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‘Circular sustainability accounting’ in businesses for a circular economy: a framework of analysis

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Abstract

The introduction of the circular economy by firms entails, among other issues, an evolution of sustainability accounting and reporting practices because firms must implement specific activities for closing materials loops. Additionally, the circular economy includes finding collaborative solutions in the value chain and making decisions in a decoupling scenario. Thus, to change from a linear economy to a circular one requires the measurement and analysis of activities and has impacts other than environmental and social ones that are yet to be included in sustainability accounting and disclosure. In this scenario, this study offers an outlined framework of how circular economy-related principles can be integrated into sustainability accounting, given the strong contemporary approach towards sustainability. An integrated analysis of the circular model’s implications for sustainability accounting is conducted to explore a line of inquiry hitherto little explored.

Keywords: Sustainability accounting; Circular economy; Environmental management; Circular business model; Stakeholders

1. Introduction

The circular economy (CE) has been promoted by businesses because it involves a transformation of the linear economic model to reduce dependence on raw materials and energy, and to mitigate the environmental impact of production and consumption (Andersen, 2007; Ghisellini et al., 2016). Presently, businesses are progressively introducing different CE-related activities (Aranda-Usón et al., 2020), and sustainability accounting has been highlighted as a tool that could partially capture impacts derived by the closing of materials loops (Scarpellini, Marín-Vinuesa, et al., 2020).

Adopting a circular business model raises the need to measure and analyse activities and impacts other than those considered in the framework of traditional environmental accounting, which could, perhaps, be insufficient to face the challenges of decoupling and participation at the meso level that a CE entails. When the reporting is considered from a circular viewpoint, businesses must identify and measure the impacts of a wide range of sustainability issues to become more transparent, and sustainability accounting enables businesses to create value over time within the triple bottom line (TBL): economic, social, and environmental (Elkington, 2001; Murthy & Parisi, 2013), including reporting and accountability at a meso level. In

summary, we could argue that the role of sustainability accounting seems adequate in transitioning from a linear economy to a circular one to measure results in any of the three dimensions of sustainability. However, despite the growing number of contributions focused on analysing the CE in the micro field, research on the integration of CE-related activities and investments in accounting and reporting in the framework of sustainability remains under discussion.

A few scholars have emphasised the need for methods to assess circular products' and business models' environmental, social, and economic sustainability performance (Bocken et al., 2016; Pauliuk, 2018; Stewart & Niero, 2018). Stewart and Niero (2018) have explored the relationship between reporting and the new circular model. Other studies on environmental accounting have partially analysed certain CE-related activities (Aranda-Usón et al., 2020; Stewart & Niero, 2018), carbon accounting (Marco-Fondevila et al., 2020, 2021), circular eco-innovation (Portillo-Tarragona et al., 2022; Scarpellini, Valero-Gil, et al., 2020), or waste management and cleaner production (Marrone et al., 2020; Portillo-Tarragona et al., 2022; Zhou et al., 2017). However, analysing the implementation of the circular business model in companies from an accounting perspective is an incipient line of research that has been addressed by very few researchers (Di Vaio et al., 2022; Scarpellini, 2022; Scarpellini, Marín-Vinuesa, et al., 2020). Additionally, the theoretical framework of analysis is still unclear. To fill this gap, the main goal of this study is to define a framework of analysis to connect the implications of a CE for businesses within sustainability accounting and reporting.

This article is organised as follows: following this introduction, we summarise the background, and in the third section, we analyse the CE-related implications in a sustainability accounting framework. Finally, in the concluding section, we outline the conceptual basis and suggest avenues for further research on this topic.

2. Background

The CE model originated partially in the paradigms of the industrial economy and industrial ecology (Andersen, 2007; Murray et al., 2017) and applied to the closing of material loops (Yuan et al., 2006). These paradigms emphasise the benefits of recycling waste and sub-products through, for example, the development of complex connections, such as undertaking industrial symbiosis between different businesses and production processes (Ehrenfeld & Gertler, 1997; Jacobsen, 2006).

Significant schools of thought related to the CE emerged in the 1970s and were introduced by Pearce and Turner (1989), but gained prominence in the 1990s (Scarpellini et al., 2019). They include the functional service economy, natural capitalism, and the 'cradle-to-cradle' principles (Urbinati et al., 2017). In more advanced stages, the CE falls within industrial ecology (Li et al., 2010; Pitkänen et al., 2016), as it does within the industrial symbiosis between local companies with different production processes (Andersen, 2007).

In the literature, a few authors have defined three levels for the theoretical analysis of the CE: macro, meso, and micro (Mathews & Tan, 2011; Murray et al., 2017). The macro or national level, promoting eco-cities and sustainable production and consumption, proposes to achieve a 'recycling-orientated society' (Geng et al., 2012). At a macro level, long-term strategies are based on decoupling economic growth from consumption (Figge et al., 2014; Ghisellini et al., 2016). The meso level, or the eco-industrial park level, is designed to promote regional development and the natural environment (Scarpellini et al., 2019; Yuan et al., 2006). Finally, at the micro level or individual firm level, companies are encouraged to engage in eco-design for cleaner production approaches (Aranda-Usón et al., 2020; Murray et al., 2017), where decoupling usage from ownership is one of the primary schemes for a CE.

Several researchers have indicated that the adoption of a circular business model involves significant internal changes in firms' environmental accounting practices (Scarpellini, Marín-Vinuesa, et al., 2020) mainly related to the cost structure, the definition of prices for by-products and waste that are recovered from being transformed into resources for other companies. The application of voluntary standards and new environmental standards, or the delivery of complete information to clients about the reparability and extended use of products and services, as well as human resources management (Marrucci et al., 2021) are a few recently analysed topics. Additionally, a CE pursues business changes at the meso level (Yuan et al., 2006). Thus, in a CE-related context, companies must initiate an active dialogue with, for example, peers, knowledge partners, value-chain partners, and regulators to explore the role of the CE in their specific business. This scenario implies that when businesses adopt a circular business model, the CE must be integrated into their reporting, and the CE-related actions must be considered part of sustainability (Barnabè & Nazir, 2021a; Gunarathne et al., 2021).

Therefore, the joint support of all stakeholders is considered necessary to implement a CE at a large scale among businesses (Banaite & Tamošiūnienė, 2016; Lieder & Rashid, 2016; Stewart & Niero, 2018). Franco (2017) explains the influential nature of firms via the fact that they are subject to pressures from a wide range of stakeholders in a CE context, such as research institutes (Rattalino, 2017), value-chain actors (Tyl et al., 2015), and customers (Boons & Lüdeke-Freund, 2013). Hence, sustainability accounting and reports play an essential legitimacy role for companies because through such communication tools, they may seek to maintain their license to operate and reduce possible gaps between their stakeholders' expectations regarding sustainability (Hahn and Kühnen, 2013). Murray et al. (2015) indicated the need to consider the wider systems' role

in business and accounting decisions, which has become prevalent within environmental management and sustainability reporting (Bebbington & Gray, 2001). Thus, sustainability accounting partially helps firms capture the impact on the environment and society of the level of material loop closing achieved by firms. However, how CE-related principles can be integrated into sustainability accounting remains understudied in the current literature. Only a few studies on CE have considered sustainability accounting from a TBL perspective. Merli et al. (2018) have shown that whereas sustainability aims to integrate environmental, economic, and social dimensions, the CE literature has focused primarily on environmental issues, and our study aims to fill this gap.

The need to translate the concept of sustainability to the level of the individual organisation and merge it with accounting is not new (Gray, 1992), and the doubts highlighted in the past by Bebbington et al. (1994) about the capabilities of businesses to implement sustainability and apply a broader basis of self-imposed sacrifices for future generations can also be pertinent to the case of a CE if it exclusively prioritises waste recovery. Thus, integrating the CE into broader sustainability requires the subordination of traditional economic criteria to criteria based on social and ecological values. These changes require accountants to measure and disclose information about critical ecological functions, and scholars are claimed to provide a framework of analysis for sustainability accounting.

Given these premises, this study aims to find out which the framework of analysis for the CE is from an accounting perspective considering the business stakeholders in a circular model (RQ1).

A few authors believe that the CE prioritises economic systems and gaining environmental benefits while only implicitly including social aspects (Geissdoerfer et al., 2017). Although ecological renewal and survival and the reduction of finite resource use evidently benefit society, there is little explicit recognition of the social aspects inherent in other conceptualisations of sustainable development (Murray et al., 2017). Considering the goal of addressing the TBL of sustainability, we suggest a second research question to study how the CE impacts social, environmental, and economic aspects as pillars of sustainability accounting and reporting (RQ2).

This study is based on a conceptual analysis. Thus, to answer to the research questions, this study synthesizes reflections reached on the basis of a desk research and the analysis of previous studies.

Given these considerations, the nexus between the CE and sustainability accounting has to be defined with specific boundaries as a third research question (RQ3), sparking a line of inquiry among academics to link the CE with sustainability on the evolution in accounting and reporting, as firms must implement specific internal and external actions related to the circular model.

3. Approach to a "circular sustainability accounting"

Various external and internal factors influence the adoption of the CE at the micro level. There is a complex relationship between a firm and external factor related to the CE, such as institutional, environmental, and technological pressure; the market; society; and other cultural issues.

Institutional pressure on firms is increasing because of resource policy frameworks and regulations for material resource efficiency (Zeng et al., 2017). The commitment to sustainable development and the CE can be consolidated with environmental regulations and public incentives (Ghisellini et al., 2018; Hu et al., 2018). Policymakers develop regulations and incentives to build an effective modern corporate governance system that could overcome barriers and engage firms to improve their behaviour in operating a CE (Y. Liu & Bai, 2014). It is now accepted that the adoption of broader circular principles related to the exchange of goods and services can also be promoted through policies to promote social responsibility in companies (Y. S. Liu & Yang, 2018) and to support CE strategies (Ormazabal et al., 2018) that comply with regulations. Fletcher et al. (2018) highlighted the role of policies in the transition to a CE: governments facilitate the introduction of CE principles through incentives to facilitate resource recovery and to guarantee investments (Aranda-Usón et al., 2019). Moktadir et al. (2018) also stated that regulation and public support improves the adoption of sustainable manufacturing practices and a CE.

The role of society and other stakeholders also emerges in CE implementation (Pomponi & Moncaster, 2017; Stewart & Niero, 2018; Webster, 2013); however, the debate about the CE's social dimension is ongoing (Murray et al., 2017; Scarpellini, 2021, 2022), as mentioned earlier. Other sociocultural issues include market and consumer habits (Borrello et al., 2017; Milios, 2017). Additionally, increasing consumption levels are applying ever more pressure on the prices of materials and the subsequent relevance accorded to industrial ecology and waste management (Salesa et al., 2022). To this end, theoretical contributions in the field of industrial ecology (Andersen, 2007), industrial economy (Stigler, 1971), and industrial sociology have been considered to classify main CE-related activities in the framework of sustainability accounting and the stakeholders' perspective (Figure 1).

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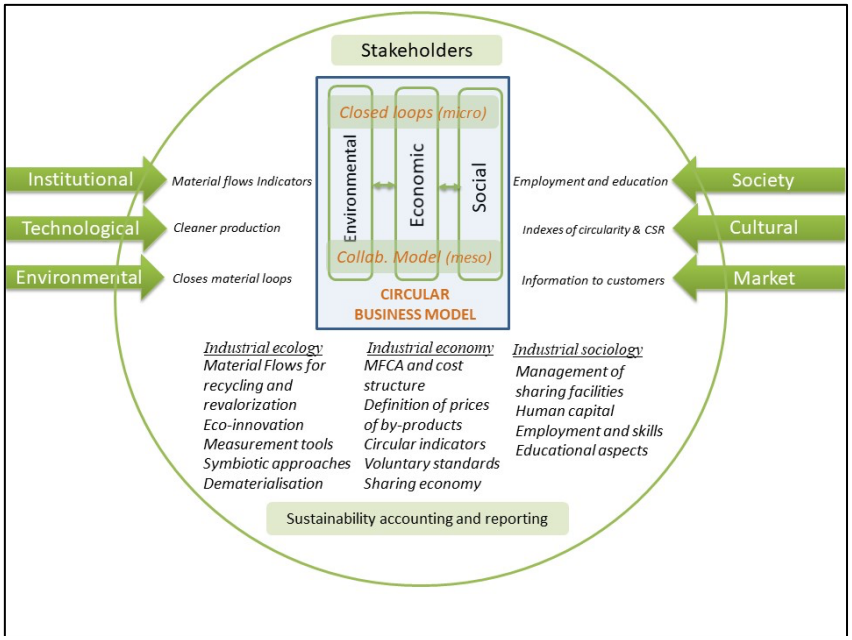

Figure 1. Study Synopsis
Source: Author's elaboration based on Baumgartner and Ebner (2010)

In this framework, sustainability accounting emerges with a bottom line in which firms incorporate economic, social, and environmental impacts from a circular perspective (Figure 2). We emphasise the need for methods to assess the environmental, social, and economic sustainability performance of CE-related activities because little is known about how companies position the CE in their sustainability agenda (Aranda-Usón et al., 2019; Bocken et al., 2016; Elia et al., 2017; Stewart & Niero, 2018). With these premises in mind, the accounting processes are approached from a circular perspective to answer the second research question (RQ2), and Figure 2 provides an analytical framework for circular sustainability accounting.

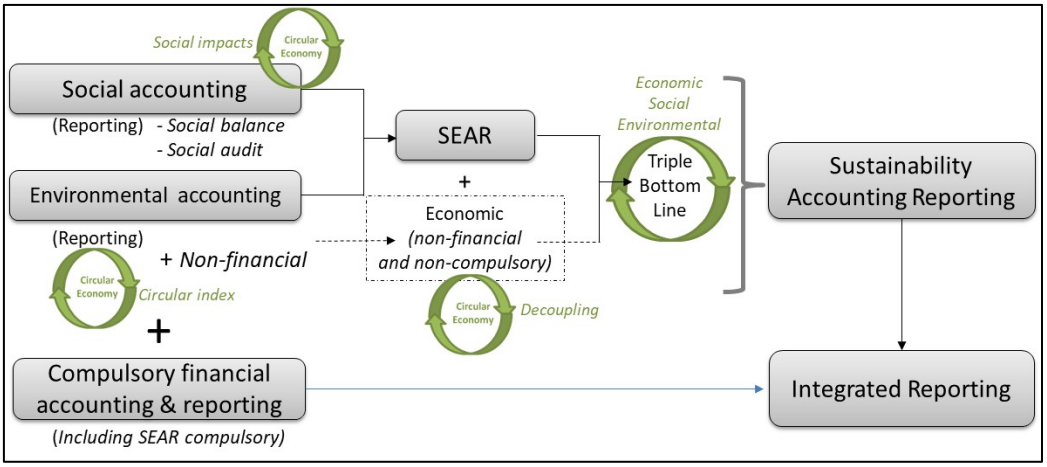

Figure 2. Circular sustainability accounting framework of analysis
Source: Author's elaboration

The internal implications for sustainability accounting derived from the adoption of the CE by businesses are mainly related to the collaborative model and the loop closing that the CE requires. The implications of the CE for sustainability accounting

can be classified according to the TBL and the three pillars of sustainability because environmental, economic, and social aspects must be integrated into the circular model.

In this scenario, to enable and accelerate the CE transition driven by industry, new integrative decision support tools are required to identify and tap the potential of CE transition scenarios at the company and inter-company levels (Lieder & Rashid, 2016). Integrated tools that will be introduced by firms when adopting a circular business model will require the inclusion of the primary industrial ecology objectives in sustainability accounting practices and the integration of material flow information in reporting. In the activities of recycling and waste valorisation, the accounting procedures of firms will be influenced by the collaboration scheme that the CE entails with other companies (competitors, suppliers, etc.) in the value chain, the definition of by-product prices, and the management of shared facilities, among other changes.

A few researchers have included the industrial economy in their analyses of the CE because it refers to a restorative and regenerative model by intention and design (Ellen MacArthur Foundation, 2013; Franco, 2017; Roos, 2014). In a circular model systems orientation, actors are analogous to a natural ecosystem (Ehrenfeld, 2004) because they collaborate in a meso scheme rather than viewing an industrial economy as a collection of individual actors loosely coordinated by the price signals in a market, as is usually the case. An industrial economy is a system in which material flows and technical nutrients are designed to circulate at high quality (Lieder & Rashid, 2016; Murray et al., 2017) and in which greater resource productivity is promoted by developing ways to continually reacquire and reintroduce the discarded assets following the completion of one life cycle (Moktadir et al., 2018; Pomponi & Moncaster, 2017).

In the circular model, supply chain collaboration (increasing dependencies) and changing success factors have significant implications; so, risks and liabilities will differ. New entities can be found within the value chain (e.g., recollection platforms) that enable firms to share risks, costs, and revenues among suppliers, collaborators, and competitors; therefore, new accounting practices are required. The cash flow, cost structure (total cost), and financing required for a circular business model will impact 'classical' financial indicators that must change. Changes in cost structure can enhance the implementation of CE-related activities, such as for materials, energy consumption, staff behaviour, etc., closing the material loops and adopting a business model (Lewandowski, 2016). Thus, mutual learning is required, traditional measurements must be improved, and business management focusing on a CE must include activities such as controlling, leading, monitoring, organising, and planning (Lieder & Rashid, 2016).

The social dimension of a CE is mainly related to the following aspects and activities that a circular model introduces: specific indicators for social issues included in corporate social responsibility (CSR); health improvement due to environmental improvement and waste reduction; voluntary standards that can include social aspects; information delivered to consumers; and other aspects derived by the sharing economy model and other collaborative schemes.

To frame the implications of the CE in sustainability accounting and reporting (RQ3), a matrix is proposed as an integrated approach for our analysis (Figure 3).

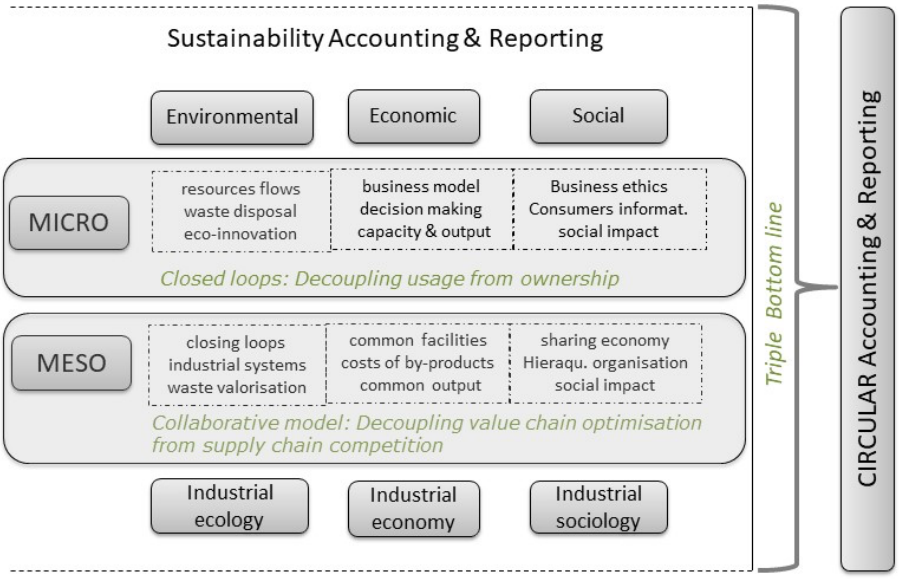

Figure 3. Boundaries of the 'circular sustainability accounting' from a CE perspective.
Source: Author's elaboration

In summary, the adoption of a circular model by firms implies the introduction of several changes in the management accounting practices inherent in the CE-related activities introduced by businesses and linked to the micro and meso dimensions of the CE. At the micro level, the new processes derived from industrial ecology and industrial economy involve measuring and controlling resource flows and waste disposal. In the economic–financial sphere, the CE implies the decoupling paradigm that involves separating usage from ownership. Changes in decision-making processes are required because of the control of production capacity in circular thinking and the output control required to adopt incremental material loops closing. In the social sphere, the CE, undoubtedly, influences business ethics, CSR, accountability, and measurement of social impacts derived from the circular business model, such as generating employment through investments.

At the meso level, a CE implies a decoupling of value-chain optimisation from supply chain competition. This general paradigm implies the introduction of a new sphere of activities and impacts that must be measured and integrated into accounting practices because of the collaborative environment that the CE requires among several companies, for example, in industrial symbiosis.

It must also be considered that the essential future developments for CE implementation will imply more extensive work in social awareness. The TBL includes a social dimension involving human stakeholders, human well-being, and human rights, and stakeholders demand greater transparency in a circular phenomenon (Benito-Bentué et al., 2022). Moreover, the ecological renewal and the closing loops of the CE benefit the society (by reducing resource use). However, the explicit recognition of the social aspects of the CE is not clearly stated in the accounting sphere, and it remains unclear how the CE will be considered in the circular sustainability accounting practices in response to the stakeholders' and society's pressure (Scarpellini, 2022).

The CE cannot be exclusively related to the flows of raw materials and resources as it has been considered at the first stage of analysis. Thus, circular sustainability accounting transcends the limits of environmental accounting for the material flow measurement, and it will enable organisations to consider their impacts on a wide range of sustainability issues. In this framework, businesses can be more transparent about the risks and opportunities related to the CE principles, and circular sustainability accounting facilitates sustainability of the planet's boundaries (Antonini & Larrinaga, 2017), expanding the debate about a strong or weak approach to sustainability accounting (Moneva et al., 2006) for accountability in the Anthropocene (Bebbington et al., 2020).

From a TBL perspective for reporting, environmental indicators have been proposed and applied by different authors (Aranda-Usón et al., 2018, 2020; Barnabè & Nazir, 2021b; Ibáñez-Forés et al., 2022); the economic measurement has been mainly analysed in the framework of the circular business model (Centobelli et al., 2020; Rossi et al., 2020); and the social dimension of the CE is still understudy (Mies & Gold, 2021; Padilla-Rivera et al., 2020; Scarpellini, 2021, 2022; Vanhuyse et al., 2021). Some specific CE-related indicators for sustainability reports have been proposed by (Ibáñez-Forés et al., 2022).

Finally, we must realise that circular integrated reporting will only be accepted if it delivers the 'right' message and if it does not create an alternative source of accounting-based discourse that challenges existing power positions, such as for environmental and social accounting (Larrinaga-Gonzalez & Bebbington, 2001; Larrinaga & Garcia-Torea, 2022).

4. Main conclusions

Drawing on the reviewed literature, this study offers an outlined framework of how CE-related principles can be integrated into sustainability accounting, given a strong approach to sustainability. We, accordingly, pay particular attention to earlier research focused on adoption of the CE by businesses and stakeholders, and external and internal factors to address sustainability accounting and reporting goals from a TBL perspective.

Framing of sustainability accounting and reporting from a circular perspective is at the forefront of the circular business model and opens new, contemporary debates surrounding the theoretical backgrounds of industrial ecology, industrial economy, and industrial sociology as the first approach to an integrated framework of analysis based on accounting and management theories. It is not our intention to revisit these theoretical frameworks; instead, we establish a common framework of analysis to explore the boundaries of an incipient circular sustainability accounting discipline, to add something substantial to the debate about the specificity of reporting from a circular perspective. This necessity meets the challenge for modern accounting and the future debate around integrated sustainability reporting.

The framework outlined here provides a better understanding of CE principles integrated into sustainability accounting, combining them with the TBL proposition to design an integrated reporting mechanism adapted to the circular model. Overlapping CE principles at the micro level and the business model, a new integrated vision of the social aspects of the CE emerges. This study provides specific CE-related activities for reporting processes to be measured for non-financial disclosure. Practitioners can apply these measurements to achieve greater CE-related accountability, but would require more detailed social

impact analysis for integrated reporting. Thus, our findings directly translate into practices that are the leading accounting indicators for reporting CE in businesses. Additionally, this study addresses the research gap by defining the boundaries of sustainability accounting applied to circular models and examining the general conceptual framework of the CE through a TBL prism.

Future intensive scientific work should concentrate on developing environmental and social assessment methods designed for companies adopting a circular business model. Using the framework outlined here, firms can consider introducing CE principles into their reporting practices; however, circular integrated reporting requires further development.

This study has a few limitations. It is the first attempt to define specific boundaries of sustainability accounting related to the CE, and further applied and comparative studies are recommended. Although considerable efforts have been made to generalise the framework of analysis to the dawn of the CE as an economic model and transfer it to a more recent vision of sustainability accounting, a deeper theoretical debate and analysis is required going ahead.

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Shadow Bank Systems in European Affairs: Measuring Capability of Fraud Risk in Special Reports

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Abstract

In the last twenty years, the European Court of Auditors has placed increasing importance on producing "special reports" examining the economy, efficiency and effectiveness of EU spending, particularly concerning the Shadow Bank System. This institutional focus on performance audit, alongside traditional financial and compliance audit, has occurred when the European Union is increasingly evaluating its policies and programmes under political pressure to demonstrate their added value with Shadow Bank Systems. The rapid growth of the market-based financial system since the mid-1990s changed the nature of financial intermediation in the European States. "European Shadow Banks Systems" are essential institutions within the market-based financial system. European Shadow Banks Systems are financial intermediaries that conduct maturity, credit, and liquidity transformation without access to central bank liquidity or public sector credit guarantees. Examples of the European Shadow Banks System include finance companies, asset-backed commercial paper (ABCP) conduits, limited-purpose finance companies, structured investment vehicles, credit hedge funds, money market mutual funds, securities lenders, and government-sponsored enterprises. This intermediation chain binds European Shadow Banks Systems into a network. The European Shadow Banking System rivals the traditional banking system in the intermediation of credit to households and businesses. This study contributes theoretically to research and empirically to the management practice of agile marketing concepts in digital transformation and international business contexts to develop practical competencies of speed, flexibility, and customer responsiveness in marketing strategies and operations.

Keywords: Accountability Methodology, Agile Marketing Capabilities, Performance Audit, Shadow Bank System, Special Reports and Up Grade Procedure Services

1. Introduction

This article examined the Court's role in the institutional "chain of accountability" (DeNichilo, 2021b), addressing the ongoing shift from compliance audit (regularity, legality) towards performance audit and European Shadow Bank Systems (Homer & Stephenson, 2012). Audit by the Court ranges from checking individual transactions carried out and the operations of the EU institutions to checking the effectiveness of policy initiatives to gauge how policy has fared (Caiden, 1992).

The article analyses the political interests at stake in debates on accountability and the practical challenges inherent in the performance of performance audits (Mendez, Bactler 2011) with the European Shadow Bank System.

To what extent are special reports increasingly resembling evaluations of European Shadow Bank Systems studies? How does performance audit contribute to the accountability of European Shadow Bank Systems?

The article draws on primary documents related to the Court's ongoing internal reform process, including international peer review special reports to perform the European Shadow Bank System, hearings of the European Parliament's Budgetary Control Committee, and Court documents (Knill, Balint & Bauer 2008).

This study seeks to identify the key theoretical dimension of the Agile Marketing Capability in the European Shadow Bank system and provide practical guidelines to facilitate its implementation. Our finding is current theoretical and empirical research on agility concepts in the context of digital transformation and international marketing management.

2. Literature review

The Court stresses the role of the Parliament to actively engage in the accountability process by examining the Court's reports, rather than accountability being derived through transparency, given the public availability of all its reports for the assessment of the European Shadow Bank System (Power, 2015). The auditor checks that funds are expended for stipulated purposes, that programmes are carried out as intended, and that funds are not spent on unauthorised activities (Van Wolleghem, 2020).

As such, the Court considers that it "accounts" for the performance of the EU budget via-à-vis the Parliament's Budgetary Control Committee. So, the Court distinguished clearly (DeNichilo, 2020a) between public audit as the "financial and performance audits of policies and related public funds and their link to the accountability process" and accountability as referring "mainly to democratic oversight of policies and activities of public bodies" (Harber, Marx and De Jager 2020).

A first international peer review (2008) criticised the range, level, and usefulness of reporting. It advocated the Court focus on "areas of greater relevance, significance on risk". In its special report for 2008-2012, the Court frequently focused on EU programmes (Ellinas & Suleiman 2008), mainly examining compliance, to some extent effectiveness, but less regularly, economy and efficiency of the European Shadow Bank System. However, it rarely audited the management of EU institutions in procurement, organisation structures, facility management and human resources management (Cortese, Del Carlo 2008).

A second peer review (2014) advised the need for what INTROSAI defines as a "problem-oriented performance audit" (DeNichilo, 2013) and to study more closely the causes of problems and their consequences as a basis for recommendations (Rolle 2010). Auditors of the four vertical chambers, acting under the oversight of their director, compiled an initial portfolio of potential audit tasks (Sposato 2010) to assess European Shadow Bank System.

Proposals were evaluated using the four criteria: risk, materiality, relevance, and coverage. They were subsequently prioritised using three levels of assessment: low, medium, and high. Nevertheless, while the chambers were aware of audit requests and issues of significant interest, especially for the Parliament, and included them in their work plans, they were "neither collected in a structured way nor treated preferentially" (Van der Meer & Edelebos, 2006).

Special reports on European Shadow Bank System are now framed according to five umbrella themes: "smart and inclusive growth", "sustainable growth-natural resources", "security and citizenship", "administration", as well as "other" (DeNichilo, 2020c).

The Court has acknowledged the difficulty in determining which of its work is taken up by the media. Auditors may enthuse about a report on a seemingly salient topic, such as EU financing of climate change prevention mechanisms. However, there is no guarantee that politicians and/or the press will seize upon it. A special European Shadow Bank System report that received good media coverage in recent years had a precise human dimension, examining the effectiveness of free school milk and fruit schemes (Colella, Griffin, Gaparaju S. 2000).

With its interest at heart, the Court produced a special report of the European Shadow Bank System on the "single audit", identifying the weakness of multi-level cooperation (March & Olsen 1995) in audit with the Commission's reliance on national audit authorities in different policy areas.

The agility of special reports on the European Shadow Bank System is a strategy that addresses the challenges posed by digital transformation. It facilitates easy adaptation to the current complex business environments characterised by escalating competition, diverse customer requirements and expectations and rapid technological change.

Dynamic capabilities are hallmarks of the agility of the Shadow Bank System, defined as a paying agency's dynamic capability to redeploy resources for creating value and managing turbulent environments efficiently. Given the pivotal role of marketing in developing a paying agency's dynamic capabilities and the need to build efficient marketing capabilities to compete in international markets successfully, marketing researchers are now focusing on dynamic marketing capabilities (Bock, Opsahl, George & Gann 2012).

Marketing and strategy research broadly recognised the positive linkage between the agility of the Shadow Bank System and marketing performance (Chen, Wang, Nervo, Benitez-Amado & Kou 2015). Agility is crucial for creating customer value and added competitive advantage and providing firms with the ability to face market changes. In a paying agency, the marketing function mainly concerns demand creation, and agile competencies facilitate coping with the demand and quickly adapt tactics and operations in response to environmental changes. Therefore, agile capabilities in the marketing area refer to dynamic marketing capabilities.

Earlier studies on agility describe agile paying agencies, especially in supply chain and IT, in disruptive business contexts they are known to continuously monitor and detect environmental changes, opportunities, and threats, thus responding swiftly to market changes with timely decision-making and innovation. Firms can quickly exploit existing or acquired resources to respond to changing market needs.

Customer responsiveness entails using IT to improve the adequacy, accuracy, accessibility, and timeliness of the information and facilitate access to relevant customer data (Chaffey 2010). Customer responsiveness requires timely identification and proactive or reactive response to changes. Agile paying agencies may better predict market demand, enhance customisation, or use IT to meet customer expectations.

Agile paying agencies are also characterised by decision-makers who resolutely deal with changes, opportunities, and threats in the business environment. People in an agile organisation are more productive, efficient, and effective in achieving organisational objectives. They benefit from close relationships and collaboration, decentralised decision-making, and IT expertise to address dynamic environments. Moreover, marketers use technology integration to align with businesses to facilitate adequate information flow across the supply chain (Eckstein, Goellner, Blome & Henke 2015).

3. Methodology

We identify the three distinct subgroups of the European Shadow Banking System. These are: (A) the government-sponsored shadow banking sub-system; (B) the "internal" shadow banking sub-system; and (C) the "external" shadow banking sub-system (Table 1).

A) The Government-Sponsored Shadow Banking Sub-System (Lending to Nonbanking Financial Institutions)

The seeds of the European Shadow Banking System were sown nearly 30 years ago, with the creation the government-sponsored enterprises (GSE). The GSEs have dramatically changed the way banks fund themselves and conduct lending (AGEA PwC Audit Reports 2011-2013). The funding "utility" functions performed by the GSEs for banks and the way they funded themselves were the models for what we refer today to as the wholesale funding market (AGEA PwC Special Report 2014).

B) The "Internal" Shadow Banking Sub-System (Interbank Payment)

The principal drivers of the growth of the European Shadow Banking System have been the transformation of the largest banks since the early-1990s from low return on equity (RoE) utilities that originate loans and hold and fund them until maturity with deposits to high RoE entities that originate loans to warehouse and later securitise and distribute them, or retain securitised loans through off-financial statement asset management vehicles (Manes Rossi, Brusca and Condor 2020). The transformation of banks occurred within the legal framework of financial holding companies, which through the acquisition of broker-dealers and asset managers, allowed large banks to transform their traditional process of hold-to-maturity, spread-banking to a more profitable process of originate-to-distribute, fee-banking (DeNichilo 2011).

Portfolio management started to decide which assets were retained and sold and charged originators (internal and external) the replacement cost of financial statements for warehoused assets. Modern banks "rent" their financial statements and set their "rents" based on the replacement cost of their financial statements (AGEA E&Y Up Grade Procedure Services 2014).

C) The "External" Shadow Banking Sub-System (Off-Balance Sheet)

Some European banks also practised the mixture of bank and markets-based credit intermediation process that emerged was later adopted by diversified broker-dealers and also turned a range of independent, specialist non-banks into an interconnected network of financial entities that operated entirely external for banks and the official safety net extended to banks, hence the term "external" shadow banking sub-system (AGEA E&Y Financial Letters 2019).

The constant flux in the current business environment has led marketers to focus on applying the agile method, experimentation for shortening cycle time, increasing flexibility, sharper competitiveness, and swift adaptation to market globalisation (Asseraf, Lages & Shoham 2018). Businesses must continuously rethink their business model, offering, and processes to stay in tune with the digital transformation characterised by technological progress, digital communication, and shifting customer demand. They must also integrate technology with marketing communication strategies to satisfy customer needs.

Literature on marketing and strategy has focused on the agility of special reports on the European Shadow Bank System to address the challenges posed by digital transformation, such as "embrace change", and predict market needs and innovative, especially in highly competitive and international marketing management scenario, and cater to the needs of international

customers. From this perspective, agility is a firm's ability to stay up-to-date with market dynamics and accordingly adapt strategies, tactics and operations to rapidly respond to market changes in new business opportunities.

In the digital and international context, literature on the agility of special reports on the European Shadow Bank System in marketing is scarce (Barkema, Baum & Mannix 2002). However, agility in management and marketing literature has recently gained academic attention, where scholars have recognised the role of marketing in shaping agility as a critical driver of international performance. Extant literature explores the drivers and outcomes of international marketing agility or that of inherently global firms. In contrast, a few other studies examine the relationship between agility and entrepreneurial orientation or consider customer agility. However, extant knowledge still needs to understand how specifically agile capabilities in marketing might take place when considering international context and what key aspects may contribute to developing a proper Agile Marketing Capability (Barrales-Molina, Martinez-Lopez & Gazquez-Abad 2014)

Range of Performance Materiality	1- 10% of PM	1- 30% of PM	Over 60% of PM
Level	Hard	Medium	Soft
Usefulness	Audit	Advisory	Reporting
Significance of Risk:			
Risk Materiality	High	Medium	Low
Relevance	Big	Medium	Small
Coverage	Over	In line	Under
General Controls: Umbrella Themes			
Smart and Inclusive Growth	Innovative	Inclusive	Growth
Sustainable Growth-Natural Resources	Agricultural	Commerce	Industrial
Security and Citizenship	Participation	Collaboration	Only Vote
Administration	Labour	Finance	Service
Other	Exclusive	Customization	Unique
Multilevel Cooperation:			
Media Pressure	Legal	Structural	Weak
Application Controls: CAVR			
Completeness	Not All	All	Overall
Accuracy	Adequacy	Precision	Accurate
Validity	Flexibility	Competitiveness	Adaptation
Restricted Access	Accessibility	Timeliness	Cycle Time
Shadow Bank System:			
A) The Government-Sponsored	Utility Functions		
B) The "Internal"	ROE (Return On Equity)		
C) The "External"	Ritual or Abuse of Right		

Table 1. Checklist of Internal Controls for Special Reports on European Shadow Bank System.
(Objective: 30% – 60% of PM; Estimated Error > 5% of Payments; Projected Error < 10% of the Reported Expenditure)
Source: Our Elaboration of AGEA E&Y Up Grade Procedure Services 2014

4. Results

To take up the theme of the essay by Professor Ernesto Longobardi and Professor Antonio Pedone, "Public debt in the euro area after the crisis: restructuring hypotheses, insolvency proceedings, (weak) prospects for fiscal union", in A. Di Maio and U. Marani (edited by), Economic policies and international crisis. For a broader examination of the same theme, see Longobardi-Pedone and DeNichilo (2009).

Among the leading causes of the accumulation of private debt were: the intensity and persistence of severe macroeconomic imbalances within countries and between significant economies; the expansive stance of monetary policies, also justified by a low inflation context, which produced an abundant supply of liquidity and credit; the uncontrolled acceleration of financial

innovation in forms that made distribution and distribution opaque the extent of the risks, to which the transition of banks from the "originate and hold" model to the "originate to distribute" model contributed; under these circumstances, the surge in the default rate on worst-quality mortgages in the United States was the spark which lit a colossal fire, extending to the credit system (with the failure of many banks, until the liquidation of Lehman Brothers in September 2008) and then to the financial system as a whole international and the global economy.

Faced with the explosion and spread of the crisis, many governments intervened massively to rescue financial institutions, causing a sharp and rapid surge in the deficit and public debt with European Shadow Bank Systems. So, the automatic effects of the crisis on tax revenues and some expenses contributed to the worsening of public accounts.

This study contributes theoretically to the literature on agile and dynamic marketing capabilities of special reports on the European Shadow Bank System.

First, this work advances the field of dynamic marketing capabilities by defining a new capability: the Agile Marketing Capability of the European Shadow Bank System (Tables 2 and 3).

Application Controls	**General controls**
Prevent, Detect, and correct transaction errors and fraud in application programs. They are concerned with the accuracy, completeness, validity and authorization of data captured, stored, transmitted to the other system, and reported.	Make sure an organization's control environment is stable and well-managed. Examples include security; IT infrastructure; and software acquisition, development, and maintenance controls.

Table 2. Dynamic Marketing Capabilities of Internal Control
Source: Author's elaboration

Internal Control Assertions	**Evidence of controls**	**Test**	**Types of Internal controls**
Completeness	Controls to ensure financial transactions and data are completed.	Control totals and sequencing.	Manual Semi-Manual Automated
Accuracy	Controls to ensure financial transactions and data are accurate.	Logic tests and checksums.	Manual Semi-Manual Automated
Validity	Controls to ensure financial transactions and data are valid.	Maintained record trail and electronic signature.	Manual Semi-Manual Automated
Restricted Access	Controls to ensure restricted access to data and financial transactions.	Passwords, asset tags, locks and approval forms.	Manual Semi-Manual Automated

Table 3. Internal Control Assertions: CAVR
Source: Author's elaboration

Second, this study extends the existing theories on the agility to the marketing domain, providing a theoretical framework to study the critical dimensions of the Agile Marketing Capability of the European Shadow Bank System (Table 4).

Controls of Agile Marketing Capabilities	**Gather Evidence of Controls**
Continual improvement pace.	Earlier studies claim supply chain, and IT agility continuously detect environmental changes and swiftly respond with innovative solutions, such as redeploying resources and quickly performing tasks. This study finding shows that, when referring to international and digital marketing, ongoing efforts in adopting cutting-

	edge technology that analyzes market trends, customer behavior, and competition are crucial to providing optimized services and innovative responses to international customer needs.
Customer-oriented responsiveness.	Most studies on agility focus on swift responsiveness, that is, to identify and respond to changes in the supply chain, technology, competition, and demand reactively or proactively and recover from them. It facilitates gathering customer information. Agility implies more excellent market prediction and customization. The case study confirms the marketing function. The firm can be more responsive to customer demand at a global level by using metrics for measuring customer satisfaction levels, analyzing sentiments across media channels and countries, and generally tracking information and, in turn, offering more customized products.
High flexibility.	Prior studies on agility highlight the relevance of an adaptive approach to competing with speed strategies, redeploying resources flexibly, and managing new or diversified products and objectives with the existing facilities and supply chain. The study results extend the current literature by showing that such flexibility is achieved with flexible planning that places individuals at the center and easily adapts to changing customer requirements. Interestingly, the concept of flexibility attempts to pursue simplicity by explicitly providing an easy home searching tool, which makes rental simple, accessible, and adaptable to the different requirements expressed by customers across countries (Grewal & Tansuhaj 2001).
People collaboration.	According to the literature, agility suggests collaboration is crucial for achieving a firm's objectives effectively and efficiently. This is further enhanced by IT integration and alignment throughout the supply chain, facilitating information flows. The empirical evidence presented in this study confirms this argument. It demonstrates that collaboration among departments and being open to feedback and advice from others are some of the essential features for global marketing teams that strongly need to foster close and trust-based relationships. In addition, particularly for digital, international business, communication tools throughout the organization are critical to facilitate up-to-date information on achievements and targets and weekly goals across teams and departments for business alignment (Hagen, Zucchela & Ghauri 2018).

Table 4. Agile Marketing Capabilities Assertions of European Shadow Bank System
Source: Author's elaboration

In sum (Table 4), the study findings support a framework that identifies the critical dimension of Agile Marketing Capability; continual improvement pace, customer-oriented responsiveness, high flexibility, and people collaboration (Teece, Peteraf, & Leih 2016).

Item	Weighted Average	First Quartile	Median	Third Quartile	Std. Dev./ Max	Min	Max
1	2.33	0.77	2.01	2.31	0.22	0.22	3.33
2	1.33	0.54	1.05	1.34	0.33	0.12	4.35
Significance of Risk: Materiality							
3	3.33	1.22	3.34	4.23	0.45	0.15	5.55
4	4.33	1.55	3.77	4.31	0.55	0.11	7.33
5	5.70	2.55	4.77	6.21	0.66	0.05	5.34
General Controls: Umbrella Themes							
6	5.33	2.77	3.33	6.33	0.33	0.23	7.22
7	7.29	3.77	4.24	7.22	0.77	0.55	14.51
8	8.29	4.88	5.77	8.22	0.66	0.77	12.44
9	9.10	5.99	6.22	10.02	0.99	1.01	17.9
10	5.22	2.22	3.44	5.21	0.32	0.51	7.22
Multilevel Cooperation: Media Pressure							
11	7.23	3.79	4.77	8.22	0.67	1.66	12.11
Application Controls: CAVR							
12	6.23	1.88	4.56	6.24	0.22	1.77	8.29
13	7.33	3.99	4.55	8.33	0.55	1.88	9.99
14	5.55	1.75	2.77	5.25	0.33	0.55	8.88
15	6.99	3.77	4.88	6.88	0.67	1.57	7.59

Table 5. Critical Dimension of the Agile Marketing Capability. Number of Observations: 100% of AGEA Debt Register Practices year 2014 (Number of Observation 4.887 Practices)
Source: Our Elaboration of AGEA E&Y Up Grade Procedure Services 2014.

4. Conclusion

The need for an orderly reduction of excessive private and public debt with European Shadow Bank Systems was anticipated by Spaventa (2008); on the problems encountered and on the few steps forward made in this area (DeNichilo 2020b).

Under the traditional originate-and-hold model, the lending bank retains the credits in its assets and hedges the risk with capital. With the originate-to-distribute model, on the other hand, credit risk is transferred using the most varied and ever-changing techniques of securitization and the creation of "derivative" credits (Köhler, Ratzinger-Sakel and Theis 2020).

However, public debt problems are extraordinary; they are different from the rest of the world's shadow bank systems (Buchak, Matvos, Piskorski and Seru 2018). The split between responsibility for money and exchange, assigned to the centre, and that of fiscal and debt policies, which remain on the periphery, deprives sovereign states of an essential piece of their sovereignty, a lender of last resort that provides markets with an implicit debt guarantee.

Overall Error	% Performance Materiality	Tolerance	Effective Error	Adjusted Error	Opinion
Projected Error (Call)	30% - 60% Medium Risk	<10%	1.33%	7.55%	Accepted
Estimated Error (Put)	30% - 60% Medium Risk	>5%	6.77%	4.5%	Rejected

Overall Consistency Test	% Performance Materiality	Tolerance	Effective Error	Adjusted Error	Opinion
Rho di Sperman	30% - 60% Medium Risk	5.23%	4.25%	5.25%	Accepted
Tau di Kendal	30% - 60% Medium Risk	4.33%	5.25%	5.66%	Rejected

Internal Consistency Test	% Performance Materiality	Tolerance	Effective Error	Adjusted Error	Opinion
Likert's Interquartile Gap Test	30% - 60% Medium Risk	<2	1.77	1.66	Accepted

Table 6. Capability Overall Conclusion of Policy Investigations Template
Source: Our Elaboration of AGEA E&Y Up Grade Procedure Services 2014

Although the present study provides an initial theoretical and empirical understanding of the Agile Marketing Capability of Shadow Bank System, it gives managerial insights on developing an Agile Marketing Capability, particularly in digital and international contexts (DeNichilo 2021a). These insights would help managers and practitioners employ agile features in their marketing strategies and operations (Lee, Sambamurthy, Lim & Wei 2015).

The study findings provide interesting guidelines for managers and practitioners in implementing agility in the marketing field (Ravichardran 2018). The definition of the critical factors of Agile Marketing Capability advances the knowledge of practitioners and international markers on how to implement agile marketing and improve their ability to leverage digital technologies to satisfy their customers in dynamic and global business contexts.

Although the study findings provide an excellent theoretical and empirical understanding of the Agile Marketing Capability of the European Shadow Bank System, this research has some limitations that may be addressed in further research (Lu & Ramamurthy 2011).

Concerning the methodological perspective, the qualitative data analysis involved only one firm because of the nature of the research. Although the study findings may be generalized to a certain degree, exploring this topic in multiple research contexts would be necessary. Future research may use this study as a pilot case and increase the viability of the results in order organizational settings.

Future studies could also develop scales for measuring the Agile Marketing Capability of the European Shadow Bank System and use survey instruments to validate our findings (Rixen 2013). It would be interesting to understand the relationship between the identified dimension and their underlying nature, as well as develop a proper procedure

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