Sensemaking and financial management in the decision-making process of farmers

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Abstract

Purpose – The purpose of this paper is to contribute to a better understanding of the financial decision-making process of farmers and to highlight the potential role that improved farm financial management (FFM) could play in developing sustainable farm enterprises.

Design/methodology/approach – This paper adopts a qualitative approach with 27 semi-structured interviews exploring farmers' financial decision-making processes. Subsequently, the interview findings were presented to a focus group. Sensemaking theory is adopted as a theoretical lens to develop the empirical findings.

Findings – The evidence highlights that FFM has a dual role to play in farmer decision-making. Some FFM activities may act as a cue, which triggers a sensebreaking activity, causing the farmer to enter a process of sensemaking whilst some/other FFM activities are drawn upon to provide a sensegiving role in the sensemaking process. The role of FFM in farmer decision-making is strongly influenced by the decision type (strategic or operational) being undertaken and the farm type (dairy, tillage or beef) in operation.

Originality/value – The literature suggests that the majority of farmers spend little time on financial management. However, there are farmers who have quite a high level of engagement in FFM activities, when undertaking strategic farm expansion decisions. Those FFM activities help them to navigate through operational decision-making and to make sense of their strategic decision-making.

Keywords Sensemaking, Agriculture, Farm financial management, Farmer decision-making, Strategic decision-making, Operational decision-making

Paper type Research paper

1. Introduction

The aim of this paper is to contribute to a better understanding of the financial decision-making process of farmers and to highlight the potential role that improved farm financial

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management (FFM) could play in developing sustainable farm enterprises. To achieve this aim, the financial decision-making process of Irish farmers is explored.

The agricultural industry in Ireland is an important contributor to its economy (Teagasc, 2018). Future ambitious goals were set out for the industry in its *Food Harvest 2020* strategy document (Department of Agriculture, Food and the Marine, 2010). However, when average family farm size, farm income and dependency on farm subsidies are examined, as well as the average age and training levels of Irish farmers, a picture of economic vulnerability emerges (Donnellan *et al.*, 2020). This is not just an Irish problem; similar situations apply in many other countries (Gutter and Saleem, 2005). The majority of farmers spend little time on FFM (Jack, 2004; Byrne, 2005; Boyle, 2012; Irish, 2012), leading to missed opportunities across the whole agricultural industry (Pretty *et al.*, 2005; Brown, 2009). We argue the need to develop sustainable farm enterprises and informed financial decisions, based on sound FFM information.

The area of financial management in agriculture has received little attention (Argilés and Slof, 2001; Jack, 2005; Ndemewah *et al.*, 2019). Several issues contribute to this. Historically, there has been quite a low level of financial management conducted by farmers (Argilés and Slof, 2001), and traditionally a culture exists where farmers dislike conducting financial management activities (Jack, 2005). Accounting researchers tend to focus on large organisations, for example, manufacturing and services firms, with less of a focus on small and micro enterprises such as farms (Ndemewah *et al.*, 2019). Perhaps, there is a perception that farm enterprises do not have the same economic impact. In addition, accounting researchers tend not to have much interest in farm management research and farm management researchers tend not to have much interest in accounting. Finally, a small number of researchers have the interdisciplinary knowledge, interest and skills to explore financial management in agriculture, and hence, research in this area is sparse. We argue that research in this area is important as agriculture is "one industry that has every single person as a stakeholder, relying on it for food and clothing" (Jack, 2005, p. 60). Furthermore, if industry stakeholders (for example: agricultural advisors, accountants and educators) gain an understanding of the financial management practices and financial decision-making processes of farmers, it may enable them to assist farmers in their decision-making and contribute to the development of sustainable farm enterprises. This is important because currently, many farm enterprises are not financially sustainable; for example, in Ireland, the average family farm income (FFI) in 2019 was a mere €23,933 and many farms were heavily reliant on subsidies (Donnellan *et al.*, 2020).

Motivated by the importance of the issue and the sparse literature, the role of FFM in the operation of farm businesses is explored by investigating its role in the strategic and operational decisions of farmers on three types of Irish farms (beef, tillage and dairy). This study is important, as much of the prior research in the area of farmer decision-making focusses on how farmers should make decisions (Öhlmér *et al.*, 1998; Walker, 2002; Fountas *et al.*, 2006), rather than on how farmers actually make decisions. An interpretive research strategy, using semi-structured interviews and a focus group, allows the story of how farmers navigate through their decision-making process to unfold.

Adopting a lens of sensemaking theory, as developed by Weick (1995) and Huzzard (2004), an understanding of how each individual farmer relies upon FFM in his/her decision-making process, is unpacked. Whilst Weick's (1995) work and much of the literature on sensemaking, look at sensemaking in organisations, several studies have applied sensemaking in an individual context (McCown, 2005; Checkland, 2007; Sonenshein, 2007; Magne and Cerf, 2009). Sensemaking has been discussed from a theoretical perspective in the agricultural literature (McCown, 2005; Amanor-Boadu, 2007; Sneddon *et al.*, 2009;

Peirano-Vejo, 2012), but with no previous exploration of how farmers actually make decisions. We gain an understanding of how some FFM activities can act *as a cue*, which may cause a *sensebreaking activity* that triggers a farmer to enter a process of sensemaking. Other FFM activities can be drawn upon to provide a *sensegiving* role in the sensemaking process. These are dual roles for sensemaking – one or other or both, are observed in the 62 decision-making processes examined.

Deeper analysis of the empirical findings shows that the role played by FFM in farmer decision-making is influenced by the decision type (strategic or operational) being undertaken and the farm type (dairy, tillage or beef) in operation and shows how sensemaking theory can apply to smaller entities. Practically, stakeholder groups (including governments and state funded agencies, such as Teagasc) who provide education, training and advisory services to farmers, can use the findings to improve the design and delivery of services to their clients.

The paper is structured as follows. An overview of the rather sparse accounting literature on decision-making in agriculture is provided in Section 2, with a particular focus on the role of FFM in that process. Then, in Section 3, the conceptual framework drawn from the sensemaking model by Huzzard (2004) and the properties of sensemaking established by Weick (1995) are discussed. A discussion of the methodology follows in Section 4, followed by Section 5 – findings and Section 6 – discussion and some concluding comments in Section 7.

2. Literature review

This section defines FFM, highlights its level of adoption, explores its role in farmer decision-making and outlines some unique characteristics and complexities of farmer decision-making. Whilst there is a significant body of literature on farmer decision-making, it is quite disjointed, covering a wide spectrum of agricultural economics, rural studies, agricultural science and farm management literature and to a much lesser extent, the financial management literature. For example, Ndemewah *et al.* (2019) reveal that between 1964 and 2016, only 41 articles related to financial management/management accounting, with the majority (19 articles) in agriculture/agricultural economics journals and with less emphasis in accounting journals (13 articles, and only 2 of them in management accounting journals). Much of the agricultural economics literature focusses on policy-related issues, decision-making models and quantitative methodologies, with very few studies adopting a *qualitative* approach to gain an understanding from farmers of how they use FFM practices to guide them in strategic decision-making. For example, Öhlmér and Lönnstedt (2004) adopt a survey approach to explore how financial accounting information (e.g. statutory reports) is used in the decision-making processes of farmers, but do not explore how management accounting information and FFM practices are used in farmer decision-making. The rural studies and farm management literature tends to focus on decision-making and business planning, farm household decision-making and similar matters relating to the individuals on the farm, but has little depth on accounting or FFM practices. For example, Farmar-Bowers (2010) acknowledges that women may play an important role in maintaining the financial records, which assist with strategic decision-making, but does not report on how FFM practices are actually used to aid strategic decision-making. Because of the sparse accounting literature, we draw on and synthesise these various streams of literature to provide a holistic overview of how FFM practices are at play in the decision-making process of farmers.

2.1 Overview of farm financial management

According to Smith (2007), management accounting broadly encompasses the practices, processes and information used for decision-making, governance, control and accountability.

FFM essentially is a term adopted to classify management accounting practices on farm enterprises. Castle and Becker (1962, p. 3) define FFM as "concerned with the decisions that affect the profitability of the farm business", whilst Byrne (2005, p. 4) describes FFM as "the activities involved in the acquisition and use of resources such as land, labour, capital and equipment by the farm business". Byrne also notes that financial management encompasses financial planning and control, which involves keeping, analysing and/or interpreting financial data.

There is no one single accepted definition of FFM evident in the prior literature. Reflecting on various definitions available, we adopt a broad definition of FFM to encapsulate a range of financial practices that farmers may engage in, when controlling the finances of their farm enterprise. The definition we adopt for FFM is:

> Any activity that involves the recording, analysing and/or interpreting of financial data that enables planning, control and decision-making.

These activities vary from well-documented *formal financial* practices (for example: budgets or cash-flow forecasts) to *informal financial* undocumented practices (for example, calculations on the back of an envelope) by farmers. This definition excludes non-financial practices, such as the monitoring of operational metrics specific to each farm type; for example, grass management (dairy), soil testing (tillage) and animal weights (beef). Whilst we acknowledge that non-financial practices can assist in the financial management of a farm enterprise, and for some farmers, they are considered even more important than financial practices, in this study, we specifically concentrate on how financial practices are at play in the financial decision-making process of farmers. The two primary reasons for keeping records and accounts on farms are, namely, for statutory (legal) purposes and for management (decision-making) purposes (Warren, 1992). This study is primarily concerned with the types of records and the formal and informal routines of FFM available to the farmer for use in financial decision-making, to illuminate this relatively unexplored area in the literature. Whilst acknowledging that accounting information compiled for statutory purposes may be used as a management tool (Argilés and Slof, 2001), we argue that it is important for industry stakeholders (including farmers) to gain an understanding of the various formal and informal routines that farmers actually use, whilst undertaking financial decision-making. In doing so, knowledge is shared and lessons are learned by industry stakeholders, which may contribute to improved financial decision-making and improved farm viability. Ndemewah *et al.* (2019) specifically call for more research in this area.

2.2 Level of adoption of farm financial management

The use of FFM for management accounting and decision-making purposes appears to be quite limited. According to Turner and Taylor (1989, p. 18):

> Often seen as a necessary evil by farmers, indeed some may even say that it is an unnecessary evil! They prefer 'the day's work' on the farm to the office work of 'paper pushing'.

Furthermore, Jack (2005, p. 62) states:

> Only a minority of farmers prepare and use management accounting information. This mainly consists of cash-flow information and budgets, but some do prepare gross margin data and compare it to published figures.

In the context of Irish agriculture, a number of studies review the level of financial management by farmers. Byrne (2005) demonstrates that the use of FFM amongst farmers is low, despite heavy investment in advisory services and incentives to encourage its

adoption. The *eProfit Monitor* [1] and *Cash-flow Budget* [2] are two FFM tools promoted by Teagasc; yet a 2012 survey highlights that only 12% use the *eProfit Monitor* and only 7% complete a *Cash-flow Budget* (Boyle, 2012). Furthermore, Irish (2012) confirms that whilst the awareness of financial management tools by Irish tillage farmers is quite high, the level of adoption is low. For example, 70% of tillage farmers surveyed are aware of the *eProfit Monitor* as a financial tool, but only 7% of them actually use it in practice.

Byrne (2005) suggests that farmers are naturally reluctant to seek out information, if they cannot see the use of it or if it does not match their mindset. Factors that contribute to the slow adoption of FFM techniques include: visual assessments being deemed adequate, formality discontinued once skills are learned; farmers never learned the skills required; and other aspects such as the farmers' own worldview. These barriers documented by Byrne (2005) help to highlight that farmers may have an alternative approach (for example, visual assessment and/or the farmers' own worldview) to management accounting information to guide them in decision-making situations. Similarly, Öhlmér and Lönnstedt (2004) and Nuthall (2012) contend that farmers often use an intuitive decision-making process, and therefore, they may not prepare and use management accounting information to aid them in decision-making.

However, this paper reveals a different story, as the evidence gathered highlights that farmers engage in quite a high level of FFM activities when undertaking strategic farm expansion decisions (farmers who could be considered more progressive compared to the average farmer). Those FFM activities help them to navigate through day-to-day farm management activities (operational decision-making) and to make sense of their strategic decisions (strategic decision-making).

2.3 The role of farm financial management in farmer decision-making

Kim and Cameron (2013) reviewed 183 research papers (which include aspects of: whole farm management, managerial ability, production management, marketing management, financial management, resource management and environmental management) and found that only 11 relate to financial management. Much of the research on farmer decision-making focusses on how farmers should make decisions and propose various decision-making models (Öhlmér *et al.*, 1998; Walker, 2002; Fountas *et al.*, 2006), with few studies focussing on how farmers actually make decisions. This lack of knowledge on the reality of how farmers make decisions may be a reason why various decision-making tools available to assist farmers, are not being used to the extent expected (Boyle, 2012; Makinen, 2013).

In the sparse literature that focusses on how FFM is used in financial management farmer decision-making, Byrne *et al.*'s (2003) survey of Irish farm management specialists finds that the following four formal FFM tools are most frequently used on Irish farms to aid decision-making:

(1) Farm advisory reports.

(2) Output from "on-farm computer-based farm financial analysis".

(3) Annual tax accounts.

(4) Monthly bank statements.

Only one-third of the respondents (36.3%) use one or more formal FFM tools for decision-making. The remaining 63.7% do not use any of the specific tools for this purpose, but use them for tax assessment and loan applications. Of 897 Irish farmers surveyed, dairy farmers are most likely to use farm advisory reports in making decisions for their farm business, compared to other farm types.

Öhlmér and Lönnstedt (2004) find that farmers use FFM to detect problems and as a basis for decision-making, especially investment decisions. They acknowledge that management information services and tools are developed for analytical processes, whereas many farmers use intuitive decision-making. Nuthall (2012) also finds that farmers often replace formal practices (which may include FFM practices) with intuition. Makinen (2013) comments that these actions derive from the personal characteristics of the farmer and in particular, his/her use of intuition are more important than the farmer's management tools and processes, in enabling financial success on the farm. The above literature suggests that where farmers do not engage in FFM activities to guide them in decision-making, they tend to rely on their intuition. However, the interplay between FFM and intuition is more nuanced. We foreground the role of FFM in decision-making processes, whilst acknowledging that intuition may be an important additional aspect.

2.4 Characteristics and complexities of farmer decision-making

Many farm businesses do not run their business with the sole intention of profit maximisation (Gasson, 1973; Austin *et al.*, 1996; Willock *et al.*, 1999; Beedell and Rehman, 2000; McGregor *et al.*, 2001). Non-financial issues and other values/goals/attitudes/behaviours often supersede financial objectives in farmer decision-making. Collectively described as the psychological make-up (mentality) of the farmer, many are linked to the concept of *farmer identity* and *farming culture*. Identity and culture refer to issues surrounding what it means to be a farmer, which includes aspects such as: love of the land, taking care of animals and working outdoors. Peirano-Vejo and Stablein (2009, p. 446) summarises farmer identity very well:

> Farmers' proximity to their source of production, their visceral relationship with their land, come to influence their sense of being [. . .]. They are expected to pass it on as a legacy to their children.

There appears to be a culture in farming where financial management activities are viewed as a necessary evil (Turner and Taylor, 1989; Jack, 2006). Jakobsen (2017) contends that a historically strong emotional emphasis on size and production volume as the main success criteria for being a good farmer have led to a neglect of economic rationality. The prior literature also alludes to the impact of the structure of the farm household (Jack and Anderson, 2002; Edwards-Jones, 2006) and the role of women (Wilkening, 1958; McGregor *et al.*, 2001; Farmar-Bowers, 2010) in farmer decision-making, indicating that it is often influenced by requirements of the *entire* farm household.

2.5 Section summary

Given the relatively low level of adoption of FFM activities by farmers and the economic vulnerability of most farms, further investigation is warranted. This study provides a contribution to the gap in the literature by revealing the reality of the role of FFM in a variety of actual strategic and operational decisions undertaken by dairy, tillage and beef farmers.

3. Theoretical framework

Sensemaking can be defined as a process of assigning meaning to events in the environment, by applying stored knowledge, experience, values and beliefs to new situations in an effort to understand them (Weick *et al.*, 2005). It is about people's attempt to understand past, present and future situations and depends on one's understanding of what happened and one's ability to lead future activities (Tillmann and Goddard, 2008). Weick (1995), drawing on Dervin (1983),

develops a conceptual analysis of sensemaking, which he argues is a central activity in all organisations:

> To talk about sensemaking is to talk about reality as an ongoing accomplishment that takes form when people make retrospective sense of the situations in which they find themselves and their creations (Weick, 1995, p. 15)

Members of organisations extract *cues* to action or are subject to influences from the surrounding changing environment. Cues are familiar structures, which may serve as a point of reference, and are seeds from which people develop a larger sense of what may be occurring (Weick, 1995). During this time, the sense is said to "break", leading to a reflective (sensemaking) process, probing what the status quo is and whether change is necessary in response to these cues. The individual's response to these cues and how they are weighed up will vary and is influenced by his/her beliefs about their role, previous experiences and underlying values. The action that occurs as a result of these cues will, in turn, change the environment within the organisation and play a part in determining which cues are noticed in the future. This process is circular; Weick (1995) calls it "ongoing". Weick (1995) shows how the concept of sensemaking evolved over time, from a thinking process (Louis, 1980) to a framework (Starbuck and Milliken, 1988), to a mechanism used to attribute meaning (Sackman, 1991). Weick postulates that according to Apker (2004), change is an occasion for individual sensemaking.

Whilst much of the literature on sensemaking theory concentrates on sensemaking in organisations, we argue that the sensemaking process of individuals is also important. Weick (1995) himself argues that individuals engage in sensemaking under conditions of equivocality and uncertainty. Checkland (2007) applies sensemaking in the area of general practice in the health service by investigating why practitioners behave as they do, whilst we explore how individual farmers behave in decision-making situations. Sonenshein (2007) argues that sensemaking is a crucial part of how individuals respond to ethical issues. More specifically, in agriculture, McCown (2005) outlines how decision support systems are used to support farmer's sensemaking in conditions of uncertainty and ambiguity, whilst Magne and Cerf (2009) explore how farmers look for and make sense of information to develop their farming projects.

Weick (1995) identifies seven distinguishing characteristics of sensemaking, which set it apart from other explanatory processes such as understanding, interpretation and attribution. Sensemaking is grounded in identity construction, retrospective, enactive of sensible environments, social, ongoing, focussed on and driven by extracted clues and driven by plausibility rather than accuracy (Weick, 1995). These properties of sensemaking guide the reflective process by which individuals select particular aspects of the environment to focus on and interpret (Taylor, 1999).

Huzzard's (2004) conceptualisation of sensemaking, sensegiving and learning in a model of organisational change focusses on learning through exploration in projects, rather than learning through the exploitation of routine activities. His developed model of sensemaking, learning and organisational change introduces concepts of sensegiving and sensebreaking (Figure 1).

This depicts a cyclical process, as organisations confront change and learn from situations encountered, just as the "ongoing" property Weick (1995) attributes to sensemaking. Huzzard states that:

> [. . .] the learning cycle is triggered by a cue received by the permanent organisation [3] that "breaks sense" and generates sensemaking, leading to the establishment of a new activity – typically a project (2004, p. 357).

This leads to a temporary [4] situation whereby sensegiving activities are undertaken, learning takes place and is fed back into the permanent organisation. This cyclical process continues until another cue presents itself and breaks sense once more, leading to another process of sensemaking. Huzzard (2004) highlights that people require values, priorities and clarity about preferences, rather than more information, to cope in sense breaking situations. For Huzzard, *cues* arise in the day-to-day operations (or routine actions), which cause *sensebreaking* and trigger the process of *sensemaking*, which may result in changes to the organisation (via non-routine action).

Whilst a number of authors have conducted research in the area of sensemaking in agriculture (McCown, 2005; Amanor-Boadu, 2007; Sneddon *et al.*, 2009; Magne and Cerf, 2009; Peirano-Vejo, 2012), there are no prior empirical studies of sensemaking, specific to farmer decision-making. If organisational change as studied by Huzzard (2004), is re-conceptualised as being similar to or enacted through decision-making (either strategic or operational), then Huzzard's application of sensemaking to organisational change can be adapted to farmer decision-making. When a farmer receives a *cue* and then enters a decision-making process, he/she is entering a process of sensemaking. In that process, various sources of *sensegiving* (FFM activities, advisors and intuition), as well as the farmer's own values, could be used to guide his/her decision-making. This study focusses on sensemaking by *individuals* in an accounting context, as opposed to sensemaking in accounting at an organisational level (which was undertaken in the sensemaking accounting studies profiled earlier). In essence, the concept of farmer identity (which is quite strong in the financial management literature), emphasises how the role of the individual is important in financial decision-making. Similarly, the first property of sensemaking *grounded in identity construction* emphasises the important role of the identity of individuals in the sensemaking process. In fact, Weick (1995, p. 18) specifically states that "sensemaking begins with a sensemaker". This strong connection supports the importance of exploring the role of sensemaking of individuals (in this study, meaning individual farmers).

Overall, there are three primary reasons for using sensemaking as a framework in this study. Firstly, many of the roles of FFM activities in farmer decision-making have strong connections with the seven properties of sensemaking. Secondly, sensemaking is a theoretical framework that sits well with the interpretive and subjective nature of this research project. Finally, sensemaking has been applied in agriculture previously, although not to a significant extent, and we are able to build on this previous work.

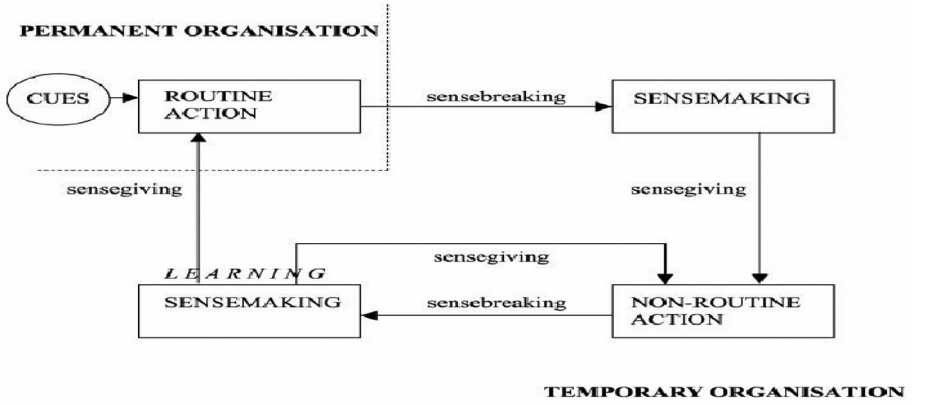

Figure 1.
Sensemaking, learning and organisational change – a model

4. Study context, methods and data collection

Prior to detailing the methods and data collection, some background to the Irish agricultural industry provides the study context.

4.1 Study context

The National Farm Survey (NFS) identifies the following primary agricultural farming types in Ireland, namely, dairy, cattle (beef), sheep, tillage and mixed (Donnellan *et al.*, 2020). There are approximately 139,600 family farms in Ireland and the average FFI in 2019 was €23,933. FFI varied significantly across different farm types with dairy €66,570, tillage €34,437 and beef €9,188 (Donnellan *et al.*, 2020). Farming in Ireland continues to be reliant on subsidies, which, on average, accounted for 77% of FFI in 2019; furthermore, 34% of Irish farms were deemed viable, 33% sustainable and 33% vulnerable (Donnellan *et al.*, 2020).

Investment in Irish farming totalled almost €983m in 2019 (Donnellan *et al.*, 2020), with most being invested in dairy farms and beef farms having the least investment. Despite this, the 2019 NFS confirms that 62% of farms have no farm-related debt. Of the farms that do have debt, the average level of borrowings within each farm type varies significantly. For example, average borrowings on indebted farms were as follows: dairy farms €112,377; €63,661 on tillage farms and €26,627 on beef farms (Donnellan *et al.*, 2020). These figures show that whilst investment in farming is quite significant, many farmers have no borrowings and there are significant variations within each farm type. Dairy farmers, on average, have the highest incomes of the three farm types of interest in this study and they have the highest level of debt, suggesting they are the most intensive investors in their farm enterprises. The farms in this study are drawn from farms that have made strategic investments, with or without borrowings, in recent years.

4.2 Methods and data collection

The empirical evidence gathered for analysis consists of semi-structured interviews with 27 farmers [5]. The farmers were selected with the aim of gaining a deep understanding of the experience of a carefully selected group of people (Maykut and Morehouse, 1994). To fulfil the research objectives of the study, farmers selected for interview needed to have made strategic decisions within their farm enterprise in recent years. Many of these farmers could be considered more progressive, have larger farm holdings and consequently, may conduct more detailed financial management before embarking on strategic decision-making, compared to the average Irish farmer. Despite these characteristics, given the significant investment by Irish farmers annually [for example, €983m in 2019 (Donnellan *et al.*, 2020)], it is important to explore the role of FFM in the strategic financial decision-making process of farmers to develop a deeper understanding and to extend the sparse prior literature in this area.

Farmers were identified with the assistance of three bodies that provide advisory services to farmers in Ireland, namely: Teagasc, the Agricultural Consultants Association and the Irish Farmers Association. Three representatives from each of these three bodies were requested to each select three farmers, who had made strategic farm expansion decisions on their farm recently and who were willing to participate in the study. This provided 27 farmers for an interview, made up of nine from each of the three primary farming types (dairy, tillage and beef) that operate in Irish agriculture. Many of the farmers that were interviewed had quite large farms compared to the average farm size in Ireland. This is primarily because larger farms are more likely to conduct strategic farm investment decisions than smaller farms.

The interviews were recorded, transcribed and reviewed to address some minor corrections. Each transcript was read a number of times directly after it being transcribed, to become familiar with the data. Field notes were taken directly after each interview so that they could be used at a later stage of analysis, to highlight important issues that were noted in connection with each individual interview. Traditionally, qualitative researchers used manual methods of coding data. However, in recent years, computers are increasingly used to assist researchers analyse their qualitative data. Having researched the academic debates concerning the appropriateness or otherwise of computer aided systems (Richards, 2005), it was decided to use NVivo (NVivo qualitative data analysis software – Version 10, 2012) to assist in data management and data analysis.

Once the data had been imported into NVivo, the step-by-step guide to thematic data analysis as advocated by Braun and Clarke (2006), was followed to develop a coding scheme. This process, advocated by Braun and Clarke (2006), consists of six phases, namely:

(1) familiarising yourself with your data;
(2) generating initial codes;
(3) searching for themes;
(4) reviewing themes;
(5) defining and naming themes; and
(6) producing the report.

In addition, the process endorsed by Blaikie (2010) of "describing, classifying and connecting" was embraced. Combining these two approaches to qualitative data analysis provided an iterative and rigorous process of data analysis. The focus was on allowing the story of the data in the "raw" state to emerge – the task of drawing theoretical inferences was for later. It is important to note that whilst computer aided systems for qualitative data analysis can be useful tools, they cannot replace the researcher's own knowledge of the empirical data or the high level of research skills and judgement required to comprehend the data and elucidate themes or the need for the researcher to be reflective in the data analysis process.

Subsequently, a focus group [6] was conducted with representatives from various stakeholder groups in Irish agriculture. Focus groups, as a form of qualitative research, are basically group interviews, with a reliance on interaction within the group, based on topics that are supplied by the researcher, who typically takes the role of the moderator (Morgan, 1997). The focus group allowed the researchers to probe the interview findings in more detail and to question industry experts as to why certain opinions were held (Blaikie, 2010). Three industry experts participated in the focus group, namely, a financial management specialist with Teagasc [7], an agricultural consultant [8] and a representative from IFAC Accountants [9]. The focus group was professionally video-recorded and transcribed for analysis.

The interpretive methodological approach adopted is compatible with the assumptions of the theoretical framework of sensemaking. Weick (1995) does not specifically label sensemaking from a methodological, ontological or epistemological perspective, but refers to the terms "narratives", "story-telling", "socially constructed" and "constructing meaning" – terms, which have strong links with interpretive studies. Dervin's (1993) early writing on sensemaking, also used interviews as a method of data collection, a method closely affiliated to qualitative studies. According to Craig-Lees (2001), sensemaking is a subjective mental activity whereby individuals make sense of themselves, others and events. Furthermore, he contends that when:

> [. . .] sensemaking is used as an analytical tool, the narrative becomes a text that can be analysed and the emphasis is on identifying shared meanings and common patterns of thought across individuals (Craig-Lees, 2001, p. 518).

These authors in the sensemaking literature all suggest that sensemaking is a suitable methodological approach that connects well to the interpretive and subjective nature of this study.

5. Findings

Prior FFM literature highlights a lack of engagement by farmers with FFM-related activities. However, a different story emerges here when the role of FFM in a range of strategic and operational decisions, undertaken by 27 farmers, is explored. By making a distinction between the levels of FFM conducted (formal, informal or none) in strategic decision-making and the type of FFM system in place (strong, moderate or weak) for operational decision-making, a more differentiated pattern of how FFM is used, is illuminated. This pattern also varies within farm types (dairy, tillage or beef).

5.1 The role of farm financial management in strategic decision-making

In the 27 interviews, farmers were asked "to describe major financial strategic decisions that they have undertaken on their farm in the past five years". A variety of strategic investment decisions (each farmer invested in excess of €250,000 in his business in the past five years) had been undertaken. These involved six types of decisions, namely, buildings investment, land purchase, machinery investment, land lease, livestock investment and off-farm investments. In total, 62 strategic decisions are evident. Buildings investment decisions are most prominent with 21 decisions, followed closely by land purchase with 17 decisions. Machinery investment decisions are relatively frequent at 10, but land leasing of 6, livestock investment of 4 and off-farm investment decisions of 2, shows that these types of decisions are less prevalent in the data.

It emerged that there are three varieties of FFM at play in strategic decision-making, which are labelled as "formal analysis", "informal analysis" and "no analysis". Farmers were asked a number of probing questions, which focussed on how they evaluated each decision financially, before proceeding with it. For example, Farmer 8 (beef) speaks about conducting detailed "formal analysis" before proceeding with the purchase of land:

> I looked very much so into what would it [land purchase] mean, what my extra profit would be [. . .] I went into two or three other different avenues and said if I put this money into something else, what would the financial return be, and what would the implications be on my lifestyle? I weighed it up.

Another farmer, Farmer 5 (dairy), describes conducting detailed budgets before proceeding with a buildings investment decision:

> All the budgets would be done out with all different sets of figures for four to five years.

This farmer uses an Excel spreadsheet to construct a formal analysis of expected cost and revenue projects over five years (including a sensitivity analysis of how projections might fluctuate, based on a range of possible future milk prices) as a result of undertaking the proposed investment.

An example of more "informal analysis" comes from Farmer 23 (tillage), in relation to a machinery investment decision:

> I would have done some crunching numbers, I'd be trying to see how can I cover the payments, or how do I justify the payments on it and that's all I would do.

In addition, Farmer 24 (beef) provides a good example of how he conducts "informal analysis" of a buildings investment decision "on the back of a breakfast cereal box":

> We got it out on the table, Claire [farmer's wife] and myself, and we had it [figures] done on the back of a Weetabix box [. . .].

During the interview, he went over to a press in his kitchen and took out that same Weetabix box and showed it to the researcher. On the box were estimates of what the farmer expected the proposed building to cost him.

The final variation of FFM at play in strategic decision-making is "no analysis". Evidence in the interview data illuminates that some farmers conducted no financial analysis prior to undertaking some strategic farm investment decisions. "No analysis" decisions are evidenced by the farmer's negative response or by inference, that there was nothing in the interview data to support FFM taking place. When Farmer 6 (beef) is asked if he conducted financial analysis before proceeding with a livestock investment decision, he says simply:

> No, that's the straight answer, no!

Farmer 12 (dairy) admits in relation to a land purchase decision:

> The honest answer is, it [money] was in the account and the land was for sale, no we didn't.

Reflecting on the variation of FFM conducted in each of the 62 strategic decisions explored, the evidence suggests that farmers conduct a considerable amount of FFM (formal or informal) when undertaking strategic decisions. Initially, the relatively high level of FFM displayed is quite surprising, given that the prior literature implies a lack of engagement in these activities by most farmers (Jack, 2004; Byrne, 2005; Boyle, 2012; Irish, 2012). In the focus group, FG/3 corroborates the literature as he estimates that quite a low percentage of his clients conduct FFM:

> I would say five to 20%, five to 10% max.

Furthermore, FG/3 notes:

> Well, no-one really does a return on investment figure. We wouldn't even do return on investment figures for clients [. . .] it's more I need a shed. It has to go up. I've a nitrates issue. The advisor says I have to do it.

In FG/3's experience, farm advisors do not conduct a return on investment calculation for their client (farmer), but rely on the farmer's strong interest in making a particular strategic investment and how to afford it. However, the focus group participants also highlight that they are not surprised by the reasonably high level of FFM conducted by the farmers interviewed, given the *materiality* of the farm expansion decisions in the sample.

Subsequent to exploring the level of FFM conducted in each of the 62 strategic decisions explored, the researchers observe that *different types of strategic decision* also seem to prompt different levels of analysis. The purchase of land is a decision that many farmers feel warrants "formal analyses", whilst in buildings investment decisions "informal analysis" is emphasised more strongly. These findings suggest that larger scale or once-off investment decisions involve formal levels of FFM by farmers.

5.2 The role of farm financial management in operational decision-making

Operational decisions concern the purchase of feed and fertiliser (dairy and beef) or the purchase of seed and sprays (tillage). The annual value of the operational decisions explored

in the interviews varied considerably in monetary value from €20,000 to €280,000. Tillage farmers spent the greatest amount on these operational decisions, with beef farmers being the lowest spenders. As operational decisions are made on an ongoing basis (unlike the ad hoc nature of strategic decisions), it proved more difficult to gain an understanding of the level of FFM undertaken (formal, informal or none) in these situations. However, the level of FFM in operational decision-making is intrinsically linked to the *type of FFM system* that each farmer has in operation. When we reflect on the discussions with all 27 farmers, 3 types of FFM systems in operation emerge, which we label as "strong", "moderate" or "weak" FFM systems. These labels are generated in the context that the prior literature (Jack, 2004; Byrne, 2005; Boyle, 2012; Irish, 2012) contends that most farmers spend little time on FFM activities.

Firstly, "strong" FFM systems are found when farmers use farm accounts packages, industry computer-based templates or detailed manual book-keeping systems to keep control of their finances. For example, Farmer 4 (dairy) outlines:

> We have the Irish Farm Computer's package, and every so often then I would just put in the figures into it, and then every year I would tidy up all the accounts [. . .] I also do the Profit Monitor.

Farmer 8 (beef) clarifies:

> I would do a very strict profit monitor with Teagasc. My Teagasc advisor and myself go through all the inputs and all the outputs for the year, I have been doing profit monitors for Teagasc for years, and that is the main management tool that I have, and [. . .] I would be working closely with my accountant on costings as well.

On many occasions, documentary evidence was made available to the researchers to support the operation of such "strong" FFM systems in the farmer's business. Secondly, "moderate" FFM systems are evident where farmers describe how they engage in some level of FFM activities, but do not appear to have a "strong" FFM system in operation. Examples include:

> I'm registered with VAT, so every two months I am making a VAT return, so that would basically make me look through all my chequebook stubs and sales, so from that perspective, I would keep a fair idea of what's going on. (Farmer 6, beef)

> First of all, there is the taxation side of the accounts where we keep all the invoices and all the normal stuff [. . .] And the profit monitor is new to me to a degree to be fair now [. . .]. (Farmer 24, beef)

"Weak" FFM systems are evident when farmers describe limited financial record-keeping, i.e. keeping paperwork on farm income and expenses for onward completion into accounts by their accountant:

> Well, I would keep all the sales and purchases dockets in a folder [. . .] I used to have a spreadsheet on the computer, I would try and keep a track of inputs and outputs, outgoings and, but usually as the year goes on, I get too busy and then that is kind of left, I could get to March and then it's left there, but I keep all the dockets in a folder and I kind of keep a track of it that way. (Farmer 13, beef)

> IFAC accountants, that's basically it [. . .] I keep a record of every transaction in a folder, I keep the invoices for everything. (Farmer 16, beef)

Amongst the farmers with weaker FFM in place, two of the farmers had sold development land for many millions during the Irish "Celtic Tiger" period (mid-1990s to the late-2000s),

and so had become less reliant on the cash and profits generated on the farm. Another farmer in this group is engaged in full-time employment off-farm and the operation of his farm appears to be only a hobby.

Reflecting on the types of FFM systems in place, based on the discussions with each of the 27 farmers, it emerges that most of the farmers operate "strong" to "moderate" FFM systems to assist them in operational decision-making. However, despite many farmers having "strong" to "moderate" FFM systems in place for recording financial transactions, some of them do not rely on them to guide their operational decision-making. Whilst these farmers are often mindful of the financial implications of their operational decisions, many of them justify low reliance on their FFM systems when making operational decisions, noting that regardless of the level of FFM they conduct, they have limited control over many aspects of such decisions. *Uncontrollable factors*, such as market prices of both inputs and outputs, weather and fuel costs, were blamed. For example, when asked how he controls the cost of his operational decisions, Farmer 11 (dairy) notes:

> I look at anywhere I can cut it [spend on feed and fertiliser] because it's a massive cost, but I still have to feed my cattle. I am running a highly stocked farm so I have to feed them [. . .] every year I sit down and think, it's huge, I am turning [spending] between €300,000 and €400,000, if I can try and reduce it, I am looking for ways, and I have yet to find one.

Whilst Farmer 12 (dairy) postulates:

> Every day we would get up and we would try to do our best. Circumstances change. If the weather is bad, you have to look after the cows [. . .] you're definitely not going to be firing it [feed] at them for the sake of giving it to them.

These farmers believe that whether or not they have "a good year" financially, is in many respects out of their control, once they do the operational side of farming to the best of their ability. If farmers feel that they are at the mercy of market forces and the weather, it may not make sense for them to engage extensively with their FFM systems, when making operational decisions. On further discussion with the focus group, FG/1 claims:

> There's a lot of uncontrollables out there, policy and disease and weather [. . .] But to control the controllables is what you would always say is to mind what's inside the farm gate [. . .] What you can control is what you should be measuring and trying to improve [. . .] if you can focus on the efficiencies on the farm, you're in a better position to mitigate against those uncontrollables.

FG/1 acknowledges the many variables affecting farming, but explains that farmers must still use FFM to measure and manage the controllable financial aspects, whilst trying to achieve best practice in the operational running of their farms. Furthermore, the participants in the focus group also note that the level of FFM in farming is connected with farming culture (*identity* – Weick, 1995). As FG/2 evocatively says:

> Farming is getting oil on your hands [10].

[. . .] inferring that many farmers believe that spending a lot of time on FFM is "not farming".

5.3 The role of farm type in financial decision-making

Farm type is a central part of the analysis of the findings and highlights an important theme in the data. The type of farm seems to provide variation in regard to the level of FFM conducted by farmers in financial decision-making. Reflecting on the variation in the level of FFM conducted in each of the 62 strategic decisions examined (facilitated by NVivo), the researchers observe that dairy farmers place the strongest emphasis on the role of FFM in

their strategic decision-making process, as many of them conduct either "formal" or "informal" analysis in the decisions undertaken, with little evidence of "no analysis" undertaken. The tillage farmers focus more on "informal" than "formal" analysis, whilst beef farmers are the farm type that places the least emphasis on FFM. Some of the beef farmers conduct "no analysis" when making strategic investment decisions and, furthermore, where they do conduct financial analysis, they tend to focus more on "informal" than "formal" analysis.

Similar to strategic decision-making, the level of FFM in operational decision-making by *farm type* shows interesting variation. Reflecting on the FFM systems in operation by each of the 27 farmers interviewed (facilitated by NVivo), the researchers observe that dairy farmers are the farm type most focussed on operating "strong" FFM systems, followed closely by the tillage farmers, with the beef farmers being least focussed on operating "strong" FFM systems. In the focus group, there was a considerable amount of rhetoric around the role of farm type in farmer decision-making. For example, the low level of FFM conducted by many of the beef farmers in this study is corroborated on a number of occasions. FG/3 notes how a significant number of his beef farming clients specifically do not want their accounts posted to them, as they do not want to be reminded of how badly their farm is performing. Moreover, FG/3 notes how he previously showed a statistic in his beef clients' accounts outlining the percentage of profit generated from a single farm payment and he was forced to take it out, due to the number of complaints it received – beef farmers again did not want to see how badly their farm was performing. In addition, FG/1 reports he had the experience of finding it difficult to arrange a time to meet a beef farmer client; eventually, the farmer said to the advisor that he had to come when his wife was not present, as he did not want her to know how badly the farm was performing. Finally, FG/2 quoted a Professor of Agricultural Science who maintains that *there is great pleasure in big cattle*, meaning, that is all, as they are not profitable. The focus group members acknowledge how the contrasting findings around farm type could be explained by the concept of *identity*, noting that whilst identity is a strong issue in farmer decision-making collectively, it is also quite a strong issue within each farm type. This suggests that within each farm type, an individual sense of identity is often present.

Similarly, when reviewing the sources of funding for each of the 62 strategic investment decisions explored in this study (facilitated by NVivo), dairy farmers appear most capable of funding investment decisions with debt finance, based on the strength of underlying cash-flows. From the focus group, FG/2 notes:

> The dairy guys have money every month to splash around on new toys [machinery] and tools that the beef guys don't.

This view is reasonable as many beef farmers acknowledge the need to use off-farm income and EU payments rather than borrowings, to fund strategic investments. For example, if a farmer has to borrow to finance an investment, he/she may need to ensure debt repayment capacity, and hence, may feel it necessary to conduct "formal" FFM activities. On the other hand, if a farmer has money to invest, there may not be a need to conduct such FFM activities.

6. Discussion

The interpretative analysis of the stories recounted by each farmer interviewed, of the formal and informal financial management activities conducted on their farm enterprise, enabled the researchers to conclude that many of the farmers operate "strong" to "moderate" FFM systems to assist them in operational decision-making, and that many conduct a considerable amount of FFM (formal or informal) when undertaking strategic decisions.

Initially, this relatively high level of FFM was quite surprising, given that the prior literature implies a lack of engagement in these activities by most farmers. However, considering that the farmers that were selected for the interview were those who have made *significant* farm expansion decisions, it may not be all that surprising, as these are the farmers that make up the majority of those who actually do engage in FFM activities. We also learn that *farm type* emerged as a key issue in the findings and it is evident that the dairy farmers are the most focussed on FFM in their decision-making, the beef farmers the least engaged and the tillage farmers are in-between.

Applying a sensemaking perspective to these findings, we begin by labelling the FFM activities that farmers engage in as *cues* that prompt decisions to be made. Weick's (1995) work on sensemaking talks extensively about *cues*. According to Weick, *cues* are extracted from the changing environment in which the organisation finds itself. The action that occurs as a result of these *cues* will, in turn, change the environment within the organisation and will play a part in determining which *cues* are noticed in the future. If we pause to reflect on this, FFM activities could be considered the *cues* that farmers use to assess decision-making situations, as such decision-making situations represent a changing environment for farmers.

Next, we consider that, whilst Tillmann and Goddard (2008) refer to how management accountants are called upon to provide a *sensegiving* role in an organisation, Giuliani (2016) refers to how accounting numbers/measurements/models also provide a *sensegiving* role. In this study, we argue that FFM activities (formal or informal) can provide a sensegiving role in farmer decision-making, as many rely on them for guidance (*sensegiving* role). Depending on the circumstances in their environment, in some decision-making situations, farmers do not rely on FFM activities to provide a *sensegiving* role (no analysis); in those situations, perhaps, other sources of *sensegiving* as identified in the literature, such as professional advisors (Tillmann and Goddard, 2008) and/or intuition (Makinen, 2013), may be relied upon.

Reflecting on these concepts of *cues* from Weick (1995) and *sensegiving* from Tillmann and Goddard (2008), we make connections with the Huzzard (2004) sensemaking model. In this context, we contend that FFM activities can play a *dual* role in the sensemaking process of financial decisions for farmers. Firstly, FFM activities may act as a *cue*, which triggers the process of non-routine action (i.e. operational or strategic decision-making), which leads to the process of *sensemaking*. For example, where farmers acknowledged reviewing (Section 5): their costs structure (Farmer 11, dairy), profit margins (Farmer 8, beef) and, receipts and payments (Farmer 6, beef), such FFM activities provide evidence of how FFM activities may act as a cue for decision-making. In essence, when a farmer conducts such FFM activities, they help him/her to appraise a given situation/decision, so they may act as a cue to take a particular course of action. For example, the FFM activity could be the cue to proceed with a certain decision, as it predicts that the farmer will reduce their costs and/or increase revenues, and/or increase farm profits.

Secondly, whilst the farmer is reviewing his/her options, he/she may need direction and looks for sources of *sensegiving*. Huzzard (2004) emphasises that *sensegiving* occurs through discourse. In farmer decision-making, this discourse could be through social networks/discussion groups (Maher and Donworth, 2012) or between farmers and their accountant and/or agricultural advisor. Gioia and Chittipeddi (1991) refer to sensegiving as an activity concerned with the process of attempting to influence sense-making. This current study reinforces this point, by demonstrating that FFM activities (formal or informal) could be one such sensegiving activity. For example, where farmers acknowledge (Section 5): conducting budgets (Farmer 5, dairy), exploring the financial return of various decisions (Farmer 8,

beef) and analysis of how debt repayments could be afforded (Farmer 23, tillage), these all provide evidence of how FFM activities may fulfil a sensegiving role. Another sensegiving source according to the literature could be the intuition of the farmer (Makinen, 2013).

These findings highlight how circumstances (farm type or decision type) may affect the weighing up process of the farmer, indicating whether to engage with FFM activities as a *sensegiving* device to guide them in both strategic and operational financial decision-making. This affirms *individual sensemaking* at the farmer level but also provides evidence of how farm type can indicate a certain level of *collective sensemaking*. Whilst each farmer may conduct *individual sensemaking*, as farmers sometimes use FFM activities to provide *sensegiving*, when faced with strategic decisions and on other occasions, depending on the circumstances in their environment, they may not feel the necessity to conduct such FFM *sensegiving* activities. Simultaneously we note from the findings that the dairy farmers are to the forefront in terms of involving FFM in their decision-making, followed by tillage and lagging behind, is beef. This highlights that at the industry level, there is a collective identity that goes with each farm type, as representative Irish farming organisations campaign for and cohere the interests of different farming types. Therefore, each farm type may converge around a similar sensemaking approach to strategic decision-making.

Moving on to reflect on the properties of sensemaking (Weick, 1995) and how they are present in the data, we note a number of salient points. The data shows that the properties of sensemaking (Weick, 1995) are present in the role of FFM in farmer decision-making. A mapping of the sensemaking properties, as identified by Weick (1995), and the role of FFM in both strategic and operational decision-making (facilitated by NVivo) reveals that all seven properties of sensemaking are supported in the data, with four properties strongly supported. The property most supported is *focussed on and by extracted cues*. As alluded to earlier, the data suggests that the FFM activities that farmers engage in are the *cues* that prompt decisions to be made. This concept of "cues" also links to the initial sensegiving aspect of Huzzard's (2004) sensemaking model.

Next, the sensemaking property of *grounded in identity construction* is particularly relevant, when reflecting on the findings of this study. When FG/2 postulates that farmers regard farming as "getting oil on their hands", and thereby infers that farmers dislike conducting FFM activities, this highlights that there is a collective trait/identity present in the farming community with respect to FFM activities. This aspect of farmer identity emerging in the findings also has strong connections with the prior literature (Gasson, 1973; Austin *et al.*, 1996; Willock *et al.*, 1999; Peirano-Vejo and Stablein, 2009). By making connections between the literature, the findings and the *identity* aspect of sensemaking, we deepen our understanding of how *farmer identity* plays a key role in how farmers make sense of, and navigate their way through, decision-making situations.

Another property that is strongly supported is *enactive of sensible environments*. The level of FFM that a farmer engages in, is very much dependent on the environment in which he/she operates. Personal financial circumstances (high borrowings or high cash reserves), the farmer's cultural identity of putting farming first (neglecting financial tasks) and the view that there are uncontrollable factors affecting the financial outcome (so much so that FFM cannot make a difference), all affect the level of FFM that a farmer undertakes in decision-making and are *enactive of sensible environments*.

The fourth property strongly supported is *driven by plausibility rather than accuracy*. Farmers may operate informal analysis in strategic investment in buildings, for example or look at just some key financial metrics or operational benchmarks to guide them in decision-making, rather than looking at comprehensive financial data. This property has very close

links with the role of the farmer's own intuition, which can substitute in place of using FFM in financial decision-making (Nuthall, 2012).

The remaining three properties of sensemaking, which are less supported, but nonetheless present, further acknowledge that the sensemaking framework is an appropriate lens. The sensemaking property *retrospective* is evident in the data where farmers acknowledge that in many instances, they have conducted financial analysis on similar types of decisions in the past and armed with this retrospective financial knowledge, they proceed with the current decision-making situations. The *social* property of sensemaking is also evident in the interview data, as farms acknowledge that they collate financial information and discuss it with their advisors and/or in social networks, such as discussion groups (Maher and Donworth, 2012), before enacting decisions under consideration. Finally, many FFM activities, by their nature, are ongoing activities conducted by farmers to guide them in decision-making, thereby connecting with the *ongoing* property of sensemaking.

The evidence gathered in this study suggests that sensemaking provides a cognitive frame to assist each individual farmer to navigate their way through the decision-making process. The empirical findings highlight that FFM activities are undertaken to assist in farmer decision-making, but are often not applied in a textbook way. Something similar was found by Jack and Jones (2007) in respect to target costing. Magne and Cerf (2009) show that sensemaking is contingent on the way farmers assign purposes and functions to information sources. We argue that farmer decision-making is essentially a sensemaking process and FFM activities are an example of an information source to which farmers assign purpose and function, in that process. This process of sensemaking is often quite complex and is not the same for all farmers engaging in financial decision-making. Furthermore, the role played by FFM activities in that process is not always the same. In fact, the evidence in this study highlights that the role of FFM activities in that process is largely dependent on *farm type* and *decision type*.

7. Conclusion

The first contribution is to extend the sparse literature in the area of financial management in agriculture, which claims little time is spent on FFM by farmers and many barriers exist to the adoption of FFM. By exploring the strategic and operational decision-making process of farmers, this study reveals some interesting insights. This paper highlights how some farmers conduct a considerable amount of FFM in strategic decision-making and that they have relatively strong FFM systems in place to assist them in operational decision-making, which is contrary to the overarching perception given in the prior literature. Furthermore, by distinguishing between "formal" and "informal" FFM analysis, this study reveals that whilst not all decisions may involve high levels of FFM analysis, FFM quite often is evident on an "informal" rather than on a "formal" basis. This important distinction is not evident in the prior literature. Finally, by comparing the role of FFM in both strategic and operational decision-making, across farm type (dairy, tillage and beef), we provide evidence to support that where farmers use FFM in farmer decision-making, it is largely dependent on *decision type* and *farm type*. This important finding is not emphasised in the prior literature.

The second contribution is that by applying the theory of sensemaking to the role of FFM in financial decision-making by 27 individual farmers, this study found that there is a dual role for sensemaking:

- Some FFM activities may act as a *cue* causing sense to break down and trigger the farmer to enter a process of sensemaking to help him/her make sense of that *cue*.

- During this process of sensemaking, the farmer may also call upon some/other FFM activities to further make sense of his/her situation, and therefore, such activities have the capacity to provide a *sensegiving* role in the decision-making process of farmers.

Tillmann and Goddard (2008) argue that the way in which accounting is used to make sense of decision-making situations is at least as important as the specific techniques used. Similarly, this paper reveals how FFM activities are used by farmers (as opposed to focussing on what specific FFM activities are used) to make sense of their decision-making situations.

The third contribution is a practical one. The enhanced understanding of the role of FFM in the decision-making process of farmers may assist stakeholder groups within the agricultural industry, to improve and tailor the design and delivery of their advisory services and e-tools to their clients. Stakeholders need to be aware that not all financial decision-making may involve a detailed undertaking of FFM activities and the extent to which farmers rely on FFM largely depends on the *decision type* and *farm type*. This adds to existing evidence from other studies (Argilés and Slof, 2001; Argilés and Slof, 2003), which note that small farm enterprises do not heavily invest in management accounting and control practices because government grants and EU subsidies to such farmers take away pressure from them to establish practices that could help them become more efficient. Although there has been some effort at the industry level to develop FFM tools and advisory services specific to each farm type, there is room for considerable development in this regard. For instance, state agencies and financial advisors to farmers should be mindful that subsidies and grants in the sector over a long period of time, can decrease the incentive of the farmer to adopt sophisticated management accounting tools or indeed FFM practices. However, despite these supports, it is still important for farmers to think about using FFM tools because as noted by Argilés and Slof (2001, p. 378) "giving the farmer a subsidy will keep him from going bankrupt for one year, but giving him management tools, will allow him to become self-sustainable". Perhaps, if more FFM tools were tailored for specific farm types and/or for specific decision-making scenarios, this would enable more informed financial decision-making and contribute to the development of sustainable farm enterprises. Otherwise, as the literature shows (Boyle, 2012; Makinen, 2013), they run the risk of low uptake of these tools by farmers.

The contributions of this paper are important for many stakeholder groups in the agricultural industry, including farmers. If industry stakeholders (for example: agricultural advisors, accountants and educators) gain understanding of the FFM practices and financial decision-making processes of farmers, it may enable them to better assist farmers in their decision-making. This paper illuminates a number of pertinent issues surrounding both of these aspects of farm management and, as many farm enterprises are not financially viable, we argue that it is essential for research studies to focus upon and expand knowledge in this under-researched area.

There are a number of limitations to the research approach adopted. It was not possible to randomly select farmers for an interview, as farmers who had made significant farm expansion decisions on their farms, had to be targeted to achieve the research objectives (Guest *et al.*, 2006). As a result, the size of farms featuring in the study could be considered quite large, when compared to the average size of a farm operated in Ireland. Furthermore, the financial decision-making process of the farmers sampled may not be reflective of the decision-making process of *all* farmers. Therefore, it would be interesting for future studies to compare the financial decision-making processes of farmers across various farm sizes.

In addition, future studies could explore the impact of a range of socio-demographic factors of farmers (for example, the age and level of education of the farmer) on their financial decision-making process. Future research could also explore how non-financial practices, for example, grass management (dairy), soil testing (tillage) and animal weights (beef) contribute to the financial management of farm enterprises.

Notes

1. www.teagasc.ie/rural-economy/farm-management/financial-analysis/farm-profit-analysis/the-teagasc-eprofit-monitor-pm/
2. www.teagasc.ie/rural-economy/farm-management/financial-analysis/monitor–budget-cashflow/
3. Refers to the ongoing routines of permanent organising that takes place within an organisation.
4. Refers to experimental innovative actions of temporary organising where new ideas are explored.
5. Farmers interviewed are referred to as farmers 1 to 27, and the type of farmer is noted as dairy, tillage or beef.
6. Focus group participants are referred to as FG/1, FG/2 and FG/3.
7. National body providing integrated research, advisory and training services to farmers.
8. Private agricultural consultant with 25+ years' experience.
9. IFAC (Irish Farms Accounts Co-operative) is the largest farm accountancy practice in Ireland.
10. Extract from conversation with one of the focus group interviewees (FG/2).

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