"Separation – Integration – *and Now …*?
- An Historical Perspective on the Relationship between German Management Accounting and Financial Accounting."

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Abstract

German accounting has traditionally followed a dual ledger approach with strictly separated internal cost accounting, as the basis for management information, and external financial accounting focusing on creditor protection and based on the commercial law. However, the increased adoption of integrated accounting system implies a significant change in the relationship between financial and management accounting systems. We use Hegelian dialectic to trace the historical development of German accounting from separated systems towards antithetical propositions of full integration, and the emergence of partial integration as the synthesis of this transformation process. For this reason, our paper provides a comprehensive analysis of the literature on the relationship between financial and management accounting in Germany. On this basis, we elaborate how financial accounting in Germany has been shaped by its economic context and legislation, and how financial accounting – accompanied by institutional pressures – in turn influenced management accounting. We argue that the changing relationship between management and financial accounting in the German context illustrates how current accounting practice is shaped not only by its environment, but also by its historical path. Based on this reasoning, we discuss several avenues for future research.

Keywords

Financial Accounting, Management Accounting, Hegelian Dialectic, Germany, Historical Analysis, Integration, Globalization, IFRS

1 Introduction

This paper provides a literature-based narrative on the relationship between management accounting and financial accounting in Germany from the late 19th century to the early 21st century. Reflecting accounting historians' interest in the development of accounting in specific country contexts (Carnegie and Napier, 2002), our analysis adds to the understanding of how the dual ledger accounting approach – a characteristic feature of the German accounting systems that prevailed for decades (Jones and Luther, 2005; Ewert and Wagenhofer, 2007) – emerged and then evolved towards a "partial integration of accounting systems" (Weißenberger and Angelkort, 2011).[1]

The German dual ledger accounting approach was promoted by Eugen Schmalenbach in the early 20th century and consisted of two independent databases for financial and management accounting (Schmalenbach, 1899): Whereas management accounting relied on both transaction-based and imputed costs, financial accounting drew on transaction-based figures (Schmalenbach, 1934; Ikäheimo and Taipaleenmäki, 2010). Such decoupling appeared appropriate as German financial accounting focused on creditor protection and thus appeared to be less useful for supporting managerial decision-making (Christensen and Wagenhofer, 1997; Schildbach, 1997). The resulting dual ledger approach was taken for granted by German companies and the academic community for a century and encouraged a conceptual split between management and financial accounting (Schweitzer and Ziolkowski, 1999; Ewert and Wagenhofer, 2007). This

[1] Throughout this paper and following Weißenberger and Angelkort (2011), the terms "integration of accounting systems" and "integrated accounting system" entirely refer to the relationship between management and financial accounting systems and should not be confused with the "Integrated Reporting" initiative that deals with the integration of social, environmental and financial information in one report addressed to stake- and shareholders (de Villiers et al., 2014).

structure was in sharp contrast to the general ledger approach which could be observed in the Anglo-American world (Christensen and Wagenhofer, 1997; Becker and Messner, 2005; Jones and Luther, 2005).

However, in the 1990s major German companies questioned this separation and encouraged a wider integration of accounting systems (e.g., Ziegler, 1994; Melching, 1997; Beißel and Steinke, 2004; Hasselmeyer et al., 2005; Hebeler, 2006). This change in business practice has elicited a lively academic debate (Ziegler, 1994; Jones and Luther, 2005; Wagenhofer, 2006; Ewert and Wagenhofer, 2007; Trapp, 2012a). In particular, scholars elaborated on the benefits and limitations of the traditional approach compared to an integrated accounting system (e.g., Coenenberg, 1995; Schaier, 2008; Simons and Weißenberger, 2008) and have empirically investigated its consequences (e.g., Weißenberger and Angelkort, 2011; Weißenberger et al., 2011; Weide et al., 2011; Weißenberger et al., 2012).

Against this background, our paper aims to provide a high-level chronological analysis of the literature on the relationship between financial and management accounting in Germany. Reflecting developments in the German economic and institutional environment, it sheds light on the changes from the traditional dual ledger approach towards a partial integration of financial and management accounting. Our study goes beyond previous literature reviews as part of the German-speaking literature (Simons and Weißenberger, 2010; Trapp, 2012a) that focus entirely on research devoted to the integration of accounting systems published during the two last decades. While those reviews evaluate past achievements of research on integrated accounting systems since the mid-1990s and highlight avenues for future research, our paper illuminates the dynamic of the relationship between financial and management accounting and major institu-

tional and economic developments from the late 19th century onwards. In doing so, we provide a case that illustrates the adaptive nature of accounting as a social phenomenon influenced by its internationalizing environment and changing user needs and introduce it to a wider international audience. In line with Carnegie and Napier (2002), we argue that reviewing developments in the past contributes to a deeper understanding of contemporary accounting practices.

Our analysis is informed by Hegelian dialectic which conceives the world to be in a state of permanent change. Central to this approach is a triad consisting of thesis, antithesis and synthesis (Hegel, 1969; Jinnai, 2005; Rodrigues and Craig, 2007). A thesis is a particular proposition (e.g., a perception of the world) and is contradicted by an opposing proposition, the antithesis. Out of the conflict between the thesis and antithesis, the synthesis arises as a third view that reconciles the thesis and antithesis. While this approach enables us to make sense of the developments, it does not imply specific assumptions concerning how a thesis, antithesis or synthesis arises. In line with prior literature (e.g., Granlund and Lukka, 1998; Rodrigues and Craig, 2007), we argue that economic and institutional pressures contributed to the emergence of a thesis, an antithesis and a synthesis concerning the relationship between financial and management accounting. In this context, institutional pressures comprise coercive forces (i.e., regulation), normative pressures (i.e., obligations and suggestions arising, for instance, from professional organizations or universities) and mimetic forces (i.e., organizations emulate peers by adapting particular structures).

Against this background, we argue that the previous endorsement of the dual ledger accounting approach constitutes a thesis that arose from the strong reliance on bank financing (an economic pressure) and corresponding "prudent" accounting rules (a coercive pressure) that emerged in

the late 19th century and persisted through to the late 20th century, justified and reinforced by academia (a normative pressure). Based on our reading of the literature, the unification of the previously separated databases for financial and management accounting, spurred by globalization, changes in corporate finance (economic pressures) and the establishment of international accounting standards (a coercive pressure) as well as mimetic behaviour, constitutes an antithesis. The tension between the thesis and antithesis led to the partial integration of accounting systems that represents a synthesis, which is driven by accounting user needs (an economic pressure), concepts by academia (a normative pressure) and, again, mimetic processes.

In line with previous historical papers on German accounting (e.g., Eierle, 2005; Küpper and Mattessich, 2005), our analysis is based on a comprehensive review of the literature. It follows the tradition of Previts et al. (1990), Levant and Nikitin (2012), Hoffmann and Detzen (2013), and Fülbier and Klein (2015) in making sense of historical processes by reference to a literature-based narrative. We encompass scholarly as well as German practitioner-oriented journals and also draw on related papers in the 'international' literature. Additionally, our narrative refers to empirical as well as conceptual papers on the (partial) integration of the financial and management accounting systems that were identified in a thorough analysis of the volumes of 13 leading German journals published between 1994 and 2014.[2]

[2] Following previous reviews of the German accounting literature (e.g., Schäffer and Binder, 2008; Perrey et al., 2010; Fülbier and Weller, 2011; Trapp, 2012a), we selected the leading academic journals published in Germany (Zeitschrift für betriebswirtschaftliche Forschung (ZfbF)/Schmalenbach Business Review (SBR), Zeitschrift für Betriebswirtschaft (ZfB)/Journal of Business Economics (JBE), Die Betriebswirtschaft (DBW), Betriebswirtschaftliche Forschung und Praxis (BFuP), Zeitschrift für Planung und Unternehmenssteuerung (ZP)/Journal of Management Control (JoMaC), Journal für Betriebswirtschaft (JfB)/Management Review Quarterly (MRQ), Die Unternehmung) and six renowned practitioner journals (Betriebs-Berater, Controlling, Der Betrieb, Zeitschrift für internationale und

The paper proceeds as follows. In Section 2 we outline the establishment of the dual ledger accounting approach against the background of the German economic and legislative context which constitutes the thesis in our dialectic framework. In Section 3 we shed light on the antithesis by outlining how the internationalization of companies' operating activities culminated in the intention to unify the previously separated databases. Finally, we discuss partial integration as a synthesis arising out of the tension between the dual ledger accounting approach and initiatives to integrate accounting systems. We discuss our chronological analysis in Section 5 and elaborate on avenues for further research.

2 Thesis: Shaping the dual ledger accounting approach

As a starting point of our analysis we illustrate the dual ledger accounting approach which was the result of the widespread German view that management and financial accounting systems should be separated to be effective in addressing different user needs (e.g., Schneider, 1997). From our dialectical perspective this view represents the initial "thesis" for which we trace both rationales and emerging challenges. The literature emphasizes that the German financial accounting standards (as codified in the German code of commercial law, the "Handelsgesetzbuch" (HGB)) constitute the major basis for this view (Ewert and Wagenhofer, 2007) and the corresponding dual ledger approach that found its way into German business practice in the late 19th century (Weißenberger, 2003; Trapp, 2012b). Accordingly, we outline major char-

kapitalmarktorientierte Rechnungslegung, Kostenrechnungspraxis/Zeitschrift für Controlling und Management/Controlling und Management Review, Die Wirtschaftsprüfung) that serve as important platforms for the dissemination of research findings (Wagenhofer, 2006; Schäffer and Binder, 2008). From these journals, relevant papers were identified based on a thorough reading of titles and abstracts as well as additional sections of the respective paper in case of ambiguity.

acteristics of the German HGB (a coercive pressure) and discuss the economic background to the legislation as well as its consequences for accounting systems supporting internal decision-making and control (economic pressures). We also consider responses of academia to the legislation as a normative pressure. Based on our analysis of the literature, we maintain that the aforementioned economic and institutional pressures are significant factors which led to the creation of separate systems. We first analyse how the dual ledger accounting approach was established in the early 20th century (Section 2.1) and then how it held its ground during the second half of the century (Section 2.2).

2.1 Establishment of the dual ledger approach

2.1.1 Economic background to legislation in the late 19th century

The foundation of the German Reich in 1871 – accompanied by the establishment of an homogenous political and economic area based on the principles of liberalism – and the French reparations after the Franco-Prussian war stimulated a comprehensive industrialization, a prospering trade and an economic upturn in Germany. This period ("Gründerzeit") was characterized by the foundation of major companies and banks such as Deutsche Bank and Commerzbank (both in 1870). However, the Gründerzeit was interrupted in 1873 (Spoerer, 1998); corporate scandals caused by dramatic overvaluations, the Vienna stock market crash, the end of French reparation payments and the subsequent recession represented the economic environment in which a crucial characteristic of German accounting evolved: The state regulation of accounting which emphasized "prudent" asset valuation and liability recognition to avoid further economic fragility (Kinder et al., 2008; Gallhofer and Haslam, 1991; Spoerer, 1998; Hung and Subramanyam,

2007). This characteristic of German accounting implied that financial statements in accordance with the HGB did not prioritize a portrayal of a company's profitability that fosters economic decision-making (Weißenberger et al., 2004; Jermakowicz et al., 2007). Instead, German accounting rules intended to protect creditors, taking into account that banks were the primary source of funding for German firms and creditors thus represented a major group of stakeholders (Spoerer, 1998; Van Tendeloo and Vanstraelen, 2005; Glaum and Mandler, 1997; Black and White, 2003). This focus characterized German financial accounting for most of the 20th century during which German firms primarily relied on the intermediation of national banks for corporate finance (Haller, 1995; Spoerer, 1998). Due to political interventions such as protectionism at the end of the 19th century and autarky during the Third Reich (Kinder et al., 2008), companies in Germany, often small and medium sized, usually family-owned firms (so-called 'Mittelstand') tended to operate in less competitive markets. Often they used bureaucratic structures or social controls through strong owner family influence (Kocka, 1971). This environment provided less incentive to relate accounting information to 'external' equity investors than was the case in the US (Chandler and Daems, 1979). Through "prudent" asset valuation by capitalizing the lowest possible value and corresponding liability recognition, facilitated by a high number of options in the commercial code, German companies had many options to systematically undervalue shareholder equity (Fülbier et al., 2006; García Lara and Mora, 2004). In this way, profit distribution to owners was limited to avoid a drain of capital and a corresponding decrease in securities for creditors (Ballwieser, 1996; Weißenberger et al., 2004; Van Tendeloo and Vanstraelen, 2005). The prudent approach helped not only to protect creditors (Jermakowicz et al., 2007), it also could be used as a managerial measure to limit dividend payouts for

reasons of sustainable corporate development. Managers were able to drive down net income through building hidden reserves via accrued liabilities and depreciations to maintain capital for future investments (Abel, 1969; Van Tendeloo and Vanstraelen, 2005).

2.1.2 Legislative changes during the late 19th and early 20th century

During the late 19th and early 20th century, the legislature reacted to the rapid industrialization, but also to dramatic failures of public companies (Eierle, 2005; Küpper and Mattessich, 2005). In 1861 the German Commercial Code (Allgemeines Deutsches Handelsgesetz) had been introduced and constituted a foundation of the comprehensive regulation of financial accounting in Germany (Eierle, 2005). The Stock Corporation Law Amendment (Aktienrechtsnovelle) of 1870 and, more comprehensively, the later Act of 1884 introduced basic financial accounting rules (e.g. historical cost principle, allocation of overheads, prudence principle) with a central aim of restricting dividend payments out of capital (Eierle, 2005). The Stock Corporation Act (1884) marked the beginning of the German approach of leaving the task of financial accounting standard setting to the legislature (Busse von Colbe, 1992; Glaum, 2000; Schmidt, 2002). This institutionalization was followed by important legislative changes through the introduction of the German Commercial Code (Handelsgesetzbuch) of 1897 which required all enterprises to follow a set of unwritten but generally accepted accounting principles, the so-called "Grundsätze ordnungsmäßiger Buchführung" (GoB) (Leffson, 1964). Furthermore, the authoritativeness principle was introduced in the tax code of 1920; this required the mandatory use of accounting figures according to HGB for the determination of tax obligations.

The corresponding measurement and recognition rules, based on the prudence principle prevented overvaluation but also laid the foundation for the distinct features of German financial accounting such as the non-recognition of unrealized profits, the non-capitalization of research and development (R&D) expenses and options to build hidden reserves, particularly through an overvaluation of accrued liabilities (Kosiol, 1937; Abel, 1969; Spoerer, 1998; Eierle, 2005; Hung and Subramanyam, 2007). As a consequence of such rules, the HGB was – corresponding with its focus on creditor protection – more concerned with determining a "distributable income" than "economic income" with the former representing "that part of the actual income […] that can be paid out to shareholders without impairing the position of the creditors or the long-term prospects of the firm" (Glaum and Mandler, 1996: 218).

2.1.3 Academic contributions to accounting in the first half of the 20th century

In addition to the effects of legislative changes, separation of ownership and control increased as many businesses progressively grew and involved multiple owners, leading to a higher demand for information on the economic situation of companies (Schneider, 1992; Schaier 2007). In this context, the academic community focused attention on how assets and liabilities should be valued and when profits were realized within the framework of various theories of the balance sheet, the "Bilanztheorien" (e.g., Schmalenbach, 1920; Schmidt, 1921; Mahlberg, 1923; Isaac, 1924; Walb, 1924). Schmalenbach's much debated 'dynamic accounting theory' specifically conceptualized the determination of periodic income and its link to the balance sheet (Schmalenbach, 1920; Schranz, 1937). These considerations contributed to a theoretical approach which improved the comparability of accounting information over time and facilitated control and accountability (Küpper and Mattessich, 2005). In addition, firms were not solely

considered a source of income for its shareholders, but were expected to serve different stakeholders (Glaum, 2000). Correspondingly, stakeholders expected managers not to focus solely on shareholders' financial interests but also to consider the interests of various wider groups (van Mourick, 2014). In this socio-economic context financial accounting took on additional roles as an instrument to address and reconcile distributional conflicts between the different interest groups (Glaum, 2000; Fülbier and Klein, 2015). Accordingly, throughout the 20th century German financial accounting research adopted a normative approach focusing on the improvement of "Bilanztheorien" and the development of accounting-related legal regulations (Perrey et al., 2010).

At the same time, academia recognized the limited usefulness of HGB data for managerial planning, decision-making and control (Pfaff and Schröer, 1996; Christensen and Wagenhofer, 1997; Schildbach, 1997; Spoerer 1998). Against this background, Schmalenbach (1919) argued that the provision of information about a company's economic situation needed to facilitate managerial decision-making, would require the determination of a profit figure which is decoupled from the HGB. For this reason, he distinguished 'costs' from 'expenses' (Schmalenbach, 1919; Lorentz, 1926). Expenses have been described as negative components of economic benefits captured by financial accounting (Schildbach, 1997). By contrast, the German cost concept recognizes expenses as costs only if they are related to the primary business activity of a company. In addition, resource consumption in production processes could incorporate "imputed" costs such as the opportunity cost of equity which are not part of the financial accounting database (Schmalenbach, 1919; Schmalenbach, 1934). However, "neutral" expenses, e.g. for investment property which is not related to the core business, would be ignored in German cost

accounting systems (Schmalenbach, 1919; Bursal, 1992; Ewert and Wagenhofer, 2007). Thus, cost accounting's role was to facilitate business decision support, performance evaluation, resource allocation and managerial control (Kloock and Schiller, 1997). These conceptual differences were later institutionalized through the national socialist regime to enforce state control. More precisely, the Accounting Guidelines ("Buchführungsrichtlinien", 1937) required companies to use the "Kontenrahmen" (master-charts of accounts) (Schmalenbach, 1927) that relies on the dual ledger accounting approach. Later, the Cost Accounting Principles ("Kostenrechnungsgrundsätze", 1939) mandated the usage of imputed costs such as imputed management salaries, imputed interest, imputed depreciation and imputed risk charges (Schoenfeld, 1990; Küpper and Mattessich, 2005). Thus, the mandatory guidelines and charts of accounts represented channels that disseminated academic ideas into corporate practice during the first half of the 20th century.

2.2 The dual ledger accounting approach in a changing environment

In the post-World War II (WWII) era, German companies made considerable changes in their organizational structures, particularly in response to a more complex economic environment and intensified international trade in the European markets. These developments led to new cost accounting approaches, e.g. flexible standard costing (Schildbach, 1997). Moreover, accounting for decision-influencing purposes became important due to organizational changes which will be discussed below. The dual ledger accounting approach remained unquestioned during that time (Schweitzer and Ziolkowski, 1999). However, by the end of the 1980s, a number of issues emerged as a consequence of the changing environment that affected the perceived usefulness of the dual ledger approach. These issues will be discussed in Section 3, but first we analyze

developments that took place during the second half of the 20th century and constitute antecedents to the perception, which eventually contributed to the emergence of the antithesis that the separated databases should be integrated.

2.2.1 Economic developments: Adoption of multidivisional structures

In the course of the "Wirtschaftswunder", the rapid economic recovery in the 1950s and 60s, numerous German companies tended to apply more complex production processes and developed more diversified product portfolios to address increasing demand for more sophisticated products. A rational response, perhaps encouraged by US-based mimetic influences, was for many companies to implement multidivisional structures (Weber and Weißenberger, 1997). In this context, they created independent areas of responsibility and delegated authority to mid-level managers. The corresponding need for monitoring and control was addressed by implementing performance measurement approaches to ensure that managers act in compliance with the organizational objectives (Choudhury, 1986; Demski and Sappington, 1989). Reflecting historical developments in the US, the creation of multidivisional corporations in Germany encouraged the use of decision-influencing and accounting-based performance measures such as Return on Investment (ROI) and Return on Assets (ROA) (Chandler and Daems, 1979).

In contrast to the US where such ratios rely on financial accounting data (Kaplan, 1984), German multidivisional companies had traditionally used cost accounting data as an input for performance measurement (e.g. Ziegler, 1994; Beißel and Steinke, 2004). Consequently, both components of the ROI, profit and invested capital, included elements of imputed costs. The literature (e.g., Haller 1997; Küting and Lorson, 1998b; Hahn, 1999) suggests that economic

rationales were primarily responsible for maintaining the detachment of performance measures from financial accounting data. For instance, if the profit was derived from financial accounting data, it would be after deduction of R&D related expenses - treated as periodic expenses by the HGB. Economic theory suggests that executives might neglect investments if their performance is measured by HGB-based indicators, as long as they are not complemented by more long-term oriented measures; this short-term orientation could risk a deterioration of the long-term business performance and competitive position of German companies (Wussow, 2004; Müller, 2006). A similar conclusion can be drawn with regard to the valuation of long-term construction contracts. According to the realization principle as part of the German GoB, the revenues arising out of such contracts were only recognized when the contract was completed (Arnegger and Hofmann, 2007). Therefore, a HGB-based performance measure would include expenses incurred during each period while reflecting the corresponding revenues with a considerable time lag. From an incentive perspective, managers would be more reluctant to accept orders or projects with immediate cost consequences but deferred income recognition. Thus, German financial accounting data did not appear to adequately guide corporate long-term objectives and thus did not meet an important requirement for performance measures (Kahle, 2003; Pelger, 2008; Merchant, 2006). As a consequence, German companies relied on cost-based information for business unit performance evaluation due to the HGB's inability to provide useful data for performance measurement and thus reinforced the separation of the two accounting databases (Schneider, 1997; Schweitzer and Ziolkowski, 1999).

2.2.2 Legislation during the second half of the 20th century

The “Wirtschaftswunder” reinforced the growth of many companies, accompanied by a further separation of ownership and control. This separation required improved informational content of financial statements as an instrument of communication between shareholders and managers. The major legislative reforms concerning accounting regulation after WWII addressed this issue. In 1965 the revised Stock Corporations Act (“Aktiengesetz” 1965) was introduced. It aimed to limit a company’s ability to build hidden reserves by specifying acceptable reasons for write-downs and restricting the formation of provisions (Fülbier and Klein, 2015). However, the prudence principle of the HGB and its purpose to determine a distributable profit still remained in place as overriding axioms (Eierle, 2005). Therefore, accounting information, reflecting the ongoing risk aversion which prevailed in the German economy after WWII, continued to present a prudent representation of companies’ financial situation. According to Busse von Colbe (1996), concerns that accounting could adversely affect monetary stability (e.g. through exaggerated price projections) prevented any adoption of pre-war proposals to value assets at replacement prices. Moreover, German managers prepared their companies for times of economic instability by smoothing profits through the deliberate use of provisions (Glaum, 2000; Glaum and Mandler, 1996; Hung and Subramanyam, 2007; Black and White, 2003). The options to provide a prudent portrayal of a company’s financial situation and the exploitations on part of the managers thus constitute coercive and economic rationales for the dual ledger approach. The latter gained further momentum due to legislation requiring master-charts of account (“Gemeinschaftskontenrahmen der Industrien” in 1950 and “Industriekontenrahmen” in 1971) which reinforced the distinction of costs and expenses as previously suggested by Schmalenbach (Bechtel, 1995; Busse von Colbe, 1996; Küpper and Mattessich, 2005).

2.2.3 Academic contributions to accounting in the second half of the 20th century

In establishing 'responsibility accounting' from the 1960s onwards, German companies were adopting performance measures that had long been developed in English-speaking countries, particularly in the US (Hilger, 2008). This development represents mimetic processes of following US company practices. At the same time, this importing of performance measures may also reflect the relative scarcity of solutions provided by German academics to the challenge of measuring and managing performance in a multi-divisional context. Instead, academic research in cost accounting was focused on improving decision-making, and developing new approaches to the challenges posed by the absorption costing approach which still prevailed in Germany in the mid 20th century (Riebel, 1994; Weber and Weißenberger, 1997). Because absorption costing did not differentiate between proportional and fixed costs, full costs were charged to products. While absorption costing has advantages due to its clear basic structure (Weber, 2005), academics highlighted its limitations for short-term decision-making in which only variable costs matter (Schildbach, 1997). In addition, absorption costing allocates overhead costs based on allocation keys whose determination is largely discretionary and therefore weakens its usefulness for decision-making; in addition, costs allocated to a product may differ from the actual costs (Weber and Weißenberger, 1997). To address this problem Kilger and Plaut developed flexible standard costing (Plaut, 1953; Kilger, 1961). This approach was adopted and further developed by Riebel who designed the "Relative Einzelkosten- und Deckungsbeitragsrechnung", a direct costing system that intends to avoid any cost allocation (Riebel, 1959; Riebel, 1994).

While ‘flexible standard costing’ relies on Schmalenbach’s definition of cost, and therefore does not question the dual ledger accounting model, Riebel suggested that costs should be cash-based (Riebel, 1959), which implies an abandonment of imputed costs. Nevertheless, the complexity of Riebel’s approach has probably prevented the “Relative Einzelkosten- und Deckungsbeitragsrechnung” from gaining much relevance in German companies (Weber and Weißenberger, 1997). Instead, full costing and flexible standard costing were the most common cost accounting systems in Germany through the second half of the 20th century (Christensen and Wagenhofer, 1997) and contributed to institutionalizing the dual ledger accounting approach.

In summary, our reading of the literature suggests that the German economic context gave rise to prudent financial accounting rules, which served as a coercive force for the dual ledger accounting approach, given that the perceived inappropriateness of HGB data for managerial decision-making and control initiated the establishment of a second database. In this context, normative pressures arose from academia, as the dual ledger accounting approach was first developed by academics and later established via coercive forces. Despite a changing environment in the post-WWII era, the reliance on separated databases gained further momentum.

3 Antithesis: Integrating the separated databases

During the 1990s the economic environment in Germany entered a new stage as globalization significantly affected the business activities of large German companies (Küting, 2000). As will be outlined in the following, corresponding economic pressures as well as coercive and mimetic processes challenged the traditional dual ledger accounting model and gave rise to the antithetical view that accounting systems should be integrated.

3.1 Economic background: Globalization of the German economy

In the 1990s prominent German companies such as Daimler Benz, Deutsche Bank and Siemens increasingly entered foreign markets through subsidiaries, takeovers or international corporate mergers (Bernhardt, 2000). These expansions reinforced the previous emergence of multidivisional structures at the national level during the second half of the 20th century. However, divisions were now being located in other European countries or even overseas. As a consequence, the complexity of the accounting systems increased (e.g., Currle et al., 1998; Küpper, 1999; Kahle, 2003): Each company had to prepare financial statements in accordance with the local accounting rules and tax regimes as well as financial statements according to the HGB as a preparation for their consolidation at the group level (Günther and Zurwehme, 2008). The complexity was further reinforced by the dual ledger accounting approach, which was usually implemented by the German parent companies and imposed on their subsidiaries. That is, the performance measures which were employed for management evaluation in the subsidiaries were decoupled from the financial accounting database (Haller, 1997; Ziegler, 1994).

This practice was found to confuse employees in the foreign divisions who were unfamiliar with the German dual ledger accounting approach (e.g. Schweitzer and Ziolkowski, 1999; Wagenhofer, 2008). Since the strict distinction between costs and expenses is a peculiarity of the Germanic accounting approach, employees in foreign subsidiaries were disturbed to see their performance measured with what they perceived as "strange data" that was not compliant with the financial accounting rules (e.g. Ziegler, 1994; Männel, 1997; Kahle, 2003; Hebeler, 2006; Hirsch and Schneider, 2010; Ikäheimo and Taipaleenmäki, 2010).

Empirical evidence indicates that German companies increasingly recognized the benefits of managing and monitoring foreign business units on the basis of data that was familiar to employees, that is, financial accounting data. According to a survey of the Top 500 firms by revenue in Germany and Austria, the internationalization of business relations constitutes one of the main drivers for the integration of financial and management accounting systems (Haring and Prantner, 2005). Because profits based on cost accounting data often differed significantly from those calculated in the financial accounting systems, even domestic German managers, familiar with the dual ledger accounting approach, questioned the separate structure of accounting for performance measurement and financial reporting purposes (e.g. Ziegler, 1994; Beißel and Steinke, 2004; Hebeler, 2006; Kerkhoff and Thun, 2007). Empirical evidence such as Währisch (2000) suggests that this unease may be partially attributable to the fact that in many companies imputed costs had become institutionalized without explicit economic rationales (see also Laßmann, 1995). While Granlund and Lukka (1998) argue that the transnationals' influence on their subsidiaries represents a coercive pressure resulting in a convergence of management accounting practices among countries, the aforementioned studies indicate that issues occurring in the subsidiaries shaped the management accounting at headquarters.

The resulting coercive pressure was complemented by two strongly interrelated developments. First, the market-driven expansion and internationalization of German companies led to changes in corporate financing (Haller, 1997; Weißenberger et al., 2004). Bank loans – traditionally the most important source of funds for German corporations (Glaum, 2000; Jones and Luther, 2005) – appeared no longer sufficient to meet the increasing demands for capital. Therefore, many companies started to diversify their funding base by issuing shares on international stock ex-

changes (Pellens et al., 2009). Actual and potential shareholders became more globally scattered and managing investor relationships, combined with comprehensive corporate communication of financial performance targets, gained importance (Geerings et al., 2003; Bushee and Miller, 2012). In this context, German companies faced the risk that investors – unfamiliar with the dual ledger approach – might lose confidence in accounting numbers disclosed in financial statements if they diverged considerably from the set of measures on which managers rely for decision-making and control, and thus be reluctant to invest (Harris et al., 1994; Klein, 1999; Kahle, 2003; d'Arcy, 2004; Kley, 2006; Weißenberger, 2003).

Second, German companies came under pressure to implement value-based performance measures such as the Economic Value Added (EVA) (e.g. Pellens et al., 2000; Lueg, 2010). Accounting for the cost of equity, such measures are designed to have important signaling effects for investors and provide incentives for managers to maximize returns on equity (e.g. O'Hanlon and Peasnell, 1998). Because value-based performance measures draw on financial accounting data (Ittner and Larcker, 1998), their broad implementation contributed to the integration of financial accounting and performance measurement (Hachmeister, 1997; Küting and Lorson, 1999; Pfaff and Bärtl, 1999; Kahle, 2003; Weißenberger, 2003). In this respect, a survey of major listed German companies identifies the greater dependence of German companies on the international capital markets as a key promoter of integrating accounting systems (Müller, 2006). In addition, more recent empirical evidence on the Top 1,500 companies by revenue suggests that listed companies tend to employ more strongly integrated accounting systems than non-listed companies (Weißenberger et al., 2011).

3.2 Legislation and regulation: Internationalization of financial accounting

The increasing presence of German companies on international capital markets entailed significant changes in financial accounting. While a survey of German managers by Glaum and Mandler (1996) indicates skepticism towards a superior information value of financial statements in accordance with US Generally Accepted Accounting Principles (US-GAAP), German companies such as Volkswagen and Deutsche Telekom started to prepare their consolidated financial statements in accordance with US-GAAP or the International Accounting Standards (IAS) from the early 1990s onwards (Glaum, 2000; Hellmann et al., 2013). Many companies applied these standards since they expected to lower their cost of equity by reducing information asymmetry due to the presumed higher information value of IAS or US-GAAP (Pellens and Tomaszewski, 1999). A well-known pioneer in this process was Daimler Benz, which was required to apply the US-GAAP due to its listing at the New York Stock Exchange (Haller, 1995; Spoerer 1998). Given that international accounting standards were even in recent years still criticized by German managers for having little relevance to practice (Hellmann et al., 2010), it appears likely that these companies were influenced as much by mimetic pressures as by a view that international standards provide superior information about a company's financial situation. The findings of Glaum and Mandler (1996) that managers from companies seeking a diversification of their equity base have a more positive attitude towards international accounting standards, supports this contention. The internationalization of financial accounting was reinforced in 1997 when the German stock exchange established the "Neuer Markt" which required financial statements prepared in accordance with US-GAAP or IAS (Glaum, 2000; Weißenberger et al., 2004).

A major impetus for the further proliferation of international accounting standards in Germany emanated from the Capital Raising Act ("Kapitalaufnahmeerleichterungsgesetz", 1998). Traditionally, German companies that applied US-GAAP or IAS were required to prepare a second consolidated financial statement in accordance with the German HGB (Eierle, 2005; Sellhorn and Gornik-Tomaszewski, 2006). However, with the Capital Raising Act, this requirement was abolished and corporations could decide whether to prepare their consolidated financial statements under HGB, IAS or US-GAAP (Haller and Eierle, 2004; Heidhues and Patel, 2011). In 2002, Regulation No. 1606/2002 of the European Parliament and Council required the disclosure of consolidated financial statements in accordance with the International Financial Reporting Standards (IFRS) which became mandatory for all listed companies based in the European Union as of 2005. However, the German legislation permitted the application of IFRS even prior to 2005 (Black and White, 2003; Van Tendeloo and Vanstraelen, 2005).

The introduction of internationally accepted accounting rules implied that the fundamental limitations of using HGB data for managerial decision-making were side-stepped, and the central raison d'être for the dual ledger approach ceased to apply. A series of authors argued that the IFRS emphasize the determination of economic income instead of a taxable or distributable income (Fülbier et al., 2006; Weißenberger and IGC, 2006; Luther et al., 2009). Therefore, IFRS data appears more suitable for management accounting purposes as compared to data compiled in accordance with the HGB (Kirsch and Steinhauer, 2003; Weißenberger and IGC, 2006). Against this background, pioneer companies such as Siemens, Volkswagen and Lufthansa reconsidered the structure of their accounting systems (Ziegler, 1994; Melching, 1997;

Kley, 2002). More specifically, these companies derived business unit performance targets from financial accounting instead of cost accounting data.

While some surveys on the reasons for integrating accounting systems suggest that the integration is mostly a rational choice to pursue particular objectives such as simplifying communication within international companies (e.g., Hoke, 2001; Haring and Pranter, 2005; Müller, 2006) it also seems to have been for a consequence of normative and mimetic pressures, particularly reinforced by consultancies (Jones and Luther, 2005). These developments encouraged some practitioners to establish a fully integrated system from which, they maintained, all information for managerial decision-making could be derived from the financial accounting system (Hahn and Nicklas, 1999; Damberger et al., 2002). Indeed, surveys of the 200 companies with highest revenues in Germany (Horváth and Arnaout, 1997) and of the Top 500 companies by revenue in Germany and Austria (Haring and Prantner, 2005) indicated the intention to abandon any use of imputed cost and therefore to render a second database unnecessary. Consequently, this approach would have eliminated the need for a second accounting ledger and thus would have made the traditional German imputed cost accounting obsolete.

In summary, the globalization and the corresponding economic necessity to raise more capital constitute economic pressures for an integration of the previously separated databases that were amplified by the internalization of financial accounting. The higher appropriateness of IFRS data for management accounting purposes served as a coercive force towards an integration of accounting systems. Eventually, these economic and coercive pressures coincided with a mimetic pressure to adopt management accounting approaches designed in countries with primarily equity financed companies partially to provide the investors' information demands. Our conclu-

sion that such measures are not implemented for economic reasons only, is reinforced by empirical findings that EVA is not more highly associated with stock returns than with 'conventional' financial accounting metrics (Ismail, 2006; Palliam, 2006).

4 Synthesis: Partial integration of accounting systems

In Section 3 we have argued that the integration of accounting systems represents an antithesis to the dual ledger accounting approach that was driven by economic developments and institutional pressures. This antithesis that primarily emerged in practice in the late 1980s and 1990s, attracted the attention of the academic community particularly from the mid-1990s onwards as suggested by reviews of the corresponding literature (e.g., Simons and Weißenberger, 2010; Trapp, 2012a). In this section, we will outline how an alternative, a 'partial integration' of accounting systems, emerged as a synthesis which was developed by academics and disseminated via normative and mimetic pressures in German companies.

The literature in the early 1990s argued that a full integration of accounting systems would imply a considerable decrease in the informational value of management accounting figures (e.g., Schildbach, 1995; Männel, 1997; Schneider, 1997). In this context, researchers investigated the potential of integrated accounting systems and devoted attention to the distinction between the decision-facilitating and the decision-influencing function of management accounting information (Pfaff, 1995; Ewert and Wagenhofer, 2008). This taxonomy represents a standard framework employed by German accounting researchers and is recognized in the Anglophone literature (e.g. Demski and Feltham, 1976; Baiman and Demski, 1980). The decision-facilitating role of cost accounting systems helps decision-makers select between various options by

providing information about the costs and benefits of each available alternative. For example, cost accounting typically supports the determination of optimal batch sizes, minimum selling prices and breakeven figures. For decision-influencing purposes, cost accounting information helps align decisions of employees with higher level corporate goals. Accordingly, senior managers use appropriate indicators for performance evaluation of their subordinates (Grafton et al., 2010) and performance measurement systems link management accounting data with remuneration and the promotion of desired behaviour.

The distinction between the two theoretical functions of management accounting is central to the German convergence debate since much of the literature focuses on the (in)adequacy of integrated accounting systems for these two roles. Whether accounting data should be limited to decision-influencing purposes or should also provide the basis for the decision-facilitating role has been a key aspect of the academic discussion but remained ambiguous throughout the 1990s.

Early case studies (e.g., Ziegler, 1994; Melching, 1997) on an integration of accounting systems do not refer to these functions explicitly. However, several researchers (e.g. Kloock, 1995; Schildbach, 1995; Schneider, 1997) concluded from the description provided in these case studies that companies such as Siemens entirely abandoned separate sets of accounting data for the decision-facilitating and the decision-influencing functions. In response to these statements, authors such as Pfaff (1994; 1995) and the task force *"Interne Unternehmensrechnung"* (*Internal Accounting*) of the *Schmalenbach-Gesellschaft* (*Schmalenbach Society*), an association of academics and practitioners promoting a dialogue between business and science (see Schweitzer and Ziolkowski, 1999), emphasized in the mid- and late 1990s a continuing need for data from separate cost accounting systems arguing that German financial accounting data alone do not

sufficiently fulfil the requirements of the decision-facilitating role of accounting. For example, Pfaff (1994) stressed that opportunity costs - which do not comply with financial accounting rules - are essential for capturing cost effects of individual courses of action. In another paper, Pfaff (1995) argued that performance measures based on revenues and expenses are not appropriate for monitoring subordinate managers' decision-making because they contain random influences due to their compliance with financial accounting rules. Similarly, Schweitzer and Ziolkowski (1999) analyzed the roles of cost accounting such as optimizing pricing decisions, informing decisions between "make or buy" or decisions concerning the structure of the production program, and conclude that including imputed costs provides superior theoretical solutions.

In light of these contrasting views, Coenenberg (1995) took the lead on the academic side by presenting a compromise when he suggested a partial integration of accounting systems. This approach is partial in two respects: First, full integration only applies to the top hierarchy levels (at group headquarters and for senior managers of business units) where accounting primarily has a decision-influencing role of aligning behaviour with corporate goals (Merchant, 2006). However, in operating units accounting has more of a decision-facilitating role (Trapp, 2010). Therefore, fully integrated accounting systems are considered more appropriate for top management where accounting information guides strategic decision-making rather than the implementation of concrete measures (e.g. Coenenberg, 1995; Küting and Lorson, 1998a; Simons and Weißenberger, 2008). The second restriction is that the partial integration format allows for differences between profit figures disclosed in financial reporting and performance measures used for internal purposes. For instance, the literature suggests the elimination of accrual-related revenues and expenses from performance measures used for decision-influencing purposes be-

cause their measurement implies a considerable degree of managerial discretion (e.g., Coenenberg, 1995; Männel, 1997). Similarly, long-term manufacturing contracts should be recorded according to the percentage-of-completion method instead of the completed-contract method as required by the HGB (e.g., Coenenberg, 1995; Männel, 1997; Beißel and Steinke, 2004). However, because all accounting information is derived from a single data-set the differences are readily reconcilable.

In subsequent years, the academic discussion continued to re-emphasize and refine the adequacy of a partial integration of accounting systems according to Coenenberg (1995) highlighting the functions of accounting systems (e.g., Männel, 1997; Küting and Lorson, 1998a; Melcher, 2002; Wussow, 2004; Müller, 2006; Günther and Zurwehme, 2008; Trapp, 2010); particularly against the background of the IFRS (e.g., Hirsch and Schneider, 2010; Weide et al., 2011). The task force *"Controller und IFRS"* (*Management Accountants and IFRS*) of the *International Group of Controlling* (an association of executive education service providers from German-speaking countries), consisting of academics and practitioners, developed an integrated accounting system model and argued that the appropriate degree of convergence between externally disclosed profit numbers and the measures used for decision-facilitating purposes depends on contextual factors such as vertical integration or a company's organizational structure (Weißenberger and IGC, 2006).

Empirical evidence on major German companies suggests that the partial integration has eventually found its way into practice. The majority of the companies participating in the studies use financial accounting data only for decision-influencing purposes at senior organizational levels, while cost accounting systems are still widely operated for product- and process-related deci-

sion-making (e.g, Weide, 2009; Weide et al., 2011; Angelkort, 2010; Weißenberger and Angelkort, 2011; Weißenberger et al., 2011). We argue that normative pressures emerging from research and university education as well as task forces consisting of academics and practitioners have contributed to this dissemination (Granlund and Lukka, 1998). In addition, numerous case studies have been published in practitioner journals and outlined how German companies such as Lufthansa, Deutsche Telekom, Porsche, Bosch and Bertelsmann have partially integrated their accounting systems (Hasselmeyer et al., 2005; Dais and Watterott, 2006; Kley, 2006; Kerkhoff and Thun, 2007; Lochner et al., 2007; Beißel and Szczesny, 2009). Given that these publications promote partially integrated accounting systems as "best practice" or "state of the art", we argue that mimetic pressures are likely to have reinforced the dissemination of the partial integration.

In recent years, the partial integration has also been strengthened by the introduction of IFRS 8, which requires segmental reporting to follow the "management approach" (Wagenhofer, 2008). According to IFRS 8, companies have to disclose segmental information based on performance measures which are used by management for internal control and performance evaluation purposes and are communicated in the internal performance reports (IFRS 8.25). These segment profitability measures need to be reconciled with the consolidated data in the income statement (Nichols et al., 2013). If such reconciliation reveals considerable deviations between the externally disclosed financial reporting data and the data used for internal purposes, investors and stakeholders may lose confidence in the accounting numbers which are communicated by the company (Trapp and Wolz, 2008; Blase and Müller, 2009). Correspondingly, empirical studies on the reconciliations of the first segmental reports which were published in accordance with

IFRS 8 suggest only small deviations between the segmental information derived from internal accounting and the aggregated IFRS-compliant data from income statements (Blase and Müller, 2009; Matova and Pelger, 2010; Engelen and Pelger, 2014). Thus, the issue of IFRS 8 implies coercive and mimetic pressures that are likely to contribute to the further establishment of partially integrated accounting systems.

In summary, empirical evidence suggests that the majority of companies that have abandoned the dual ledger model follow the partial integration approach and use financial accounting data for strategic decision-influencing purposes but cost accounting data for operational decision-making. We consider this to be the synthesis that reconciles the previously discussed thesis and antithesis. Our analysis suggests that it has been driven by the economic need for highly functional accounting systems, accompanied by normative pressures from academia and mimetic processes.

5 Discussion and Outlook

5.1 Reflections on (partial) integration of accounting systems in the German context

This paper provides an analysis of the literature on the changing relationship between management and financial accounting systems in large German companies. Our literature-based narrative relies on both, previous conceptual considerations as well as empirical findings. We reason that this case illustrates the nature of accounting as a social phenomenon which is shaped by time and space (Carnegie and Napier, 1996). We argue that the structure of accounting systems has been shaped by different institutional as well as economic pressures. Therefore, we suggest

that the partial integration approach should be seen not only as a simple attempt to provide 'better' information. Instead, we view the phenomenon as a synthesis in response to the tension between traditional concept-led dual ledger accounting structures (thesis) and the practitioner-led intention to fully integrate accounting systems (antithesis) to adapt to economic and institutional pressures. More precisely, the partial integration represents an adaptation of "local" established accounting structures to an internationalized environment. In this way, our historical analysis sheds light on the path of accounting development and deepens our understanding of the current accounting practices which can be observed in major German companies (Carnegie and Napier, 2002). Our argument, that the partial integration is not entirely the consequence of inevitable reactions to fundamental laws or even "rational choices" but more a stage in the development of the social construct "accounting", is strengthened by the fact that the partial model was widely adopted by large companies in Germany, despite almost no evidence having been presented on its effects (Trapp, 2012a). Although a recent study of German managers by Weißenberger and Angelkort (2011) indicates that partially integrated accounting systems contribute to the impact of management accounting information on managerial decision-making questions such as whether managers of foreign subsidiaries or investors value partially integrated accounting systems have not been surveyed.

From the perspective of our Hegelian framework, the question arises if the emergence of a new thesis appears likely in the near future. We observe a tendency that IFRS rules – which seem to serve as a primary enabler of integrated accounting systems in the first place – are increasingly criticized for their inadequacy for decision-influencing purposes (e.g., Wala et al., 2007; Pelger, 2008). For instance, the determination of fair values or the de facto degree of completion of

long-term construction contracts imply considerable managerial discretion (Velthuis et al., 2006; Weißenberger and IGC, 2006; Trapp, 2013). In this way, the IFRS compromise the controllability and objectivity of performance measures (e.g., Weißenberger, 2004; Pelger, 2008). If practitioners agree with these potential limitations and address them by adding further adjustments to accounting numbers, prior to their use for internal decision-influencing purposes, this tendency may thwart a stasis of partial integration. At the same time, several arguments suggest that some kind of inertia may be achieved with regard to the partial integration system instead of an increasing separation. First, in a number of large companies, the partial integration of accounting systems was accompanied by the implementation of enterprise resource planning systems that draw on a single – rather than the previously dual – accounting database(s) (e.g., Hebeler, 2006; Lochner et al., 2007; Weide, 2009). The corresponding investments in, often customized, information systems architecture may constitute a major economic obstacle to a future reversion to a dual ledger approach. Second, a declining volume of bank lending has reinforced the trend for German companies to issue equity and seek to attract foreign shareholders (Hardie and Howarth, 2009; Gronwald and Nasev, 2013). The finding that listed companies show a stronger integration of accounting information compared to non-listed corporations suggests that the diversification of corporate fundraising entrenches the partial integration of accounting systems as a mimetic pressure in such companies (Weißenberger et al., 2011). Third, the aforementioned segmental reporting according to the management approach emphasizes the importance of consistent figures and ratios that are communicated externally and internally and may serve as coercive pressure. Fourth, a major reform of the HGB, ("Bilanzrechtsmodernisierungsgesetz" (BilMoG, 2009)), was recently enacted with the intention of strengthening the information function

of HGB financial statements and implying a comparatively lower emphasis on creditor protection (Wehrheim and Fross, 2010; Heidhues and Patel, 2011; Fülbier and Klein, 2015). For instance, the recognition of provisions has been considerably restricted and allows for less managerial discretion (Baetge et al., 2009; Hellmann et al., 2013). As a consequence, some authors argue that a partially integrated accounting system has become a more attractive option for small and medium-sized companies that do not intend to prepare their financial statements in accordance with the IFRS (Trapp and Ufer, 2012; Lorson et al., 2013).

5.2 Reflections on implications beyond the German context

The developments described above can be viewed as a local case that illustrates broader internationally applicable issues. First, our review poses the question of whether distinctive national accounting approaches are converging. The partial integration implies that German companies modify their financial accounting data prior to changing the accounting for internal use; this is similar to US companies which have found similar ways of systematically adjusting financial accounting data for decision-influencing purposes. EVA, with its capitalization of some traditional expenses, represents a prominent example in this regard (Ittner and Larcker, 1998; Wagenhofer, 2006). Thus, we find parallels between the general use and adjustment of financial accounting data for internal purposes in German-speaking countries and wider practices internationally. Yet, over the last 25 years the directions of change are opposite. For US companies, from an origin of principal reliance on a unified (financial) accounting ledger, the adjustments imply a decreasing degree of convergence between financial and management accounting data. It would be ironic if German companies import some of the shortcomings of the general ledger approach. Since the mid-1980s the Anglo-American literature (e.g., Kaplan, 1984; Ittner and

Larcker, 1998; Merchant 2006) has identified problems which are associated with using financial accounting data for management purposes because of the incompatibility with essential characteristics of performance measurement. While the inherent limitations of integrated accounting systems have also been considered in the German literature (e.g., Kahle, 2003; Wala et al., 2007; Pelger, 2008), Johnson and Kaplan (1987) went further by holding the domination of management accounting by financial accounting responsible for the decline of US manufacturing companies relative to international competitors such as Germany. A further abandonment of the German management accounting techniques, and reliance on the IFRS, may risk losing the benefits of detailed, technical, operational knowledge as the basis for management control. Furthermore, this development would also be at odds with the trend in the Anglophone countries (e.g., Dugdale et al., 2004) for greater, rather than smaller, distance between financial accounting and management accounting incorporating activity-based costing, contribution margin analysis or the balanced scorecard.

Second, a series of empirical investigations in the German setting indicates a close connection between the introduction of IFRS and the (partial) integration of accounting systems (e.g., Haring and Prantner, 2005; Müller, 2006; Weide, 2009; Weißenberger et al., 2011). Changes in financial accounting thus had a considerable impact on management accounting. In light of this finding, the question arises whether the internationalization of financial reporting has also had significant consequences for management accounting in other countries. Interestingly, research on external reporting themes such as environmental accounting (Bouten and Hoozée, 2013; Contrafatto and Burns, 2013) or integrated reporting (Cheng et al., 2014; de Villiers et al., 2014)

recognise corresponding implications for managerial accounting. However, such interconnections have not been rigorously addressed in the context of IFRS implementation.

5.3 Conclusion and future research avenues

Based on a chronological literature-based analysis of the changes in the traditional structure of German accounting systems towards a partial integration of financial and management accounting, we argue that these developments illustrate how current accounting practice is not only shaped by its current environment, but also by its historical path. However, our conclusion must be seen in light of some limitations. Our paper has spanned the period from circa 1860 to the turn of the 21st century and has necessarily been 'high level' rather than granular. It has aimed to outline how the changing economic environment combined with legislative efforts and initiatives from academia have not only influenced financial accounting but also spilled over to management accounting. However, we acknowledge that these drivers may be interwoven with other factors (e.g. organizational requirements or strategic considerations) that are not part of our core discussion.

Our review suggests there is scope for more detailed, empirical company-based analysis to complement the influence of the drivers of the partial integration identified in our review. Such research may establish further direct evidence for the causalities which are put up by our review. More specifically, case studies relying on archival work may advance our understanding how individual companies have dealt with the changing environment in designing their accounting systems. This observation is reinforced by the limited previous research having been focused on large listed companies and the corresponding neglect of small and medium-sized enterprises.

Similarly, our conclusions do not apply equally to all sizes of companies operating in Germany. Moreover, interviews with protagonists from academia and practice in terms of "oral history" (Carnegie, 2014; for a recent example see also Schäffer et al., 2014) may shed further light on this issue. Again, our framework of the historical developments of accounting systems in their specific German context may provide a useful chronological structure and suggestions of broad context convergence or divergence drivers.

In addition to a further exploration of the historical path, our review suggests that the consequences of (partially) integrated accounting systems constitute a fruitful avenue for further research. Comparative analyses of the perceived usefulness of the partial integration and the general ledger accounting approach employed in Anglophone countries, for instance, may reinforce our conclusion that accounting is shaped both by its current environment and its historical path. Finally, the interdependencies explored in our paper, encourage research on the issue of whether and how the IFRS introduction has impacted managerial accounting routines beyond the German context. It thus may complement existing research on the intended and unintended consequences of IFRS adoption (Brüggemann et al., 2013) and provide a more comprehensive understanding of the interplay of financial accounting, management accounting and the relevant drivers.

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