Chapter 10
Accounting Theories and Their Application in Accounting Sciences

ABSTRACT

Our current global era brought both accounting and accounting theories to a crossroads. Accounting is a particular social science with a complex structure. Since many disciplines are near to, and overlapping with, accounting, a number of types and forms of interdisciplinarity in accounting emerge. Along with the challenging ability to reconcile accounting theories, the evident complexity is reflected in the fragmented methodology marked by a number of various methods. Nevertheless, such differences and diversification are not benefiting the global society, and standardization is more important than ever before.

10.1 THE POSITION OF ACCOUNTING WITHIN THE SOCIAL SCIENCES

Science builds and organizes knowledge about the world. Science entails systematic endeavors to learn and understand. It is an ongoing organized study of the structure and behavior of the physical and natural world through observation, experimentation, and the testing of theories against the evidence obtained. There are three branches of science, aka disciplines of science, aka sciences: formal, natural, and social. Formal sciences study formal systems such as logic and mathematics.

Natural sciences study natural phenomena, such as physics, chemistry, or biology, and address the phenomena of nature and are concerned with the discovery and formulation of principles related to events occurring in nature. Consequently, for natural sciences, discoveries explaining the past and predicting the future are key (Kelley, 1941). Social sciences study human behavior in its social and cultural aspects, i.e., societies and the relationships among individuals within those societies. Their subject matter is not the physical nature and universal principles of nature but rather the behavior of humans as they make their living and carry on their lives in social groups (Kelley, 1941). Social sciences include Business Studies, Economics, Environmental Studies, History, Law, Linguistics, Political science, Public Administration,

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Sociology, Sustainable Development, etc. These areas are closed and often overlap with the sphere of accounting.

However, the comprehensive categorization of accounting was not consistently recognized as valid, at least until the mid-20th century, when the work of accountants and accounting itself were each finally appreciated by both academia and science.

Accounting is a social science, and it gained stature through service at a high level of skill, thorough rigorous research requiring continuing intellectual effort, the support of ethical and moral standards befitting the sought status, and genuine humility (Mautz, 1963). Currently, there is no dispute that accounting is a social science that studies the features of the functioning of the accounting system as a social and institutional practice.

The journey to recognizing accounting as a social science, i.e., an area belonging to the sphere of social sciences, began in Renaissance Italy. However, by then, accounting was perceived as more mathematical (naturally) than socially driven. The foundation instruments and systems for accounting science were Hindu-Arabic numerals and double-entry banking bookkeeping. Namely, in 15th-century Renaissance Italy, the transition from Roman numerals to Hindu-Arabic numerals was completed, and this allowed for standardized numeric tracking of business accounts while specifying the use of capital and credit. The Franciscan Frater Luca Bartolomeo Pacioli came up with an interdisciplinary and multidisciplinary approach and attempted to reconcile mathematics and accounting while reaching both a harmony and balance (Kašný & MacGregor Pelikánová, 2022). Arguably, his endeavors were rather founded within the juxtaposition and on the juxtaposition of prior knowledge, e.g., geometry knowledge generated by Piero della France, than in any revolutionary and innovative ideas of his own (Coate & Mitschow, 2018). He developed in his many works and treatises, including *Summa di Arithmetic*, the double-entry method (Williams, 1978), which was initially conceived by Benedetto Cotrugli (Geijsbeek, 1914) and reflected the Italian sophisticated trading and accounting developments within banking houses (Paris, 2016). The double-entry booking method spread promptly within Europe and England (Paris, 2016).

Summa di Arithmetica, i.e., Summa de Arithmetica, Geometria. Proportioni et Proportionalita was published in the vernacular/Italian in Venice in 1494 as a textbook to be used in the schools of Northern Italy. It consisted of ten chapters, with the first seven chapters forming a summary of arithmetic in 222 pages. The eighth chapter explains contemporary algebra in 78 pages. The ninth chapter discusses various topics relevant to business and trade, including barter, bills of exchange, weights and measures, and bookkeeping, in 150 pages. The tenth and final chapter describes practical geometry (including basic trigonometry) in 151 pages. Hence, it was predominantly a mathematics textbook summarizing practical arithmetic, basic algebra, and basic geometry designed for the general public, i.e., not just for academics mastering Latin. Its ninth chapter also included a description of the book-keeping method used by Venetian merchants, aka the double-entry accounting system based on the accounting cycle and dependent upon the use of journals and ledgers. In his *Summa di Arithemetica,* Luca Bartolomeo Pacioli was very clear about the need for balance, i.e., debits need to equal credits. He described his ledger as having accounts for assets (including receivables and inventories), liabilities, capital, income, and expenses. Hence, he also described account categories used until today on balance sheets and income statements while following a one-year cycle. He introduced the rule of 72 for predicting an investment's future value, anticipating the development of the logarithm by more than a century.

Interestingly and prophetically, he even mentioned accounting ethics. Namely, he believed profit was necessary to a successful business, but as well he was convinced that profit was actually a byproduct of a successful business (Coate & Mitschow, 2018). According to his view, each business has a social

mission and a merchant, i.e., a business person, has to contribute to the public interest, while each accountant should be an ethical business person and citizen (Coate & Mitschow, 2018).

Of even greater interest, the establishment of both theoretical and ethical dimensions of accounting took place over the next two hundred years in Italy under the auspices of the Society of Jesus. Accounting became much more than a mere tool for measuring and allocating economic resources, thereby explaining the formation of hierarchies. Indeed, their development and refinement were tightly linked to the ideology of the Roman Catholic doctrine of the Counter-Reformation and a complex work of compromise among theological, religious, political, institutional, and social instances and to the hierarchical structure of the Order (Quattrone, 2004). The success of the Sicilian Province was partially due to the Procurator, Ludovico Flori, the well-known author of *Trattato del modo di tenere il libro doppio domestico col suo essemplare* (1636), advancing the accuracy and sophistication attained by the Society's accounting systems. The double-entry accounting system described by Flori in the Trattato and practiced by him in his Procurator function was an effective combination of analysis and synthesis. The Trattato was organized hierarchically and analytically, classifying each class of accounts in homogeneous categories according to their function and use (Quattrone, 2004). It employed a detailed table of contents and highlighted relevant concepts and techniques with a bookmark (Quattrone, 2004).

Several hundred years later, the issues of reliability, organization, responsibility, and sustainability and their importance for business conduct, including accounting, are even more relevant than ever before. Accounting is perceived as a process, method, and even their outcome, and it is a vehicle for recording, measuring, and interpreting business and economic events in which humans are involved. Hence, from the perspective of the 20th and 21st centuries, accounting, like statistics, is a technique and tool of social science, applicable particularly to businesses (Kelley, 1941).

Regarding the science perspective and methodology, *Summa di Arithmetica* used both abstraction, entailing general principles and axioms with deduction, and empirical casuistic observation with induction and examples. The leitmotif of *Summa di Arithmetica,* as well as other treatises by Luca Bartolomeo Pacioli, is the focus on the moral categories of veracity. For example, he emphasized truth in recording, condemned false records in merchant's books, and underlined the importance of reputation and the enforceability of contracts (Coate & Mitschow, 2018). Hence, it can be argued that he created the foundation for the placement of accounting as a social science, along with sister social science disciplines such as economics and law, and that, for him, human behavior in this arena should be studied simultaneously from the ethical, legal and economic perspective. Finally, in the context of sustainability, as advanced by the United Nations via Agenda 2030 and endorsed by the EU, it must be pointed out that he already recognized the importance of all three sustainability pillars – economic, environmental, and social.

In the 21st century, new trends can be observed, and accounting is well embedded in social sciences while it takes advantage of the interaction with other disciplines of social sciences, such as law, and even with disciplines of formal sciences, such as mathematics, and of natural sciences, such as physics. Academic research in accounting exhibits a dichotomy between those adopting a positivist approach and those adopting critical, interpretive, and interdisciplinary approaches (Lowe & Locke, 2005). The former is driven primarily by a neoclassical economics perspective on accounting, while the latter draws from a wide range of other disciplines, including sociology, anthropology, politics, philosophy, history, and gender studies (Hopwood, 2009). This dichotomy distinguishes accounting from its sister discipline, finance, where a more monocentric research culture exists (Hussain et al., 2020).

Modern accounting is digitalized and uses artificial intelligence and other instruments, bringing many legal and ethical issues. Accounting software usually produces several different types of financial

and non-financial accounting reports in addition to the balance sheet, income statement, and statement of cash flows, such as the "trial balance," which lists every account in the general ledger that has any activity as a normal debit balance and a normal credit balance, while the total of the trial balance should always be zero. The application of information systems and information technology (IS/IT) dramatically reduces the need for the human performance of repetitive tasks but by no means eliminates the ultimate involvement of human beings. Accounting performs organizational and social functions (Hopwood, 1983), determines accountability, and is positioned at the center of organizational decisions, change, and communications (Carnegie et al., 2020). As such, accounting is the means and outcome reflecting the behavior of humans and their preferences and is genuinely a discipline of social sciences.

Chapter Summary

Chapter 10.1 discusses the three branches of science, namely formal, natural, and social. Formal sciences study formal systems like mathematics and logic, while natural sciences focus on natural phenomena like physics, chemistry, and biology. On the other hand, social sciences - among other aspects - study human behavior within societies, including business studies, economics, law, and sustainable development. Accounting is a social science that studies the functioning of the accounting system as a social and institutional practice. The journey to recognizing accounting as a social science began in Renaissance Italy when Luca Bartolomeo Pacioli developed the double-entry method, which Benedetto Cotrugli initially conceived. Pacioli reconciled mathematics and accounting by developing an interdisciplinary approach. His Summa di Arithmetica, published in 1494, was primarily a mathematics textbook that summarized practical arithmetic, basic algebra, and basic geometry, designed for the general public. The ninth chapter of the book also describes the double-entry accounting system used by Venetian merchants. Pacioli believed that each business had a social mission and that business people and accountants should contribute to the public interest and be ethical. He was ahead of his time.

10.2 THE STRUCTURE OF ACCOUNTING AS A SCIENTIFIC DISCIPLINE

Accounting represents a systematic collection, development, processing, analysis, and reporting of information about an organization's economic affairs, which is materialized by the actual recording and summarizing of financial transactions, i.e., by bookkeeping and sometimes even other aspects. Despite this definition, which induces a scientific basis, it is suggested that accounting research and teaching are based on unscientific ideology, and only accounting practice embeds scientific laws (Basu, 2015). This rather grim perspective questions how accounting as a scientific discipline is explored and suggests that theory is behind the practice. Nevertheless, there is a clear consensus in the theory and practice about the key backbone of the structure of accounting as a scientific discipline.

There are two fundamental types of accounting: management accounting, aka managerial accounting for internal stakeholders (managerial accounting, cost accounting, inventory accounting, and internal auditing, etc.), and financial accounting for external stakeholders (financial accounting, external auditing, tax accounting, public accounting, fiduciary accounting, forensic accounting, etc.) (Drury, 2016, p. 6). Over the last hundred years, new types or sub-types of accounting emerged, and typically they are perfect examples of interdisciplinary multi-disciplinary challenges, such as forensic accounting, which

focuses on frauds and, in particular, on the concept of the fraud triangle or fraud diamond, and which addresses both perceptions and reality (Rechtman, 2020).

Managerial accounting deals with a detailed spelling out of how financial resources and non-financial resources (e.g., employee or customer loyalty) are acquired, managed, and used in various business processes (Stolowy & Ding, 2017, p. 10). Managerial accounting reports are more detail-oriented, target a broad range of users, and are not subject to law regulations (Atrill & McLaney, 2017, p. 11). Usually, managerial accounting reports are issued monthly and serve for internal planning and decision-making because they provide managers with reliable information on the costs of operations and standards with which those costs can be compared to assist them in budgeting.

Financial accounting is a process of the description of various events, typically transactions, involving a particular firm (Stolowy & Ding, 2017, p. 10). In particular, it includes recording, summarizing, and reporting the myriad transactions resulting from business operations over a period of time. These transactions are summarized in the process of preparing financial statements, including the balance sheet, income statement, and cash flow statement, that record the company's operating performance over a specified period. The description of each elemental transaction is materialized by source documents containing financial and non-financial elements to allow for a valuation of that transaction (Stolowy & Ding, 2017, p.10). Ultimately, financial accounting reports, aka financial statements, are rather general-purpose, target owners and lenders, and are subject to law regulation (Atrill & McLaney, 2017, p. 11). Financial statements are established periodically, traditionally around a date when sales activity is the slowest (Stolowy & Ding, 2017, p. 11). The origin of the annual nature of financial statements can probably be traced back to the cycle of nature as it applies to an economic undertaking, such as farming (Stolowy & Ding, 2017, p. 11). Financial accounting statements must be prepared to conform with the legal requirements and the generally accepted accounting standards (Drury, 2016, p. 6). Namely, accounting standards for financial accounting are used to ensure both high quality and compatibility (Weygandt et al., 2013, p. 8). There are three key documentary outcomes of financial accounting: (i) the balance sheet, aka a statement of financial position, which summarizes the firm's assets and liabilities; (ii) the income statement, aka profit and loss account, which reports the firm's gross proceeds, expenses, and profit or loss; and (iii) the statement of cash flow, which analyzes the flow of cash into and out of the firm.

Double-entry accounting is a standard accounting (bookkeeping) method that keeps a company's accounts balanced, showing a true financial picture of the company's finances. It collects, organizes, summarizes, and reports financial transaction data. This method relies on using the accounting equation Assets = Liabilities + Equity and requires recording each transaction in at least two accounts, resulting in a debit to one or more accounts and a credit to one or more accounts. Since the accountants are set up to check each transaction to be sure it balances out, clerical and other errors are flagged quickly, and it is easy to figure out where the error comes from. These accounts are asset accounts, liability accounts, income accounts, and expense accounts. Once an account has been established in the system, transactions originating from various source documents may be posted to the account.

The double-entry system requires a chart of accounts, which consists of all the balance sheet and income statement accounts in which accountants make entries. Accounts are created in the chart of accounts/general ledger to describe types of things, not individual items (accounts payable and accounts receivable).

The general ledger combines the chart of accounts, account balances, and accounting periods. The general ledger maintains the summary balances of all financial transactions during accounting periods.

Accounting as a social science discipline needs to address that and recently has exhibited two trends offering a different structure and perception of accounting. They are the mainstream positivist trend and the interdisciplinary critical trend. They both have to address Corporate Social Responsibility (CSR) (Roberts & Wallace, 2015), which is undergoing an interesting evolution (De Schutter, 2008) from the focus on the companies' responsibility for the environment (Polcyn et al., 2019) to a multi-stakeholder, collaborative and cross-sector partnership (Van Tulder & Keen, 2018) with shared values (Porter & Kramer, 2011). Regardless of which one prevails, accounting is universally perceived as a discipline of social science requiring structure, organization, and exactitude. Therefore, the importance of categorizing and classifying accounting as a scientific discipline cannot be overstated. This determination to prioritize the structure faces a myriad of challenges, see linguistic and conceptual ambiguity, the fragmentation of approaches to accounting, the legality of universal generally accepted principles, etc. In such a context, accounting science, in its need for structure, opts for at least a partial or sectorial classification that enjoys general worldwide approval. Excellent examples are the outcomes of the endeavors of the Organization for Economic Co-operation and Development (OECD), which is an international organization that works "to build better policies for better lives." Regarding accounting, the OECD contributed significantly to the classification of Research and Development (R&D) spending and investments and the healthcare services sector classification.

The fierce global competition represents a challenge that can hardly be addressed without innovations, i.e., innovations are the driving force that demands ongoing efforts and funds. Hence, R&D spending is an integral part of business conduct in the 21st century and often can be labeled as an indispensable investment. Already sixty years ago, in 1963, the OECD recognized that and organized a meeting with national experts on R&D and R&D statistics at the Villa Falcioneri in Frascati, Italy. The result was the first official version of the Proposed Standard Practice for Surveys of Research and Development, which has come to be better known as the Frascati Manual (OECD, 2015). Currently, the Frascati Manual is in its seventh edition. It focuses, in particular, on the relentless process of R&D globalization and the increasing variety of arrangements by which R&D is funded and performed within and across the sectoral boundaries of a manual that was first written in a somewhat different economic and geopolitical context from today. While demand for aggregate benchmarking is at the heart of this manual, this edition recognizes the importance of enriching our macro picture of R&D performance with a better understanding of the dynamics and linkages at the micro level. This emphasizes the relevance of R&D micro-data for purposes other than producing aggregate indicators (Bockova, 2015), such as analyzing its impacts across multiple actors (OECD, 2015). In sum, the Frascati Manual is a technical document that provides internationally accepted definitions of R&D and classifications of its component activities. It also provides new guidance on collecting R&D data and capturing various types of public support for R&D, such as tax incentives (OECD, 2015).

National health systems have undergone a dramatic change during recent decades, and in the context of the global society with the movement of both services and people, differences among national health accounts and their different stages have become a serious issue. The OECD reacted by endeavors regarding their classification and accounting rules applied to them. In 2000, this resulted in a manual called *A System of Health Accounts* (SHA) which provides a framework for a family of interrelated tables for standard reporting for expenditures on health and its financing (OECD, 2000). The SHA has been written with the dual aim: to provide a framework for international data collection and as a possible model for redesigning and complementing National Health Accounts to aid policy-makers (OECD, 2000). The set of core tables in the *System of Health Accounts* (SHA) addresses three basic questions: (i) where

does the money come from? (source of funding); (ii) where does the money go to? (provider of health care services and goods) and (iii) what kind of (functionally-defined) services are performed and what types of goods are purchased? This makes the methodologic determination, based on a tri-axial system for the recording of health expenditure, by means of a newly proposed International Classification for Health Accounts (ICHA), defining health care by function (ICHA-HC), by service provider industries (ICHA-HP) and by sources of funding (ICHA-HF). Ultimately, the SHA should help to deal with large databases with linked meso and micro-data and so revolutionize the task of health accounting on a national level by providing sound information to their mapping to the comparable international framework. (OECD, 2000). The importance of the SHA became magnified in the pandemic era; see, e.g., the accounting guidelines for COVID-19-related activities under the 2021 joint OECD, EUROSTAT, and the WHO health accounts (SHA 2011) data collection, especially regarding the classification and treatment of spending on personal protective equipment, spending for PCR and other tests, and spending for vaccinations (OECD, 2021). Specifically, when examining COVID-19 emergency budgets, a lot of the spending in the area of health (e.g., the purchase of ventilators and ICU beds, grants for R&D into vaccine research) does not meet the criterion of final consumption of healthcare goods and services and therefore falls outside of "current health expenditure." Although the SHA framework does not measure the total resources mobilized in a country to fight the pandemic or the total costs of the pandemic response, it helps to appreciate and assess the impact of COVID-19 on health systems and to measure the involved costs (OECD, 2021).

Chapter Summary

This chapter discusses the structure of accounting as a scientific discipline. There are two main types of accounting: managerial accounting, which is used for internal stakeholders, and financial accounting, which is used for external stakeholders. Managerial accounting deals with the acquisition, management, and the use of financial and non-financial resources in business processes, while financial accounting describes various events or transactions that involve a particular firm. Accounting also uses the double-entry system, which requires a chart of accounts and a general ledger to maintain summary balances of all financial transactions during accounting periods. The chapter also mentions two trends in accounting research: the mainstream positivist trend and the interdisciplinary critical trend, which both address corporate social responsibility.

10.3 RELATED DISCIPLINES AND INTERDISCIPLINARITY IN ACCOUNTING

As stated above, social sciences study human behavior in its social and cultural aspects and extend broadly while including a myriad of disciplines. Their subject matter is not the physical nature and universal principles of nature but the behavior of humans as they make their living and carry-on their lives in social groups (Kelley, 1941). Since the 20th century, it appears well-established that one of these disciplines is accounting (Mautz, 1963). Social sciences include disciplines such as Business Studies, Economics, Environmental Studies, History, Law, Linguistics, Political science, Public Administration, Sociology, Sustainable development, etc. Naturally, these are inherently related to accounting because they belong to the social science universe. Still, it would be remiss and close-minded not to admit that the mathematization of accounting and even the natural phenomena involvement allows for identifying

disciplines from formal sciences and natural sciences to be considered related to accounting, too. After all, accounting is about information for decision-making (i.e., more than just data) regarding economic and financial aspects of the life of an enterprise (Stolowy & Ding, 2017, p. 10). Establishing and maintaining a transparent, comparable, and objective system is pivotal to identifying, describing, measuring, and recording data about the entire business life. Accounting records each and every event of an economic nature that flows through the "cash pump" or business cycle (Stolowy & Ding, 2017, p. 5). Boldly, businesses in the 21st century are multi-functional and engage in multi-spectral activities, and the list of involved disciplines is extremely long. Hence, the question is not which disciplines are related to accounting. Instead, the question is which disciplines are the most related to accounting. This burning question can be answered by considering the fundaments of accounting and methods used for accounting. Based on that, six disciplines are proposed as conceptually and methodologically closest and most overlapping with accounting: law, ethics, tax, economics, behaviorism, and structuralism (Hendriksen, 1992, 5-15). This hexagon definitely has merit. Accounting must follow enforceable rules. Otherwise, its relevance and predictability would be mere chimeras. However, this legal perspective, reduced to sheer positivism, would be just a springboard for sophisticated malicious abuses, and hence the call for integrity and morality is critical. In addition to law and ethics, the economic and tax consequences should be mentioned because the most important function of accounting is to provide economic data and tax-relevant records. Behavioral and structural concerns are also notorious for accounting, e.g., the increasing importance of information, control, and legitimacy, especially in the organizational setting (Hopwood, 1983). Finally, it has to be recognized that there is a dynamic evolution, and eras of a significant focus on law are replaced by eras prioritizing economics, etc. Although these six disciplines are clearly very close to accounting, there are other disciplines that are, according to other professionals and academics, even closer to accounting. These "other" disciplines are either finance and marketing (Bernardi et al., 2008) or finance, marketing, and management (Oler et al., 2016).

The history of accounting and the accountancy profession dates back to ancient Mesopotamia and is closely related to developments in writing, counting, and money and early auditing systems by Egyptians and Babylonians (Paris, 2016). Already in the 15th century, i.e., over six hundred years ago, the Franciscan Frater Luca Bartolomeo Pacioli and Jesuit brother Ludovico Flori came up with an interdisciplinary approach and attempted to reconcile mathematics and accounting while reaching both a harmony and balance (Kašný & MacGregor Pelikánová, 2022). Therefore, interdisciplinarity in accounting has been a reality for hundreds of years. Hence, the question is not whether but what forms of interdisciplinarity have proved most relevant for accounting.

Disciplines of social science can be studied and understood only with the help of philosophy, which provides the general principles of theoretical thinking, a method of cognition, perspective, and self-awareness, all of which are used to obtain knowledge of reality and to design, conduct, analyze and interpret research and its outcomes. In a large sense, interdisciplinarity can take the shape of one of three types: multi-disciplinary, cross-disciplinary, and trans-disciplinary.

There are three main branches of philosophy that are important in the social sciences and represent the foundation for the interdisciplinarity (Moon & Blackman, 2014). It is proposed that there are three independent fundamental forms of interdisciplinarity: ontological, epistemological and sociological (Smirnov, 1994). The most fundamental, determining form of interdisciplinarity is ontological, because neither epistemological nor philosophical/sociological forms can exist without a certain objective unity of the subject matter of scientific disciplines (Smirnov, 1994).

Ontology is founded upon the question, "What exists in the human world that we can acquire knowledge about?" and it is about believing that only one reality exists (naive, structural, and critical realism) or that multiple realities exist (bounded relativism, full relativism) (Moon & Blackman, 2014). Hence, ontological interdisciplinarity is predominantly about identifying potential areas of study. In the case of accounting, it leads to a determination of an extremely broad and heterogenous sphere, see, e.g., current trends of financial and non-financial reporting worldwide, and while using conventional sources (financial statements) as well as unconventional sources (internet postings).

Epistemology is founded upon the question, "How do we create an item of knowledge?" and it is about believing that meaning exists within an object (objectivism) or the subject (subjectivism) or in-between (constructionism) (Moon & Blackman, 2014). Hence, epistemological interdisciplinarity is predominantly about extracting information from the already identified area or field, i.e., it logically builds upon ontological interdisciplinarity. In the case of accounting, it leads to a determination of a myriad of approaches to extract pertinent data from various sources. It is a natural foundation for developing appropriate theories, which allegedly are in accounting underdeveloped (Basu, 2015).

Sociology is founded upon the question, "What are the social causes and consequences of human behavior" and it is about believing that the human both constructs (constructivism) and interprets (hermeneutics, phenomenology, symbolic interaction), etc. Philosophical/sociological interdisciplinarity represents the 3rd step when the personality and social correlation of the researcher dominates. Hence, philosophical/sociological interdisciplinarity predominantly involves the researcher processing and interpreting the knowledge extracted from the mentioned sources. In the case of accounting, it leads to a controversial task with dramatic economic, legal, and ethical consequences and which is performed differently across the world but should lead to standardized outcomes, e.g., IFRS. It is noteworthy that the critical era for the development of accounting and accounting science occurred from the 15th to 17th centuries in Italy, and the key personalities were members of the Catholic Church connecting accounting to Roman Catholic doctrine as well as holistic individualism, de-differentiation, and double reductionism (Quattrone, 2004). In sum, for centuries, accounting and accountability cannot be conceived exclusively as expressing a unitary economic rationale (Quattrone, 2004), and many disciplines have been related and overlapping with accounting. Considering the current collaborative and cross-sector partnership (Van Tulder & Keen, 2018), recognition of the ethical dimension, and the shared value concept (Porter & Kramer, 2011), interdisciplinarity is, for modern accounting, even more inevitable than ever before. The same can be said regarding the sister accounting disciplines, such as finance and marketing. Indeed, the closeness and overlapping of these disciplines, especially in the Enron aftermath, made them be used as examples of interdisciplinarity and its application (Bernardi et al., 2008). Further, it is argued that using theories drawn from other disciplines to explore and explain accounting represents a good counterbalance to a research discipline that has often been dominated by econometrics and behavioral psychology (Napier, 2009, p. 44). Indeed, interdisciplinary, critical, and comparative approaches are pivotal for accounting (Carnegie et al., 2020).

Chapter Summary

Chapter 10.3 discusses the various disciplines related to accounting and how interdisciplinarity is relevant to accounting. Social sciences such as Business Studies, Economics, Environmental Studies, History, Law, Linguistics, Political science, Public Administration, Sociology, and Sustainable development are related to accounting. Other disciplines such as law, ethics, tax, economics, behaviorism, and structural-

ism are also closely related to accounting based on its fundamentals and methods used. The chapter also emphasizes the importance of interdisciplinary approaches in accounting and discusses three independent forms of interdisciplinarity: ontological, epistemological, and sociological. Ontological interdisciplinarity is mainly about identifying potential areas of study, while epistemological interdisciplinarity is about the nature of knowledge and the methods used to acquire it. Sociological interdisciplinarity is concerned with the social context of knowledge production and the relationships between different social groups. The chapter concludes by stating that interdisciplinarity has been a reality in accounting for hundreds of years and its relevance to accounting cannot be denied.

10.4 METHODOLOGY USED IN ACCOUNTING

As stated above, the fundamental accounting book, Summa di Arithmetica, uses both abstraction entailing general principles and axioms with deductions as well empirical casuistic observations with induction and examples, and with its diverse focus, including mathematics, it clearly shows that accounting is a discipline of social sciences which is extremely close to other disciplines of social sciences as well as disciplines of natural sciences and formal sciences. Therefore, data and methods used by various disciplines could be applied in and for accounting. Nevertheless, such employment should be complementary, while a general accounting methodology should dominate.

Accounting theory may be based on empirical evidence, and practices and accounting theory may be formulated using hypothetical and speculative interpretations. A myriad of efforts has been made to establish a generally accepted theoretical set of accounting and accounting principles, but they have yet to bring the expected results (Buckley et al., 1968). Consequently, a generally accepted common accounting methodology has not been developed yet. This undermines accounting theories' legitimacy and coherence (Buckley et al., 1968). The hesitation and fragmented approach to establishing a general, aka universal, accounting methodology is partially caused by the co-existence of several accounting theories. They can be deductive or inductive, syntactic or semantic or pragmatic, positive or normative or natural (Hendriksen, 1992, 1-10). They are at the intersection of law, ethics, tax, economics, behaviorism, and structuralism (Hendriksen, 1992, p. 5-15). Each of these accounting theories desperately needs verification, and so uses a different verification method. The common burning concern is legitimacy. The very purpose of accounting is the sharing of relevant and well-organized information to increase trust and improve decision-making. Inevitably, this demands a set of well-justified instruments and processes, and this justification can be made legitimate only if it reflects and reconciles accounting theories. Obviously, practicality and pragmatism cannot be disassociated from theories and theoretical backgrounds. In this context, it is deplorable that, in prior decades, accounting science has not received sufficient attention in academia (Basu, 2015) and space in the academic press (Oler et al., 2016).

Accounting linguistic theory is based upon the conviction that accounting is the language of business and that employed methods should include pragmatisms, syntactics, and semantics. Accounting reasoning theory relies on arguments coming from deductive reasoning (see the axiomatic and mathematic approach) and inductive reasoning (casuistic and empirical approach). Script accounting theory entails descriptive (positive) features and prescriptive (normative) features, as opposed to a natural attitude (Hendriksen, 1992, p. 16-18). All these accounting theories should be logically sound and sound in order to be recognized as truthful and legitimate. All these accounting theories should focus on principles supporting accounting practices. All these accounting theories face burning issues of the imperfection

of language, different interests and expectations, and other problems that are magnified than diminished in the global society.

Hence, the universal accounting theory built upon logical reasoning, which provides a generally acceptable frame of reference by which accounting practice can be evaluated, and a general guide for developing new practices and procedures, is a goal. Such an accounting theory should explain existing accounting practices to understand them better and make predictions about future trends. By providing retrospective explanations, it can offer reasons for why certain practices have developed, and, by looking forward, it can anticipate future accounting phenomena, including newly emerging ones. Accounting theory should lead to a coherent set of logical principles that form the general frame of reference for evaluating and developing sound accounting practices. So far, we do not have such a universal accounting theory ….and similarly, we do not have a universal accounting methodology.

However, we do have particular methodologies created and tailored to special and/or sectorial aspects of accounting, and, as stated above, the OECD is an institution behind several successful projects in this arena. Since 1963, the Frascati Manual has been a technical document that states internationally recognized methodology for collecting and using R&D statistics and which is an essential tool for statisticians and science and innovation policymakers worldwide (OECD, 2015). It provides not only linguistic and data collection guidelines but as well is instrumental for classifications of R&D statistics. Similarly, other OECD endeavors significantly shape the methodology used in accounting, e.g., the SHA (OECD, 2000) and its employment in the context of the COVID pandemic (OECD, 2021). The clear statement by the EU and its interaction with Eurostat (OECD, 2021) testify to the quasi-universal recognition of these methodological endeavors. However, the significance of the intersectional position of accounting and accounting science cannot be overstated. Therefore, the interdisciplinary feature influences the methodology used in accounting and creates a platform for various multi-disciplinary comparisons, such as an interdisciplinary comparison of ethics research (Bernardi, 2008) or theorizing (Carnegie et al., 2020).

Chapter Summary

Chapter 10.4 discusses the methodology used in accounting and highlights the need for a universal accounting theory and methodology. Accounting is shown to be a discipline that is closely related to other social, natural, and formal sciences. Various efforts have been made to establish a generally accepted theoretical set of accounting and accounting principles, but they have yet to bring the expected results, and a common accounting methodology has not been developed yet. Accounting theories face issues of legitimacy, and each theory desperately needs verification, which requires different verification methods. Accounting linguistic theory, accounting reasoning theory, and script accounting theory are discussed, and it is noted that all these theories should focus on principles that support accounting practices. A universal accounting theory and methodology should explain existing accounting practices to understand them better and make predictions about future trends. The OECD is recognized for its successful projects in shaping the methodology used in accounting, such as the Frascati Manual and the System of Health Accounts, but the intersectional position of accounting and accounting science cannot be overstated. The interdisciplinary feature influences the methodology used in accounting and creates a platform for various multi-disciplinary comparisons. Overall, a universal accounting theory and methodology remain a goal.

10.5 THE ROLE OF STANDARDIZATION IN ADVANCING ACCOUNTING PRACTICES IN A GLOBALIZED ECONOMY

Knowledge is power, and reliable and relevant information is indispensable for business conduct in the 21st century. Financial and non-financial statements are report cards needed by internal and external stakeholders. They became in demand due to the emergence and exponential use of a corporate form of business conduct since the era of discoveries and the current globalization need for capital which cannot be provided only by financial institutions. In order to obtain the required capital, organized, systematic, and reliable accounting must be in place.

Accounting must be done in a structured and compatible format while maximizing objectivity. In order to achieve that, accounting is regulated by legal rules (hard law) and various self-imposed standards (soft law). These self-imposed standards are primary policy documents to ensure financial statements' transparency, reliability, consistency, and comparability. Accounting standards are not necessarily limited by jurisdictional boundaries. They are often issued by international or other organizations that require all transactions to be recorded in a similar manner, following specific principles.

Accounting Standards mainly deal with four significant accounting issues, and each accounting standardization endeavor needs to address and make strategic decisions about (i) recognition of financial events, (ii) measurement of financial transactions, (iii) presentation of financial statements in a fair manner and (iv) disclosure requirements of companies to ensure stakeholders are not misinformed. Once these four are answered, accounting can be shaped and become the business language in the field, providing reliable, standardized information suitable for comparability. Ultimately, this should increase trust, decrease fraud and accounting manipulations, and generally boost the quality of accounting and the determination of accountability.

However, the standardization of accounting faces serious obstacles. Firstly, global standardization is feasible only based on a global consensus, which is virtually impossible due to historical, cultural, and economic differences. Secondly, even if a consensus at least about a particular issue is achieved (e.g., valuation of stock based on LIFO, FIFO, etc.), then comes the chronic problem of state sovereignty and national law differences. Accounting can be done according to certain standards, and it must be done according to the applicable national law. Thirdly, standardization is linked to globalization, which has recently been placed under scrutiny. The IFRS attempts to address these three obstacles through the IFRS becoming the standards approved and endorsed by states and their law, see the EU and EU law.

At the EU level, it's important to note the transition from a soft harmonization approach to a stricter regulation that mandates using IAS/IFRS for companies with global reach. Increasing demands for greater auditor accountability following the Enron scandal prompted this change. More recently, the EU has introduced legislation addressing global sustainability issues. Initially, the European Communities adopted three Directives to reduce major differences in financial accounting – the Fourth Directive 78/660/EEC on the annual accounts of certain types of companies, the Seventh Directive 83/349/EEC on consolidated accounts, and the Eight Directive 84/253/EEC on the approval of persons responsible for carrying out the statutory audits of accounting documents (MacGregor Pelikánová & MacGregor, 2020). After this relatively soft harmonization, in 1995, the EU Commission published COM (95) 508 Accounting Harmonization: a new strategy vis-a-vis international harmonization, aka New Accounting Harmonization Strategy preferring International Standards (IAS) issued by the International Accounting Standards Committee (IASC). This demonstrates the focus on larger European companies with an international vocation and the desire to complement the accounting harmonization with closer work with

IASC. This new strategy led to Regulation (EC) No 1606/2002 on applying international accounting standards, which requires all companies listed on EU-organized markets to use the IFRS and IAS standards in their reporting. Directive 2006/43/EC on statutory audits of annual accounts and consolidated accounts amended the Fourth Directive 78/660/EEC and Seventh Directive 83/349/EEC to make the relationship between the statutory auditor or audit firm and the audited entity more transparent. Further, it established a set of requirements imposed on a statutory auditor's personality, integrity, and knowledge. In addition, it demanded the disclosure of the audit fee and the fee paid for non-audit services in the notes to the accounts. The next wave of EU legislation brought the sustainability and CSR focus and concerns about particular sectors, such as the public sector. Namely, Directive 2013/34/EU on the annual financial statements, consolidated financial statements, and related reports of certain types of undertakings was updated by Directive 2014/95/EU as regards disclosure of non-financial and diversity information by certain large undertakings. This imposed the duty to large undertakings, which are public-interest entities with an average number of employees above 500, to include in their annual management report a non-financial statement about environmental, social, and employee matters, respect for human rights, anti-corruption, and bribery matters (MacGregor Pelikánová & MacGregor, 2020). In parallel, the European Commission orchestrated the enactment of Directive 2011/85/EC to develop an accounting regulation for the public sector and subject accounting systems to both internal and external control (Frintrup et al., 2022). Directive 2011/85/EC does not demand accrual-based accounting systems but still includes the reference to International Public Sector Accounting Standards (IPSAS) (which should serve as a starting point for the development of European Public Sector Accounting Standards (EPSAS) (Frintrup et al., 2022). However, so far, only a few EU member states use IPSAS (Frintrup et al., 2022).

Regarding the international level, the G20, major international organizations, and over 170 states, associations, investors, and members of the worldwide accountancy profession support the goal of a single set of high-quality global accounting standards, particularly IFRS (IFRS), 2023). However, the concept of neoliberalism, which has prioritized world economic globalization, goes through phases, and the pendulum is now shifting after decades of its implementation. The World Trade Organization (WTO), International Monetary Fund (IMF), World Bank, etc., have been advocating the globalization of finances and trade under the neoliberal distrust in national regulation, amounting to national protectionism, and trust in the democratic opinion of international law subjects rather than national law subjects (Foroohar, 2022). Undoubtedly, the Second World War was triggered by a complex set of factors. However, it is widely acknowledged that certain political decisions, fueled partly by public opinion, played a crucial role in its outbreak. For instance, governments resorted to protectionist measures and imposed excessive reparations after the First World War, which contributed to economic turmoil and social unrest. However, the globalization and de-restriction of trade led to money moving faster over the border than goods or people, the "cheap capital for cheap labor," and ultimately to mega complicated supply chains starting in countries recklessly abusing people (Foroohar, 2022) and nature and totally denying the Christian-based values that formed western civilization (MacGregor Pelikánová, 2017). For example, the Rana Plaza disaster in Bangladesh in 2013 demonstrated the price for cheap production of clothes in a jurisdiction not respecting life and law – the balance was 1 100 workers killed (MacGregor Pelikánová et al., 2021b).

Similarly, the destruction of tropical rainforests, funded by international banking organizations, and the production of low-quality goods that infringe on intellectual property rights and bring profits that are used for corruption and human rights violations, raise important questions about globalization and ultimately about accounting and its standardization. As a matter of fact, the advancement of sustainability and related demands for CSR leads to a complex legal duty to prepare a non-financial statement and/or

CSR report (MacGregor Pelikánová & MacGregor, 2020). This legal duty and the fight of the EU law against greenwashing (MacGregor Pelikánová & Rubáček, 2022) show that an entirely free global trade with an accounting "mathematically" standardized is not acceptable in the 21st century.

Such an accounting system would not be sustainable and could not reflect the business's engagement with its economic, social, cultural, and institutional environments, which is an apparent reality (Carnegie et al., 2020). Sustainability has three pillars – economic, environmental, and social and business conduct in the 21st century must meet all three of them (Schüz, 2012). Therefore, accounting, especially its globally standardized version, must provide the measurement, processing, and communication of both financial and non-financial information in a systemic recorded manner. Full, consistent, and accurate records have to cover not only mere "mathematic numerology" but as well other more ephemeral and less business/tangible assets, and they need to address not only legal but as well ethical commands (MacGregor Pelikánová et al., 2021a). After all, the UN identified three megatrends regarding globalization and the global economy: shifts in production and labor markets, rapid technological advances, and climate change. All three should be projected in modern accounting. Hence, the issue is not about the quantity (existence) but the quality, i.e., there is no dispute that standardized accounting is needed, but there is a dispute about how this standardized accounting should look. The controversy over the importance of standardized accounting is fundamentally interdisciplinary, as modern accounting standards are expected to provide information beyond just financial statements. Such standards should encompass a broader range of business activities, operations, and conduct, making it imperative to consider different perspectives and disciplines in this debate. These include sustainability and CSR, perhaps even about the underlying values of a dramatically heterogeneous pool of stakeholders (Hála et al., 2022). In particular, this information is needed regarding global businesses and businesses from controversial sectors (Sroka & Szántó, 2018). Without a consensus about core values, we could hardly have successful accounting standardization in the prospering global economy. After all, the concepts of Carroll's pyramid of CSR (Carroll, 2016) and of shared values (Porter & Kramer, 2011) are outcomes of interdisciplinary thoughts (MacGregor Pelikánová et al., 2021b), and crises are opportunities for changes par excellence (D´Adamo & Lupi, 2021). It is time to enact much-needed changes in industries as well as accounting.

Nevertheless, this needs to be done rationally and pragmatically. Kant and Hegel saw progress as being achieved through conflicts between and within ideas and political systems which should lead to higher forms through a dialectical process eliminating contradictions and to an ideal state (Napier, 2001). However, history teaches us that reality is much more complex.

Chapter Summary

Chapter 10.5 discusses the importance of standardization in advancing accounting practices in a globalized economy. The use of financial and non-financial statements by stakeholders necessitates the need for reliable and relevant information. Accounting must be structured, regulated by legal rules (hard law), and self-imposed standards (soft law), ensuring transparency, consistency, and comparability. Accounting standards must address recognition, measurement, presentation, and disclosure of financial statements. However, global standardization is impeded by cultural, historical, and economic differences and state sovereignty, making it challenging to achieve a consensus. In the European Union, the transition from soft harmonization to stricter regulation has been implemented, with the mandate to use IAS/IFRS for companies with global reach. The article discusses EU legislation addressing sustainability and corporate social responsibility (CSR) concerns in various sectors, such as the public sector. The article concludes

that standardization in accounting is essential to provide reliable, standardized information and increase accountability.

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