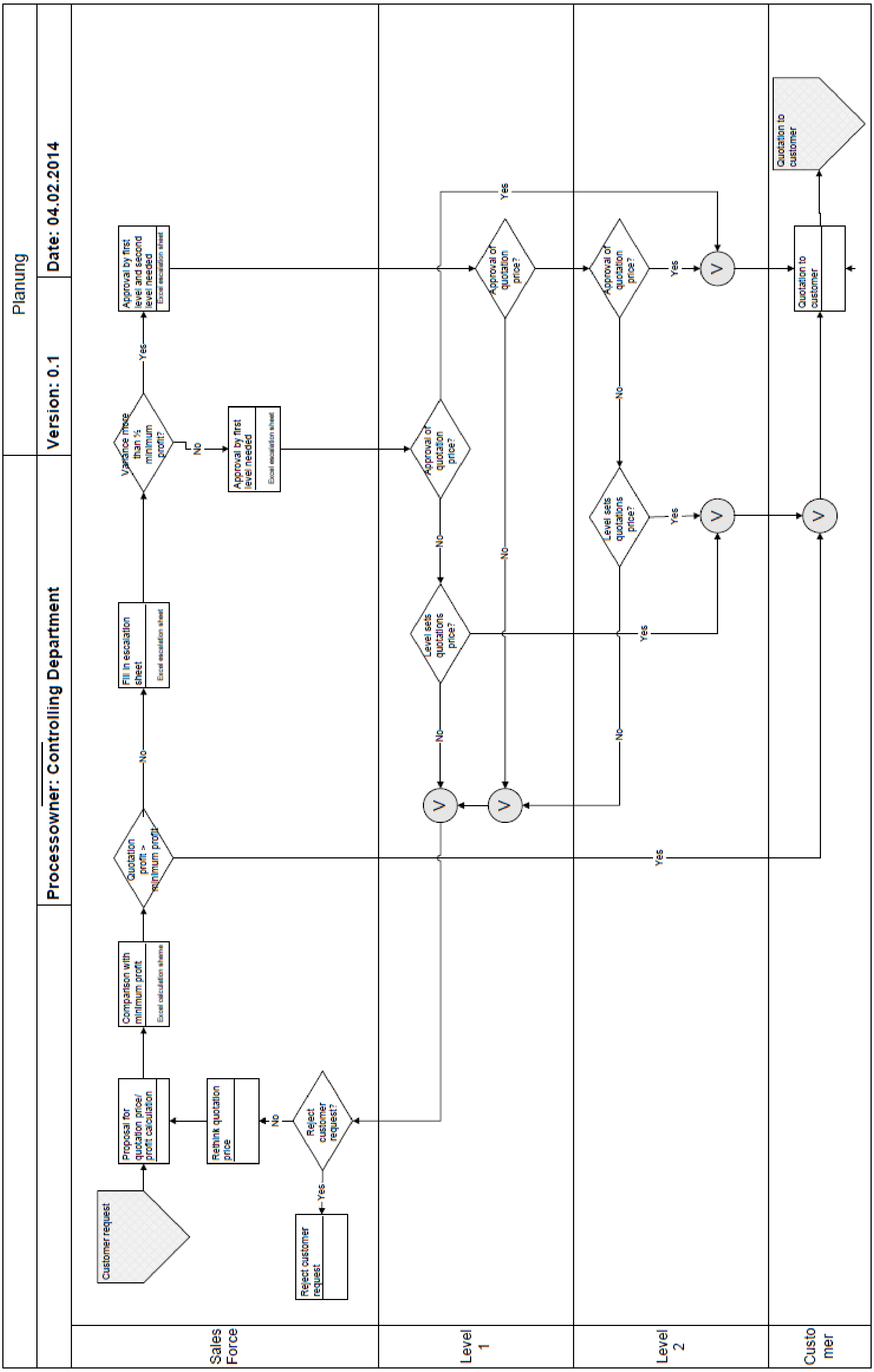
Two major pricing risks for implementing pricing plans could be identified at Electronic. First, that the minimum price is undercut and therefore that a value pricing approach is not followed. Electronic wishes to ensure prices above the minimum prices that have been defined using a value pricing approach. Pricing below the minimum price is not desired by management. However, this scheme may be occasionally pursued for strategic pricing purposes (e.g., when the company wishes to acquire a strategic customer) (P1); this strategy is referred to as a penetration strategy (Section 4.1.2.2; Simon & Fassnacht, 2009). A second risk arises via development projects. For example, P1 stated that during development projects the costs for a product can change between the first quote provided to the customer and production, which reduces the expected profit of the project. This situation means that the expected profit will not be achieved unless adjustments are made in costs or the price quoted to the customer.

Because beliefs systems only provide pricing direction to the sales force (Simons, 1995), Electronic has implemented boundary systems to avoid pricing risks and discourage certain behaviours of the sales force that can impede the achievement of pricing plans (Mundy, 2010; Plesner Rossing, 2013). Instruments found at Electronic to prevent pricing plan variances include escalation instruments, the project control and processes.

4.2.4.2 Escalation instrument

As discussed in Section 4.1.2.4, Electronic limited the pricing authority of its sales force. Price limits are set via the minimum price system. To operate the limited pricing authority, Electronic established clear escalation guidelines (Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leischnig, 2016; Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008).

For the OEM business at Electronic, minimum prices are calculated by adding differentiated minimum profits onto the costs (P1; P2; P4). These minimum profits have been determined within the price management process in the phase of the price setting. They are integrated into the pricing tool that is used by the sales team for calculating prices (P4). The authority regulations at Electronic specify that pricing authority resides with the sales force when prices are above the minimum price. Otherwise, those prices need to be escalated to either the sales director/vice president of KAM or the CEO/CFO depending on the level of the variance (P1; P3). Consistent with the findings of Meehan, Simonetto, Montan and Goodin (2011) and Sodhi and Sodhi (2008), Electronic established an escalation process to prevent the sales force from quoting prices below the minimum price. The escalation process is shown in Figure 4.4.



(Source: researcher's own illustration as based on interview P3)

Figure 4.4: Escalation and approval process at Electronic

Salespersons enter the proposal for the quoted price into an Excel spreadsheet to determine the minimum price, minimum profit and the actual profit for the quoted price. The actual quotation profit and minimum profit are compared. If there is a positive variance, the actual profit is higher than the minimum profit, which enables the salesperson to deliver a quote to the customer directly (P3). Therefore, pricing authority resides with the sales force. However, if the quotation price is below the minimum price, the pricing authority is removed from the sales force. In that case, the sales force needs to escalate and obtain approval for the quotation price from a higher level within the company (P3).

In addition, Electronic differentiates the level of escalation based on the level of variance. The level of escalation is determined by the size of the variance of the actual profit compared with the minimum profit. If the variance is up to 50% of the minimum profit, then the sales force needs to escalate to the first level (sales director/vice president of KAM). If the variance is more than 50% of the minimum profit, it needs to be escalated to the second level (i.e., the CEO/CFO) (P1; P3).

The same minimum price system and escalation guidelines are used to price development projects (P1; P3). The only difference is that the escalation process is integrated into a Lotus work-flow system. If the quoted price is below a minimum price, a process for escalation is automatically triggered; the process stops until the price has been approved by staff at a higher level (P4).

Based on the implementation of the escalation instrument, Electronic constrains the pricing freedom of the sales force and prevents the sales force from setting prices below the pre-set minimum price without the approval of management. P1 noted the advantage of the escalation process: management has a certain degree of control over the prices before they are quoted because all prices that are below the pre-set minimum price need to be approved by management (Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leischnig, 2016; Meehan, Simonetto, Montan & Goodin, 2011). P4 explained that the sales force still has the opportunity to adjust prices based on the willingness to pay of the customer. However, management is informed when prices are established below pre-set minimum prices and can therefore opt whether to approve the pricing (P4). The primary advantage of using an escalation instrument to implement pricing plans lies in the ability to control quoted prices before they are communicated to the customer (i.e., management can intervene) (P3; P4; P5).

The escalation instrument is applied by Electronic because the pricing direction communicated through the beliefs system is broad and does not restrict the sales force in its pricing. As part of the escalation process, clear boundaries are set and prices that are not permitted are communicated through the minimum price system to the sales force (Simons, 1995). When the sales force wishes to breach the pre-set minimum price, it needs to escalate to management (Ivens, Stemmermann & Leischnig, 2016; Homburg, Jensen & Schuppar, 2004; Meehan, Simonetto, Montan & Goodin, 2011). In other words, management is informed and can prevent pricing plan variances before they occur (Sodhi & Sodhi, 2008). According to P3, staff at a higher level—like the sales director or the CEO—have a better overview of the entire market situation and can better judge the risk that is imposed by undercutting minimum prices. The defined escalation hierarchy ensures that management can decide whether a price below the minimum price poses a jeopardy to achieving pricing plans (Roll, Pastuch & Buchwald, 2012).

Electronic is able to make use of an escalation instrument to implement pricing plans because the minimum price system provides a benchmark for market-oriented prices. For example, P4 explained that this instrument was only possible because benchmarks were available thanks to the implementation of a value-based minimum price system. Previously, there only undifferentiated cost plus limits existed due to the company's cost plus approach. However, the existence of value-based benchmarks provided the opportunity to restrict the pricing authority to enforce the pricing strategy. Therefore, this escalation instrument was introduced at the same time as the value-based minimum price system (P4). An escalation instrument based on a cost plus-oriented pricing would be inconsistent with the value pricing strategy. However, using pre-set value-based minimum prices Electronic is able to restrict the behaviour of its sales force to be consistent with its defined pricing strategy and pricing plans (Simons, 1995).

Additionally, Electronic uses an escalation sheet to make the pricing situation transparent to management in case of escalations. The escalation is accompanied by an escalation sheet, which includes all relevant information about the pricing situation, that needs to be filled in by the sales force (P3; P4). Filling out the escalation sheet serves different purposes. First, the sales force is required to reflect upon why an undercutting of the minimum price is necessary (Roll, Pastuch & Buchwald, 2012; P4). Second, the escalation form includes all the of information necessary for staff in higher levels, which makes it easier for management to obtain an overview of the situation and make a decision about approving a price that is lower than the minimum price (Meehan, Simonetto, Montan & Goodin, 2011; P4).

In conclusion, escalation is an instrument of the Price Control 1 model because it helps to achieve pricing plans by preventing pricing plan variances. First, the escalation system gives the sales force freedom in its pricing approach to adopt prices based on the willingness to pay of the customer; pricing authority resides with the sales force for prices above the minimum price (P1; P3). In this way, the escalation instrument supports the ability of the sales force to customise prices (Dolan & Simon, 1996, Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Joseph, 2001). This customisation is necessary to achieve pricing plans (P3; P4). In other words, the escalation instrument still allows the sales force to find the market-oriented price within limits (Mundy, 2010) and therefore still has a motivating effect on the sales force to adopt prices in the best interest of the management (Widener, 2007).

Second, it can be used to communicate minimum standards for a price level and unacceptable pricing behaviour to the sales force (Mundy, 2010; Simons, 1995). If the sales force wishes to pursue a pricing behaviour that could endanger the pricing plans, the sales force needs to escalate to a higher level (Ivens, Stemmermann & Leischnig, 2016; Homburg, Jensen & Schuppar, 2004; Meehan, Simonetto, Montan & Goodin, 2011). Then the pricing authority does not reside with the sales force any more. Instead, management is informed about a possible undercutting of minimum prices and can choose whether to approve the prices. Therefore, management has the opportunity to prevent pricing plans variances before they occur (Sodhi & Sodhi, 2008).

In contrast with the beliefs systems which communicate only a broad direction of pricing objectives and strategy, the escalation instrument constrains the sales force in their pricing authority by communicating clear limits for their pricing activities (Mundy, 2010; Simons, 2000). The escalation instrument is a Price Control 1 instrument that reduces the risk of the sales force circumventing the implementation of pricing plans (Bedford, 2015; P5), directs the sales force towards pricing activities that are critical for plan achievement (Mundy, 2010), prevents unintended pricing before any quote is given to a customer and prevents pricing plan variances (P3; P4; Sodhi & Sodhi, 2008).

4.2.4.3 Project control

Another risk to achieving pricing plans is posed by longer-lasting projects. P1 stated that a major problem with development projects for pricing is that the costs can change over the course of the project between the first quote (M2) and production (M4). If the product is then sold and produced without any adjustments to its price and/or costs, the profit that was expected at M2 will not be achieved (P1).

To control this risk, Electronic implemented project control. The development of the profit that was expected at M2 and has been the basis for the decision to pursue this project is monitored. Before the first step of production, the profit at M2 is compared with the profit at M4 (before final settlement of price and first production) (P1; P4). Management is informed about the development. In the case of a negative development, which endangers the plans and is intolerable to Electronic, causes related to costs for the variance are investigated.

A cost increase might have occurred because the customer requested an adjustment. Then, a corrective action would be to charge the additional costs to the customer or reduce the product's costs to increase the project's profit again. Plans of how the profit can be increased should be defined (P3; P4). For example, P1 described a project that had an acceptable profit at M2. However, during the development phase the customer made change requests to the product that the development time was extended and the product became more costly. As a result, the profit decreased to an unacceptable level. The variance between the expected profit at M2 and the calculated profit at M4 was sizable. Management therefore decided that the price needed to be renegotiated, a process that was accepted by the customer. Due to a renegotiation of a higher price, an acceptable profit could be achieved again (P1). Electronic uses the escalation instrument to monitor longer projects in order to pinpoint, at early times in product development, variances from pricing plans. In case of variances, the management of Electronic intervenes so that pricing plan achievement is again possible and plan variances are reduced before they occur.

A project control is part of the boundary systems in the Price Control 1 model that facilitates to prevent pricing plan variances The case study suggests that project control affords a key advantage: management has the ability to interve in the selling process before a product is produced with an unacceptable profit and therefore can prevent pricing plan variances (P2; P3; P4). The expected profit is a minimum standard for the project (Simons, 1995) and constitutes a boundary for the sales force and for product development. Project control therefore sets limits on the sales force and communicates pricing behaviour that is off limits (Simons, 1995). Behaviour that leads to a decrease in expected profits is not desired by the company; profit development is monitored and management can intervene before a product is finally produced and sold. Therefore, project control is essential for projects with longer development timelines because a performance measurement at the end of the project can only spot variances when it is already too late.

4.2.4.4 Processes

Another Price Control 1 instrument of the boundary systems are processes that prevent pricing variances. At Electronic, the escalation instrument and project control are supported by processes. Several interviewees (P1; P2; P3; P4) stated that clearly defined processes are an important part of Price Control 1 because they guide the sales force in conducting their tasks and help to steer these staff towards plan achievement (Daft & Macintosh, 1984; Malmi & Brown, 2008). P3 reported that processes related to pricing are important because otherwise people might conduct these processes differently. With processes, the expectations of management related to conducting the process are clear. In addition, when defined processes are missing, required activities might be not conducted at all. For example, interviewees reported that only few countermeasures are derived from Price Control 1 analyses at Electronic because no process is defined (P2; P3; P5).

One example of a process at Electronic is the escalation process (P3), which is shown in Figure 4.4. This process restricts the pricing actions of the sales force and helps Electronic to prevent pricing plan variances, and accordingly to achieve pricing plans. It specifies how a quotation is made and which steps should be followed when the minimum price needs to be undercut (P1; P3; P4). This process ensures that prices are escalated that are not consistent with pricing plans (P3; P4; P5). Electronic uses a process for escalation because it is necessary to specify and give guidance to the sales force about how to conduct pricing and what steps to follow when a price is below the minimum price. The process helps Electronic to specify the actions necessary to such a case so that it is clear to the sales force that they need to escalate in case of violations of the minimum price. The process also specifies to what level the sales force needs to escalate (P3).

Another example of a process that prevents pricing plan variances is project control. The Lotus work-flow clearly determines the process to be conducted for pricing (P1; P2; P4; P5) and specifies what data need to be input into the workflow (P3; P4). Pricing-relevant data (e.g., quoted price, additional costs) are collected throughout the pricing process, which are necessary for Price Control 1. Additionally, the sales force cannot proceed with a project when they quote a price below the minimum price; staff at higher levels need to approve the price (P4). In other words this process defines and restricts the pricing actions of the sales force, which prevents pricing variance before they occur.

These processes are in place in order to define acceptable behaviour and how the sales force should complete pricing tasks to meet pricing plans (Malmi & Brown, 2008). The defined processes help Electronic to achieve pricing plans because they specify the acceptable behaviour of the sales force and therefore prevent sales forces from engaging in pricing actions that impede management's pricing plans. It is useful for Price Control 1 to document processes throughout the pricing process using process charts to coordinate and guide pricing tasks (Meehan, Simonetto, Montan & Goodin, 2011; Roll, Pastuch & Buchwald, 2012); these processes steer the behaviour of the sales force towards pricing plan achievement (Daft & Macintosh, 1984; Malmi & Brown, 2008). In addition, defined processes have the advantage that an enduring Price Control 1 capability can be established to maintain pricing success (Baker, Marn & Zawada, 2010; Roll & Achterberg, 2010; Roll, Pastuch & Buchwald, 2012).

4.2.4.5 Summary

In summary, similar to the case study conducted by Simons (1994), Electronic uses beliefs systems to communicate its new strategy and at the same time implements boundary systems to delimit the actions of the sales force with regard to quoted prices. Boundary systems restrict the freedom of the sales force to establish prices below defined thresholds (Simons, 1995; P1; P3; P4; P5) and therefore prevent pricing plan variances. Therefore, boundary systems counterbalance the wide swath of value-oriented prices communicated through beliefs systems by setting limits on the acceptable behaviours of the sales force (Simons, 1995; Widener, 2007). Boundary systems are powerful controls because they prevent variances from occurring and therefore sidestep negative consequences (Merchant & van der Stede, 2012). Because beliefs systems and boundary systems are controls that prevent errors before the prices are finally quoted to the customer, they are aligned with the process step of price execution shown in Figure 4.3.

4.2.5 Measurement systems

4.2.5.1 Introduction

Sections 4.2.3 and 4.2.4 demonstrated that beliefs systems and boundary systems are applied to alleviate pricing plan variances before they occur. Beliefs systems provide the pricing direction (Section 4.2.3), and boundary systems define pricing limits to the sales force (Section 4.2.4). However, these controls alone are not sufficient to achieve plan achievement (Simons, 1995; Widener, 2007); the beliefs and boundary systems should be reinforced via the use of measurement systems (Mundy, 2010). Similar to a study by Tuomela (2005), a change in the pricing strategy at Electronic also implied a change in the measurement systems (P1; P4).

To measure the performance of the sales force, plans need to be established (Simons, 2000). For example, P5 explained that there need to be plans and benchmarks available that the performance of the sales force can be measured against. The established price management process at Electronic generates pricing plans (Section 4.1.2). These plans need to be controlled in order to achieve the pricing plans (Simons, 1995).

The measurement system at Electronic is reflected by various instruments that are used by management to monitor the pricing plan performance of the sales force. Consistent with the findings of Flamholtz (1996), the measurement system at Electronic is applied after the price is executed by the sales force. It is mainly applied to provide management transparency as to whether pricing plans have been achieved and to generate appropriate corrective actions.

According to Simons (1995), critical performance factors need to be monitored to implement the strategy. This monitoring is necessary because ineffective Price Control 1 results when these factors are not measured or overlooked (Flamholtz, 1996). At Electronic, five major critical success factors could be found that need to be monitored to track whether the intended pricing strategy and pricing plans are truly achieved (Henri, 2006; Simons, 1995).

First, Electronic uses a sales budget, which states the planned sales, sales volume and margin to be achieved (P2; P4). Second, the price quality for platform and customer-specific products needs to be monitored. One can control whether prices are in accordance with value-oriented prices, which are reflected in the minimum price system (P1; P2; P3). Third, for development projects the profit development and charging of additional costs to the customer are critical to achieving the expected profit for the project (P1; P3; P4). Fourth, the targets for price increases need to be achieved to maintain value-oriented prices (P1; P4). Fifth, some customers have frame contracts so that the fulfilment of the sales volume needs to be monitored in order to ensure that the received price is justified (P3; P5). In addition, consistent with the view of Florissen (2005) and Simons (1995), interviewees (P1; P3; P4; P5; P7) regarded data quality as being important for ensuring that controls work properly. Data quality can be monitored by internal control systems (Simons 1995); internal control systems will be adressed discussed in Section 4.2.7. These pricing plans need to be monitored by Price Control 1 instruments (Simons, 1995).

Below, price controlling instruments that monitor pricing plans are discussed. As presented in Section 4.1.2.6, Electronic uses price controlling instruments that represent a measurement systems consistent with pricing plans and pricing strategy. However, other instruments noted in the price controlling literature can also improve the measurement systems at Electronic. Such instruments can enable the achievement of pricing plans and reinforce the beliefs and boundary systems (Tuomela, 2005). Section 4.2.5.2 discusses instruments that can be used to compare the achieved results with the pricing plans to provide transparency about plan achievement. Section 4.2.5.3 includes a discussion of instruments that can be used to convey the analysis results to the information receivers Because countermeasures should be taken to reduce variances in the case that pricing plan deviations are detected (Florissen, 2005), Section 4.2.5.4 discusses instruments that can be used to detect the causes of such variances in order to prepare appropriate countermeasures.

4.2.5.2 Comparison actual vs. plan

Performance measurement general (Measurement of sales budget)

A sales budget is prepared annually at Electronic for sales, sales volume and costs. This budget ends up feeding into a targeted profit and margin (P1; P3). These targets are communicated to the sales team as goals (P2; P4). In addition, the sales budget serves as a benchmark for measuring performance (Flamholtz, 1996). Monthly actuals are compared with budget numbers. This comparison is done on a monthly and a year-to-date basis. In addition, actuals are compared with last year's numbers. The variances are reported to the different responsibility areas and are discussed monthly in a management meeting (P2; P4). The budget variance is used as feedback to determine to what extent the budget was achieved by the sales force (P2; P3; P5).

As at other companies, the sales budget at Electronic is a key element in the company's control system (P4; Hansen, Otley & van der Stede, 2003) because it is an instrument that is capable of assembling various plans into one that can be used for several purposes (Hansen, Otley & van der Stede, 2003; Otley, 1999). According to Malmi and Brown (2008, p.293), budgeting focuses on "planning acceptable levels of behaviour and evaluating performance against those plans." Because the sales budget includes pricing-relevant figures (P1; P3; P4; P5; Whitlock, 2009), it provides pricing plans (P1; P3; P4; P5; Otley, 1999). These pricing plans are benchmarks against which the performance of the sales force can be measured (Otley, 1999; Waal, Hermkens-Janssen & van de Ven, 2011). Therefore, the sales budget can be used to measure the performance of pricing-relevant figures (Coppoolse, 2013; Herr & Metzelaers, 2007; Hwang, Tsai, Yu & Chang, 2011). It serves the purpose of monitoring pricing plan achievement (Waal, Hermkens-Janssen & van de Ven, 2011). In addition, budgeting enhances the coordination of pricing activities (Waal, Hermkens-Janssen & van de Ven, 2011), serves as a basis for incentive systems and motivates the sales force (P1, P3; Waal, Hermkens-Janssen & van de Ven, 2011). Due to the importance of budgeting for a control system (Malmi & Brown, 2008) and it monitors pricing plans, monitoring the sales budget is included in the Price Control 1 model.

However, there are also some disadvantages to using sales budgets that report aggregated sales and margin figures—these budgets do not directly report achieved prices. For example, Coppoolse (2013) argued that margin reports are not the optimal solution for steering pricing because they include both costs and sales price, which may lead to suboptimal conclusions with regard to pricing issues. This author proposed that a focus on sales price should also be in place. Consistent with the mindset of Coppoolse (2013), Electronic has additional measurement systems in place that focus on sales price. However, some instruments should be added to the current measurement systems of Electronic to fully monitor the achievement of pricing plans.

Price quality (general)

Consistent with the reviewed price controlling literature (e.g. Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009), *price quality* is measured at Electronic. In other words, staff monitor whether the planned prices are achieved (P2; P5). Pricing quality at Electronic needs to be measured because the sales force needs to comply with planned minimum prices and adjust minimum prices based on the willingness to pay of the customer (P1; P2; P3; P4; P5). The sales force should quote value-oriented prices that are consistent with the market-oriented minimum price provided by the minimum price system.

Price quality can be measured at Electronic. Because market-oriented minimum prices (P1; P3; P4) are available, there is a benchmark against which price quality can be measured (Coppoolse, 2013). P1 stated that it is challenging to judge whether a price is good or bad using only a comparison of absolute prices. According to P3, a comparison of absolute prices only makes sense if the selling situation and even the products are the same because the willingness to pay differs. This situation is seldom the case due to the numerous customers and variety of products found at Electronic (P3; P4). In addition, reference prices such as the minimum price have the advantage of making it possible to aggregate the price quality, so that an overall result for price quality can be achieved for different dimensions (e.g., region, product group and sales person) (P3; Coppoolse, 2013; Homburg, Jensen & Schuppar, 2004; Sebastian, Maessen & Strasmann, 2009). Thanks to the implementation of a minimum price system, Electronic has market-oriented reference prices available that enable the company to compare and monitor the quality of prices (P1; P4; Coppoolse, 2013). This situation enables Electronic's management to measure whether pricing plans in form of the planned minimum prices are achieved.

Electronic's method for measuring price quality will be discussed below. There are some disadvantages with regard to the mechanisms that are currently applied by Electronic to measure price quality. These mechanisms require improvement in order to fully monitor the achieved price quality, which will be discussed for the case of Electronic.

Price quality (undercutting price floor)

Consistent with the instruments noted in the price controlling literature (Diller, 2008; Simon & Fassnacht, 2009; Sodhi & Sodhi, 2008), Electronics measures the escalation rate (P2; P3). The company monitors how many orders need to be escalated by the sales force because the quoted price was below the minimum price (P1). The escalation rate is calculated at Electronic as follows: the number of orders that needed to be escalated divided by the total number of orders (P3; P4). This metric is also reported on different levels such as per sales person and per sales area (P1; P5).

The escalation rate is included in a Price Control 1 model because it shows the number of breaching the minimum prices which endangers the achievement of pricing plans. Electronic measures the escalation rate because the company has a defined minimum price that should not be undercut by the sales force (P1; P4). The escalation rate, reported in management meetings (P1; P2; P4), provides management transparency about the number of times that minimum prices need to be breached (P2; Coppoolse, 2013). Because the escalation system is part of the boundary systems at Electronic (Section 4.2.4.2), monitoring of the escalation rate also provides feedback as to whether the sales force has adhered to the defined boundaries that could jeopardise pricing plans. Therefore, the measurement system reinforces the boundary systems (Tuomela, 2005). Furthermore, the minimum prices attract attention; the sales force knows that management will look at these figures. P1 noted that the escalation rate has decreased since it was first monitored, an effect that may be due increased awareness of this situation and reporting (Flamholtz, 1996). Moreover, because Electronic also reports the escalation rate on the level of individual sales persons, it is possible to analyse whether someone is breaching regulations frequently and therefore endangering the implementation of value-oriented prices (Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008).

However, Electronic could improve this measure further by reporting the escalation rate in a more differentiated way according to escalation level. According to the escalation hierarchy (Section 4.2.4.2), Electronic defines two escalation levels (P1; P3). Future measurements could record the level of escalation to provide further insights into whether there are persons who are approving prices too often (Simon & Fassnacht, 2009) and therefore potentially endangering pricing plan achievement.

However, the escalation rate as a measure for price quality poses some limitations for monitoring pricing plan achievement. A drawback of this measure is that it only reveals the number of escalations but it cannot reveal the extent of the total variance from the pre-set minimum prices (P3; P4; P5). Furthermore, only negative variances from minimum prices are considered. P4 noted that records only reveal an escalation; one cannot see how well the sales force adjusted the minimum prices to the willingness to pay of the customer. Therefore the escalation rate is only a limited measure with regard to controlling price quality. Consequently, this measure has considerable limitations to measuring the pricing plan achievement for Electronic because the minimum prices only define the prices that are off limits. The sales force is still tasked with adjusting prices based on the willingness to pay of the customer (P1; P2). If the sales force interprets the minimum prices as being prices accepted by management, there is a risk that the sales force will quote close to or exactly the minimum price (Coppoolse, 2013; Roll, Pastuch & Buchwald, 2012). The esacalation rate does not enable Electronic to monitor whether and to what extent the minimum prices have been adjusted by the sales force. Therefore, an additional measurement instrument needs to be included in a Price Control 1 model that compares the planned price with the actually achieved prices (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009).

<u>Price quality (actual vs. planned prices)</u>

Employees at Electronic interviewed for this research claimed that there was no transparency as to how well the sales force achieved the planned prices (P1; P2; P3; P4). This outcome is due to Electronic not applying a price controlling instrument related to price gaps, which has the potential to alleviate this intransparency (Braun & Wiesen, 2012; Simon & Fassnacht, 2009; Sebastian, Maessen & Strasmann, 2009). Consistent with the findings of Braun and Wiesen (2012) and Sebastian, Maessen and Strasmann (2009), the interviewees reported the need to measure the difference between the actual price and the minimum price as a percentage (i.e., the actual price minus the minimum price divided by the minimum price) that should be used for both platform and customer-specific products because the same minimum price system applies (P3; P4). This calculation of price quality is quite similar to that of Simon and Fassnacht (2009). In contrast, Coppoolse (2013) used an index calculated by setting the actual price in relation to the minimum/target price, which also could be applied at Electronic and is simply another approach for calculating price quality but has the same purpose. In contrast to measuring the escalation rate, monitoring price gaps provides management with transparency on the variances to the minimum prices (Braun & Wiesen, 2012; Simon & Fassnacht, 2009; Sebastian, Maessen & Strasmann, 2009) and accordingly yields detailed information about the price quality achieved by the sales force.

Measuring the price gap is possible at Electronic because the implemented minimum price system provides benchmarks with which the achieved prices can be compared (Braun & Wiesen, 2012; Coppoolse, 2013). P3 hypothesised one reason why Electronic has not applied this instrument. P3 reported that the benchmarks are not entered completely into the IT system, which has made it impossible thus far to generate this measure properly. Therefore, internal controls, as will be discussed in Section 4.2.7, are important to ensure that complete and correct data can be used to perform this measure (Simons, 1995).

Measuring price quality by comparing actual and planned minimum prices is included in a Price Control 1 model; this measure gives management transparency as to the quality of the prices established by the sales force (Coppoolse, 2013; Simon & Fassnacht, 2009; Sebastian, Maessen & Strasmann, 2009). Without this Price Control 1 instrument, management would have no transparency as to how well the sales force has executed the planned prices. In addition, the performance measure price quality can be coupled to the incentive system to enhance pricing plan achievement (Ludewig, Wübker & Engelke, 2008; Sebastian, Maessen & Strasmann, 2009).

Price quality (price corridor coverage)

Another instrument that is used to measure the price quality in B2B is price corridor coverage (Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009). This instrument was not in place at Electronic because the company has only established a minimum price (P1; P2; P3; P4; P5) and not a target price. To be applicable, price corridor coverage requires both a predefined minimum price and a target price in order to span a price corridor as guidance for the sales force (Sebastian, Maessen & Strasmann, 2009). However, other B2B companies in that sector may have defined a target and minimum price (Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009). This instrument can accordingly be used by other companies to measure price quality (Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009;) and therefore constitutes an instrument in the Price Control 1 model.

The researcher suggests that Electronic define a target price beside the minimum price for two reasons. First, as noted above, only using a minimum price system has the drawback that prices quoted by the sales force tend to be similar to the minimum price because the sales force interprets minimum prices as being management-approved prices (Coppoolse, 2013; Roll, Pastuch & Buchwald, 2012). This situation can impede pricing plans at Electronic because the minimum price is the limit price and not the price based on the customer's willingness to pay (P1; P2). Second, the introduction of a target price would enable Electronic to apply this price controlling instrument to improve its measurement of price quality. Then, the price corridor coverage can be used to analyse how much sales volume or sales are above a target price, between the target price and limit price and below the limit price (Sebastian, Maessen & Strasmann, 2009) in order to measure to what extent the sales force stayed within the pre-defined price corridor (Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009). When Electronic implements in addition to the minimum price a target price, price corridor coverage is a further price controlling instrument to measure price quality and pricing plan achievement and accordingly is included as a price controlling instrument in a Price Control 1 model.

In conclusion, different price controlling instruments are included in a Price Control 1 model to measure price quality in order to monitor pricing plan achievement. Measuring the escalation rate provides management with feedback about the extent to which the sales force remained within its price authority range and complied with the minimum price system (Coppoolse, 2013). Because this measure is consistent with the escalation system in the boundary system, it reinforces the boundary system (Tuomela, 2005; Mundy, 2010). The usage of market-oriented minimum prices that have been established in the price-setting phase of the price management process and are consistent with the pricing strategy provide benchmarks that can be used to compare actual prices with planned prices. The measure price gap needs to be included because it measures the variance between the actual and planned prices and accordingly provides management transparency about the degree to which sales force has adjusted the sales price based on the willingness to pay of the customer and therefore implemented the pricing plans (Braun & Wiesen, 2012; Sebastian, Maessen & Strasmann, 2009, Simon & Fassnacht, 2009). In contrast, the escalation rate only provides information about the frequency that the sales force breached its limits. An additional measure that should be applied is price corridor coverage because this measure can monitor to what extent the sales force stayed within a pre-defined price corridor (Sebastian, Maessen & Strasmann, 2009).

Project monitoring

Another pricing plan of Electronic is to achieve its planned profit for development projects (P1; P3; P4). Consistent with the findings of Herr and Metzelaers (2007), Electronic conducts continuous project controlling to monitor pricing plans. The need for project controlling arises because Electronic develops products together with the customer in longer projects (P1; P2; P4). The decision to conduct a project is made on the expectations of profits at the stage of the first quote to the customer. This estimated profit is based on a price that is in accordance with pre-defined minimum prices (P1; P2). However, longer projects pose a risk for plan achievement because of potential changes in costs over time (P1; P4). Expected profits can slowly decrease, meaning that the intended profit level cannot be achieved (P1). Therefore, it is important to compare the expected profit with the actual achieved profit to monitor the achievement of planned profits (P1; P3; P4). When variances occur, countermeasures need to be initiated to increase the profit of the project (P1; P3; P4) and get the project on track with pricing plans again.

In contrast to the project control of the boundary system, measuring the variance after selling the product is a performance measure that does not set limits on the pricing behaviour of the sales team in the project. However, project monitoring gives the management transparency about the achievement of planned profits for the project (P1; P3; P4). As such, project monitoring is a instrument that measures to what extent the expected profit that was based on the value pricing approach was able to be achieved and accordingly gives management transparency about the achievement of the pricing plan; it is a Price Control 1 instrument in the Price Control 1 model.

The boundary system and performance measurement for projects complement each other (Simons, 1995). Project control—as a boundary system—clearly sets limits on the sales force and communicates the acceptability of the profit development of a project. Countermeasures can be initiated by the sales team before any profit variances occur. In addition, management can intervene early before the production is started. Measuring profits after production controls to what extent the expected profit could be implemented by the sales team, including all countermeasures already taken over the course of the project. A negative variance indicates that the pricing plans could not be met because the cost changes could not be managed effectively and passed onto the customer to maintain the value-oriented profit.

Management of changes

Another pricing plan in use at Electronic involves passing along additional incurred costs to the customer (P1; P3; P4; P5). Consistent with the suggestion of Herr and Metzelaers (2007), Electronic monitors these additional costs because these additional costs are not included in the price and therefore decrease the company's profits and endanger the achievement of pricing plans. Consequently, these costs (e.g., R&D costs, tooling costs and approval costs) need to be charged to the customer to some extent (P1; P3; P4; P5). For example, P1 reported that it is often the case that the customer requires certifications for the final product, which results in extra costs for Electronic. These costs are not considered in the price but are costs that decrease the company's profits for a given project. When these charges are not passed along to the customer, this service of extra certifications are actually given away for free by Electronic.

To monitor additional costs, a measure was introduced at Electronic to monitor to what extent additional costs were being passed along to the customer. This measure is regularly reported and discussed in meetings. This measure could increase transparency with regard to what additional costs are actually incurred and to what degree the sales force is able to charge these costs to the customer (P4). In contrast, without this measurement, management would not know to what extent additional costs have been charged to the customer (P1; P2, P3). Therefore, the transparency provides Electronic with the possibility of taking corrective actions (i.e,. passing along the additional costs) (P1). However, P1 reported that this measure is quite new and that therefore no target percentage of charged costs have been defined. A target rate needs to be determined once more experience is garnered by measuring the charged costs. Doing so will yield a clear benchmark against which the performance of the sales force can be measured (Flamholtz, 1996) that enhances the monitoring of pricing plans.

This instrument is included in the Price Control 1 model because it monitors how changed or additional costs initiated by the customer are passed on to the customer (Herr & Metzelaers, 2007). It gives management transparency about the performance of the sales force as they pass along the additional costs. This process is necessary because these costs are not considered in the originally quoted price and could therefore endanger pricing plans. By having this instrument in place, management can know to what extent additional costs have been charged to the customer and can take corrective actions when necessary.

Sales agreement monitoring

Some of Electronic's customers sign frame contracts, and the number of these frame contracts is increasing over time. A frame contract refers to a customer commiting to purchasing a certain quantity of products for an agreed-upon price over an agreed-upon time period (typically one year). Agreed-upon sales quantities can be advantageous for a company in terms of helping with its planning process and production. In return, the customer gets a better price based on the agreed-upon quantity (P3; P5). Therefore, at Electronic, a pricing plan is that customers with frame contracts should fulfil their sales agreements. (P3; P5).

Consistent with the price controlling literature (Coppoolse, 2013; Meehan, Simonetto, Montan & Goodin, 2011; Sid, 2003), Electronic monitors the achieved sales quantity of frame contracts. The fulfilment of sales agreements are monitored at Electronic because frame contracts pose a risk for pricing plan achievement when the customer does not fulfil the conditions specified in the frame contract. Sales volume is a value driver criterion that determines the minimum price—if the sales volume is lower the minimum price will be higher (P1; P2; P3). If the customer does not purchase the agreed-upon quantity, the price advantage granted to the customer is no longer justified (P3; P5). Since an undercutting of the agreed-upon sales volumes removes the justification for the price given to the customer (Coppoolse, 2013), frame contracts constitute a possibility for the sales team to circumvent the limits set through the minimum price system and set a price that does not reflect the value-based price. Consequently, violations of frame contracts endanger pricing plan achievement.

Monitoring of the frame contracts occurs at two different points in time, and Electronic uses the monitoring of the fulfilment of frame contracts for two different purposes. First, the difference between the actual purchased quantity of the frame contract and the agreed-upon quantity of the frame contract is calculated. This process makes the fulfillment rate transparent. It enables Electronic to inform customers when the agreed-upon sales quantity shows signs of not being fulfilled (P3; P5). Interviewees reported that this process confers an advantage—Electronic can intervene early by informing the customer that the fulfilment of the frame contract is endangered and putting pressure on the customer with the intention that the customer knows the variance and will attempt to fulfil its agreement (P3; P5). Therefore, countermeasures can be taken to reduce plan variances. Second, at the end of the contract period, monitoring the sales agreements shows to what extent the contract quantity has been fulfilled (P5). In other words, the achievement of the sales agreement is monitored after the variance has occurred. P3 reported that it is quite difficult to charge customers a higher price when a contract has not been fulfilled. However, the analysis of the fulfilment rate is used in the next round of pricing negotiations with a customer that has not fulfilled its contract (P3). Therefore, the analysis can be used for countersteering to get pricing plans back on track.

Monitoring of sales agreements is an instrument in the Price Control 1 model because a non-fulfilled sales agreement would contradict the implementation of value-driven prices. Therefore, Price Control 1 needs to monitor the fulfilment of the agreed sales quantities and feedback management of whether customers have paid too-low prices due to non-fulfilment (Coppoolse, 2013) because this situation endangers pricing plan achievement. In addition, the transparency arising from this analysis can be used for countersteering in case of spotted variances related to the sales agreement.

Price increase monitoring

Consistent with the findings of prior studies (Riekhof & Wacker, 2012; Riekhof & Wurr, 2013), price increases are conducted on a regular basis at Electronic (P1; P2). They are primarily triggered by costs increases (especially through labour cost increases). Costs are frequently communicated to the sales force so that these staff members have a good overview of the cost development and the need for the price increase (P1). The targets for price increases, set by management, are normally differentiated by, for example, customer, product or region. These increases are communicated to the sales force (P1; P4; P5).

The monitoring of price increases is a price controlling instrument in the Price Control 1 model, because it enables to make the implementation level of price increases transparent. Consistent with the reviewed literature (Braun & Wiesen, 2012; Coppoolse, 2013;

Diller, 2008; Riekhof & Wacker, 2012; Riekhof & Wurr, 2013), Electronic measures the implementation level of the planned price increases. Price increases need to be monitored in order to maintain value-oriented prices because a price increase should absorb the rising costs (P1; P4). In other words, implementing price increases is crucial to maintaining the planned value-based profit. Electronic monitors price increases because in the past management felt that price increases were not implemented properly by the sales force. The merit of applying this measure is that the implementation rate of the price increases becomes transparent (P1; P5) and whether price increases could outweigh cost increases to achieve pricing plans (Braun & Wiesen, 2012; Coppoolse, 2013; Sebastian, Maessen & Strasmann, 2009). If there are variances from set price increase targets, the sales team is asked to claim a service in return by the customer (e.g., an increase in sales quantity or changes to a frame contract) (P5).

Trend analyses

Trend analyses are common price controlling instruments used in B2B markets (Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Sebastian, Maessen & Strasmann, 2009). They are performed at Electronic (P1; P3, P4; P5). Monitoring pricing-relevant figures using trend analysis is included in the Price Control 1 model because trend analysis gives management transparency about the development of pricing-relevant measures, allows measures to be tracked over time (P1; P2; P3; P5) and informs whether deeper analysis and countersteering need to be conducted to prevent variances (P3; P4). At Electronic, sales budget, escalation rate and won-lost order rate trend analyses are currently used. Interviewees stressed that the benefit of trend analysis is that it reveals the direction in which measures are developing, which enables management to recognise negative trends and trigger analysis and early countersteering (P1; P2; P3; P4; P5). Thus, trend analysis can prevent deviations from pricing plans (P4). Electronic uses trend analysis to spot possible plan variances early so that corrective actions can be taken before plan variances occur. It is useful to apply trend analysis to the most important pricing measures (P1; P2; P4).

Because trend analysis monitors and depicts the development of pricing measures over time, it gives management feedback about the trends of pricing plan achievement (Coppoolse, 2013) and also reveals areas for which deeper analysis would be useful. Trend analysis can also suggest counteractions to prevent pricing plan deviations (Simon & Fassnacht, 2009).

The discussed Price Control 1 instruments compare actual vs. planned figures. Therefore, these Price Control 1 instruments are used after price execution. They are aligned with the Price Control 1 process step "comparison actual vs. plan" shown in Figure 4.3. Once the measurement systems have performed an actual vs. plan comparison, the measurement results need to be reported (Anthony & Govindarajan, 2007). To do so, staff can make use of instruments for price reporting (Bolte, 2008; Meehan, Simonetto, Montan & Goodin, 2011). These instruments that convey the measurement results to the information receivers are discussed in the next section.

4.2.5.3 Price reporting

Price reports

Similar to the control process discussed in the literature (Section 2.6.3; Anthony & Govindarajan, 2007), Electronic reports the results of the comparison of actual vs. plan. Consistent with the instruments noted by Sebastian, Maessen and Strasmann (2009) and Bolte (2008), Electronic applies price reports to convey the results of the analyses to the relevant information receivers (P3; P4).

Price reporting is used at Electronic because both measurements and the communication of those results is important to ensure the transparency of pricing plans (P1; P2; P3; P4; Baker, Marn & Zawada, 2010; Bolte, 2008). To communicate the measurement results, Electronic prepares price reports that enable information receivers to obtain a quick overview of pricing situations, the status for plan achievement and variances. This overview enables stakeholders to identify where corrective action is needed and to countersteer (P2; P3; Coppoolse, 2013). To ensure efficacy, price reports should include the relevant Key Performance Indicators (KPIs) for pricing (P3; P4) and should be suited to the information needs of the receivers to make sound pricing decisions (P3; Bolte, 2008). At Electronic, all pricing plans that are measured are also reported.

Price reports need to be conducted with a frequency that suits the needs of the information receivers. At Electronic, most pricing reports (e.g., project reports) are conducted on a weekly basis; sales budget report are conducted on a monthly basis (P3). P4 stated that the project reports necessitate weekly feedback to allow staff members to countersteer early on in project timelines before production starts. Therefore, reports need to be prepared with a frequency that is consistent with the frequency of pricing decisions (Bolte, 2008).

Monitoring and reporting steers the behaviours of the sales force (Flamholtz, 1996). P3 stated that Electronic is like a kindergarten in the sense that if management does not pay attention to the reports, nothing is done. In the same vein, P1 and P2 argued that monitoring by itself helps to boost the performance of the sales force because these staff members know that they are being monitored. Flamholtz (1996) found that measurements functions to make plan achievement transparent and also steer the behaviour of sales forces towards plan achievement based on the fact that the sales force is monitored and its performance is being reported.

In addition to performance being reported, most reports are presented and discussed in meetings involving management (P3; P4). Electronic therefore uses its measurement system also in an interactive way (Simons, 1995). Meetings provide the opportunity to discuss performance face-to-face with the sales force and to identify the reasons behind variances. Countermeasures can be identified to redirect the actions of stakeholders towards pricing plan achievement (P2; P4; P5; Simons, 1995). For example, P4 noted that discussing reports can also cause pricing plans to be rethought and adjusted. P1 explained that the value pricing strategy is the primary strategy that should be implemented. However, a penetration strategy is sometimes also necessary because entry into a new market requires a lower price than the minimum price or strategic pricing needs to be applied to win a new customer. Therefore, there might be situations in which pricing plans do not fit because there have been changes in the environment (e.g., the market or the competitive situation). These strategic uncertainties were not considered when the pricing strategy was selected and the pricing plans were prepared. These changes therefore weaken the basis upon which the pricing strategy was developed (Simons, 2000). The reports and the discussions in meetings give management the opportunity to identify and understand pricing threats that were not identified when the pricing strategy was prepared. These threats that could undermine the pricing plans (Simons, 1995).

In summary, price reports are used in a Price Control 1 model as a vehicle to convey the results of Price Control 1 analysis to information receivers so that they receive feedback about the plan achievement. This information keeps management aware of whether pricing plans are on track and whether corrective actions are necessary.

Cockpits/dashboards

To provide the information receivers with an overview of the most critical pricing performance measures on one sheet a pricing cockpit is a further instrument in the Price Control 1 model (Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008; Simon & Fassnacht, 2009) because that fosters a monitoring of plan achievement (Bolos et al, 2016; Bremser & Wagner, 2013; Few, 2006; Galloway, 2010; Winkelmann, 2012).

Even though a cockpit is not applied at Electronic, interviewees regarded a pricing cockpit as helpful for communicating performance to various stakeholders (P1; P3; P4). P1 and P7 reported that a cockpit was previously used at Electronic and had positive experiences using a cockpit. However, the cockpits displayed the most important company KPIs, but the cockpit was not tailored to price controlling purposes (P1; P7). P3 found it hard to judge the overall pricing situation using only one performance indicator rather than a mixture of various performance indicators (P3; Sodhi & Sodhi, 2008). To obtain a quick overview of the pricing situation, reports and measures need to be summarised and displayed on one sheet (P1; P4).

A pricing cockpit can arrange these measures and reports because it summarises the relevant reports and displays selected performance indicators in a clear manner (Bremser & Wagner, 2013; Few, 2006; Galloway, 2010; Meehan, Simonetto, Montan & Goodin, 2011; Winkelmann, 2012). A kind of traffic light system supports management to easily spot areas that are not consistent with pricing plans. Therefore, a cockpit guides management's attention to problem areas and ensures that deeper analysis and corrective actions are initiated (P1; P4; Baker, Marn & Zawada, 2010; Bremser & Wagner, 2013; Hanselman, 2009; Simon & Fassnacht, 2009). To ensure an effective pricing cockpit, thresholds need to be established for each measure to determine when the traffic light shows green, yellow or red (P1; Simon & Fassnacht, 2009). P1 and P4 stated that a cockpit system shows only selected measures that are most important and best reflect the pricing situation for various pricing areas. These data should give management a good picture of the overall pricing situation (P1; P4). Electronic benefits from a cockpit because management gets an overview of the pricing situation.

In summary, price reports and pricing cockpits are instruments in a Price Control 1 model that are used as means to communicate performance to management and the responsibility areas (Baker, Marn & Zawada, 2010). They are used to obtain feedback about performance and accordingly serve as a diagnostic (Simons, 1995). They are also used as a basis for face-to face discussions in meetings where management is personally involved. As such, they are used interactively to debate performance with subordinates, discuss countermeasures and to identify evolving pricing pressures that can impair pricing strategy and plans (Simons, 1995). As a vehicle for the communication of variances, price reports and the pricing cockpit are aligned with the process step "price reporting" shown in Figure 4.3, which follows the step of comparison of actual vs. plan.

4.2.5.4 Cause analyses

To measure and report variances is not enough for a sufficient Price Control 1. Instead the variances also need to be analysed in order to detect the cause of the variance. This process makes it possible to determine appropriate countermeasures to improve pricing plan achievement (Braun & Wiesen, 2012; Florissen, 2005; Rullkötter, 2009; Ivens, Stemmermann, Leischnig, 2016; Simon & Fassnacht, 2009; Sid, 2003; Shipley & Jobber, 2001). The interviewees acknowledged that monitoring of variances should be accompanied by deeper analysis, which can detect the cause of the variance (P1; P2; P3; P4). P1 and P4 reported a need to analyse the cause for countersteering at Electronic. Although monitoring of plan variances is in place at Electronic, more in-depth cause analysis is often missing, which is necessary for countersteering. In addition, the interviewees (P1; P5) claimed that cause analyses were not formalised in the controlling process and were sometimes absent. For example, P5 thought it was problematic that escalation rates were monitored but that more in-depth analysis related to countersteering was absent; such analysis would reduce further variances in the escalation rate. In the same vein, P1 recognised a need to generate more insights into detected variances with the goal of improving pricing and pricing plans. This shortcoming can also be noted in Tables 4.1 and 4.2, which compare the price controlling instruments found in the literature with the ones found at Electronic. Only a few instruments related to cause analyses are applied at Electronic, which suggests that there is room for improvement.

When variances are reported and detected, variances need to be analysed to investigate the causes and help inform the preparation of countermeasures (P1; P3; Anthony & Govindarajan, 2007; Ivens, Stemmermann & Leischnig, 2016). Corrective actions need to be conducted so that future variances can be reduced and price management be improved further (P1; Bolte, 2008). Below, price controlling instruments for cause analysis will be discussed as price controlling instruments in the Price Control 1 model.

Price band

The price controlling instrument "price band" could not be found at Electronic. However, it has been proposed by several researchers to be an instrument that identifies areas for improvement (Eugster, Kakkar & Roegner, 2000; Hwang, Tsai, Yu & Chang, 2011; Marn & Rosiello, 1992; Sebastian, Maessen & Strasmann, 2009; Simonetto, Davenport & Olsen, 2004) and that provides initial insights into possible causes of variances (Simon & Fassnacht, 2009). As such, it is included in the Price Control 1 model because it has the ability to analyse the causes of the variance, which is useful for countersteering.

This instrument can also be applied at Electronic to analyse the causes of variances. Studies such as those conducted by Hwang, Tsai, Yu and Chang (2011) and Marn and Rosiello (1992) used the price band with absolute prices for one product. However, this approach is not advisable at Electronic. P1 and P3 explained that Electronic's products are individualised (i.e., it is difficult to find comparable products and products that share the same minimum price). While companies that sell the same product to various customers can use absolute prices—consistent with the work of Hwang, Tsai, Yu and Chang (2011) and Marn and Rosiello (1992)—a price band using one product is not feasible at Electronic. However, a price band can also be conducted using other price elements than absolute prices (Bolte; 2008; Simon & Fassnacht, 2009). For the case of Electronic, price band analysis could be conducted for the measure of price quality. Doing so makes it possible to include more than one product because price quality is an index that sets the price to a standard, which allows for aggregating and comparing various priced products (Coppoolse, 2013). The price band can be used to show the distribution of price quality at Electronic.

The benefit of the price band analysis is that it can reveal that a majority of prices are set close to the minimum price (Homburg, Jensen & Schuppar, 2004). In such a situation, the minimum price might reflect the willingness to pay of the customer, or the sales team may not be trying hard enough to adjust the minimum price based on the willingness to pay of the customer (i.e., the sales team staff is taking the minimum price as a quotation price). The analysis also can identify products, regions or customer groups that have a very low or a very high price quality. Simon and Fassnacht (2009) claimed that it is important that Price Control 1 identify pricing shortcomings because they evoke questions for countersteering. According to Sebastian, Maessen and Strasmann (2009), the price band has the advantage that it identifies worst and best practices. The worst practices are causes for variances, and countermeasures need to be defined; the best practices can be used for learning how such a good price quality can be achieved (P3; Sebastian, Maessen & Strasmann, 2009). Price Control 1 delivers the input and monitors the development of price quality (Sebastian, Maessen & Strasmann, 2009).

Because a price band provides insights into possible causes of variance (Simon & Fassnacht, 2009) and identifies areas for corrective actions (Eugster, Kakkar & Roegner, 2000; Hwang, Tsai, Yu & Chang, 2011; Marn & Rosiello, 1992; Sebastian, Maessen & Strasmann, 2009; Simonetto, Davenport & Olsen, 2004), a price band is an instrument in the Price Control 1 model that can help analyse variances that require countersteering.

Price-waterfall analysis

Several researchers (e.g., Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Sebastian, Maessen & Strasmann, 2009; Riekhof & Wacker, 2012) have proposed that price-waterfall analysis might serve as a common price controlling instrument in B2B markets. At Electronic, this price controlling instrument could not be found. One reason for this situation may be that the minimum price system in place does not support the requirement for this instrument. At Electronic, value driver pricing generates net prices that are quoted to customers (P1; P2; P3, P4; P5), which means that there are no list prices, discounts or rebates defined. However, price-waterfall analysis uses discounts and rebates to examine how the variance between a list price and the actually realised price (pocket price) occurred (Hwang, Tsai, Yu & Chang, 2011; Marn & Rosiello, 1992; Marn, Roegner & Zawada, 2004; Roll & Achterberg, 2010). Since Electronic has no list prices, discounts or rebates that could be analysed, the case study company currently does not support the prerequisites for applying price-waterfall analysis.

However, other B2B companies use list price systems; this instrument is therefore a suitable price controlling instrument for detecting causes of variance in a Price Control 1 model (Homburg & Totzek, 2011b; Hwang, Tsai, Yu & Chang, 2011; Sebastian, Maessen & Strasmann, 2009). Electronic should change its price system and apply a list price and discounts and rebates like other B2B companies (e.g., Hwang, Tsai, Yu & Chang, 2011). In that case, Electronic could use this price controlling instrument to examine the variance between the list price and the actually realised price. Electronic would benefit from such a practice because then it would be possible to illustrate the elements that were deducted from the list price to result in the final price (Farrés, 2013). This method would inform management about the reasons for the variance (Simon & Fassnacht, 2009), which would help Electronic to identify where the profit leakage occurred (Sebastian, Maessen & Strasmann, 2009; Simonetto, Davenport & Olsen, 2004; van Veen-Dirks & Molenaar, 2009) and accordingly provide detailed information to initiate correct countermeasures to achieve pricing plans (Diller, 2008; Farrés, 2013). Thus, even though this instrument is currently not applicable at the case study due to the applied pricing system, the price-waterfall analysis is an instrument that helps to detect causes for countersteering to achieve pricing plans and is accordingly included in the Price Control 1 model.

Sales segment analysis

Consistent with the reviewed literature (e.g., Bolte, 2008; Köhler, 2003), Electronic uses sales segment analysis. However, this analysis focuses on margin and sales reporting (P1; P4; P7). Analysis is conducted for different objects such as product families and business, product, customer and sales areas (P1; P3; P4). Electronic uses this instrument to analyse variances from different perspectives in order to obtain deeper insights about where precisely the variance occurred and origin of the variance (P1; P4).

Electronic can also apply sales segment analysis to other Price Control 1 figures (Bolte, 2008) so that other Price Control 1 measures can be analysed on the level of various sales segments (Homburg, Jensen & Schuppar, 2004). For example, the interviewees considered it useful to structure the analysis and reporting around different analysis objects to demonstrate how each category contributed to the achievement of the pricing plans (P1; P3; P4; Dorović, 2015). Sales segment analysis allows for aligning pricing measures to different analysis objects so that deeper analysis of the level of various analysis objects can be performed (P4; Bolte, 2008). In addition to one-dimensional analyses using individual sales segments, a combination of sales segments could enhance the detection of causes of variance (P4; Hoffjan & Reinemann, 2000). The benefit of sales segment analysis is that management can identify in which sales segment(s) the variances occur, which enables them to identify the causes of the variance to generate corrective actions (Hoffjan & Reinemann, 2000; Homburg, Jensen & Schuppar, 2004; Köhler, 2003). Therefore, the sales segment is a price controlling instrument in the Price Control 1 model because it allows staff to detect causes of variance for countersteering to achieve pricing plans.

Variance analysis

Consistent with the reviewed literature (e.g., Diller, 2008; Ivens, Stemmermann & Leischnig, 2016; Köhler, 2003), Electronic applies variance analysis. At Electronic, margin variance is a key performance measure for monitoring the sales budget (P1; P2, P3). However, the margin integrates both sales and costs data. Therefore, the cause of the variance is not obvious (Coppoolse, 2013). As a result, Electronic analyses variances by splitting them up into different causes and illustrating them as a "bridge" between planned and actual figures (Figure 4.5) (P1; P3). The variances between the planned margin and the actual margin are divided into the following causes: sales volume, price, currency, material costs, variable labour costs, commission/freight, and others (P1; P3). This instrument enables Electronic to identify the cause of the margin variance and isolate the variance caused by price variances for price controlling (P1; P3; Bolte, 2008; Shank & Churchill, 1977; Young, 1981).

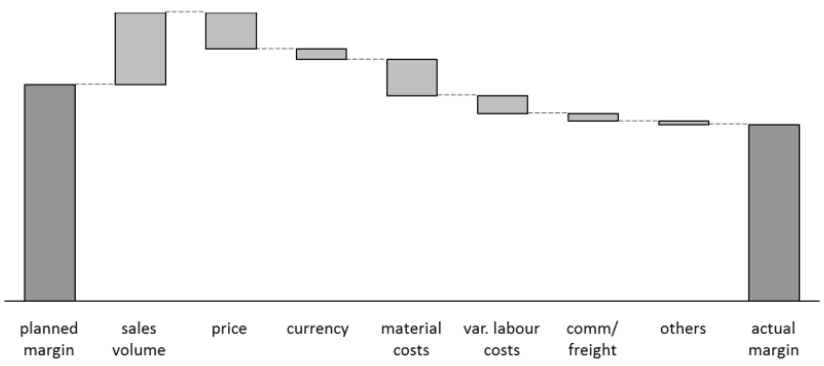


Figure 4.5: Margin bridge at Electronic

(Source: researcher's own illustration based on Electronic's margin bridge instrument)

At Electronic, variances are assigned to causes so that it is easy to see to what extent separate elements contribute to the total margin variance. Interviewees (P1; P3) reported that splitting up the margin variance helps Electronic's staff determine the cause of the variance and lead further in-depth analysis. Previously, the company only reported margin variances. It was therefore not clear whether, for example, price or costs caused the variance. With the introduction of the margin bridge, the computation of the margin variance became more transparent, and Electronic's personnel were able to determine the causes behind the variance (P3).

Variance analysis has the advantage that it isolates the contribution of the price effect to the total variance (Shank & Churchill, 1977). This method is important for price controlling because the margin includes other effects such as cost effects. In other words, the margin variance itself is not sufficient for price steering (Coppoolse, 2013; Diller, 2008). The sales-price variance reveals the extent to which the price charged has been higher or lower than the planned price (Diller, 2008). Because variance analysis splits up the margin variance into its components, including price (Bukovinsky & Talbott, 2010; Shank & Churchill, 1977), variance analysis is a Price Control 1 instrument in the Price Control 1 model that can identify possible causes of variance. This work serves as input for corrective actions (Bolte, 2008; Coppoolse, 2013; Emsley, 2001).

Won-lost order analysis

Won-lost order analysis is included into the Price Control 1 model because it examines the cause of lost orders, provides information as to whether price is truly the cause for a lost order (Culver, 2006; Garda, 1992a; Laker & Oswald-Chen, 2007; Roll, Pastuch & Buchwald, 2012) and accordingly helps management define correct countermeasures concerning pricing issues (Herr & Metzelaers, 2007; Roll, Pastuch & Buchwald, 2012).

Consistent with the reviewed literature (e.g., Herr & Metzelaers, 2007; Homburg, Jensen & Schuppar, 2005; Roll, Pastuch & Buchwald, 2012; Simon & Fassnacht, 2009), won-lost order analysis has been applied at Electronic and is viewed as a useful Price Control 1 instrument for detecting the cause of variances and for preparing countermeasures (P3; P4). However, only won-lost rates are currently reported at Electronic (P1; P2; P3; P5). The won-lost order rate is used by management to indentify how many orders have been won and lost and serves as an indicator whether there may be a problem with pricing (P1). However, this measure has the drawback: it does not reveal the reason behind an order being lost or won. This situation can result in incorrect countermeasures (Herr & Metzelaers, 2007; Roll, Pastuch & Buchwald, 2012). Therefore, it is advisable that Electronic conduct won-lost order analysis.

To conduct won-lost order analysis, it is important that necessary data be available and maintained, including customer, product and transaction data as well as competitor-price data and won/lost information (P3). Once an order has been closed, the sales team is tasked with providing the reason as to why the order was lost or won (P4). These reasons are predefined at Electronic (P5) and include the following:

Won orders: best price, best performance, best quality, long-established customer relationship, decision of the managing director.

Lost orders: price too high, bad product design, delivery time too long, minimum order quantity (MOQ) too high, quotation too late, decision of the managing director.

Disengaged orders: project not realised by the customer.

Consistent with the findings of Homburg, Jensen and Schuppar (2005) and Roll, Pastuch and Buchwald (2012), the won-lost order analysis can be used to analyse why an order was won or lost. Such work can reveal whether price was truly the reason for the loss of an order (P1; P3; P4). P3 and P5 noted, that many orders are also lost because the projects did not get realised by the customer. Won-lost order analysis therefore helps management gain an objective view of pricing because often it is assumed that price is the reason for the loss of an order (Homburg, Jensen & Schuppar, 2005; Roll, Pastuch & Buchwald, 2012). Without knowing the reason for the loss, a price reduction might not solve the problem. Such a situation would eat into company profits and endanger the achievement of pricing plans when price has not been the reason (Herr & Metzelaers, 2007; Roll, Pastuch & Buchwald, 2012). Orders that are won also need to be tracked because profit opportunities can be identified and implemented (Homburg, Jensen & Schuppar, 2005).

Therefore, won-lost order analysis is another price controlling instrument in a Price Control 1 model that can be used to detect the causes of variance. It systematically analyses pre-defined reasons for the loss to judge whether the price was truly too high and whether the price was responsible for the loss of the order or if other factors were involved (Culver, 2006; Garda, 1992a; Laker & Oswald-Chen, 2007; Roll, Pastuch & Buchwald, 2012). In addition, won-lost order analysis prevents personnel from taking pricing countermeasures if price was not the cause of the variance (Homburg, Jensen & Schuppar, 2005; Roll, Pastuch & Buchwald, 2012), which prevents profit losses. Won-lost order analysis furthermore serves as input for the definition of countermeasures (P3; Link & Weiser, 2011; Naylor, 2002; Reichheld, 1996).

Check-lists

Electronic does not have a check-list in place, but a check-list should be included in the Price Control 1 model for Electronic because it allows causes of variances to be spotted in a structured way (Ahmed, Kayis & Amornsawadwatana, 2007; Blohm, 1977; Ehrmann, 2008). According to P3, a check-list is a good Price Control 1 instrument that can guide cause analysis and allow company personnel to ask the most important questions about possible causes of variance (P3; Kalka, 2008; Köhler, 2003).

A Price Control 1 check-list should be structured around the price management process because the cause of variance can stem from anywhere in the price management process (Bolte, 2008; Florissen, 2005); all steps of the price management process need to be included in the analysis. Doing so ensures that the pricing process is systematically analysed for causes and that possible causes are not neglected (Ehrmann, 2008). A few check-list questions for the different processes that emerged during the interviews are presented below:

For the pricing process step "pricing strategy & objectives," P3 noted the following questions. Has the market environment changed due to, for example, the entry of new competitors? In other words, has the customer's willingness to pay changed? If the pricing strategy and the pricing objectives are wrong, then the proceeding steps in the pricing process will be based on an incorrect strategy. Therefore, a false pricing strategy can be the cause for plan variances. (Bolte, 2008). Interactive tools can be used to trigger discussion and spot factors that impair the chosen pricing strategy (Simons, 1995).

Within the pricing process step "operational price setting," P3 noted that the following question could be asked. Are the price drivers still valid and do they reflect the willingness to pay of the customer? Due to a change in market conditions, the price level could have changed and resulted in the planned minimum profits in the minimum price system being invalid. The minimum profits therefore need to be adjusted; they will otherwise not reflect the willingness to pay of the customer, and variances will occur due to incorrect minimum prices (P3; P4). Diagnostic tools can provide feedback about variances and trigger counteractions to adjust the minimum profits (Simons, 1995).

Within the process step "price realisation," P3 noted that the following question needs to be asked. Does the incentive system support the execution of the pricing plans? An incentive system should match the pricing plans to spur pricing plan achievement (Bonnemeier, Burianek & Reichwald, 2010; Homburg, Jensen & Schuppar, 2004).

For the price execution phase, P3 made note of the following question. Is the achieved price quality and the achievement of plans dependent on the sales person? In other words, are there better qualified people? Variances therefore may be dependent on the specific sales person, which may be caused by the sales people possessing different skills, training or qualifications (Homburg, Jensen & Schuppar, 2004). Diagnostic tools make it possible to determine variances between sales people (Simons, 1995).

For the process step "price control," P3 notes that the following question can be included in the check-list. Are fully accurate data used for Price Control 1? If the data are not correct, then the analyses of Price Control 1 have no value because the management cannot rely on them (P2; Simons, 1995). To counteract data problems, internal controls can be implemented to ensure that pricing data are correct (Simons, 1995; Simons, 2000).

Check-lists therefore provide a systematic approach to analysing problem areas and to asking the right questions to identify the causes of the variances. They can be used interactively in meetings to evoke discussion and to narrow down the causes of variance. Check-lists are accordingly included in a Price Control 1 model because they contribute to fulfilling the Price Control 1 function “detection of causes of variance for countersteering.”

Fishbone diagram

A further instrument that should be used to help detect the causes of variance is a fishbone diagram (P3; Ishikawa, 1985; Sodhi & Sodhi, 2008). However, this instrument is not currently in use at Electronic. Sodhi and Sodhi (2008) demonstrated the successful application of this instrument to determine the causes of price leakage; it is also useful for Price Control 1 to determining the causes of pricing plan variances because these variances are also price leakages. According to P3, a fishbone diagram is a helpful instrument for structureing the price problem, finding the cause of variance and deriving countermeasures.

For Price Control 1, the head of the fishbone represents the main Price Control 1 variance or problem for which causes need to be found; the fishbones represent the different levels of causes (Sodhi & Sodhi, 2008). Input needs to be derived from the sales force and other affected persons who are familiar with the company’s workings (P3; Ishikawa, 1985; Sodhi & Sodhi, 2008). The preparation of a fishbone diagram triggers discussion among the affected people; it is therefore a useful tool for integrating different problem areas that could potentially be the cause of the variance. It provides a more holistic view of the pricing problem so that different areas are analysed as possible causes for the Price Control 1 variance (Sodhi & Sodhi, 2008). Because a fishbone diagram helps to structure the problem and determine the root cause of variance (Kristianto, Ajmal & Sandhu, 2012; Sodhi & Sodhi, 2008), it is included in the Price Control model.

In summary, various analysis instruments useful for pinpointing the cause of variance can be used in a Price Control 1 model. The instruments can be used in a diagnostic manner to provide feedback about variance to company personnel. However, these instruments can also be used in an interactive manner (e.g., in won-lost order analyses). Won-lost order analyses can be discussed in meetings to trigger adjustments of pricing plans and pricing strategies after established market-oriented minimum prices prove to be invalid and orders are being lost due to high prices. These instruments are useful components of a Price Control 1 model because measurement and reporting of variances can show that there are plan variances but fail to provide deep insights into the possible causes of the variances. Variances need to be analysed in more depth to detect their cause(s) and determine appropriate countermeasures to improve pricing plan achievement (Braun & Wiesen, 2012; Florissen, 2005; Rullkötter, 2009; Ivens, Stemmermann, Leischnig, 2016; Simon & Fassnacht, 2009; Sid, 2003; Shipley & Jobber, 2001). These instruments are aligned with the process step “cause analyses” in the Price Control 1 process because they are able to detect the cause of the variance.

4.2.6 Incentive systems

After actuals are compared with planned figures and performance is reported, consistent with Flamholtz (1996) and the control process discussed in Section 2.6.3, Electronic evaluates and rewards its sales force based on their measured performance. Inputs for the reward are the results of the measurement system, which, at Electronic, mainly refers to the achievement of a defined sales budget. However, rewards are not given after each reporting cycle but instead once a year (P1; P2); this step may not be conducted each time in the control cycle.

Electronic’s incentive system encompasses a fixed part and a variable part, and the variable part rewards the sales team for revenue and profit and defined personal goals (P1;

P3). First, the incentive system at Electronic only incorporated revenue, but then also profit (P3). Riekhof and Lohaus (2009) and Bonnemeier, Burianek and Reichwald (2010) reported that incentives that are simply coupled to sales volume are not optimal for achieving pricing plans. Rewarding only revenue is associated with a risk that the sales force will grant unnecessary discounts in order to get a deal to increase revenue (Köhler, 2003; Marn & Rosiello, 1992). P1 reported that the variable component for profit directs the sales team to achieve better prices and not just aim for a record revenue. The profit component is used to take into consideration price and not just revenue (Hinterhuber, 2004; Simonetto, Davenport & Olsen, 2004). The importance of aligning the incentive system with pricing plans was stressed by the interviewees (P1; P2; P3). P2 and P3 stated that this method motivates the sales force to improve their pricing; price controlling gains accordingly increases in importance because pricing performance are the basis for remuneration.

Besides the positive effect of incentives on achieving pricing plans (Hinterhuber, 2004), Electronic can use profit as a component because these data are available and measured (i.e., input for the evaluation of performance is available) (Flamholtz, 1996). Furthermore, the problem of providing the sales force with product profit (Diller, 2008; Hinterhuber, 2004; Simon & Fassnacht, 2009) has not been encountered at Electronic. One explanation for this situation may be that the product profit is already visible to the sales force through the minimum price system.

However, Electronic does not align its incentive system with price quality. Doing so is suboptimal to achieving pricing plans because price quality at Electronic is a central measure for achieving pricing plans (Bonnemeier, Burianek & Reichwald, 2010). Currently, Electronic cannot incorporate the achievement of price quality into its incentive system because Electronic does not measure price quality as a variance between actual and planned prices (Section 4.2.5.2). Therefore, input for the evaluation of rewards is missing (Flamholtz, 1996). However, as proposed in Section 4.2.5.2, Electronic should measure price quality by comparing actual with planned prices, which would allow Electronic to couple its incentive system to price quality.

Aligning the pricing performance with the incentive system could result in benefits for Electronic because it is essential to improve pricing (e.g., Bonnemeier, Burianek & Reichwald, 2010; Eugster, Kakkar & Roegner, 2000; Homburg, Jensen & Hahn, 2012; Homburg, Jensen & Schuppar, 2004; Roll, Pastuch & Buchwald, 2012). For example, researchers such as Ludewig, Wübker and Engelke (2008) and Simon and Fassnacht (2009) have stressed that incorporating price quality as a reward in compensation plans increases performance of the sales force and therefore the executed price quality. An incentive system supports the achievement of pricing plans in two ways. First, it is an ex ante control, which means that the sales force behaves in a goal-congruent way based on their expectation of obtaining a reward (Flamholtz, 1996). In other words, a sales force will try its best to achieve pricing plans (for example, by adjusting the minimum prices based on the willingness to pay of the customer and not breaching minimum price limits). Therefore, the behaviour of a sales force is already steered before any price is quoted. Second, the incentive system functions as an ex-post control because it strenghten the behaviour of the sales force being goal congruent, which increases the probability that such behaviour is conducted again and that non-goal-congruent behaviour will be altered (Flamholtz, 1996). When the sales force engages in value pricing, they will be rewarded for this behaviour. So, the likelihood that the sales force will also quote value-oriented prices the next time instead of giving large dicounts to make easy sales will be increased.

An incentive system that is aligned with pricing performance is included in a Price Control 1 model because such as system steers the sales force to act in the interest of the management due to the expectation of a reward (Eisenhardt, 1985; Eisenhardt, 1989; Flamholtz, 1996; Jensen & Meckling, 1976; Joseph & Thevaranjan, 1998). This situation reinforces goal-congruent behaviour (Flamholtz, 1996) and can fulfil the Price Control 1 function of serving as motivation of plan achievement (Diller, 2008; Köhler, 2003; P1; P2; P3). The incentive system uses the results of the measurement system and is accordingly closely related to the measurement system; it reinforces the behaviour that leads to pricing plan achievement (Flamholtz, 1996).

4.2.7 Internal control systems

Consistent with the reviewed literature (e.g., Bolte, 2008; Meehan, Simonetto, Montan & Goodin, 2011), Electronic applies internal controls. Internal controls in the form of monitoring process and data quality need to be included in a Price Control 1 model because missing or inaccurate data can lead to incorrect Price Control 1 analyses and consequently to biased pricing decisions (P1; P2; P3; P4; P7; Schläfke, Silvi & Möller, 2013; Simons, 1995, Simons, 2000). Such a situation can have negative consequences for a company (Breur, 2009; Haug, Arlbjørn, Zachariassen & Schlichter, 2013; Kay, 1997; Lindsey, 2011; Redman, 1995) due to the threat of pricing plans not getting implemented (Redman, 1995). Even though beliefs and boundary systems direct the behaviour of the sales force, companies should protect themselves from violations of the prescribed behaviour (Simons, 2000). Poor data quality and errors in the subcontrol systems weaken Price Control 1 (P1; P3; P4; P5; P7; Fox, Guynes, Prybutok & Windsor, 1999). In addition, missing or poor data endanger the implementation of Price Control 1 instruments (P2; P4; P5). Therefore, internal controls need to be instruments in a Price Control 1 model to enhance data quality (Fisher, 2006; Haug & Arlbjørn, 2011). This situation promotes better pricing decisions (Fisher, 2006) and helps to ensure error-free controls (Bolte, 2008).

It is widely acknowleged that information plays a crucial role in price management and successful price controlling (Bolte, 2008; Diller, 2008; Bonnemeier, Burianek & Reichwald, 2010; Ingenbleek, 2007). This situation particularly applies to performance measurement instruments if they are to be effective (Simons, 2000). As a result, relevant information needs to be complete, correct and available in a timely manner so that price controlling can be conducted and relevant information can be communicated to management for sound decision-making (P7; Bolte, 2008; Hwang, Tsai, Yu & Chang, 2011; Ivens, Stemmermann & Leischnig, 2016). For example, P7 and P4 noted that the “garbage-in=garbage-out” principle applies for pricing data. Consistent with Simons (2000), interviewees noted that analyses based on wrong and/or incomplete data are of no use because they are not reliable (P1; P2). In addition, interviewees reported that without complete and correct data it is difficult to complete analyses (i.e., results cannot be obtained) (P1; P3; P4; P5; P7) and that missing data sometimes hinder the implementation of Price Control 1 instruments (P2; P4; P5). A problem at Electronic is that complete and correct data are not always available (P1; P3; P4; P5). Therefore, internal controls need to be in place to foster a correct and reliable data basis for Price Control 1 (P1; P3; P4; Marsh, 2005; Meehan, Simonetto, Montan & Goodin, 2011; Simons, 1995).

Measures need to be in place that check the correctness of the pricing data entered (Meehan, Simonetto, Montan & Goodin, 2011). Correct and complete information is the backbone for successful price controlling (P1; P2; Simons, 1995); controls for price information need to be part of a Price Control 1 model. Different control options can be enacted to ensure that data are available and correct (P7; Simons, 1995). P4 stated that there should be a method in place to prevent necessary data from not being entered or entered incorrectly. This interviewee also noted that there needs to be internal revision to control whether or not the sales team has complied with guidelines. Therefore, control should take place before a data error occurs; control should also take place after a data error has occurred to initiate corrective actions (Betts, 2001; Redman, 2001; Whiting, 2006).

P7 noted that instruments that control price information before a data error occurs can be classified into three main categories (Figure 4.6).

Guidelines	Type of input fields	Mandatory input to proceed process
▪ Guidelines for sales force what exactly needs to be put in	▪ Data taken from master file ▪ Predefined selections ▪ Range of acceptable values	▪ Input required to proceed with process

Figure 4.6: Instruments to prevent data errors

(Source: researchers's own illustration based on interviews with P7)

Guidelines outline and explain what data are required to have a common understanding and when they are required (P4). For example P4, noted an example in which the sales team might have different understandings of profit. These varied understandings could, in turn, change the way that data are entered. Consequently, the data are not comparable and are difficult to analyse (P1; P4). Guidelines can foster a common understanding to prevent data errors. However, for P7 the constraint of guidelines is that they only can serve to minimise data errors; they are not able to prevent errors completely. A guideline therefore is useful to communicate to the sales force what information is needed and how it is to be input. Guidelines can accordingly prevent errors that are based on misunderstandings or on lack of instructions and guidance as to what exactly to do (Reed, 2007; Vosburg & Kumar, 2001).

P7 noted a second instrument that determines the type of input fields that are provided. First of all, data can be taken from a master file, which minimises errors and ensures that the data are complete. A second option is to provide pre-defined selection fields so that only certain values can be selected (P7; Murray, 2015; Turek, 2003), which reduces data entry errors (Murray, 2015). P1 stated that there are often different spellings for the same input, which prevents rapid analysis. The work-flow system for projects at Electronic is one tool that uses drop-down menus. A drop-down menu restricts input choices so that data are comparable. Data quality accordingly goes up (Murray, 2015; Vosburg & Kumar, 2001) and enables more rapid Price Control 1 (P1). Another way to prevent data input errors is to restrict values for input (P7; P4). P4 reported that sometimes profit is entered into the system even though it was never been achieved and therefore is obviously wrong. If the input is restricted, values beyond a certain range cannot be entered, and mistakes are prevented (P4; Satzinger, Jackson & Burd, 2014). P4 reported that incorrect data have the drawback that a lot of cleaning up of the data is necessary before reporting, which renders timely reporting more difficult (P4). Therefore, besides the danger of incorrect analysis (P1; P3; P4; P5; P7), internal controls are also necessary to foster timely reporting (Simons, 2000).

The problem of incomplete data can be mitigated by the implementation of mandatory fields (P7). These fields need to be filled in to proceed with the process of generating a quote. For example, mandatory data inputs are integrated in the Lotus work flow for projects at Electronic (P1). P1 reported that data quality could be significant improved via the use of mandatory fields. Mandatory fields eliminate problems related to missing information and ensure the completeness of data for a given transaction (P7; Collier & Agyei-Ampomah, 2008), which enables Price Control 1. For example, P4 reported that not all minimum profits and price drivers were maintained in the ERP system, which made it impossible to make comparisons between actual and planned data. In contrast with the Lotus work flow system and the internal controls, these data are maintained, which enables control (P4). Poor data quality not only hinders a timely Price Control 1 but also can result in necessary price controls not being conducted.

However, P7 explained that these instruments discussed above cannot be implemented fully within the current ERP system at Electronic. Therefore, these tools can ensure data quality only to a certain degree—there will be data errors. It is accordingly necessary to monitor the data correctness again after the data have been input to identify where data mistakes occurred and to trigger corrective actions (P1; P2; P3; P4; Breur, 2009b; Worthington & Brilis, 2000). This kind of control also yields important insights into the validity of the resulting analyses because analyses have little value when they are based on incorrect or incomplete data (P3). Similarly, Meehan, Simonetto, Montan and Goodin (2011) saw a need to control the correctness of pricing data for price controlling. Checking the quality of pricing data is vital to ensuring the validity and representativeness of pricing analyses and should be an integral part of a Price Control 1 model. P7 explained two measures that can be applied. First, organisations can measure how much data are missing or incomplete. Second, the quality of the data input can be measured for a selected data set within an internal audit (P4; P6; P7; Batini, Cappiello, Francalanci & Maurino, 2009; Vosburg & Kumar, 2001).

In addition, P1, P4 and P6 noted that sales may circumvent certain guidelines, especially for authority and escalation systems. In such situations, pricing authority lies completely with the sales team, and the escalation system and the authority regulations are ineffective. Therefore, there should also be a control to check whether the important Price Control 1 processes are working and whether the sales force has complied with guidelines (P1; P3; Meehan, Simonetto, Montan & Goodin, 2011). This method can be compared with the process audits noted by Bolte (2008) and the measurement of process quality noted by Meehan, Simonetto, Montan and Goodin (2011) as price controlling instruments. P4 stated that measuring compliance with crucial guidelines can be conducted within internal audits. For a company, crucial processes and guidelines are the authority regulations, the escalation system and the approval process (P1; P3; P6). If these processes are not working properly the boundary system and the limits for pricing for the sales force are ineffective and the minimum price system for achieving the pricing plans is bypassed. P1 and P6 noted that a measure involves checking for a sample of quotes whether a signature from a higher level has been received by the sales force in case of an escalation process. Furthermore, the escalation sheet conveys the important information for management to decide whether to approve or disapprove a price below the minimum price (P4). Because the escalation sheet is part of the basis for decision-making, it is necessary to check if the data are filled in on the escalation sheet and if they are filled in correctly. In addition to the measurement, specific errors should be reported in order to analyse the causes and prepare countermeasures (P6).

In summary, internal controls help Electronic to achieve pricing plans via error-free controls since they support data being available to use in price controlling instruments and that the results of the Price Control 1 analyses are correct. Without internal controls, Price Control 1 analyses may be wrong or the application of the instruments may be hindered due to poor data quality. Although beliefs systems and boundary systems steer the behaviour of sales force towards goal achievement, there is still a risk of Price Control 1 processes being bypassed, which negatively affects the measurement of pricing performance. Pricing analyses can only be relied on by management if the pricing data that feed the analyses are correct. Such analyses are also only of use to management if they are delivered in a timely manner (Simons, 2000). An incorrect data base can result in incorrect pricing decisions (Simons, 1995) and can also reduce confidence in the use of Price Control 1 analyses (Friedman et al. cited in Haug & Arlbjørn, 2011; On, 2006). Internal controls enhance a correct data basis and render the data basis ready for prompt analysis (Meehan, Simonetto, Montan & Goodin, 2011; Simons, 2000) yielding the Price Control 1 analysis in a timely manner (Simons, 2000). Controlling data quality and critical processes for Price Control 1 can encourage greater discipline on the part of the sales team and motivate them to follow the procedures that are necessary for Price Control 1 analysis (Meehan, Simonetto, Montan & Goodin, 2011). Reporting of the analysis makes it possible to take corrective actions (e.g., by providing additional training to the sales force or modifying processes in order to reduce errors) (Meehan, Simonetto, Montan & Goodin, 2011). Therefore, internal controls for data quality and compliance with critical Price Control 1 processes are a necessity for successful Price Control 1 and should not be neglected in a Price Control 1 model. Internal controls are depicted at the base of Figure 4.3 because they form a basis that allows the other controls to work properly (Simons, 1995).

4.2.8 Information systems

Information systems

Information systems need to be included in a Price Control 1 model because they are necessary to handle the enormous amount of data present (P1; P2; P3; P4; P5; P7; Diller, 2003b; Herath, 2007; Hwang, Tsai, Yu & Chang, 2011) and monitor pricing plans (Oxenfeldt, 1973). They are accordingly required to enable Price Control 1 (Homburg & Totzek, 2011b; Ivens, Stemmermann & Leischnig, 2016; Simons, 1995).

P1 and P3 noted that information systems must be in place because price controlling and involved analyses of an enormous quantity of data cannot be performed efficiently without an IT system. Price Control 1 accordingly requires the support of information systems to be conducted efficiently (Homburg & Totzek, 2011b; Ivens, Stemmermann & Leischnig, 2016; Rathnow, 2014; Roll & Achterberg, 2010). A control system raises the workload (Tuomela, 2005), but an IT system helps minimise the effort required to prepare Price Control 1 analyses and reports (P1; P4; P5). For example, P3 highlighted that the IT system at Electronic makes it possible to generate the necessary information quickly and on time, a situation that would be not possible using Excel alone.

Consistent with the reviewed literature (e.g., Braun & Wiesen, 2012; Florissen, 2008; Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009), Electronic uses several IT systems to enable Price Control 1. First, Electronic has an IFS ERP system in place. This system provides entry masks for price relevant data and stores most pricing-relevant data, which also includes cost information (P7). Moreover, the project development processes are supported by an IT-enabled Lotus work-flow system that collects the pricing data during development projects (P1; P2; P4). Furthermore, many instruments are based on Excel, the price calculation tool that is used for calculating specific minimum prices and helping the sales force generate quotes (P3; P4).

In addition, an Executive Information System (EIS) is used as a BI system for generating Price Control 1 analyses (P3; P4; P7). This system links data from different systems (e.g., the ERP system, the Customer Relationship Management (CRM) system, Excel files, Lotus workflow) and therefore consolidates necessary data for Price Control 1. As such, EIS offers the possibility of analysing and reporting multi-dimensional data and is used to generate pre-defined analyses and reports for Price Control 1, such as the number of escalations or the won rates for won-lost order analysis (P7). The EIS is therefore used by Electronic for integrating the various pricing information necessary for Price Control 1 into one system (Baker, Marn & Zawada, 2010; Diller, 2003b; Diller, 2008). Placing all pricing-relevant information data together is important to ensure that Price Control 1 instruments work properly (Baker, Marn & Zawada, 2010).

Information technology instruments need to support Price Control 1 to have the data transparency necessary to ensure the right pricing decisions are made (Roll & Achterberg, 2010). Therefore, IT systems are an important basis for price management (e.g., Reinecke & Janz, 2007; Roll & Achterberg, 2010), and they provide information for price controlling (Bonnemeier, Burianek & Reichwald 2010; Herath, 2007; Homburg & Totzek, 2011b). Information systems are required in a Price Control 1 model because they are price controlling instruments that collect and provide all necessary planned and actual data to enable other instruments to perform Price Control 1 (Braun & Wiesen, 2012; Diller, 2008; Homburg & Totzek, 2011b).

Accounting

Consistent with the findings of Bolte (2008), Electronic uses accounting for Price Control 1. Accounting constitutes an instrument of a Price Control 1 model because it delivers the cost and sales data that are necessary to conduct Price Control 1 analysis (Bolte, 2008). For example, products are calculated using a typical overhead calculation to derive the total costs at Electronic (P3; P4). These costs are the inputs for calculating the minimum prices in the minimum price system (P1; P2; P3; P4). Accounting is required to calculate the actual costs of a product and the planned minimum prices. Moreover, sales data and budget figures are also provided by accounting (P3; P4); without these accounting data necessary information would be missing for Price Control 1. Accounting is therefore another instrument that provides necessary planned and actual data to conduct Price Control 1.

Target system

Interviewees stated various pricing targets for Electronic. For example, one primary pricing target at Electronic is the minimum prices that are defined by the value driver price calculation (P1; P2; P4; P5). This target system allows personnel to define clear pricing targets for each quotation that can then be communicated to the sales force (P1; P3; P4). These targets serve as benchmarks to measure the price quality (P1; P3; P4). Another example of a target system at Electronic is the sales budget, which is prepared annually and defines clear targets for sales, sales volume, costs, profit and margin on the level of sales persons (P1; P2; P3; P4; P5). This information serves as targets against which performance can be measured (P1; P3; P5; Malmi & Brown, 2008). Therefore, target systems are included in a Price Control 1 model because they deliver the planned data that are necessary to conduct measurement activities in Price Control 1 (Bolte, 2008).

In summary, information systems at Electronic help provide the planned and actual data that are necessary to perform Price Control 1 and help perform Price Control 1 efficiently (Diller, 2008). They are accordingly included in the Price Control 1 model.

4.2.9 Countermeasures

Variances should be reduced to achieve pricing plans (P1; P2; P3). To do so, countermeasures need to be taken to improve pricing, interviewees agreed (P1; P2; P3; P4; P5).

For example, P3 stated that the analysis and reporting has no use when no conclusion is drawn, that means when there are variances and nothing is done to countersteer then the variance will occur again and the pricing will not be improved (P3). Therefore, consistent with the mindset of Florissen (2005) and Rullkötter (2009), a Price Control 1 model needs to take into account variance feedback and corrective actions to promote learning to improve pricing.

These countermeasures can address the pricing plans themselves, the execution phase by the sales force and also other components of the Price Control 1 model. For example, when there are always escalations in one region company personnel should check whether the formulation of the minimum price for this region is not valid anymore and may need to be adjusted. One countermeasure could then be to adjust the minimum prices (P2). This situation implies that pricing plans are not valid and accordingly need adjustment to reduce the variance (Anthony & Govindarajan, 2007; Fassnacht, 2009). The results of Price Control 1 analysis also influence the steps of the planning phase of the price management process.

Additionally, operations with regard to executing prices may need alternations. For example, P4 reported that when there are variances between the intended profit and the actual profit one potential countermeasure is adjusting prices to achieve the intended profit. Therefore, corrective actions can also impact operations (Anthony & Govindarajan, 2007) and change how the sales force executes pricing plans.

Moreover, corrective actions can also impact control mechanisms. This work suggests that the control mechanisms necessitated changes when the pricing strategy was altered from a cost-plus to a value pricing approach. For example, the escalation system was adjusted to constrain the sales force in their pricing opportunities to achieve prices that were above the minimum price. In addition, it has been suggested that measurements of price quality should include comparisons of actual prices with minimum prices (Section 4.2.5.2). This measure should then also be included in the incentive system so that the incentive system is aligned with the pricing plans (Simons, 2000). In other words, the results of Price Control 1 can also alter price controlling instruments in the model itself. Therefore, control mechanisms are altered in order to achieve the pricing plans. This situation is consistent with the contingency theory that postulates that price control instruments change depending on contextual factors (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999).

Moreover, the implementation and the effect of countermeasures also need to be monitored (P1; P2; P3). For example, P1 explained that monitoring the implementation of countermeasures is necessary to ensure that countermeasures are not simply defined but are also implemented and that management is aware of the implementation status. P3 added that the effects of countermeasures also need to be measured. One can accordingly monitor whether the countermeasures achieved the desired outcomes (P3; Sodhi & Sodhi, 2008). If the measures have not improved the results, they are not effective and other countermeasures need to be enacted (Marksberry, Bustle & Clevinger, 2011; Sodhi & Sodhi, 2005). This methodology implies that the control process starts again with the implemented countermeasures. When pricing plan variances persist, additional countermeasures need to be implemented.

In summary, variances need to be checked and feedback given; corrective actions need to be undertaken to achieve pricing plans. Corrective actions can impact the planning phase, the execution phase and the control mechanisms themselves during the controlling phase of the price management. Corrective actions are necessary because otherwise there is no price learning to improve the pricing further (Florissen, 2005).

4.2.10 Summary

A Price Control 1 model has been created using both the literature review and the insights gleaned from interviewing personnel at Electronic (Table 4.2; Figure 4.3). Based on Section 4.2, various Price Control 1 instruments are included in the Price Control 1 model that can be used to fulfil the Price Control 1 functions and steer the behaviour of the sales team; they accordingly help to achieve the pricing plans.

Consistent with prior studies of control systems (e.g., Widener, 2007; Simons, 2000), this work suggests that a Price Control 1 model can be designed using various control subsystems to achieve pricing plans. The Price Control 1 model includes the following control subsystems: pricing beliefs systems (Simons, 1995; Electronic, 2013c; P1; P3), pricing boundary systems (Simons, 1995; P1; P2; P3; P4; P5), measurement systems (Simons, 1995; P1; P2; P4; P5), incentive systems (Bedford & Malmi, 2015; Flamholtz, 1979; Malmi & Brown, 2008; P1; P2; P3), internal control systems (Simons, 1995; P1; P4; P5; P6; P7) and information systems (Herath, 2007; P1; P2; P3; P4; P5; P7). In addition, the Price Control 1 process includes the following steps: price planning, execution, measurement (comparison actusl vs. plan, price reporting, cause analyses), rewards and countermeasures (Anthony & Govindarajan, 2007; Flamholtz, 1996).

First, the planning phase of the price management process results in pricing plans that are consistent with the pricing objectives and pricing strategy to be achieved. The pricing plans provide the plans that need to be controlled by Price Control 1 instruments (Braun & Wiesen, 2012; Florissen, 2005; Sebastian, Maessen & Strasmann, 2009; P1; P2; P3). Therefore, the pricing plans influence the design of the Price Control 1 model because they determine which Price Control 1 instruments are used (Herath, 2007).

Boundary beliefs systems and boundary systems steer the behaviour of the sales force before prices are quoted. Beliefs systems are used to communicate management's pricing expectations and pricing values to the sales force to guide and motivate the sales force in their pricing activities so that their actions are consistent with the values and pricing plans of management (Heinicke, Guenther & Widener, 2016; Mundy, 2010; Simons, 2000; Widener, 2007; P1; P3). Price controlling instruments employed in the beliefs systems include pricing strategies and mission statement/pricing values. Because beliefs systems only provide a broad direction and enable a wide range of value-oriented pricing activities for the sales force (Simons, 1995; Widener, 2007), they are supported by boundary systems that restrict the range of the sale force's pricing activities (Simons, 1995). These boundary systems include escalation instruments, project control and processes. These instruments help to prevent undesirable behaviour that can impede pricing plan achievement (Mundy, 2010; Plesner Rossing, 2013; P1; P3, P4; P5). Both beliefs and boundary systems prevent pricing plan variances before they occur (Sheehan, 2010; Simons, 1995). While beliefs systems are implemented to direct employees to behave in accordance with management's values in order to achieve pricing plans, boundary systems restrict behaviour that can impede the achievement of pricing plans (Simons, 1995).

After the sales forces executes pricing plans, plan achievement is measured (Flamholtz, 1996). Therefore, the beliefs and boundary systems are reinforced by measurement systems (Mundy, 2010). These systems monitor to what extent the sales force has been able to achieve the pricing plans, convey variance feedback to management and determine the cause of the variance in order to initiate corrective actions (Simons, 1995; P1; P2; P3; P4; P5). In more detail, pricing plans are first compared with the actuals to identify plan variances. This work entails various instruments that are suitable for monitoring the relevant pricing plans. Then the results of the actual vs. plan comparison are reported using pricing reports and pricing cockpits. If necessary, analysis of the causes of the variance is conducted with the help of price controlling instruments in order to prepare corrective actions. The measurement systems provide feedback that fosters the company's learning related to pricing (Florissen, 2005). The measurement systems provide the input for corrective actions and also the performance figures for the incentive system of the sales force. The measurements themselves have the effect of boosting performance because the fact that performance is measured influences the behaviour of the sales force in a positive way (Flamholtz, 1996).

The sales force is rewarded based on its performance (esp. based on the results provided by the measurement systems) (Flamholtz, 1996). Rewards for pricing are aligned with the pricing plans and steer the behaviour of the sales force to achieve the pricing plans (Bonnemeier, Burianek & Reichwald, 2010; Diller, 2008; Ludewig, Wübker & Engelke, 2008; P1; P2; P3). Rewards motivate the sales force to achieve pricing plans because the sales force takes goal-congruent pricing actions (i.e., personnel are motivated by obtaining rewards) (Flamholtz, 1996).

To improve pricing, corrective actions in the case of pricing plan variances need to be taken (Florissen, 2005; P1; P2; P3; P4; P5). This work suggests that price controlling instruments in the Price Control 1 model may need modifications. Corrective action can influence the steps of the planning phase of the price management process, the execution phase and the controlling phase (P2; P4; Anthony & Govindarajan, 2007). As such, the Price Control 1 model is adjusted in order to reduce the variance to achieve pricing plans.

Internal control systems and information systems are involved in the correct operation of a Price Control 1. Internal control systems support that the pricing data are correct and timely so that management can rely on the analyses of Price Control 1 to make the right decisions (Bolte, 2008; Ivens, Stemmermann & Leischnig, 2016; P1; P2; P3; P4; P7). Information systems support that Price Control 1 can be conducted efficiently because they enable companies to handle the enormous quantities of data necessary for Price Control 1 (Diller, 2003b; Herath, 2007; Hwang, Tsai, Yu & Chang, 2011; P1; P2; P3; P4; P5; P7).

In Section 4.2, the instruments that can be used in a Price Control 1 model are identified for the case of Electronic as an example for a B2B company in the OEM business operating in the electrical/electronics industry. Figure 4.3 shows a Price Control 1 model that depicts the Price Control 1 process in the outer frame and the control subsystems and Price Control 1 instruments in the inner frame.

4.3 RQ 2: Capabilities of Price Control 1 instruments

4.3.1 Overview

At Electronic, price planning is conducted by management, and the price execution is conducted by the sales force (Section 4.1.2.4). The sales team can decide, independently in negotiations with the customer, what price to offer when the price is above the predetermined minimum price. However, pricing authority resides with management for prices below the minimum price (P1; P3). Therefore, at Electronic a limited degree of pricing authority is delegated to the sales team (Hansen, Joseph & Krafft, 2008; Joseph, 2001; Stephenson, Cron & Frazier, 1979; Section 2.5.1.1).

At Electronic, an agency problem due to the delegation of pricing authority exists because management cannot judge the performance of the sales force adequately. A Price

Control 1 problem appears when pricing authority is delegated to the sales force (Section 2.5.1.1). At Electronic, an agency problem occurs because pricing authority is delegated to the sales force; management is the principal and the sales force is the agent in the relationship (Baiman, 1990; Ekanayake, 2004; Jensen & Meckling, 1976). Interviewees reported that there are gaps in the information provided to management, which impacts their ability to have a clear view of the pricing situation (P1; P2; P3; P4). For example, P1 and P2 noted a lack of transparency pertaining to the quality of price achieved by the sales force. A first step has been to establish market-oriented minimum prices as benchmarks (P1). The information asymmetry mainly derives from the problem that the price quality has not been measured sufficiently; only escalations have been reported (P1; P2). Additionally, P1 reported that he was unsure if all escalations were truly undertaken correctly; an internal audit may be necessary (P1). Therefore, a Price Control 1 problem exists at Electronic.

There are two forms of information asymmetry pertaining to Price Control 1. One is that management has more information than the sales force regarding the willingness to pay of the customer; the other is that the sales force has more information than the management. The latter situation generally persists (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Lal, 1986). P1, P3 and P4 stressed that the minimum price is only a suggestion and that the sales force needs to use its individual knowledge of the specific market and customer to adjust the price to the customer's willingness to pay. The sales force therefore has more information than management. The result is that an information asymmetry exists (Eisenhardt, 1989; Boučková, 2015).

Therefore, without controls to reduce the information asymmetry at Electronic, management does not know how well the sales force performed (Eisenhardt, 1989). There is a significant risk that the sales force at Electronic will not implement the pricing plans because the personnel on this team may have interests that differ from those of management. There may accordingly be no goal congruence between management and the sales force (Dolan & Simon, 1996; Eisenhardt, 1989; Homburg, Jensen & Hahn, 2012; Stephenson, Cron & Frazier, 1979). In that case, the achievement of pricing plans is put in jeopardy and a need for Price Control 1 arises. P1, P4 and P5 reported that the primary aim of Price Control 1 and its instruments is ensuring that pricing plans are achieved. Pricing plans can be achieved when there is goal congruence through the implementation of controls (Eisenhardt, 1989; Flamholtz, 1979; Flamholtz, 1996). To alleviate the Price Control 1 problem, Price Control 1 instruments need to be established to ensure that the sales force acts in the best interests of management (Eisenhardt, 1989; Otley, 2003). This section therefore investigates how Price Control 1 instruments can help to mitigate the Price Control 1 problem by fulfilling the Price Control 1 functions.

Price Control 1 should fulfil certain Price Control 1 functions in order to alleviate the Price Control 1 problem to achieve pricing plans (Section 2.5.3). Consistent with the reviewed literature (Section 2.5.3), the following Price Control 1 functions were noted at Electronic.

- Prevention of variances
- Monitoring of plan achievement
- Detection of causes of variance for countersteering
- Motivation of plan achievement
- Ensuring error-free controls
- Provision of planned and actual data

A first function of Price Control 1 is the prevention of variances. P5 stated that Price Control 1 should indicate pricing errors early; P3 noted that incorrect prices should be prevented. Price Control 1 is therefore not only applied after prices have been agreed—it should also function to prevent pricing errors before they occur. Thus, consistent with the reviewed literature (e.g., Diller, 2008; Ivens, Stemmermann & Leisching, 2016; Meehan, Simonetto, Montan & Goodin, 2011; Sodhi & Sodhi, 2008), Price Control 1 is not just a feedback but also a feedforward control to prevent pricing plan variances. Likewise, Merchant and van der Stede (2012) and Simons (1995) pointed out that controls should function to prevent unwanted behaviour and not just detect them; these kinds of controls are effective because they do not allow variance to occur. Because controls steer the behaviour of the sales force to achieve the pricing plans (Flamholtz, Das & Tsui, 1985), controls that reduce the risk of pricing errors before they occur are a function of Price Control 1.

The primary function of Price Control 1 stated by the interviewees is that it should monitor the execution of the pricing plans and therefore add transparency to the pricing situation. For example, P1 stated that Price Control 1 should report and provide feedback about the achievement of plans via a comparison of actual vs. plan. P3 noted that Price Control 1 should identify deviations from plans. Furthermore, P2 said that a Price Control 1 should ensure that management obtain an overview of the pricing situation and any variances, if present. Likewise, the primary function of Price Control 1 according to P4 and P5 is to monitor variances from pricing plan and provide an overview of the plan. Consistent with the reviewed literature, a function of Price Control 1 is to monitor and assess whether the sales force truly executes the pricing plans set by management (e.g., Homburg & Totzek, 2011b; Sebastian, Maessen & Strasmann, 2009; Simon & Fassnacht, 2009) and provide management with information about plan achievement (Diller, 2008; Sebastian, Maessen & Strasmann, 2009).

An additional function of Price Control 1 involves the analysis of variances and detecting the causes of said variances in order to prepare countermeasures. For example, P3 stated that the causes of variances need to be analysed in order to prepare corrective actions. According to P1, Price Control 1 needs to identify which areas require action and the underlying reasons for the variances in order to provide feedback and countersteer. Based on interviews with P3 and P5, these analyses should serve as input in the pricing process to improve pricing. P4 stated that this process fosters an environment of learning from pricing mistakes. Therefore, consistent with other researchers (e.g., Braun & Wiesen, 2012; Florissen, 2005; Ivens, Stemmermann, Leischnig, 2016; Rullkötter, 2009; Shipley & Jobber, 2001; Simon & Fassnacht, 2009), a function of Price Control 1 is to analyse variances to determine their causes and prepare countermeasures. Corrective actions can then be fed back into the pricing process to reduce the likelihood of variances from the plan.

Consistent with the reviewed literature (e.g., Diller, 2008; Homburg, Jensen & Schuppar, 2004; Köhler, 2003; Simon & Fassnacht, 2009), another function of Price Control 1 is to motivate the sales force to achieve pricing plans. P2 also stated that Price Control 1 should motivate the sales force to achieve the pricing plans. Likewise, according to P1 and P3 control should prompt the sales force to achieve their plans. Price Control 1 serves a motivational function—the sales force is motivated to behave in a way that is goal congruent in order to achieve the pricing plans (Florissen, 2005; Simon & Fassnacht, 2009).

Moreover, the price controlling literature suggests that Price Control 1 serves a function of ensuring error-free controls (e.g., Bolte, 2008; Florissen, 2005) and providing the planned and actual data for analysis (Bolte, 2008; Braun & Wiesen, 2012; Florissen, 2008; Ivens, Stemmermann, & Leischnig, 2016). These functions were not explicitly noted by the interviewees when they were asked about the functions of Price Control 1. However, P2 and P4 stressed that accurate and correct information is necessary so that management can rely on Price Control 1 analyses. This statement implies that a function of Price Control 1 is therefore also to ensure that the pricing data and analyses are correct so that the Price Control 1 results are reliable (Bolte, 2008; Florissen, 2005). Furthermore, P4 said that plans need to be available as a prerequisite for Price Control 1. The actual data also need to be available (P3). Similarly, all relevant data need to be available for price controlling, including data from both the planning and the execution phases (P1; P2).

In addition P2 noted that price controlling should support the definition of mark-ups for the minimum price system by identifying the value of the product. This can be classified as a controlling function within the price setting phase but not within the Price Control 1 phase (Bolte, 2008).

The price controlling literature suggests that Price Control 1 instruments are applied to fulfil specific Price Control 1 functions (Bolte, 2008; Florissen, 2005). The following section analyses the capabilities of Price Control 1 instruments with regards to supporting the fulfilment of Price Control 1 functions. It is important to note that instruments can support more than one Price Control 1 function; they are aligned to the functions they support most (Figure 4.7).

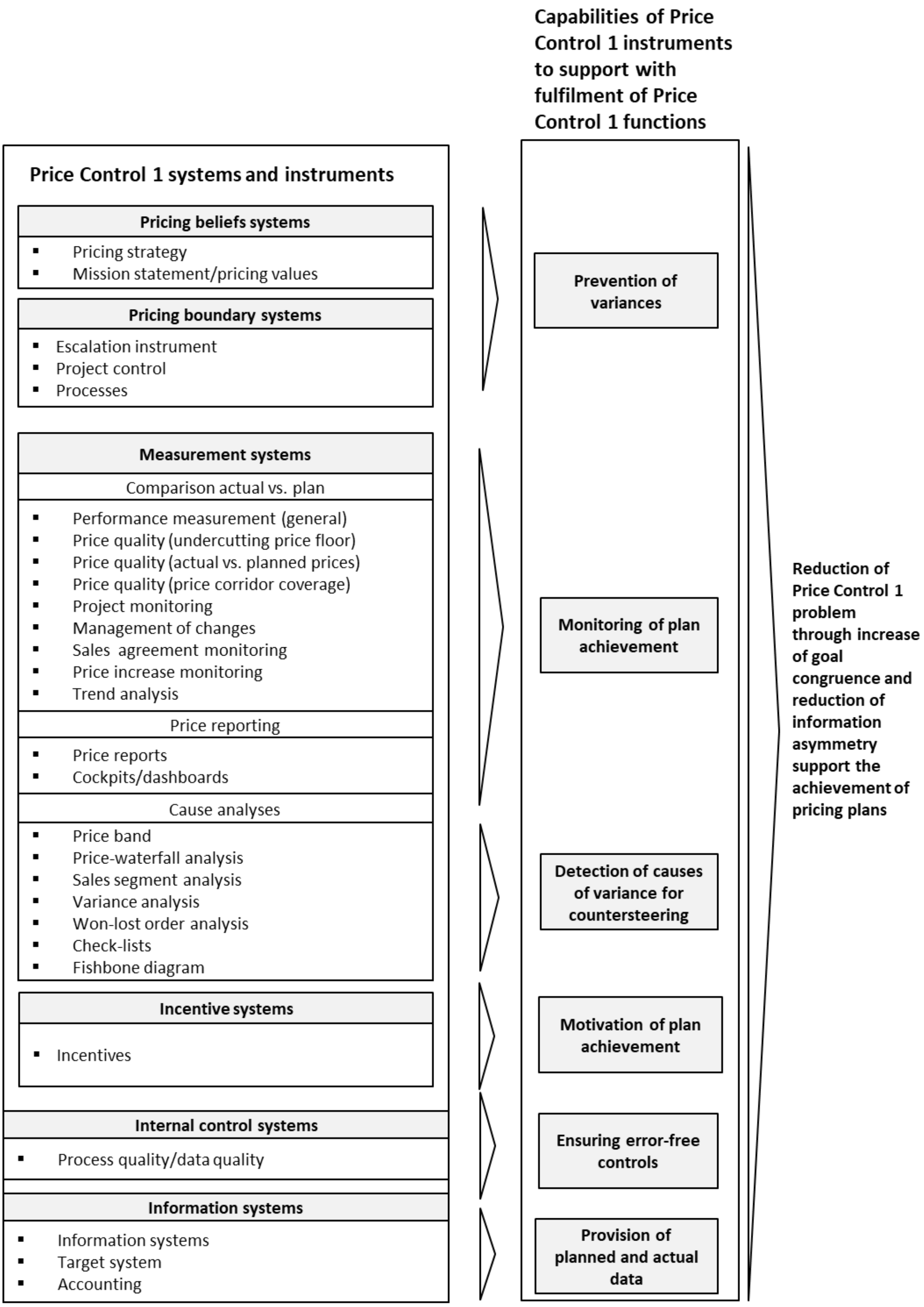


Figure 4.7: Capabilities of Price Control 1 instruments to support Price Control 1 functions

(Source: researcher's own illustration)

4.3.2 Prevention of variances

As mentioned in Section 4.2.3 at Electronic's mission statements, pricing values and pricing strategy are communicated to the sales team (P1; P3; Electronic, 2013c). According to P3, these pricing values are applied by the sales force, which means that the values held by management and their expectations of the sales force are carried throughout the organisation (Simons, 1995). Beliefs systems guide and motivate the sales force to behave consistently with management's values (Mundy, 2010; Simons, 1995; Widener, 2007), which reduces the risk that prices will be set below value-oriented minimum prices. Therefore, beliefs systems support the prevention of pricing errors before they occur. Establishing pricing values throughout the organisation both encourages and obliges the sales force to adopt these values and enhances goal congruence.

The escalation system, project control and processes have been aligned with the pricing boundary systems within the Price Control 1 model (Section 4.2.4). P1, P4 and P5 stated that because minimum prices are set by management and pricing authority regulations are in place, the sales force is not allowed to quote prices below the minimum price without the approval of management. Management is accordingly aware when a price below the minimum price is offered (P1; P5). Management obtains information about the reason for the needed escalation from the escalation sheet (Meehan, Simonetto, Montan & Goodin, 2011; Roll, Pastuch & Buchwald, 2012; P1; P3; P4). Management has the opportunity to intervene and to prevent prices below a minimum price (P3; P4). The authority regulations, which only give the sales force limited pricing authority (P1; P3), restrict the pricing actions that can be conducted by the sales force (Simons, 1995). Together with the approval process and the escalation sheets, the pricing authority resides with management for prices below the minimum price so that management is informed and can prevent unwanted prices before they appear.

In addition, P3 stated that the same escalation system is used for project control and is built into the Lotus-based work-flow system. Management can also intervene and prevent price errors in projects. P3 and P4 reported that the profits for the first quotation and the profits before production are compared during project control. The management has the opportunity to intervene before a plan variance appears (P2; P3). In other words, management can prevent pricing plan variances before they occur.

In addition, processes are established at Electronic (e.g., the escalation process and the project control; Section 4.2.4.4). These processes guide the sales force in conducting their tasks and set clear limit about pricing actions (P1; P2; P3; P4). The established processes define the acceptable behaviour of the sales force and accordingly steer the sales force towards pricing plan achievement before variances can occur (Daft & Macintosh, 1984; Malmi & Brown, 2008).

Instruments for the prevention of pricing errors constitute the boundary systems because they outline what pricing actions are not wanted and restrict the pricing actions of the sales force (Mundy, 2010; Simons, 1995). Beliefs systems and boundary systems each contain Price Control 1 instruments, which impede deviations from pricing plans. Management is informed when prices drop below pre-established standards and must approve such prices. The escalation sheet conveys detailed information to management about the reasons and the pricing situation for the escalations. These systems accordingly reduce the information asymmetry between the sales force and management (Homburg, Jensen & Hahn, 2012). The goals of management are aligned with those of the sales force because pricing authority is limited with the result that the sales force is only allowed to price above established price thresholds. These controls therefore reduce the ability of the sales force to act in a way that is incongruent with management's goals (Merchant & van der Stede, 2012).

4.3.3 Monitoring of plan achievement

According to P5, instruments for comparing actual vs. plan make it possible to control the achievement of pricing plans. Performance measures set a benchmark; based on a comparison of actual vs. plan, the pricing situation and the achievement of plans can be made transparent to management (P1). The performance measurement is important because then management is able to see whether the pricing plans are achieved (P4). The interviewees reported that various instruments are used to monitor plan achievement. For example, P1 stated that the escalation rate monitors how often prices have been set below the minimum price. The price quality measures how high actual prices are compared with minimum prices, which are used as planned reference prices (Simon & Fassnacht, 2009; Sebastian, Maessen & Strasmann, 2009; P2; P4; P5). Project control compares the profit at the first offer with the profit before production (P4). The actual achieved price increases are compared with the planned price increases (P4; P5). The budget is compared with the actuals (P5; P3; P4), and the fulfilment of frame contracts is monitored by comparing the agreed-upon sales volume with the actual sales volume (P5). Similarly, Sebastian, Maessen and Strasmann (2009) noted comparisons of actual and planned prices, which informs management whether the planned prices have been achieved. These instruments monitor the achievement of critical performance measures at Electronic to enact pricing plans, which are the outcome of the planning phase of the price management process (Section 4.2.2; Simons, 1995). Plans are therefore set by management, and these plans are monitored by individual Price Control 1 instruments (Simons, 1995). Management, which uses these instruments to detect variances from pricing plans (Mundy, 2010), can therefore use these Price Control 1 instruments to compare actual vs. plan to fulfil the Price Control 1 function to monitor the achievement of pricing plans (Heinicke, Guenther & Widener, 2016; Simons, 1995).

With regard to price reporting, P3 and P4 noted that different documents are sent to the responsible persons. These reports are also discussed in meetings (P3). P4 stated that the sales budget reports are presented and discussed monthly in a management meeting, and P5 reported that the number of escalations is reported and presented monthly in project reports that compare M2 and M4 profits. These documents, which also include comparisons with minimum prices, are discussed in weekly project meetings (P4). Reports are therefore used both in a diagnostic and in an interactive way (Simons, 1995).

P3 stated that the reports have various recipients depending on the area of responsibility. These recipients include the CEO/CFO as a first level, the sales director and vice president of KAM as a second level and the sales force as a third level, which includes the sales managers and the key account managers (P1; P3). According to P3, the primary function of the pricing reports is to communicate the pricing situation and the variances. These reports, however, also provide feedback to the sales force. Reporting is important because the responsible persons need to be informed about the variances given the goal of countersteering (P4). Reporting provides transparency about the pricing situation for decision-making (P1). It allows management to steer their subordinates (Diller, 2008; Elg & Kollberg, 2012). As such, price reporting is used as a communication vehicle to transport the variances from a plan to the persons with responsibility in order to make the pricing plan achievement transparent (Bolte, 2008; Küpper, 2005). Reporting also conveys the results of the cause analyses instruments (Bolte, 2008).

In addition, P1 and P4 stated that a cockpit can aggregate the most important KPIs and display the pricing situation as a whole to management and other personnel with high levels of responsibility. A cockpit is therefore another way to transmit information about plan achievement to management (Bremser & Wagner, 2013; Few, 2006; Galloway, 2010; Meehan, Simonetto, Montan & Goodin, 2011; Winkelmann, 2012).

Thus instruments for comparison of actual vs. plan monitor the achievement of the pricing plans through the comparison of actual vs. plan and price reporting instruments convey the information of the plan achievement to the management to add transparency to the pricing situation and also provide information to the sales team. Comparison of actuals and plans together with feedback to management via reports reduces the information asymmetry, because management is constantly kept informed about the achievement of pricing plans and can judge whether the sales force behaved in their interests. The reports also feedback variances so that management can initiate countermeasures to reinforce goal congruence.

4.3.4 Detection of causes of variance for countersteering

According to P1 and P3, the price control cycle does not stop with the simple detection of variances—variances also need to be analysed to detect their root causes. Furthermore, analyses need to be used as input for future planning for pricing improvement

(Anthony & Govindarajan, 2007; Ivens, Stemmermann & Leischnig, 2016; P1; P3). Therefore, analysis of the causes of variances is essential for Price Control 1 (P1; P3). The improvement potential offered by cause analyses at Electronic is visible because staff prepare reports, P1 and P4 stated, but in-depth cause analyses and countermeasures are only conducted occasionally (Table 4.2).

Pricing reports are used to identify areas and variances that need more in-depth cause analyses (Coppoolse, 2013; Meehan, Simonetto, Montan & Goodin, 2011; P3) and are triggers for countermeasures (Meehan, Simonetto, Montan & Goodin, 2011; P5). Cause analyses serve to detect the cause of an issue to enable correct countermeasures to ensure pricing plan achievement (P1; P3; P4).

For example, P3 stated that a won-lost order analysis investigates the cause of a variance. The reasons behind won and lost orders are investigated to determine whether price was truly the primary reason for the loss (P3; P5). Based on in-depth investigations, countermeasures can be prepared (e.g., adjusting minimum price profits in the minimum price system) (P3; P4). Similarly, Link and Weiser (2011) and Reichheld (1996) noted that won-lost order analysis is one instrument for determining the causes of problems in order to fix them with countermeasures. Cause analyses are important because profit can be endangered when prices are reduced, even if price was not the reason for the lost orders (Herr & Metzelaers, 2007; Roll, Pastuch & Buchwald, 2012). Another example at Electronic is the margin bridge (variance analysis), which examines the reasons for variance between the actual and the planned margin. Margin variance is divided into various causes, one of them being price, which are used to identify the actual cause(s) of the margin variance (Shank & Churchill, 1977; Young, 1981; P3). Variance analyses can highlight the cause for the variance (Diller, 2008; Köhler, 2003) in order to prepare corrective actions (Coppoolse, 2013). Moreover, P4 noted that analyses can be prepared on the level of different analyses objects to examine variance from different perspectives to detect its cause(s). This is a sales segment analysis; it can identify in the sales segment in which the variance is occurring (Hoffjan & Reinemann, 2000; Köhler, 2003; Homburg, Jensen & Schuppar, 2004).

Therefore cause analyses instruments can support Price Control 1 to fulfil the function of detecting causes of variance. The results of cause analyses are also the input for formulating countermeasures and are used for a countersteering to get the pricing plans back on track. Cause analyses reduce information asymmetries because management is informed about the causes for plan deviations. Management can countersteer by using appropriate countermeasures to enhance goal congruence.

4.3.5 Motivation of plan achievement

According to P1, the incentive system needs to be aligned with the achievement of plans to motivate the sales force. Likewise P2, P3 and P4 noted that an incentive system plays a crucial role in the achievement of plans and serves to motivate the sales force. Similarly, in the price management literature, incentive systems are viewed as essential to steering the interests of and motivating the sales force towards pricing plan achievement (e.g., Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2004; Ivens, Stemmermann & Leisching, 2016; Lauzus & Kalka, 2006; Marn & Rosiello, 1992) and should be coupled with pricing measures (Bonnemeier, Burianek & Reichwald, 2010). This idea is consistent with agency theory, which proposes that incentive systems are one instrument to motivate agents towards a behaviour that is goal congruent (Cuevas-Rodríguez, Gomez-Mejia & Wiseman, 2012; Eisenhardt, 1985).

In addition, consistent with Flamholtz (1996), P1 and P2 reported that the pricing performance increases simply because the performance of sales force gets measured. Therefore, the performance measures form the basis of the incentive system (Diller, 2008; Simons, 1995) and are aligned with the incentive system (P1; P4). They are are also used by management to establish rewards (Tessier & Otley, 2012). The simple fact that performance is measured serves a motivational function.

Feedback provided to the sales team via reports is also motivating because these personnel can judge their performance and can countersteer to achieve their goals (P1). This idea is congruent with the opinion of Merchant and van der Stede (2012) that it is important to provide feedback to employees about their performance so that they can react. Similar, Franco-Santos, Lucianetti and Bourne (2012), Mundy (2010) and Simons (1995) concurred that performance measurement motivates employees.

Therefore, one can conclude that incentive systems, combined with performance measurement and feedback provided to a sales team, can be applied by management to fulfil the Price Control 1 function of motivating the sales force to achieve their goals. Motivating the sales force by aligning performance measures with an incentive system supports the interests of management and the sales force being aligned because the sales force receives rewards when they behave in the interests of management.

4.3.6 Ensuring error-free controls

Price Control 1 analyses need to be error-free to ensure reliable controls (P1; P2). Furthermore, incomplete data can hinder the implementation and preparation of price controlling instruments (P2; P4; P5). Therefore, pricing data need to be both good quality and complete (P7; P4), and controls to monitor data quality and processes need to be established (Meehan, Simonetto, Montan & Goodin, 2011; Simons, 1995). Analyses based on incorrect data will lead to incorrect pricing decisions (Simons, 1995).

To ensure error-free controls, internal control systems are applied (Simons, 1995). P7 reported that, for example, mandatory data input can be applied to ensure that the data are complete and correct and to prevent data-entry mistakes. Furthermore, other interviewees reported that data quality needs to be monitored after input to identify data problems and to trigger correct countermeasures with the goal of improving the pricing database (P1; P2; P3; P4). Furthermore, there must be monitoring to check whether important pricing process guidelines have been circumvented by the sales force, such as quoting a price below the minimum price without escalation (P1; P3). In that case, the escalation data and quoted escalation rate would not be correct. Similarly, Bolte (2008) proposed employing process audits to ensure that instruments and processes are used correctly.

These instruments for internal controls therefore ensure that data are correct and ready for prompt analysis (Meehan, Simonetto, Montan & Goodin, 2011; Simons, 2000) and consequently support price controlling in fulfilling the function of ensuring error-free controls. Internal controls accordingly make sure that the information that is provided to management is correct and complete; incorrect or missing information would increase the information asymmetry because the measurement of performance would be inaccurate or missing. In such a case, management would not have the opportunity to judge thoroughly whether the sales force acted in the management's interests.

4.3.7 Provision of planned and actual data

Pricing is complex, and the enormous quantity of data necessary for Price Control 1 only can be handled with the help of information systems (Diller, 2003b; P1; P3). Several IT systems are in place at Electronic that support Price Control 1. P7 noted that the ERP system stores most of the pricing-relevant data at Electronic, which includes cost data used for the Price Control 1 analysis. Furthermore, the EIS system, which is used for multi-dimensional Price Control 1 data analysis and pre-defined reports, draws on data from the ERP system (P7). For pricing in projects the IT enabled Lotus work-flow stores the pricing data for the project (P4). The Excel price calculator provides the sales team with the order-specific minimum prices (P3). It is important to provide the planned data to the sales force because the sales force needs direction as to what is expected of them (Merchant & van der Stede, 2012). Therefore, IT systems are instruments that can be used to support Price Control 1 with the function of providing planned and actual data for analyses and pricing purposes (Bolte, 2008; Bonnemeier, Burianek & Reichwald, 2010; Diller, 2008; Simon & Fassnacht, 2009).

Furthermore, P3 said that processes need to be established to ensure that the input from former pricing steps is available for Price Control 1. In general, all necessary pricing information should be maintained during the pricing process (P3). Likewise, Bonnemeier, Burianek and Reichwald (2010) found that IT-based data gathering is central to the entire price management process.

Information systems therefore help to fulfil the Price Control 1 function of ensuring that the planned and actual data are available. Information systems enable measurements of the extent of goal congruence and deliver information to management to reduce information asymmetry. Furthermore, planned data are delivered to the sales force to ensure that they can act in a manner that is congruent with management's goals.

In summary, the application of Price Control 1 instruments can support that the various Price Control 1 functions can be fulfilled; they reduce information asymmetry and foster goal congruence between management and the sales force. The Price Control 1 problem is therefore mitigated and the primary aim of Price Control 1, which is to achieve pricing plans, is supported. This section assessed how Price Control 1 instruments at Electronic can reduce the Price Control 1 problem. This section addressed and achieved RO 2 using Electronic as an example for a B2B company in the OEM business operating in the electrical/electronics industry.

4.4 RQ 3: Price Control 1 implementation

4.4.1 Overview

The literature reviewed in Section 2.5.5 reveals that the implementation level of Price Control 1 instruments is rather low in B2B companies. Furthermore, research pertaining to issues associated with implementing Price Control 1 instruments into the price management process is scarce. Section 4.2 of this thesis concerns Price Control 1 instruments at Electronic. Section 4.3 includes an overview of how Price Control 1 instruments can mitigate the Price Control 1 problem and therefore support the achievement of pricing plans. However, these Price Control 1 instruments still need to be integrated into the price management process (P4; P5). This process is important because Price Control 1 is one step within the entire price management process (Florissen, 2005) as opposed to a stand-alone process, as has been noted in the process view on price management (Simon, 2004; Simon & Fassnacht, 2009; Section 2.4). Therefore, the sections below investigate factors which need to be considered for the implementation of Price

Control 1 instruments into the price management process. At Electronic, the following factors could be identified:

- Identify and establish pricing plans to be measured
- Choose appropriate controls that ensure the achievement of pricing plans
- Define responsibility areas
- Ensure that Price Control 1 is supported by management
- Ensure that pricing data are available and correct
- Support Price Control 1 with an IT system
- Define processes and responsibilities
- Align incentives with Price Control 1
- Review Price Control 1 reports regularly
- Ensure that countermeasures are conducted

4.4.2 Identifying and establishing pricing plans to be measured

Prerequisite to implementing price controlling instruments into a price management process is that pricing plans be available—Price Control 1 monitors these plans. P1 and P3 stated that pricing plans need to be established for Price Control 1. Without these values, there is no benchmark and hence performance cannot be measured (P1; P3; P5; Sebastian, Maessen & Strasmann, 2009). For example, at Electronic an escalation system and the measurement of price quality is only possible because market-oriented minimum prices—which reflect the willingness to pay of customers—have been established and function as plans (P1; P3). In addition, it is important that the plans be accurate, which means that the established minimum prices are correct reference values for measuring pricing performance (P3). If these plans are not correct the measurement has only little value. For Price Control 1, it is therefore important that correct plans be available.

Pricing plans are the outcome of the planning phase of the price management process and reflect the management's pricing objectives (Bolte, 2008). A price management process therefore needs to be in place to determine the correct plans. For example, in the operational price setting the minimum price system makes it possible to establish market-oriented prices as benchmarks that reflect the value pricing strategy (Roll, Pastuch & Buchwald, 2012). Pricing plans need to be established because they determine what needs to be controlled by Price Control 1 (Simons, 1995; Simons, 2000; Figure 4.3). Price Control 1 therefore requires pricing plans to operate.

4.4.3 Choosing appropriate controls that ensure the achievement of pricing plans

This case study suggests that companies should address various subsystems to achieve pricing plans. However, the specific price controlling instruments employed may vary based on the specific context of the company. Section 4.2 focuses on the Price Control 1 instruments at Electronic. It was shown that various Price Control 1 instruments and systems (pricing beliefs systems, pricing boundary systems, measurement systems, incentive systems, internal control systems and information systems) are applied to achieve pricing plans. Drawing on contingency theory, the price management process and the pricing plans influence the instruments used. Therefore, the design of the Price Control 1 model found is contingent on the specific situation and setting of Electronic (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999). For example, it was found that certain price controlling instruments were not used by Electronic. Price-waterfall analysis is currently not applied at Electronic because the company does not have list prices and defined discounts and rebates to apply this instrument (Section 4.2.5.4); price corridor coverage is not applied because Electronic uses only a minimum price system rather than a combination of target and minimum price system (Section 4.2.5.2). Furthermore, the level of pricing authority regulations may influence the design of a control model. Most B2B companies provide some limited pricing authority to the sales team, but some B2B companies do not delegate any pricing authority to their sales teams (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010). If no pricing authority is allotted then the achieved price quality of the sales force has less relevance because the sales team is only allowed to offer a planned price to customers (Joseph, 2001; Stephenson, Cron & Frazier, 1979). Drawing on contingency theory, companies need to choose the appropriate Price Control 1 instruments based on their individual price management process, situational setting and pricing plans (Franco-Santos, Lucianetti & Bourne, 2012; Otley, 1999).

P3 and P4 noted that Price Control 1 instruments work together and build upon each other. For example, reporting can only be done when performance is measured, and cause analysis only makes sense when variances are identified via measurements (P4). In other words, instruments complement one another (Widener, 2007). The case study reveals, that Electronic uses various price controlling instruments of different control subsystems to achieve its pricing plans (Section 4.2). For example, the company does not only measures the achievement of pricing plans using instruments allocated to measurement systems but also establishes clear limits for the pricing activities of the sales force using instruments allocated to the boundary systems in order to prevent pricing plan variances before they occur (Section 4.2.4).

As shown in the created Price Control 1 model (Section 4.2.1), companies are advised not just to select instruments from only one control subsystem but to select a mixture of various control subsystems and price controlling instruments that together can ensure that pricing plans are achieved (Bedford & Malmi, 2015; Malmi & Brown, 2008, Otley, 1980; Simons, 1995; Widener, 2007). Figure 4.3 is a recommendation for a Price Control 1 model that can be used as guidance for other companies wishing to create their own Price Control 1 model to mitigate the Price Control 1 problem.

4.4.4 Defining responsibility areas

At Electronic, responsibility areas at different levels are defined. Personnel such as area sales managers are included—specific staff are responsible for the executed pricing plans (P1; P2; P3). P3 stated that somebody needs to be held accountable for the results; this person conducts tasks from A–Z and does not stop midway. Beside ensuring responsibilities for pricing, this structure is also used for monitoring and reporting purposes and for rewards (P3). Similarly for P2 responsibility areas need to be defined to align KPIs and measure performance. In case of pricing authority delegation, the definition of responsibility areas is a basis for Price Control 1 and motivation; these persons are considered to be responsible and can be held accountable for the performance of the execution of the pricing plans (Anthony, 1988; Otley, 2007). In addition, defined Price Control 1 countermeasures are addressed to these responsibility areas (Anthony & Govindarajan, 2007).

4.4.5 Ensuring that Price Control 1 is supported by management

This study suggests that the successful implementation of Price Control 1 requires the support of management. P1, P3 and P4 stressed that Price Control 1 requires the support of the management to be successful. P4 reported that Price Control 1 requires extra effort and resources from the sales team. Tasks need to be carried out to enable Price Control 1 analyses to be performed. For example, Price Control 1 requires extra data pertaining to the causes of won and lost orders in order to undertake won-lost order analysis. It is unfortunately often the case in practice that if the management does not pay close attention tasks are not conducted (P3). Therefore, Price Control 1 needs the backing of management (Eugster, Kakkar & Roegner, 2000) to ensure that tasks are conducted (P4).

P1 reported that Price Control 1 should have the management's attention to ensure that price controlling is properly conducted. Another interviewee, P3, added that this situation is imperative for the Price Control 1 and its reports to get the necessary attention from the sales force. Management support and attention is necessary to ensure that Price Control 1 tasks are conducted. Similarly, in a survey on 81 European managers, Roll (2009) found that managerial support of price management is the foremost factor dictating the successful implementation of such management. Roll (2009) stressed that this support is the only way to mitigate stakeholders' differing aims. Likewise, in a study of 126 executives in Germany, Austria, China and the United States, Hinterhuber (2008) found that management support was a key driver for the implementation of pricing strategies. Liozu and Hinterhuber (2013a) additionally found that management support facilitates pricing implementation. Furthermore, Lancioni, Schau and Smith (2005) reported that the implementation of pricing processes faces difficulties when pricing is not viewed by management as important. Therefore, management attention and support are factors which need to be considered to implement Price Control 1 instruments.

4.4.6 Ensuring that pricing data are available and correct

As discussed in Section 4.2.7, information plays a crucial role in price controlling (Bonnemeier, Burianek & Reichwald, 2010; Diller, 2008; Roll, Pastuch & Buchwald, 2012). P1 and P4 both stated that one major prerequisite of Price Control 1 is that the data is available and correct, so the data needs to have a certain quality for Price Control 1. The quality of data is crucial; otherwise analyses will be wrong and of little value to management (P2). P4 reported that often data are missing and therefore no analyses can be conducted. Sometimes the data need to be cleared first or the data are obviously wrong (e.g., profits are entered that cannot be right). Data also need to be correct and available to perform Price Control 1 analysis on time (P7). Similarly, Hwang, Tsai, Yu and Chang (2011) found that a correct and complete database is crucial because otherwise meaningful analyses are constrained. However, a survey conducted by the European Pricing Platform showed that there are many complaints about poor pricing data quality in practice (European Pricing Platform, 2016). Therefore, if data are not correct or available Price Control 1 analyses are not possible, cannot be delivered on time or are meaningless because they incorporate incorrect information and therefore cannot be relied on.

To ensure data quality, companies should implement internal controls (Section 4.2.7) and management should pay attention to the definition of processes and IT systems.

4.4.7 Supporting Price Control 1 with an IT system

Price Control 1 needs to be supported by an IT system to operate efficiently. In Section 4.2.8, IT systems were discussed as being the basis for price controlling. An IT system is necessary to reduce the effort needed to prepare, analyse and report the data for Price Control 1 (P1; P2; P3; P4; P5). An IT system makes it possible to generate pre-defined analyses and reports that use the data available in the ERP system (P1; P7). This situation ensures that reports can be generated quickly (P3). Without an IT system, Price Control 1 would be very time-consuming to conduct. Similarly, Hwang, Tsai, Yu and Chang (2011) proposed that IT systems enable efficient price controlling, and Homburg and Totzek (2011b) argued that IT and BI systems facilitate the implementation of price controlling.

Electronic uses different systems such as IFS as an ERP system, EIS as a BI system and also Lotus workflows and Excel tools (Section 4.2.8; P4; P7), which are not specialised pricing software (Meehan, Simonetto, Montan & Goodin, 2011). Specialised pricing software can be integrated into an IT infrastructure and has the advantage that it can handle most pricing issues, including the functionality of pricing analytics necessary for price controlling (Meehan, Simonetto, Montan & Goodin, 2011; Simon & Fassnacht, 2009). Meehan, Simonetto, Montan and Goodin (2011) provided a summary of pricing vendors such as DemandTec, Earnix, Model N, Oracle, PROS, SAP for Retail, Servigistics, Symphony Metreo, Vendavo, Vistaar and Zillant. These vendors all specialise in particular sectors, and Meehan, Simonetto, Montan and Goodin (2011) reported that based on a DeloitteConsulting LCC study Zillant, Vendavo, Symphony, Servegicts, SAS, PROS, Oracle and Model N have capabilities for the manufacturing sector. For example, Vendavo offers the IT solution “Profit Analyzer” for price analysis purposes, which makes it possible to identify profit leakage and the root causes for corrective action. This package includes price-waterfall analysis and the ablity to visualise data in reports (http://www.vendavo.com/products/profit-analyzer/) and the “business risk alerts” solution, which monitors the main pricing KPIs, provides alerts in case of variances and visualises data in reports (http://www.vendavo.com/products/business-risk-alerts/). IT support is essential for implementing Price Control 1 instruments because IT systems are the basis for information and make it possible to perform Price Control 1 with less effort and in a timely manner (Homburg & Totzek, 2011b; Ivens, Stemmermann & Leischnig, 2016; Rathnow, 2014; Roll & Achterberg, 2010).

4.4.8 Defining processes and responsibilities

To implement Price Control 1, it is important to define processes and responsibilities because they ensure that processes are carried out correctly and that a pricing capability can be built up. Many interviewees regarded processes as important for Price Control 1 (P1; P2; P3; P4). They give guidance as to what has to be done and by whom (P3; P4; P5), communicate the expectations regarding how the process need to be conducted (P3) and ensure that required tasks are conducted (P3; P4; P5). Processes outline what to do in case of variances and who gets the reports (P2). Furthermore, processes need to be set up to ensure that the data required for price controlling are entered and therefore available (P3). Hence, processes for Price Control 1 need to be in place to ensure that the Price Control 1 is conducted in the correct manner.

The responsibilities for price controlling need to be clearly set so that specific individuals are put in charge of conducting the Price Control 1 tasks (P1; P5). At Electronic, one person has been appointed who is mainly responsible for the sales controlling, including the price controlling (P1). Placing the price controlling in the purview of the management accounting department has the advantage that the management accounting is more objective and that it does not have the responsibility of controlling itself as would be the case if the Price Control 1 function was situated in the sales department (P1; P4). In the price controlling literature, there is no clear consensus regarding who should perform Price Control 1 tasks. According to Bolte (2008) and Florissen (2005), the tasks of Price Control 1 and the application of the Price Control 1 instruments should be conducted by the people who have the relevant qualifications. Diller (2008) sees price controlling as belonging with management accounting, as is the case at Electronic. Because price controlling has a lot to do with management accounting, controllers should have certain qualifications to prepare Price Control 1 instruments.

Moreover, Roll (2009) found that from a management point of view defining processes and responsibilities is the second most significant factor for price management because management strives for enduring pricing success. Formalised pricing processes are important to ensure that Price Control 1 tasks are performed in a proper and systematic way and that Price Control 1 information is available for analyses (Diller, 2008; Roll & Achterberg, 2010). Furthermore, processes foster the establishment of Price Control 1 routines (Dutta, Zbaracki & Bergen, 2003). Price Control 1 processes not only guide current employees but develop an enduring Price Control 1 capability and knowledge that also makes it possible for even new employees to perform the Price Control 1 processes after a short amount of time (Roll & Achterberg, 2010).

The price management literature proposes using RACI charts to define pricing processes and responsibilities (Meehan, Simonetto, Montan & Goodin, 2011; Roll, Pastuch & Buchwald, 2012). A RACI matrix aligns functions and responsibilities to process steps (Roll, Pastuch & Buchwald, 2012). RACI charts are one tool useful for defining process steps and aligning people with areas of responsibility. Defining processes and responsibilities is important in terms of implementing Price Control 1 to ensure that pricing tasks are conducted to a high standard and that the necessary knowledge is in place.

4.4.9 Aligning incentives with Price Control 1

The incentive system should be aligned directly with pricing plans in order to motivate the sales force. Agency theory suggests that incentives can be applied to foster goal congruence (Eisenhardt, 1989; Ekanayake, 2004). As discussed in Sections 4.2.6 and 4.3.5, incentives should be aligned with Price Control 1 measures to motivate sales team to achieve the set standards and to improve the pricing (Hinterhuber, 2004; Homburg, Jensen & Schuppar, 2004; Lauszus & Kalka, 2006; P1; P2; P3; P4). Price Control 1 and its analyses will accordingly receive more attention from the sales force because the remuneration of these personnel is based on the achievement of pricing plans (P3). Pricing plan-related incentives assist in ensuring that pricing plans are executed (Bonnemeier, Burianek & Reichwald, 2010). Price quality is a major measure in price controlling—the sales force should be rewarded based on the achieved price quality to improve pricing (Ludewig, Wübker & Engelke, 2008; Simon & Fassnacht, 2009).

4.4.10 Reviewing Price Control 1 reports regularly

A company's price reports should be circulated to the responsible areas and also be discussed regularly at meetings (P1; P3; P4; P5). Devoting discussion to measures demonstrates that these measures are important and deserve the attention of management (Simons, 1995). At Electronic, for example, a monthly management meeting is held in which key KPIs—including pricing measures—are presented and discussed, and a weekly project meeting is held to discuss projects (P3; P4). Pricing measures are also reported on a regular basis (P3; Hope, 2007), and variances and countermeasures are discussed (P3). Electronic accordingly uses reports in an interactive way: reports are of management's attention, management is personally involved, and the reports are discussed with subordinates at meetings (Emsley, 2001; Mundy, 2010; Simons, 1995). Furthermore, reviewing these reports gives management the opportunity to discuss the reports, get input from the sales team, tap into their knowledge and determine countermeasures. Therefore, reviewing reports at meetings is critical to emphasising the importance management attaches to the measures, driving the sales force to achieve goals and providing the opportunity to discuss the measures in order to prepare countermeasures.

4.4.11 Ensuring that countermeasures are conducted

To reduce variances and improve pricing, countermeasures must be conducted based on the Price Control 1 analyses. P3 reported that it is essential that action plans be derived from Price Control 1 analyses because Price Control 1 is of no use if no conclusions are drawn or countermeasures taken. According to P5, it is important that price analyses be used as input to improve pricing. P1, P3 and P4 added that it is a significant problem that only a few countermeasures and adjustments to the pricing are made based on the price control analyses; this stiuation makes it difficult to improve the pricing. For example, P1 and P5 reported that the analyses of the escalations need to be reviewed to determine whether the minimum profits are still valid or countermeasures need to be taken. This means that management should follow up variances and initiate corrective actions to alleviate pricing plan variances (Simons, 2000). In addition, once countermeasures are derived monitoring is necessary to ensure that they are truly implemented (P2; P3). Control needs to be implemented due to possible differing interests (Eisenhardt, 1989; Ekanayake, 2004). Price Control 1 should provide feedback result in adjustments to the pricing action, revisions to pricing plans or modifications to Price Control 1 mechanisms to reduce variances (Anthony & Govindarajan, 2007; Hwang, Tsai, Yu & Chang, 2011; Section 4.2.9). Only through such work can price learning be stimulated and pricing plan achievement be improved (Florissen, 2005).

This study also shows that once a Price Control 1 model has been implemented it may necessitate changes in order to achieve pricing plans. For example, shifts in the pricing strategy at Electronic resulted in alterations to the company's beliefs systems (Section 4.2.3) because the new strategy needed to be communicated to personnel. An escalation system was introduced that used pre-defined minimum prices (Section 4.2.4.2). In addition, the researcher proposed implementing a measure to compare actual vs. planned price to measure the price quality, which can further improve Price Control 1 (Section 4.2.5.2). This measure can be used to align the incentive system (Section 4.2.6). Therefore, the Price Control 1 model is further developed in order to reduce variances from pricing plans and improve pricing.

This section focused on factors that should be considered when B2B companies wish to implement Price Control 1 instruments into their price management process. It addressed RO 3 and achieved the RO 3 using Electronic as an example for a B2B company in the OEM business operating in the electrical/electronics industry.

4.5 Feedback from the case study company regarding the created Price Control 1 model

The researcher received feedback from Electronic once the Price Control 1 model was developed. Feedback was received by presenting the themes that emerged from the data to the participants and also by discussing the entire draft of the thesis with Electronic's head of controlling and the CFO. The Price Control 1 analysis reflects the current situation of Price Control 1 at Electronic, and the developed Price Control 1 model has the potential to solve the Price Control 1 problem and to improve pricing plan achievement at Electronic (P1; P2; P3; P4; P5; P6; P7). Therefore, the feedback suggests that the model may be useful to solve the Price Control 1 problem at Electronic.

P3 noted that she had not seen price controlling in such a structured way. However, Electronic has applied only certain instruments thus far. The analysis reflects what Electronic is currently doing, and P3 believes that the other participants agree on that fact. P5 stated that the developed Price Control 1 model provides a comprehensive overview of the instruments that Electronic is actually applying for Price Control 1. P1 noted that the researcher's approach is both good and valuable for depicting price controlling in a way that includes various systems, the Price Control 1 process and the Price Control 1 functions. This model provides a better picture how price controlling at Electronic is currently conducted and additionally yields insights into how Electronic can add instruments to achieve its pricing plans (P1). P4 explained that pricing and price controlling is a complex topic and a significant challenge at Electronic; it is therefore helpful to have a summary of what Electronic is doing. Such information has not been documented in a model at Electronic before. These statements highlight that Electronic has not tackled price controlling in a structured manner and that the newly created Price Control 1 model is considered useful for analysing and presenting the current status of price controlling in a structured way. The model provides a categorisation and structure (pricing beliefs systems, pricing boundary systems, measurement systems, incentive systems, internal control systems, information systems) in which the instruments can be analysed, and it enhances the presentation of applied instruments in a clear and structured manner. Therefore, the proposed model can be used to systematically analyse the status quo at Electronic and summarise instruments.

P1 reported that from Electronic’s management point of view all instruments in the created Price Control 1 model are useful for Price Control 1. P1 reported he can see now what Electronic is doing and where improvement is needed. The model highlights a lot of areas with improvement potential at Electronic. P1 explained that a transparent pricing situation has been missing. However, the recommended model boosts P1’s confidence in the pricing situation because it provides more transparency; P1 could determine the performance of the sales force. P2 argued similarly and noted that up until now only P2 saw the number of escalations. However, measuring the price quality provides P2 with better information about the sales force’s execution of the planned prices. P5 stated that an advantage of this model is that it also includes instruments for cause analyses to countersteer variances. This work needs to be conducted so that countermeasures can be prepared to improve pricing at Electronic.

P4 stated that she was always looking at ways to improve price controlling. P4 considered the model to be valuable for price controlling at Electronic. She noted that the comparison of what Electronic does and what instruments should be added helps to overcome the price controlling problems Electronic is facing. Similarly, the advantage of the developed model is that it shows clearly what needs to be done for Price Control 1 (i.e., what instruments need to applied to support the fulfilment of functions) (P3). This interviewee also highlighted that it is a broad model because it also includes instruments that ensure that Price Control 1 can be conducted (e.g., data quality) because data quality is a major issue for successful price controlling.

In general, feedback from the interviewees supports that the instruments that have been included in the Price Control 1 model will be useful for achieving pricing plans at Electronic. In addition, the functions of Price Control 1 have been confirmed. Therefore, the researcher is confident that the developed Price Control 1 model contains Price Control 1 instruments able to solve the Price Control 1 problem at Electronic. The Price Control 1 model covers the important elements of Price Control 1, and the structured model facilitates the recognition of shortcomings in Price Control 1 and provides solutions for the challenges and problems that are evident in Price Control 1.

The helpfulness and the potential of the developed Price Control 1 model for improving Price Control 1 are highlighted by the following statements. P3 reported she is certain that the developed Price Control 1 model will help Electronic better achieve its pricing targets. P3 said that the developed Price Control 1 model ensures that management has transparency about the achievement of pricing plans, helps with the detection of variances, and allows cause analyses to be conducted to prepare counteractions. P3 felt that a lot of money has been left on the table because the sales force does not stick to what is actually planned by management. However, this Price Control 1 model will enable pricing plans to be better monitored, which will have a positive effect on the implementation of pricing plans and therefore on the profitability of Electronic (P3). P1 acknowledged that Price Control 1 should not be neglected and that this model is one approach to handling Price Control 1 efficiently. P1 reported that the model has the potential to improve pricing and profitability at Electronic because the model covers the Price Control 1 topics to ensure that management's plans are executed by the sales force. P1 noted that he would directly buy such a model and that it would be of use to other companies as well. P4 said that she would drive the implementation of this model. This interviewee noted that adding price controlling instruments to the current applied price controlling instruments at Electronic is a good move that enables better control over pricing plans.

In summary, the feedback that has been received from Electronic supports the developed model, which includes aspects relevant for Price Control 1. Furthermore, this model is of practical relevance to solving the Price Control 1 problem at this company.

5 Conclusion

5.1 Conclusions

Price Control 1 is essential for the successful price management of B2B companies because it impacts the achievement of pricing plans and consequently a company's profitability (Homburg, Jensen & Schuppar, 2005; Rullkötter, 2009; Sodhi & Sodhi, 2008). This situation in particular applies to B2B companies due to the common practice of delegating pricing authority to the sales force, which increases the risk that management's pricing plans are not implemented (Frenzen, Hansen, Krafft, Mantrala & Schmidt, 2010; Hansen, Joseph & Krafft, 2008; Lancioni, Schau & Smith, 2005; Stephenson, Cron & Frazier, 1979). Practitioners at B2B comapnies are therefore advised to engage and question their current practice of Price Control 1 in their companies.

Current solutions provided by price controlling researchers are unable to fully address the Price Control 1 problem. These researchers provide incomplete lists of price controlling instruments to address the Price Control 1 problem or price controlling frameworks for the entire price management process (Sections 2.4.2 & 2.5.4.1). However, the current literature does not provide a model for Price Control 1 that can assist or guide practitioners at B2B companies with the implementation of Price Control 1. In other words, B2B companies are currently left to their own devices when it comes to the implementation of Price Control 1, which could result in insufficient implementation. This situation is supported by empirical investigations of B2B companies that have revealed that the current implementation level of price controlling is low and that there is strong need for improvement (European Pricing Platform, 2016; Riekhof & Lohaus, 2009; Riekhof &Wacker, 2012; Rullkötter, 2009; Roll, 2011).

Price Control 1 can have a considerable impact on the profitability of companies in the electrical/electronics industry due the presence of pricing pressure and relatively low margins (Section 2.5.1.2). Combined with the large size of revenue and the number of companies operating in this industry (Gesamtmetall, 2015; ZVEI, 2016), research on Price Control 1 in this context is significant for practice. There is furthermore a research gap in the literature pertaining to a Price Control 1 model. This research addressed the identified research gap and created a Price Control 1 model containing instruments for mitigating the Price Control 1 problem for B2B in the OEM business operating in the electrical/electronics industry.

This research focused on a single German B2B company as an example for those companies operating in the OEM business in the electrical/electronics industry. Using a single case study, the researcher adopted a social constructivist approach to gather primary sources of evidence via semi-structured interviews with employees. Documents were collected at the case study company and the findings have been supported by comparing it to the literature.

To achieve the research aim, this thesis answered the RQs and achieved the ROs listed in Table 5.1.

Research questions	Research objectives
RQ 1: What controlling instruments can be used for a Price Control 1 system within the price management process for B2B companies in the OEM business operating in the electrical/electronics industry?	RO 1: To identify controlling instruments that can be used for a Price Control 1 system within the price management process for B2B companies in the OEM business operating in the electrical/electronics industry.
RQ 2: How can the instruments in a Price Control 1 system mitigate the Price Control 1 problem for B2B companies in the OEM business operating in the electrical/electronics industry?	RO 2: To assess the capabilities of Price Control 1 instruments to reduce the Price Control 1 problem for B2B companies in the OEM business operating in the electrical/electronics industry.
RQ 3: What recommendations can be given for B2B companies in the OEM business operating in the electrical/electronics industry for the implementation of Price Control 1 instruments into the price management process?	RO 3: To recommend a Price Control 1 model for mitigating Price Control 1 problems in the price management process for B2B in the OEM business operating in the electrical/electronics industry.

Table 5.1: Research questions and research objectives

(Source: researcher’s own illustration)

RQ 1 and RO 1: Price Control 1 instruments

This research used the literature on management control system to identify the control subsystems of a Price Control 1 model that can alleviate the Price Control 1 problem. These subsystems included pricing beliefs systems, pricing boundary systems, measurement systems, incentive systems, internal control systems, and information systems

(Sections 2.6.4 & 4.2.1). The Price Control 1 instruments of these control subsystems help companies to achieve pricing plans. Due to the premises of contingency theory, the specific Price Control 1 instruments identified in this study may differ in other contexts (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999). However, the researcher believes that these are the subsystems that should be addressed to mitigate the Price Control 1 problem. This research provides an example of how these subsystems can be addressed by Price Control 1 instruments.

The pricing beliefs systems convey the core pricing values of a company. Management uses these systems to motivate and direct the pricing actions of the sales force in a value-laden way. The communication of the pricing strategy and mission statements and pricing values constitute Price Control 1 instruments (Section 4.2.3).

To counterbalance the wide range of value-oriented prices communicated through beliefs systems, Price Control 1 uses pricing boundary systems to restrict the behaviour of the sales force. This restriction reduces the risks of undesirable pricing actions, which can jeopardise the achievement of pricing plans. The limitation of pricing authority delegation and its alignment with an escalation instrument and an approval process can restrict the pricing actions of a sales force to be within a predefined range. Project control furthermore monitors the development of profits during a project to enable countersteering before a final price is quoted to the customer. Processes define acceptable behaviour and therefore restrict the pricing actions of the sales force (Section 4.2.4). Instruments of the beliefs and boundary systems help to prevent variances of pricing plans (Sections 4.2.3 & 4.2.4).

Measurement systems include Price Control 1 instruments for comparing actual vs. plan, price reporting and cause analyses. First, Price Control 1 instruments for comparison of actual vs. plan monitor whether the pricing plans are implemented. These instruments include measuring the sales budget, price quality (undercutting price floor), price quality (actual vs. planned prices), price quality (price corridor coverage), project monitoring, management of changes, sales agreement monitoring, price increase monitoring and trend analysis (Section 4.2.5.2). Second, price reporting conveys relevant Price Control 1 information. Price reports or a pricing cockpit are used for this purpose (Section 4.2.5.3). Third, Price Control 1 instruments for cause analyses are applied in the case of pricing plan variances to detect the causes for the variances and prepare countermeasures. These instruments include price bands, price-waterfall analysis, sales segment analyses, variance analyses, won-lost order analyses, check-lists and fishbone diagrams (Section 4.2.5.4). Moreover, countermeasures need to be conducted in order to promote learning and improve pricing (Section 4.2.9).

Incentive systems that are aligned with the pricing-performance measures of the sales force enhance pricing plan achievement by motivating the sales force to achieve pricing plans (Bonnemeier, Burianek & Reichwald, 2010; Diller, 2008; Homburg, Jensen & Schuppar, 2004; Köhler, 2003; Section 4.2.6).

Internal control systems ensure correct and complete pricing information is the basis for Price Control 1 (Simons, 1995; Section 4.2.7). Guidelines and the organisation of data-input fields in the ERP system control the quality of pricing data ex ante. Measurement of data quality and internal audits are conducted to measure adherence to guidelines ex post (Section 4.2.7).

Information systems handle and provide the enormous quantity of data required for Price Control 1. These systems include information systems, target system and accounting (Section 4.2.8).

In addition to the Price Control 1 instruments identified in the current price controlling literature, this research found additional instruments (pricing strategy, mission statement/pricing values, project control and processes) that can be used for Price Control 1. This research provides a more comprehensive list of instruments to address the Price Control 1 problem (Table 4.2); the current literature only provides an incomplete tabulation of price controlling instruments. No other study has looked at all of the identified instruments to thoroughly address the Price Control 1 problem (Section 2.5.4.1; Table 2.3). This research identified Price Control 1 instruments that can be used for Price Control 1 within the price management process for B2B companies in the OEM business operating in the electrical/electronics industry (Section 4.2). This work has accordingly achieved RO 1 and answered RQ 1 (Table 4.2; Figure 4.3).

<u>RQ 2 and RO 2: Reduction of Price Control 1 problem</u>

The frequent practice of delegating pricing decisions to the sales force in B2B companies often creates information asymmetries and goal incongruence between the management and sales force. This so-called agency problem increases the risk that pricing plans are impeded (Homburg, Jensen & Hahn, 2012; Stephenson, Cron & Frazier, 1979). This constitutes the Price Control 1 problem. Companies can counter this situation by using Price Control 1 instruments (Anderson & Oliver, 1987; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012) that fulfil certain Price Control 1 functions that mitigate the Price Control 1 problem (Sections 2.5.3 & 4.2).

This research produced a comprehensive list of functions that Price Control 1 needs to fulfil to mitigate the Price Control 1 problem and increase the probability that pricing plans are achieved. These functions include preventing variances, monitoring plan achievement, detecting causes of variance for countersteering, motivating plan achievement, ensuring error-free controls and providing planned and actual data (Section 2.2.3; Section 4.3). The capabilities of Price Control 1 instruments were assessed based on how well they were able reduce the Price Control 1 problem by fulfilling Price Control 1 functions (Section 4.3). Therefore, this research achieved RO 2 and answered RQ 2.

The Price Control 1 instruments in the pricing beliefs system and the boundary system help to prevent variances before they occur. The Price Control 1 instruments of the pricing beliefs system guide and motivate the sales force to act in line with the management's pricing values. The Price Control 1 instruments in the pricing boundary system limit the pricing actions of the sales force by establishing thresholds, thereby preventing undesirable pricing decisions (Section 4.3.2).

Measurement systems monitor the achievement of pricing plans by comparing actual vs. planned figures and reporting the pricing situation to management. Management is accordingly informed about the pricing performance of the sales force, which results in the sales force being more likely to act in a way that is congruent with management's goals due to the reduction of information asymmetry (Section 4.3.3). Price Control 1 instruments for cause analysis detect the cause of variances. This situation allows a company to prepare the correct countermeasures to reduce these variances. Being informed about variances and their causes reduces information asymmetry and gives management the opportunity to countersteer to reinforce pricing plan achievement (Section 4.3.4).

Pricing incentive systems that are closely aligned with pricing performance ensure that management and the sales force share consistent goals. This situation also motivates the sales force to achieve the pricing plans based on the expectation of receiving a reward (Section 4.3.5).

Internal control systems help to ensure that the controls are error-free, which means that management can rely on the Price Control 1 analyses. Incorrect information increases information asymmetry because management obtains incorrect information about performance and is accordingly unable to make accurate judgements about the performance of the sales force (Section 4.3.6).

Information systems help with the provision of planned and actual data to conduct Price Control 1 and increase the likelihood of delivering relevant pricing information to management (Section 4.3.7).

In conclusion, Price Control 1 instruments help price controlling by fulfilling Price Control 1 functions. Price Control 1 instruments reduce the information asymmetry between management and the sales force because management can judge whether the sales force has acted in the management's interests. Price Control 1 instruments align the goals between management and sales force because they steer the sales force towards achieving the pricing plans. Consequently, these instruments help to mitigate the Price Control 1 problem and increase the probability that pricing plans are executed (Section 4.3).

RQ 3 and RO 3: Recommendations for implementation

This research produced a Price Control 1 model for mitigating the Price Control 1 problem in the price management process for B2B in the OEM business operating in the electrical/eletronics industry using the case study of Electronic as an example for those companies. Figure 5.1 shows the model created.

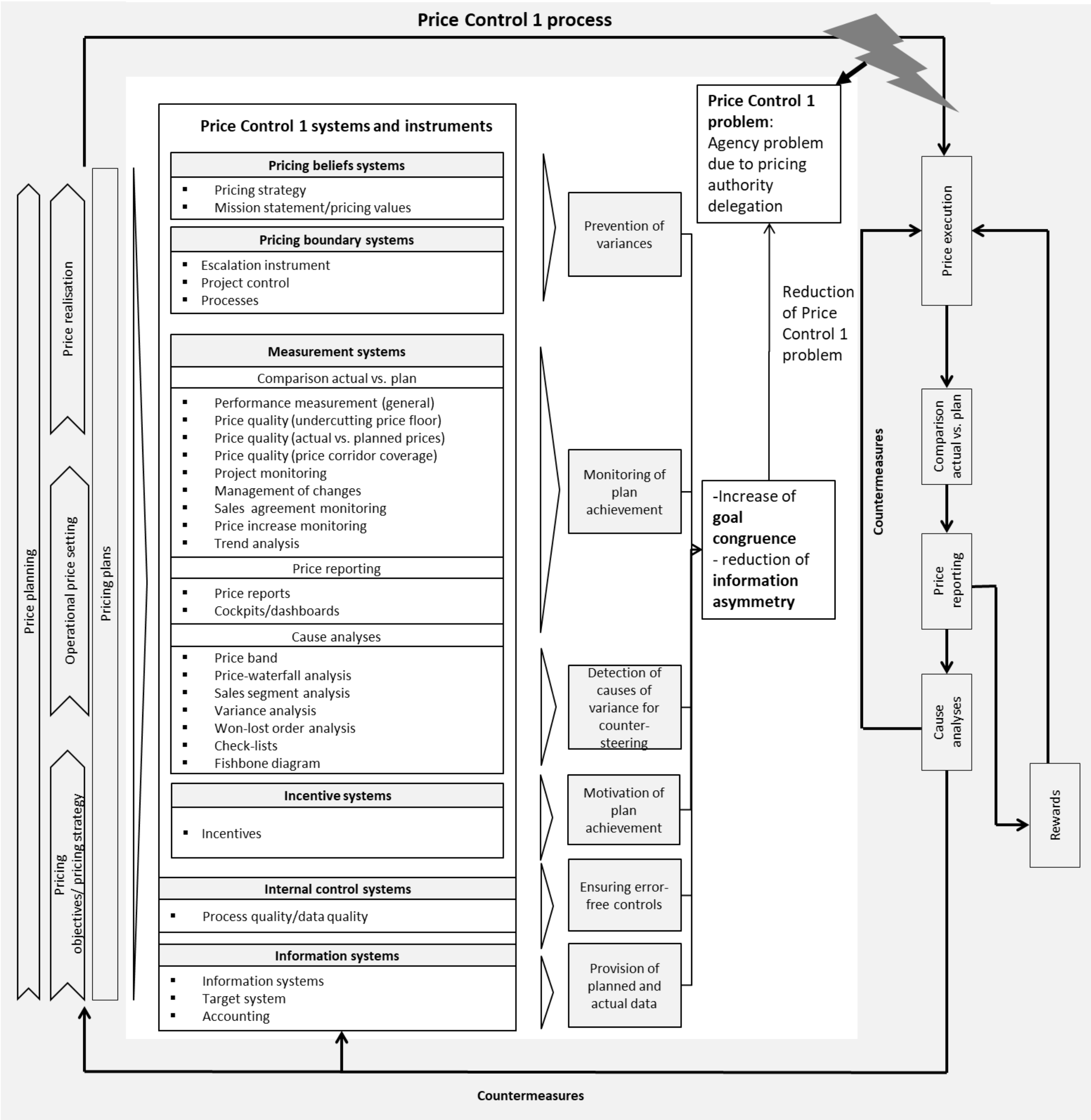


Figure 5.1: Price Control 1 model for mitigating the Price Control 1 problem

(Source: researcher's own illustration)

This Price Control 1 model offers implementation guidance about approaching the Price Control 1 problem in the B2B price management to achieve pricing plans. It identifies and combines various elements that are important for the implementation of Price Control 1: the agency problem within the B2B price management process, the planning phase of the price management process, the Price Control 1 process and control subsystems containing Price Control 1 instruments and functions to alleviate the Price Control 1 problem.

Based on this research's findings, the following recommendations can be made to B2B companies in the OEM business operating in the electrical/eletronics industry industry (Section 4.4).

- Identify and establish pricing plans to be measured
- Choose appropriate controls that ensure the achievement of plans
- Define responsibility areas
- Ensure that Price Control 1 is supported by management
- Ensure that pricing data are available and correct
- Support Price Control 1 with an IT system
- Define processes and responsibilities
- Align incentives with Price Control 1
- Review Price Control 1 reports regularly
- Ensure that countermeasures are conducted (Section 4.4)

Companies should establish and identify relevant pricing plans because a Price Control 1 requires plans to be monitored. These plans determine what needs to be controlled by Price Control 1. Therefore, Price Control 1 requires an effective planning process within the price management process (Section 4.4.2).

Based on contingency theory, companies should choose the appropriate Price Control 1 instruments that best fit their price management process and their individual contextual setting. The specific Price Control 1 instruments that have been identified for the case study company may not be applicable in other contexts. However, the researcher believes that the basic elements (agency problem, planning phase, control subsystems, Price Control 1 process steps, functions) that need to be addressed by Price Control 1 instruments to alleviate the Price Control 1 problem will remain the same. Shortcomings in the management of Price Control 1 will lead to a loss in profitability (Farrés, 2012; Homburg, Jensen & Schuppar, 2005; Rullkötter, 2009; Sodhi & Sodhi, 2008) because the pricing plans are unlikely to be fully executed by the sales force due to the agency problem (Homburg, Jensen & Hahn, 2012; Stephenson, Cron & Frazier, 1979). There are six functions that Price Control 1 should fulfil to alleviate the Price Control 1 problem. These functions can be addressed by separate control subsystems containing Price Control 1 instruments. Addressing these functions via the implementation of a Price Control 1 will lead to a reduction in information asymmetry and increase the goal congruence between the management and the sales force, which will increase the probability that pricing plans are achieved (Eisenhardt, 1989; Hansen, Joseph & Krafft, 2008; Homburg, Jensen & Hahn, 2012; Section 4.3). Companies are advised to employ a combination of various Price Control 1 instruments and address all control subsystems of the Price Control 1 model shown in Figure 5.1. Control subsystems and Price Control 1 instruments fulfil different Price Control 1 functions and work together to mitigate the Price Control 1 problem (Simons, 1995; Widener, 2007; Sections 4.4 & 4.3).

Moreover, areas of responsibility need to be defined for the implementation of Price Control 1 instruments. Doing so makes it possible to hold a specific individual accountable for the pricing results and also align incentives and structure price reporting. Management should give their support to Price Control 1 so that the required Price Control 1 tasks are undertaken and Price Control 1 receives attention. Companies need to ensure that the pricing data are available and correct. If not, Price Control 1 analyses may be either inaccurate or impossible to conduct. IT systems need to support Price Control 1 to handle complex data and to prepare Price Control 1 analyses in an efficient way. Responsibilities and formal processes need to be defined to ensure that Price Control 1 tasks are conducted properly and to build up enduring Price Control 1 capabilities. The incentive system should be directly linked to the performance measures of pricing plan achievement to motivate the sales force to achieve the pricing plans. Price Control 1 reports should be reviewed regularly, preferably in meetings, so that the performance measures receive attention and plan variances can be discussed to prepare countermeasures. Furthermore, companies need to ensure that countermeasures are conducted on the basis of the analyses. If not, there will be no price learning, and pricing will not be improved (Section 4.4).

Management is advised to implement a proper Price Control 1 that addresses all Price Control 1 functions to mitigate the Price Control 1 problem. Doing so increases the probability that the sales force will act in the interest of management, a situation that fosters the achievement of the pricing plans. A Price Control 1 allows the profit lever of pricing to be exploited, which has positive effects on a company's profitability (Hinterhuber, 2004; Simon, Butscher & Sebastian, 2003; Section 2.5.1.2).

5.2 Contribution to professional practice and academic knowledge

This research identified a research gap in the current literature—no Price Control 1 model containing instruments for mitigating the Price Control 1 problem exists. The current literature includes only 1) limited selections of price controlling instruments and Price Control 1 functions that do not fully address the Price Control 1 problem, and 2) price controlling frameworks for the entire price management process. Therefore, the researcher investigated the Price Control 1 problem using agency theory and combining Price Control 1 functions and price controlling instruments found in the literature and the case study company. The researcher used the literature on management control systems as a foundation to develop control subsystems and process steps for Price Control 1. These elements of Price Control 1 were combined to develop a Price Control 1 model containing instruments for mitigating the Price Control 1 problem for B2B in the OEM business operating in the electrical/electronics industry (Figure 5.1). Electronic was used as an example company. Given the research gap, the importance of Price Control 1 to companies operating in the B2B arena (Section 2.5.1.2), the low implementation status of Price Control 1 in practice (Section 2.5.5), the strong need for improvement in practice (Section 2.5.5) and the impact of Price Control 1 on companies' profitability

(Section 2.5.1.2), this research makes a significant contribution to both professional practice and academic knowledge.

Contribution to professional practice

First, the case study company—Electronic—can benefit from the research. This study made Electronic's Price Control 1 visible by creating a Price Control 1 model. Previously, Price Control 1 instruments were employed, but it was not shown how they formed the Price Control 1. This research has fostered understanding of the current practice of Price Control 1 at Electronic. In addition, this research improved the Price Control 1 at Electronic because it proposed additional price controlling instruments that are helpful for mitigating the Price Control 1 problem. This mitigation increases the probability of achieving pricing plans. Therefore, this research contributed to professional practice at Electronic.

Second, due to the complexity of Price Control 1 there is a high risk that other companies are also neglecting important issues of Price Control 1. This fact has been confirmed by the incomplete implementation of price controlling instruments highlighted by studies such as Riekhof and Lohaus (2009) and Riekhof and Wacker (2012). The created Price Control 1 model can be used at companies other than Electronic to mitigate the Price Control 1 problem. This versatility contributes to the practice at other companies and potentially benefits their profitability. Based on contingency theory, the model will be most applicable to companies operating in settings similar to those of Electronic's. This work is a significant contribution given the economic impact of B2B companies (Kleinaltenkamp & Saab, 2009; LaPlaca & Katrichis, 2009; LaPlaca, 2013; Lilien, 2016; Wiersema, 2013), the size of the electrical/electronics industry (ZVEI, 2013; ZVEI, 2014; ZVEI, 2016) and the potential impact of Price Control 1 on the profitability of companies (Section 3.3.3.3).

However, the researcher believes that it also is of use to other companies in other contexts, e.g. other industries. Providing other practitioners a comprehensive model for a Price Control 1 helps them to fully grasp the problem of Price Control 1 and provide them guidance to address those elements they have to consider to mitigate the Price Control 1 problem. When other companies want to produce their own Price Control 1 model, the use of the model will most probably generate a different list of Price Control 1 instruments in a different context due to the contingent nature of the instruments. The benefit of this research is that it provides companies a process on how to produce their own Price Control 1 model that can be replicated by other companies. Companies should look at the various elements of the created model, that include the agency problem that produces the Price Control 1 problem, the price management process that delivers pricing plans to be controlled and the control subsystems and process steps that should be in place to fulfil the Price Control 1 functions. In a holistic way, the researcher believes that these are the elements that need to be addressed to mitigate the Price Control 1 problem, even though the specific set of Price Control 1 instruments needed to achieve pricing plans may differ based on the context.

Other companies can use the created Price Control 1 model for different purposes such as visualising Price Control 1 in a structured way to facilitate understanding of their employed Price Control 1. This process aids to analysing and assessing Price Control 1 because such a visualisation can reveal whether all of the model's elements of the Price Control 1 model have been addressed and established adequately through the employment of price controlling instruments or whether there are deficiencies that may cause that pricing plans are incorrectly executed. This work is important because the various control subsystems of the Price Control 1 model work together to ensure pricing plan achievement (Simons, 1995; Widener, 2007). For example, when the analyses of Price Control 1 shows that a company does not use price controlling instruments of the boundary systems, the company may think about implementing those instruments because in that way the company can prevent pricing errors before they occur. Second, the model provides guidance and a process to companies wishing to produce or refine their own Price Control 1 model. It highlights the elements of Price Control 1 that should be addressed with suitable price controlling instruments to increase the likelihood of achieving pricing plans. Companies can adopt the process that has been employed in this research to produce their own Price Control 1 model. Even though the applied set of Price Control 1 instruments is contingent on the context of the company (e.g., its type of business, its pricing plans, its pricing strategy) and companies will use their own range of instruments that suits best to their specific needs to achieve pricing plans, the list of Price Control 1 instruments resulting from this research can help companies select useful price controlling instruments to address the Price Control 1 problem.

Therefore, the created Price Control 1 model contributes to professional practice because it can also be used by other companies than Electronic. It provides a structure that allows Price Control 1 to be understood, assessed, designed and refined. Rather than just providing loosely defined and limited selections of price controlling instruments like the current price controlling literature, this research combines price controlling instruments in a Price Control 1 model that provides practitioners with a model for Price Control 1 to alleviate the Price Control 1 problem. This model can accordingly help practitioners improve their pricing. Given the importance of Price Control 1 to achieve pricing plans (Section 2.5.1.2) and the considerable impact of Price Control 1 on the profitability of companies (Sections 2.5.1.2 & 3.3.3.3), the created Price Control 1 model makes an important contribution to professional practice.

Theoretical contribution

This research contributes to academic knowledge because it addresses a research gap in current literature by creating a Price Control 1 model containing instruments for mitigating the Price Control 1 problem for B2B in the OEM business operating in the electrical/electronics industry. In contrast to the current literature related to Price Control 1, this work produced a model that combines the relevant elements (agency problem, price management process, Price Control 1 process, control subsystems containing Price Control 1 instruments to fulfil Price Control 1 functions) of Price Control 1 into one comprehensive model. This model is capable of mitigating the Price Control 1 problem. In addition, it generated a more comprehensive list of Price Control 1 instruments that can be applied in Price Control 1 to address the Price Control 1 problem than current literature offers. By applying the thinking of management control systems to Price Control 1, this research developed relevant control subsystems that should be addressed for Price

Control 1 and also serves as a categorisation for Price Control 1 instruments. Therefore, the created Price Control 1 model contributes to furthering understanding and knowledge of the under-researched price management step of Price Control 1 within the price management process (Fassnacht, 2009; Ivens, Stemmermann & Leisching, 2016; Köhler, 2003; Rullkötter, 2008). It also contributes to the literature on price controlling and the process-oriented literature of price management.

Because this research focused on a specific context, it also contributes to knowledge of price controlling in the under-researched area of B2B companies (Leone, Robinson, Bragge & Somervuori, 2012; Liozu & Hinterhuber, 2013a; Reid & Plank, 2000; Riekhof & Wacker, 2012; Roll, 2009; Totzek & Alavi, 2010) and the specific electrical/electronics industry.

A benefit of this model is that it gathers the elements of Price Control 1 that should be considered in one place. This study provides a process giving guidance about producing a Price Control 1 model. Other researchers can use this model to systematically investigate Price Control 1 and produce Price Control 1 models in other contexts. The price management process—including the steps of the price planning phase—can be used by other researchers as an analytical frame to systematically examine the price planning phase in other settings to identify pricing plans that need to be controlled by the model. The control subsystems of the Price Control 1 model and the Price Control 1 process provide a structure that can help researchers examine Price Control 1 and identify Price Control 1 instruments. The Price Control 1 functions can be used to assess how the Price Control 1 model can alleviate the Price Control 1 problem. Although the specific Price Control 1 instruments are contingent on the context of a company, the created list of Price Control 1 instruments can serve as a first step to actively search for price controlling instruments in other research settings. The model can also be used to structure Price Control 1 instruments; doing so helps make the applied Price Control 1 visible and manageable. The model therefore facilitates the investigation, description, understanding and development of Price Control 1 models in other research settings.

5.3 Limitations and avenues for future research

The first and a major limitation of this research is the inability to generalise on the basis of the research findings due to the use of a single case study because a single case study cannot be used for statistical generalisation (Yin, 2009). However, a statistical generalisation has not been the aim and therefore this single case study does not attempt to generalise the research results to a broader population, meaning across other companies. Instead using an interpretative single case study the results are context-bound to the specific situation found at the case study company. Context-bound factors include for example: the industry, the type of B2B business, the particular design of the price management process, the location in Germany, being a medium-sized company and the level of delegation of the pricing authority. Drawing on the contingency theory, the design of the Price Control 1 model is contingent on the specific situation in which the research took place (Chenhall, 2003; Fisher, 1998; Otley, 1980; Otley, 1999). The results are therefore most likely to be of use for companies in similar situational settings to the case study company. To generalise the findings across other companies, case studies in similar situational settings need to be conducted, so that replication logic is used (Yin, 2009). A first avenue for research is therefore to conduct further, multiple-case studies to investigate Price Control 1 at other companies in a similar setting and to compare these results with the results of this research to generalise the findings. Another way to generalise the use of Price Control 1 instruments for B2B companies operating in the OEM business in the electrical/electronic industry could be to conduct a quantitative survey in that particular setting. A quantitative study could be conducted, in a similar way to the research of Riekhof and Wacker (2012) who investigated the implementation status of price management using a survey on B2B companies in Germany which produce components. This would give the opportunity to generalise the findings of Price Control 1 instruments across companies which are operating in that setting.

This research did not have the goal of identifying and testing contingency factors for the design of Price Control 1 models but argues that based on the contingency theory the research results are contingent to the specific situational setting of the company (Section 2.3.2). Contingency theory postulates that Price Control 1 models are designed and used in different ways according to the situational setting of the company. Companies choose those control systems which best fit their context to improve their performance (Fisher, 1998). An avenue for further research is thus to identify contingency factors and to study how these contingency factors influence the design of Price Control 1 models. For example it could be studied how the pricing strategy (e.g. value pricing strategy vs. cost-plus strategy), the pricing method (value-driver pricing vs. cost-plus pricing) and the level of pricing authority delegation (full-delegation vs. limited-delegation vs. no-delegation) impact the design of the Price Control 1 model. Furthermore, the research company was a medium-sized company, so that another contingency factor could be the size of the firm (Chenhall, 2003; Fisher, 1995). In that way contingency factors can be identified which influence the design of a Price Control 1 model to improve pricing performance.

Furthermore this research had a particular focus on a B2B company for OEM business operating in the electrical/electronic industry. The literature review showed that Price Control 1 is an under-researched subject area across the entire B2B arena (Sections 2.4.2 & 2.5.4.1). In Section 1.2 different types of B2B business were introduced using the framework of Backhaus and Voeth (2010). Moreover this case study is on a manufacturing firm producing physical products, but services play also a vital role in the B2B arena (Bonnemeier, Burianek & Reichwald; 2010). Another avenue for further research is therefore to conduct similar studies in the system business, product business and investment business and for service firms in order to have a better understanding of Price Control 1 in other contexts.

Moreover this research used the LOC framework of Simons (1995) as a basis on which to research the Price Control 1 and limited the research to the Price Control 1 instruments and systems which can be used. Section 2.6 also discussed other frameworks for management control. Tessier and Otley (2012) refined the LOC framework and provide a framework which can extend this research on Price Control 1. Future researchers could study in what way the Price Control 1 instruments are used by management, e.g. are they used for rewards/punishment, are they used in an enabling/constraining way or are they used in a diagnostic/interactive way. Furthermore, it could be researched in what way the controls are communicated by management. In addition it could be researched how the employees perceive the controls, e.g. mostly positively or mostly negatively (Tessier & Otley, 2012). This kind of research would shed deeper insight into how Price Control 1 instruments are applied in practice.

Furthermore this research limited the research on price controlling to the Price Control 1 phase. As the literature review showed in Section 2.4.5, there are many different price controls within the price management process, depending on their location within the phases of the price management process and there are also controls within the process steps (Bolte, 2008; Florissen, 2005). Not much research could be found on these controls in a B2B arena or for OEM business in the electrical/electronic industry. Therefore, another avenue for research could be to undertake more in-depth research into price controls other than Price Control 1 for the B2B arena.

A further limitation of this research is that is has not studied the change process for implementing the Price Control 1 instruments in practice. Old institutional economics (OIE) could be used for this purpose and it could be researched how Price Control 1 gets institutionalised in the organisation (Burns & Scapens, 2000).

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Appendix 1: Interview agenda

Interview agenda German:

Interview-Leitfaden

Rahmenbedingungen (Preismanagementprozess)

- Preisstrategie und -ziele?
- Preissetzungsmethode?
- Preisrealisation (Preissetzungskompetenzen, Eskalationssystem, Anreizsysteme)?
- Verantwortlichkeitsbereiche?
- Ziele die an die Vertriebsmitarbeiter gegeben werden?

RQ 1: Instrumente für Preiskontrolle 1

- Controllingprozess für die Preiskontrolle 1?
- Preiscontrollinginstrumente, die eingesetzt werden um die Ausführung der Preispläne zu kontrollieren?
- Kennzahlen und generierte Reporte?
- Was passiert im Falle von Abweichungen/ gibt es Gegenmaßnahmen?
- Schwächen der jetzigen Preiscontrollinginstrumente/ Verbesserungen/ Ideen?

RQ 2: Problem in der Preiskontrolle 1

- Transparenz zum Management?
- Aufgaben, die ein Preiscontrolling erfüllen sollte?
- Unterstützung durch Preiscontrollinginstrumente?

RQ 3: Einführung von Preiskontrolle 1

- Faktoren/ Voraussetzungen für ein Preiscontrolling?
- Wie ist das Preiscontrolling bisher implementiert? Wie können Preiskontrolle 1 Instrumente in den Preismanagementprozess integriert werden/ was muss beachtet werden?

Translated into English:

Interview agenda

Contextual setting (Price management process)

- Pricing strategy & objectives?
- Methods of price setting?
- Price ralisation? (Authority regulations, escalation system, incentive system?)
- Responsibility areas?
- Targets given to the sales force as outcome of planning?

RQ 1: Price control 1 instruments

- Control process for price control 1 ?
- Price control instruments in place to control the execution of pricing plans?
- Measures and reports generated?
- If there are variances what is done/ any countermeasures?
- Weaknesses of current price controlling instruments/ improvements/ ideas?

RQ 2: Price control 1 problem

- Transparency towards management?
- Functions a price controlling should fulfill?
- Support of price controlling instruments?

RQ 3: Price control 1 implementation

- Factors / prerequisites for a price controlling?
- How is price controlling implemented so far? How can price control 1 instruments be implemented into the price management process/ what needs to be considered?