



Financial literacy practices on family farms

John Nolan^a, Teresa Hogan^b, Michael T. Hayden^{c,*}

^a School of Business and Economics, University of Galway, Galway, Ireland

^b DCU Business School, Dublin City University, Dublin, Ireland

^c School of Business, Maynooth University, Maynooth, Co. Kildare, Ireland

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ABSTRACT

Financial literacy has attracted significant interest in the past two decades with researchers predominantly focusing on two dimensions of its conceptualisation; knowledge and application. This paper answers calls for research on how context shapes financial literacy in Micro, Small and Medium-Sized Enterprises (MSMEs) using a practice framework drawn from established literacy theory. Financial literacy practices manifest in events and are influenced and shaped by social, cultural, temporal, technological, historical and institutional circumstances. This context-driven approach facilitates the examination of financial literacy in MSMEs where the owner-manager's financial literacy is entwined with that of the enterprise's practices. Using in-depth longitudinal case studies, we show how social and financial literacy practices on family farms are intrinsically interlinked and frame the timing of financial activities, the roles and tasks people undertake, the location where these activities occur, and how they are articulated. Institutional power relationships manifest in the disconnect between farm level financial literacy practices, many of which are informal and idiosyncratic, and those required by banks and government agencies. This power divide leads to frustration and sometimes apparent indifference to conducting more formal financial literacy practices. Temporality also emerges as a critical contextual factor. We identify the important moments in the farming calendar when farmers are focused on the financial aspects of the farm and propose that educational programmes aimed at improving the farmers' financial literacy could be more effectively targeted using a social practice lens.

1. Introduction

Family farms, which represent 93% of the 9.1 million farms in the EU (Eurostat, 2020) and often the bedrock of rural communities, are increasingly facing the financial effects of climate change policy compounding the traditional economic uncertainty associated with the sector. This is an added concern for policymakers who have long struggled to understand financial practices and decision-making at farm level. This lack of knowledge of the actual financial practices that take place on farms has also been a consistent theme in the academic literature (Argilés and Slof, 2001; Gloy and LaDue, 2003; Jack, 2005; Byrne et al., 2007; Halabi and Carroll, 2015; McDonald et al., 2016; Ndeme-wah et al., 2019; Hayden et al., 2021a).

Previous research reports that farmers spend little time on financial management, find financial information to be of limited use, and difficult to understand (Argilés and Slof, 2001; Byrne, 2005; Halabi et al., 2010; Hilken et al., 2018; Hayden et al., 2021a). The top-down

normative view of financial management on farms has led studies to focus on benchmarking farmer behaviour against textbook financial management practices with a limited focus on explaining the actual financial practices on farms through alternative perspectives. These findings are consistent with the broader small business financial management research which finds a significant gap between the "textbook theory" and the actual day-to-day financial management practices (McMahon and Holmes, 1991; Halabi et al., 2010, Lavia López and Hiebl, 2015). This "textbook" approach best fits medium and large enterprises where financial management is a formal functional role within the organisation. Research indicates that financial management is different in MSMEs where environmental, personnel and organisational factors significantly influence the organisation of management accounting practices (Lavia Lopez and Hiebl, 2015). Whilst we draw on findings from financial management, we believe the bi-dimensional concept of financial literacy (Huston, 2010) is a better fit for the MSME¹ context where the owner-manager's finances and the

* Corresponding author.

E-mail addresses: nolanj@universityofgalway.ie (J. Nolan), teresa.hogan@dcu.ie (T. Hogan), michael.hayden@mu.ie (M.T. Hayden).

¹ We use the term MSME instead of the term SME to signal our primary interest in smaller organisations.

enterprise's finances are intrinsically interlinked (Ang, 1991).

Financial literacy encompasses the financial knowledge of the individual (in this case, the entrepreneur or owner-manager) and the application of that financial knowledge in the financial management of the business (for example, budgeting and capital investment appraisal) (Huston, 2010). Thus, there is a clear overlap between the application dimension of financial literacy and the formal financial management activities of the enterprise. However, research indicates that the owners of MSMEs, particularly farmers, do not engage with these activities. Byrne et al.'s (2003) survey of 897 Irish farms revealed that only 36.3 per cent of farmers use one or more formal financial management tools for decision-making. This has led researchers to conclude that farmers' personal characteristics and intuition are more important than management tools and processes, in enabling financial success (Makinen, 2013). Accordingly, we are interested in a broader conceptualisation of farm financing activities than that afforded by financial management and that acknowledges the key role of the owner/entrepreneur in the financial decision-making of the business. Thus, the knowledge and application conceptualisation within the emerging field of financial literacy is a better fit for our MSME context. We acknowledge the need to define and measure financial knowledge as the core concern of financial literacy. However, as practitioners interested in improving financial literacy, we seek to advance understanding of how knowledge is applied in this emerging field by examining how financial literacy practices are developed and shaped by interactions with others, and how social, cultural, and institutional circumstances influence them. Whilst business financial education and advice play a key role in improving the financial knowledge of the owner-manager, contextualizing that education to fit the owner-manager's sector, the financial products available locally, temporal, cultural and other institutional factors will ensure better outcomes from these efforts.

The focus of this study is on the financial literacy *practices* on family farms, as distinct from measuring financial literacy *levels* (the knowledge dimension) which is traditionally associated with the financial literacy literature. The authors acknowledge the similarity between the concept of financial literacy practices and more traditional financial management activities which dominate the farm management literature but feel that in contrast to focusing on a checklist of particular financial management activities that take place on farms (as often alluded to in previous farm financial management studies), our financial literacy practice perspective offers a more granular and bottom-up viewpoint, as well as facilitating the integration of other bodies of related literature to provide new insights.

There is substantial heterogeneity in financial literacy across individuals and MSMEs even after controlling for financial knowledge. We contribute to this emerging field by examining how context shapes financial literacy in MSMEs using a practice framework drawn from established literacy theory. Literacy theorists have established the social or interactive nature of literacy as *primarily something people do* (Barton and Hamilton, 1998). Applying this social practice framework, we show how financial literacy practices manifest in events and are influenced and shaped by social, cultural, temporal, technological, historical and institutional circumstances. We answer calls from two recent systematic reviews of the literature for a greater understanding of context including the industrial sector, business environment, social network, and cultural and institutional factors in financial literacy (Molina-García et al., 2023; Graña-Alvarez et al., 2024). Furthermore, in a farming context, a recognition in prior studies of the importance of roles (Jackson-Smith et al., 2004; Carnegie et al., 2020), privacy (Hilkens et al., 2018), farmer identity, motives and values (McDonald et al., 2016; Hilkens et al., 2018), familism (Ndemewah et al., 2019), informal approaches to financial analysis (Hayden et al., 2021a) and power (Hilkens et al., 2018) indicate a more complex phenomenon than is currently conceptualised in the literature and one that would benefit from a more socially and culturally sensitive lens.

The importance of the social and cultural context to understand

farmers' practices is well established (for example, see Burton, 2004; Vanclay, 2004) while more recently, Grivins et al. (2021) highlight the importance of situating studies of farm financing in a particular socio-political context. Our findings indicate that on farms, social and financial literacy practices are intrinsically interlinked (McLean, 2009; Jack, 2020) and frame the timing of financial activities, the roles and tasks people undertake, and the location where these activities take place. We witness the tension between formal and informal financial literacy practices on farms. The institutional focus on dominant financial literacy practices contrasts with the farm level approach observed whereby the farmers undertake more informal financial analysis and "rules of thumb" to understand the farm's performance and financial position. Building on prior findings of the importance of spouses (Jackson-Smith et al., 2004; Carnegie et al., 2020), we also evidence the role of children in the financial literacy practices on family farms. The next generation tend to have more formal education and experience with technology, which often results in them being relied upon by the farmer to assist with certain financial tasks on the farm (for example, online banking). A key implication of these findings, and the new lens through which to explore financial literacy practices at farm level, is farm stakeholders (for example, agricultural advisors, banks, educators) having a better understanding of the tasks, the people, the texts, and the locations involved, and how they can consequently tailor their products and services offered to family farms more effectively. The lens is not limited to the farming context and can be applied to explore financial literacy practices in other sectors and settings including emerging contexts such as crowdfunding. The theory contextualizing approach fits well with Molina-García et al.'s (2023) recommendation to examine how micro, meso and macro contextual layers determine enterprise financial literacy. It is also well suited to longitudinal analysis of changing financial practices.

The paper is structured as follows; an overview of the prior literature is provided in Section 2. Section 3 presents the theoretical framework adopted. Section 4 outlines the study context and the research methodology undertaken. Section 5 presents the findings and discussion. Section 6 concludes and provides the key takeaways from the study.

2. Literature review

The context of this study is financial literacy on family farms, the oldest form of MSMEs. However, there have been limited studies on the financial literacy of farmers in a developed country context, which is surprising given the prior concerns raised in farm management studies (Halabi et al., 2010). Therefore, before we delve into the financial literacy literature (Section 2.3) we draw on two important streams of farm-related literature to contextualise our practice-based framework; farm financial management (Argilés and Slof, 2001; Gloy and LaDue, 2003) (Section 2.1) and farming as a social and cultural activity (Burton 2004; Vanclay 2004) (Section 2.2). An overview of how these bodies of literature dovetail to underpin the theoretical framework employed is provided in Section 3.

2.1. Farm financial management

Historically, financial management is recognised as a distinct field of farm management (Boehlje and Eidman, 1984; Shadbolt and Bywater, 2005; Hilkens et al., 2018). The dominant focus in prior financial management studies is to take a normative approach to examine whether a farm adopts particular "best practice" financial management practices and relate this to the farm's financial performance and structure (Gloy and LaDue, 2003; Gloy et al., 2002; Byrne et al., 2003, 2007). Some of these studies have found a low level of uptake of financial management technologies and practices to assist in decision-making at a farm level (Byrne et al., 2003; McDonald et al., 2016). Specific concerns about farmers' level of financial knowledge and financial literacy (either self-reported or determined using a financial questionnaire) and the

barrier this represents with respect to the adoption of more formal financial practices at a farm level are also noted (Jackson-Smith et al., 2004; Halabi and Carroll, 2015; McDonald et al., 2016). There is an acknowledgement that a gap remains in understanding how and why farmers adopt particular financial management practices and not others (Gloy and LaDue, 2003; Byrne et al., 2003; Argilés and Slof, 2003; Byrne et al., 2007; McDonald et al., 2016). The “*individuality of farmers in financial farm management activities*” (Byrne et al., 2007, p.15) is something that the literature has come to accept but few attempts have been made at employing a theoretical framework to understand the reasons behind it. Byrne et al. (2003) observe that while the majority of farmers complete annual farm accounts, financial management is rarely used to improve decision-making within farm businesses. A similar insight is noted by McDonald et al. (2016) when they highlight the importance of gaining an understanding of the complex motives and values of farmers in decision-making. They note that the top three farm objectives of farmers surveyed in their study were financial in nature (maximising profit, financial security and reducing financial risk). Despite this clear financial focus of the farmers surveyed, it was found that farmers do not use available financial management technologies as an aid to management accounting and decision-making within their businesses, nor are existing financial management supports widely understood or valued, even among younger and more highly educated farmers.

Furthermore, the existing literature points to the financial management practices undertaken on farms as being a complex social and cultural phenomenon that merits deeper enquiry through a qualitative research approach. For example, Jackson-Smith et al. (2004) note the important role of spouses (usually women) in collecting and maintaining financial records on farms but contend that spouses are much less involved in the financial analysis of information collected, or in attending financial management training programmes. These findings are consistent with Carnegie et al. (2020) who find that women generally play an important role in managing day-to-day finances on farms while men lead agricultural decision-making. Financial management not being central to a farmer’s identity compared to more technical farming activities is also a consistent finding in the literature (Burton et al., 2008; Jakobsen, 2017; Hilken et al., 2018). Hilken et al. (2018) emphasise that there is a sensitivity and taboo around the topic of financial management on farms, which influences the low level of interest in such activities and the demand for financial advice. The latter authors also highlight the importance of understanding the dynamic of authority between farmers and their banks and the influence this particular relationship can have on financial management practices on farms. Finally, Hayden et al. (2021a) highlights the importance of informal financial analysis and intuition in farm financial decision-making as distinct from the formal financial analysis typically associated with “best practice” financial management practices.

2.2. Farming as a social and cultural practice

Another important body of literature in agricultural studies which is relevant in the context of this research examines non-economic influences on farmers’ decision-making. As far back as Simon’s (1957) ‘satisficing’ concept, it was acknowledged that people do not necessarily focus on optimal economic decision-making but instead may optimise social or intrinsic goals. This framework challenged the rational economic basis on which agricultural decision-making had been viewed and it opened the door for two of the seminal studies in this area; Gasson’s (1973) exploration of goals and values of farmers to explain their non-profit-maximising behaviour, and Willock et al.’s (1999) model of farmer behaviour incorporating farmers’ attitudes, goals, and behaviours. As part of this move towards a more sociological perspective on agricultural behaviour a ‘cultural turn’ emerged in the late 1980s and 1990s (Burton, 2004). This turn in the literature focuses on the importance of understanding language, meaning, representation, identity, and difference in farmer decision-making (Barnett, 1998; Valentine, 2001)

as well as advocating the use of qualitative methodologies to explore these issues (Burton, 2004). This movement acknowledges that other forms of capital exist in farming activities and that a broader focus than just the economic rationale for farmers is required to fully understand their behaviour. To conceptualise non-economic rewards in farming, Burton et al. (2008) apply Bourdieu’s (1983, 1998) theory of capital as a framework to propose the existence of capital in three fundamental forms: economic capital (material property), social capital (networks of social connections and mutual obligations) and cultural capital (prestige). Vanclay (2004) also argues that farming is an embedded social and cultural activity, and a better understanding of the economic, social, and cultural influences on farm practices is needed. These practices undertaken by farmers are “*physical manifestations of the cultural expressions which are loaded with social meanings and significance, they are not solely technical*” (Vanclay, 2004, p.222).

2.3. Financial literacy

Historically, the field of financial literacy was dominated by studies of *personal* rather than *small business* financial literacy using a knowledge and skills-based perspective on this complex phenomenon (see Lusardi and Mitchell (2014) and Goyal and Kumar (2021) for a summary). In more recent years the focus has turned towards financial literacy in a small business/entrepreneurial context and the literature is still quite sparse and fragmented in this area (Calcagno et al., 2019; Molina-García et al., 2023; Graña-Alvarez et al., 2024). Two recent systematic literature reviews on financial literacy in SMEs by Graña-Alvarez et al. (2024) and Molina-García et al. (2023) provide an excellent precis on research in the field. As to be expected in an emerging field there is conceptual ambiguity, however, both reviews acknowledge that financial literacy involves an element of financial knowledge (knowledge dimension) and the ability to use this knowledge (application dimension) as suggested by Huston (2010). In the MSME context, the knowledge dimension encompasses the owner-manager’s understanding of business financial concepts (for example, return on investment) and tools/applications (for example, cash budgets via spreadsheet analysis or designated software), and the ability to apply these concepts and tools to successfully manage a business. This is evident from the OECD conceptualisation whereby they indicate that the subject displaying a certain level of financial literacy is an individual entrepreneur-to-be or owner-manager of an MSME, and not the MSME itself, whilst the financial literacy being described is specific to business issues rather than personal financial literacy of an entrepreneur (OECD, 2018: 7).

Research generally confirms that financial literacy has a positive impact on SME growth (Mabula and Ping, 2018; Hossain, 2020) and financial performance (Engström and McKelvie, 2017; Anwar et al., 2020). Hossain (2020) suggests that SME managers with high financial literacy have the knowledge and skills to make the necessary long-term decisions to enable growth. However, both Graña-Alvarez et al. (2024) and Molina-García et al. (2023) warn against generalisations for several reasons including geographic restrictions of the studies, and conceptual and measurement issues. These latter researchers point to the importance of context including, sectoral, institutional, cultural, historical, and geographical factors to the understanding of financial literacy in MSMEs. While some success has been achieved in understanding the heterogeneity of personal financial literacy across different cohorts using a variety of socio-economic characteristics, unexplained influences not fully accounted for by existing theoretical frameworks remain (Lusardi and Mitchell, 2014; Goyal and Kumar, 2021). Recent efforts to incorporate other variables such as culture, history, local context, and social influences point to a complex phenomenon that would benefit from a qualitative approach to complement the existing literature (Ahunov and Van Hove, 2020; De Beckker et al., 2020; Rink et al., 2021; Bottazzi and Lusardi, 2021). Hence, a more nuanced examination of financial literacy in context is required as prior studies have not undertaken this qualitative research to a meaningful extent. In

our complementary perspective, we take the approach that seeks to understand how different reality may be from what theory says or the “textbook view” (Vaivio, 2008; Halabi et al., 2010) of financial practices in MSMEs.

To date, there has been little traction on the concept of literacy as a social practice in the field of financial literacy. One notable exception to this is Bay et al. (2014) when they challenged the dominant skills-based conceptualisation of financial literacy by contrasting financial literacy in two particular settings – efforts made to decrease financial illiteracy among Swedish adolescents and the demand for financial literacy in audit committees. They demonstrated that financial literacy is by no means a stable concept that is drawn upon in one particular setting for one particular purpose. Accordingly, “financial literacy is a concept that needs to be situated and studied in practice” (Bay et al., 2014, p.36). This study extends this work to explore financial literacy practices in context using a novel and integrated framework in a farming context. Literacy as a social practice was first employed in mainstream literacy studies in the nineteen eighties and nineties (Street, 1984; Barton, 1994; Barton and Hamilton, 1998), to challenge the dominant skills-based view by offering a different, more socially and culturally sensitive perspective and became known as New Literacy Studies (NLS). The theoretical perspective spread to other applied areas of literacy including health literacy (Papen, 2009; Samerski, 2019), information literacy (Papen, 2013), and digital literacy (Bhatt, 2012). Health literacy offers valuable insight into the potential that this new perspective can bring to a body of literacy research. Researchers have been successful in highlighting the complex nature of health literacy – as distinct from a mere technical ability to assimilate health information and make informed decisions – including the role of hierarchal social relationships and the importance of social networks and the co-creation of health knowledge (Papen, 2009; Chin et al., 2011; Fairbrother et al., 2016; Samerski, 2019). The result is a more nuanced understanding of how patients access and engage with health information within the health system which has provided important implications for doctor/patient communication, health policy decisions and health education initiatives. There is increasing acceptance of the role of social interaction in financial literacy amongst leading researchers in the field (Lusardi and Mitchell, 2014; Bottazzi and Lusardi, 2021). This social perspective elevates the role of context in financial literacy research, from the ‘sensitization’ of theory to possible situational or temporal constraints or boundary conditions to

context theorizing that specifies the nature and form of influence such factors are likely to have on the phenomena under investigation (Bamberger, 2008). We see our social practice perspective as complementary to concurrent and emerging perspectives on financial literacy in MSMEs. Using a psychology lens for example, Graña-Alvarez et al. (2024) suggest that a behavioural economics approach could help provide a greater understanding of the role of heuristics and biases in the financial decision-making of MSME owner-managers.

In summary, we opt for a financial literacy lens over financial management as we believe it has greater potential to examine the financial activities of MSMEs where the financial owner-manager’s individual financial literacy is enmeshed with that of the enterprise’s financial literacy practices.

3. Theoretical framework – financial literacy practices on family farms

This study conceptualises financial literacy practices on family farms as social practices that are contextualised and situated within a particular socio-cultural setting. The theoretical framework brings together the core bodies of literature discussed in Section 2 and illustrated in Fig. 1.

Fig. 1 illustrates how the three distinct, but interrelated, bodies of literature surrounding, farm financial management, farming as a social and cultural activity, and literacy as a social practice, are brought together to create an interdisciplinary framework to conceptualise financial literacy practices on farms as social practices. Although these are diverse areas of literature, the evolution of both the literacy and farm management literature towards more socially and culturally sensitive epistemological principles has clear parallels and provides a core motivation for the theoretical framework adopted. This new theoretical lens fits well with the complex nature of the phenomenon based on existing farm financial management literature while providing an avenue to examine how farmers apply their financial knowledge to manage the finances of their farm enterprise in a more coherent and structured manner. The distinction between a “practice” and a “social practice” is an important one in the context of this study. The traditional view of financial management as a technical practice or knowledge application (for example, a farmer reading a set of farm accounts or preparing a budget) misses the broader social and cultural dynamics at

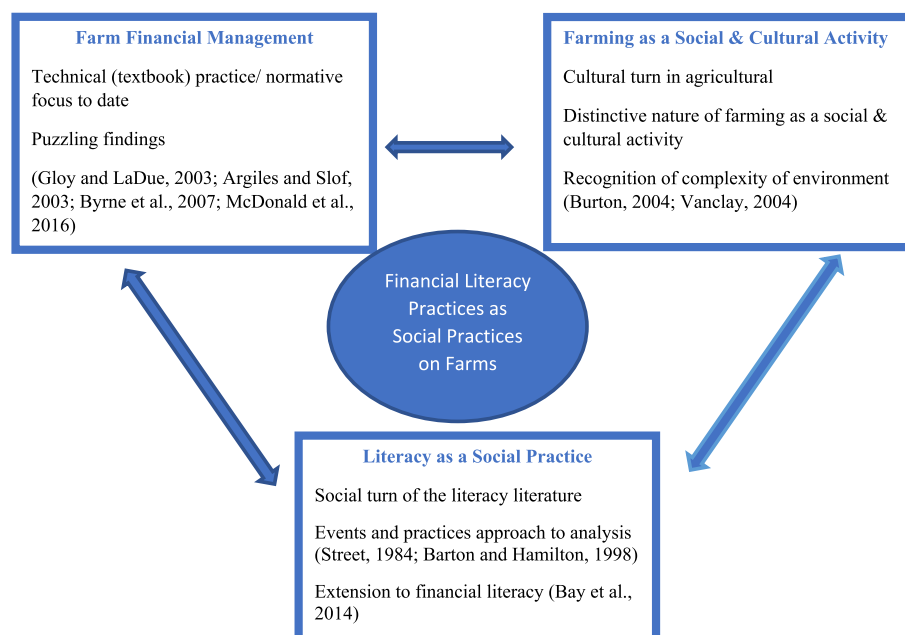


Fig. 1. Financial literacy practices on family farms – an interdisciplinary perspective.

play when such tasks are undertaken. The social practice view emphasises a broader, encompassing perspective to consider how financial literacy practices occur within a particular social and cultural context (Bay et al., 2014). This seeks to highlight the dynamic and fluid nature of financial literacy practices and the importance of a social practice, as distinct from a technical practice, perspective.

The recent systematic literature reviews on the topic of financial literacy by Graña-Alvarez et al. (2024) and Molina-Garcia et al. (2023) highlight that the lack of an agreed-upon definition of financial literacy is a downfall of this stream of research. Graña-Alvarez et al. (2024) rely on the work of Huston (2010) and Remund (2010) and consider financial literacy as “a combination of financial knowledge and the ability to apply it specifically to make decisions”. While Molina-García et al. (2023) refer to a broad and comprehensive definition of financial literacy developed by the OECD when it notes financial literacy is “a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing” (OECD, 2018, p.4). Despite a lack of agreement on the definition of financial literacy in the literature, both definitions highlight that financial literacy encompasses both a financial knowledge dimension along with a dimension focusing on the application of such knowledge to make financial decisions (Huston, 2010).

Drawing on this literature, our study focuses on the application dimension of financial literacy by examining the financial literacy practices undertaken on family farms. We contend that financial literacy practices are used by farmers and their families to apply their financial knowledge to manage the finances of their farm enterprise. Such financial literacy practices manifest in events and are influenced and shaped by social, cultural, temporal, technological, historical and institutional circumstances. This novel conceptualisation extends and complements traditional financial management practices which are closely aligned to textbook methods of best practice. Financial literacy practices are inclusive and incorporate any instance in which financial information is engaged with (termed the “financial literacy event”) and the associated practices undertaken. In operationalising the social practice theory of financial literacy practices, this study adapts Barton and Hamilton’s (1998) six theoretical dimensions on the nature of literacy, as outlined in Table 1. This framework starts with the assertion that literacy is a social practice, and the dimensions are an elaboration of this (Barton and Hamilton, 1998). In adopting this perspective, priority is given to the actual financial and accounting activities, such as book-keeping, and payment records, on the farm as set out in Dimension 1 of the framework (See Table 1) which matches closest to traditional textbook financial management practices. In addition, this focus on financial and accounting activities is evident in our methodology as the three farm visits focused on particular financial literacy events where the farmers and their families engage with accounting and financial information on the farm. Nevertheless, this is a broader perspective than textbook farm financial management, which includes the five other dimensions in Table 1. The social practice perspective acknowledges that there are different literacies associated with different domains of life – home, school, and work. On the family farm, we see an overlap between domains of activity including cultural, household, work, financial and institutional as indicated by the six dimensions. The framework posits that the basic unit of analysis is literacy practices. Thus, the core approach to understanding financial literacy is to explore financial literacy events and the associated financial literacy practices in context.

4. Context and methodology

4.1. Context

Ireland provides a useful context in which to explore financial literacy as a social practice in family farms. The agri-food sector is Ireland’s most important indigenous industry employing 164,900 people which represents 6.5% of total employment and contributes 9% of all

Table 1
Financial literacy in context - a social practice perspective on family farms.

Dimensions	Financial Literacy as a Social Practice	Farm Financial Literacy Practice Considerations
1. Practices	Financial literacy is best understood as a set of social practices; these can be inferred from events which are mediated by written texts.	<ul style="list-style-type: none"> • How do farmers gather and use the financial information they have? • What do they focus on/ ignore and why? • When do they use it and who is involved?
2. Concurrent Literacies	There are different literacies associated with different domains of life.	<ul style="list-style-type: none"> • Do financial literacy practices compete with technical agricultural practices (for example, grass management, animal husbandry)? • Is IT literacy a requirement for financial literacy practices on a farm? • Are financial literacy practices different in the family/off farm vs. on farm context?
3. Institutional Influence	Financial literacy practices are patterned by social institutions and power relationships, and some literacies are more dominant and influential than others.	<ul style="list-style-type: none"> • Are certain financial literacy practices on farms more prevalent due to Dept. of Agriculture, EU schemes, taxation authorities, farm media? • What influence do education/advisory services have on financial literacy practices?
4. Socio-cultural Context	Financial literacy practices are purposeful and embedded in broader social goals and cultural practices.	<ul style="list-style-type: none"> • How does the farmer’s motivation influence financial literacy practices? • What impact does the economic dependence of the household on the farm have on farm financial literacy practices? • What cultural influences affect the financial literacy practices of farmers?
5. Historical Context	Financial literacy practices are historically situated.	<ul style="list-style-type: none"> • What role do prior generations/experiences play in financial literacy practices? • Are financial literacy practices predominantly inherited or learned externally to the farm?
6. Temporal Context	Financial literacy practices change, and new ones are frequently acquired.	<ul style="list-style-type: none"> • How do the financial literacy practices of farmers change over time and what influences this change? • How and when do farmers adapt their financial literacy practices?

Source: Adapted from Barton and Hamilton (1998).

Irish merchandising exports (DAFM, 2022). Like most other countries in the EU, Ireland’s farm ownership structure is dominated by family farms (Eurostat, 2020). The financial vulnerability and reliance of a significant portion of farming households on other sources of income is of growing concern given the contribution the agri-food sector makes to the overall Irish economy. The future of Irish farming is currently at an important inflection point with challenges to the expansion of the dairy industry due to environmental concerns, increased reliance on off-farm income to support household income, and a concern for rural Ireland associated with the decline of the traditional cattle rearing and sheep farming systems. These challenges are not unique to Irish family farms as farms across the EU navigate a challenging financial landscape, increasing demands regarding sustainability practices as well as managing the

impact of the reform of the Common Agricultural Policy on farm incomes.

Within the population of Irish farms, there is significant variation in the financial situation across different farming systems which is captured each year through the National Farm Survey (NFS) (see Appendix 1). This study focuses on cattle rearing farms which is more commonly known as suckler farming within the agricultural industry. There are approximately 50,000 farms in Ireland engaged in cattle rearing (Brock et al., 2022). Cattle rearing farms provide an interesting financial context in which to explore financial literacy as it has the lowest average family farm income, the highest reliance on direct payment supports, the joint highest portion of farmers with off-farm income, and the lowest portion of farms that are independently economically viable (see Appendix 1). Despite this difficult economic situation, these farms are one of the most traditional farming systems in Ireland and contribute to wider societal sustainability as they are often located in marginal or economically disadvantaged areas, where their presence is vital to the social fabric and cultural capital (Hennessy et al., 2018). Furthermore, these farms play an important role in the provision of public goods including the protection of the environment, preservation of the rural landscape and providing unique features such as stone walls and hedgerows all of which positively contribute to the image of rural Ireland and rural tourism (Hennessy et al., 2018). Thus, cattle rearing farms provide a unique context in which to explore financial literacy as a social practice as the difficult financial situation of the farming system is balanced with the role of tradition and the influence of social, cultural, and environmental factors.

4.2. Methodology

This study adopted an exploratory multiple longitudinal case study strategy. This approach provided the researchers with the opportunity to immerse themselves in the farms over the period of a year to gain the emic or 'insider' perspective (Mumby-Croft and Brown, 2006) of what financial literacy means to each farmer. An appreciation of the farmers' emic narrative compliments the traditional 'etic' or outsider approach which tends to dominate studies in this domain and emphasises the complex, and often contested, nature of financial literacy practices when viewed from these different perspectives. The focus of the research design included case studies with a diversity across: household structure, household dependence on farm income, and the existence of farm debt. These criteria were influenced by the theoretical framework adopted, discussions with farm financial management experts, a stakeholder focus group of experts in the field of farm finance, and a pilot case study on one of the researchers' home farm. To minimise external variation beyond the phenomenon of interest (Eisenhardt, 1989), cases chosen were within the same farming system (cattle rearing) as the inclusion of other systems (for example: dairy, sheep or tillage) would significantly alter the financial context of the case farms due to the substantial differences across farming systems noted in Section 4.1. The case farmers were all clients of Teagasc,² which was a deliberate strategy on the part of the researchers to facilitate a level of access to allow for the research phenomenon to be comprehensively explored.

The final sample for the study comprised five in-depth cases that were the subject of three farm visits and farmer interviews over the twelve-month period from January 2018 to January 2019. A profile of the case farms is provided in Table 2.

As this study explores how financial literacy practices manifest on farms, the most appropriate unit of analysis is the farming enterprise. However, family and non-family members (for example, advisors) involved in the farm were the most appropriate data collection units. The nature of literacy as a social practice emphasises the focus on the

broader social and cultural influences on financial literacy practices. Consistent with this perspective, it is appropriate to understand the role of the farmers' broader network of social influence (for example, other family members) in exploring how financial literacy manifests itself.

Following the literacy as a social practice literature (Barton and Hamilton, 1998), this study utilises the concepts of financial literacy events and financial literacy practices to explore how farmers use their financial knowledge to manage the finances of the respective case farms. Financial literacy events and associated financial literacy practices provide a powerful way of conceptualising the links between the activities of engaging with accounting and financial information and the social structures in which they are embedded. A detailed research protocol was developed for the farm visits to ensure that all the key topics were covered during the interviews and to provide a structure to ensure consistency and comparability across case farms. This protocol provided an outline of the questions to be discussed in each interview and provided the scope to follow up on issues raised through the analysis of data from previous interviews. Given the temporal focus of the study and the events-based nature of literacy as a social practice framework, significant consideration was also given to the time of year that the interviews were undertaken and the main financial literacy event(s) occurring on the farm at that time.

The 15 farm visits lasted 24 hours in total and resulted in 11 hours of interview recordings with 314 pages of interview transcripts. While interviews were the primary method of data collection, a number of sources of secondary data were obtained for each case farm. The aim of this study and the context in which it was studied (family farms) required an encompassing approach to understanding the rich and complex nature of the phenomenon. The combination of farm visits with recorded interviews, discussions with agricultural advisors, researcher observations, photographic evidence, and phone calls with the farmers, all provided important sources of information that allowed the researchers to triangulate the findings emerging from the data.

The data was analysed using thematic analysis as advocated by Braun and Clarke (2006) using qualitative data analysis software (NVivo12). The data analysis process unfolded in several steps. It began with initial data coding through NVivo which assisted the researchers to identify themes emerging from the data. As each tranche of interviews was completed, within-case and cross-case data analyses for each of the five cases were conducted. Subsequently, the themes emerging from the data were mapped to the dimensions of the theoretical framework adopted to extend and build new theoretical insights. Data analysis was an iterative process as when each tranche of farm visits was complete, the researcher iterated back and forth between the theoretical framework developed and the empirical data gathered.

5. Findings

The findings emerging from the data analysis process (described in Section 4) highlight the presence of each of the six dimensions of the theoretical framework (described in Section 3) in the data collected. Table 3 depicts the themes emerging from the data analysis process and a mapping of those themes to the six dimensions of the theoretical framework. This demonstrates how financial literacy practices can be viewed as social practices.

While each of the six dimensions of financial literacy are evident in the data, the presence of some dimensions compared to others represent novel insights when the prior literature surrounding financial management practices on farms is reflected upon. For example, the themes of *farmer focus*, *farming culture*, *tradition* and *experience*, included in the dimensions of *socio-cultural context* (Burton, 2004; Vanclay, 2004), and *historical context* (Gill, 2013), corroborate the findings of prior literature surrounding farm financial management (Argilés and Slof, 2001; Jack, 2006; Byrne et al., 2007; Hayden et al., 2021b). However, the themes emerging and included in the dimensions of *concurrent literacies*, *institutional influences*, and *temporal context*, have received little attention in

² National body providing integrated research, advisory and training services to the agriculture and food industry and rural communities in Ireland.

Table 2
Profile of case farms.

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5
Farm Employment Status and Age	Full-time farmer (mid 40s)	Full-time farmer (55)	Part-time farmer (55)	Full-time farmer (67)	Full-time farmer (mid 40s) in partnership with her mother (70)
Farm Size	100 acres with 80 cows	300 acres - mixture of beef enterprise and suckler cows	85 acres with 25 cows and 45 acres in tillage	108 acres with 50 cows	150 acres with 50 cows
Household	Wife is a full-time teacher Two young children – national school	Wife is a full-time teacher Two teenage daughters – actively involved in farm	Bachelor, living with elderly mother who needs full-time care	Wife works part-time as a nurse Grown up family with two building homes on a farm nearby	Lives on farm with husband and two young sons Mother lives alone in the farmhouse
Financial Position	Significant farm debt – half of farm income currently spent on servicing it Financial pressure to service loans, support household, finish house Looking at alternative enterprises that are financially worthwhile	Little debt on the farm Currently looking at large solar farm project for financial security	Little debt on the farm No financial pressure on the farm to support the household Strong views that a farm must “stand on its own feet”	Grown up family, receiving state pension Limited financial pressure on farm or household Bought land recently that led to some farm debt currently	Significant legacy debt Financial survival is the current focus Big cashflow focus each month Currently looking at selling a development site to sort farm debt issues
Succession	Too early – young family	Two teenage girls with keen interest and eager to involve them in the farm business	No clear succession plan	No clear succession plan	Clear succession plan

the prior literature. Therefore, throughout the remainder of this section a discussion of the overarching dimension of *social practice* and the latter dimensions, not prevalent in the prior literature, are of central focus to illuminate this novel perspective.

5.1. Dimension 1 – social practice

This dimension consists of three themes which provide insights into *when* farmers engage with financial literacy practices (*temporality*), *who* is involved in these practices and *what* roles they play (*role assignment*), and *where* these practices take place (*place*).

The theme of *temporality – farming/farmer* is characterised by the role of time in financial literacy practices and the existence of established routines that each farmer develops for engaging with financial literacy events. Influences such as off-farm commitments (for example, hobbies, off-farm employment) and personal preferences play a role in the timing of financial literacy events. Farmers 1 and 3 contend that the financial literacy event of sorting financial records for the year occurs during quiet periods in their farming calendar. For example, Farmer 1 is involved with his local football club and completes his farm accounts before the new session begins in February. He stipulates:

“Ah it has to be [completed in January] as you’re hitting calving and you’re going to hit the football where I am involved in so you wouldn’t get time. You need to get it out of the way this month.” **Farmer 1**

This influence of the farming season on when farmers have time available to focus on financial activities is evident across all cases. Temporality is further evident when the importance of the timing of financial literacy practices is emphasised. Farmers 2, 3 and 4 are predominantly influenced by external deadlines (for example, VAT & Income Tax) when completing their financial accounts denoting a compliance-based perspective, with limited use of these records for decision-making purposes acknowledged. Whereas Farmers 1 and 5, with significant farm debt and financial pressure, focus on when is best to undertake financial literacy events to ensure the best use of information for managing the farm, indicating a strategic management perspective.

Role assignment relates to the roles assumed by individuals within and outside the farming household in financial literacy events. Within households, various parties (spouses/sons/daughters) take on, or are delegated, responsibility for financial activities and support farmers in day-to-day financial literacy events. For example, Farmer 4 views the

farm administration as a “burden” and undertakes a “joint effort” with his wife who manages farm receipts and day-to-day banking. He asserts:

“Sarah³ [Farmer 4’s wife] would do that [lodge all the farm cheques], I haven’t stood in the bank other than serious business in recent times.” **Farmer 4**

Farmer 2’s daughters assist him with accessing online banking and printing financial documents for the accountant. Furthermore, Farmer 5 and her mother farm in partnership with clearly defined roles and responsibilities for each partner. In the remaining two cases (Farmers 1 and 3) there is little opportunity for the involvement of family members, as Farmer 1 has a young family and Farmer 3 is a bachelor. The role external parties play (accountant/agricultural advisor) also shape financial literacy practices. In all cases, farmers utilise the professional services of an accountant to submit their annual taxation returns. This involvement of family members and outside parties provides an opportunity for farmers to access additional skills and capabilities to improve the efficiency and effectiveness of their financial literacy practices. However, for Farmers 2, 4, and 5, the delegation of financial literacy practices has resulted in a detachment from effectively managing farm finances (in terms of financial results, and financial records). This has important implications in terms of informed financial decision-making, and the targeting of educational and other policy initiatives to change farmer behaviour.

Place focuses on the importance of location in financial literacy events on farms as it provides a rich insight into the financial literacy practices of farmers. Locations where financial literacy events occur vary from the formal use of an on-farm office to the informal use of the kitchen table, and on-the-go financial analysis while farming. These locations can be indicative of the level of formality and nature of financial literacy events. Farmers 1, 2, and 4 have a dedicated farm office, yet only Farmer 1 uses his office for financial activities, with all other farmers using the kitchen table. The formality of structure in Farmer 1’s case is consistent with his view of farming as a business. He emphasises:

“All the dockets go in a certain place like, and they are not here there and everywhere ... I have a structure. I have a farm office in the house.” **Farmer 1**

³ Pseudonym to protect anonymity of participant.

Table 3
Themes emerging from the empirical data analysis process.

Data Coding Using Qualitative Data Analysis Software – NVivo	Themes emerging from the data	Theoretical Framework Dimensions
<ul style="list-style-type: none"> – Presence of a routine/process for the farm finances – Influence of farming season on financial literacy practices – Temporal importance attached to financial literacy practices 	Temporality – Farming/Farmer	1. Social Practice
<ul style="list-style-type: none"> – Statements about different roles within the household – Delegating/Outsourcing of farm financial literacy practices – Examples of family support for farm financial literacy tasks 	Role Assignment	
<ul style="list-style-type: none"> – Statements about the location of financial literacy events – References to the location of where financial literacy texts/records are kept 	Place	2. Concurrent Literacies
<ul style="list-style-type: none"> – Balancing of physical farm work and administration work – Expressions of farm administration as a burden – Delegation of perceived non-core tasks 	Domains of Farm Work	
<ul style="list-style-type: none"> – Statements about confidence in using IT – Desire to use more IT to improve financial literacy practices – Influence of formal education levels 	Complimentary Literacies	3. Institutional Influence
<ul style="list-style-type: none"> – Compliance with institutional timelines – Making financial decisions to meet institutional timelines 	Temporality - Institutional	
<ul style="list-style-type: none"> – Stakeholders’ demands for financial information – Influence of financial stakeholders on farm financial decisions 	Stakeholder Power	4. Socio-cultural Context
<ul style="list-style-type: none"> – Dominance of formal financial outputs – Examples of informal farmer financial analysis/rules of thumb – Sufficiency of financial literacy practices – Detachment from formal financial statement 	Dominant vs Vernacular Financial Literacy Practices	
<ul style="list-style-type: none"> – Presence of financial pressure on the farm – Farmer’s view of role/purpose of farming – Statements about next generation on the farm (succession) 	Farmer Focus	5. Historical Context
<ul style="list-style-type: none"> – Privacy of financial discussions relating to the farm – Non-economic rationale for financial decision-making – Expressions of cultural scripts 	Farming Culture	
<ul style="list-style-type: none"> – Indications of loyalty/aversion to change – Inheritance of financial practices 	Tradition	6. Temporal Context
<ul style="list-style-type: none"> – Importance of the past] – Financial situation when farm was taken over – Influence of past financial experience 	Experience	
<ul style="list-style-type: none"> – Examples of informal learning – Learning by doing/experience – Statements about social/peer learning 	Learning on the job	6. Temporal Context
<ul style="list-style-type: none"> – Adaption of financial literacy practices for new financial technologies – Aversion to change 	Technology	

Another aspect of place is the locations where farmers store their financial records. In all cases, there is a clear routine of how financial records (for example, invoices/receipts/bank statements) make their way to an end of year folder provided to accountants. This involves a variety of locations such as windowsills and kitchen drawer (Farmer 4), letter trays on the kitchen counter (Farmer 5), cardboard/plastic boxes (Farmers 1 and 2), and biscuit tins in the hallway (Farmer 3). Sample images of these are provided in Fig. 2.

These locations are embedded as part of the financial literacy routines for each of the farms and serve as an indication as to how these routines develop over time, and while they may lack the formality associated with a financial recording system (for example, filing cabinets/folders etc), they are sufficient for each farmer’s own needs. In particular, the informality of kitchen tables, along with the opportunity this location provides to involve other members of the family to assist, is of clear importance to farmers.

5.2. Dimension 2 – concurrent literacies

Focusing on two themes, *domains of farm work* and *complementary literacies*, this dimension outlines the different domains of work on farms

and the literacy boundaries that exist between them.

Domains of farm work provide an insight into the tension and interaction on farms between different literacy practices such as grassland management, animal health and financial literacy practices. Farmers decide, explicitly or implicitly, which literacies are important, and which can be delegated or outsourced (Turner and Taylor, 1989; Jack, 2005; Hayden et al., 2021a). The trade-off between “farm work” and “paperwork” is a common thread across the cases analysed, and the importance of the literacies around animal health and grassland management is evident across all farms. However, the “paperwork” domain, which encompasses financial literacy practices, is more varied. Two farmers (Farmers 2 and 4) see paperwork as time consuming and adding little value. For these farmers, delegation or outsourcing to third parties makes sense as they feel it saves them time. Farmer 4 contends:

“I do see it as a burden [farm paperwork], I see it as a burden because it’s extra time, it is time consuming, ...it seems to be getting more time consuming as time goes on.” Farmer 4

However, Farmers 1, 3, and 5 attach importance to the domain of financial paperwork. In Farmer 1’s case, this domain adds value as there are financial pressures on the farm to improve profitability to service



Fig. 2. – Financial record locations.

debt and support the farm household, thus significant importance is attached to these financial literacy practices. Similarly, for Farmer 5, there is a sense of necessity attached to the importance of the financial domain given the debt and cashflow situation on his farm. While for Farmer 3 financial paperwork is something that he enjoys doing and takes pride in.

Complementary literacies relate to the complementary nature of other literacies with financial literacy practices. Across all case farms, the adoption of technology is evident in a variety of animal and field work related tasks (for example, calving cameras, herd health apps). This contrasts with the approach taken to financial literacy practices on their farms, which are approached using a traditional “pen and paper” method (Byrne et al., 2003; McDonald et al., 2016). For Farmers 3 and 4, a strong influence of tradition and routine of how financial records are maintained stems from previous generations. However, for Farmers 1, 2 and 5, the absence of suitable user-friendly technology is an influence. This low level of technology adoption creates an added burden for farmers, many of whom are already averse to “paperwork” and the numerical nature of financial literacy events. Furthermore, some farmers have a lack of confidence in using new technologies which limits their use. Farmer 4 contends:

“No [I do not use online banking]. Certainly not. I’m afraid of it. I consider myself to be too computer illiterate.” **Farmer 4**

Another key dimension to this theme is the influence of formal education levels on the farmer’s confidence in approaching farm administration, including financial literacy tasks. Farmers 2, 3, and 4 finished school at an early age to work on the farm, while Farmers 1 and 5 completed second-level and third-level education, respectively. Farmers 3 and 4 acknowledge that not having achieved a higher level of education was their biggest regret in life, as they feel it held them back in certain aspects of farming. While all the farmers have developed their own routine in terms of approaching financial literacy events, they lack confidence in their approach to certain financial tasks (for example, reading financial statements, discussing farm taxation accounts) that involve more formal and technical financial terminology than the informal financial routines that they are comfortable with on their farm.

5.3. Dimension 3 – institutional influence

In this dimension, three themes focus on the farm financial ecosystem and its various players including: banks, accountants, agricultural advisors, Teagasc, DAFM,⁴ and the taxation authorities. Viewing farmers’ financial literacy practices through the prism of a financial ecosystem provides a rich understanding of the key influences that shape farmer behaviour.

Temporality viewed from an institutional context relates to how various institutions, through deadlines (for example, taxation authorities) or through payment schedules (for example, DAFM/EU payments), impose a financial calendar which creates a structured cycle of farm financial literacy events. For Farmers 2 and 3, being VAT registered provides a temporal dynamic of filing bi-monthly VAT returns. Farmer 3 completes these returns himself, as he likes the structure and discipline that they put on his farm financial records. Whereas Farmer 2 outsources this to a bookkeeper, he outlines:

“I’m registered for VAT for a long time, but I’m used to doing my own accounts and the best thing ever is the recorder [bookkeeper] because they come out every two months. I have to have the paperwork for them, and everything is done on time. You can’t push it back and it’s done, and it goes straight into their system.” **Farmer 2**

VAT registration creates a structured and focused approach to financial literacy practices on some farms, in comparison to farms that are not required to maintain regular financial records and often leave this process until close to the income tax deadline of October each year. For example, Farmers 4 and 5 only submit their relevant financial records to their accountant during the summer in advance of the October income tax deadline. Farmer 1, however, is proactive in his financial preparation as, although not VAT registered, is a member of a progressive farm discussion group that has a financial benchmarking meeting every January to compare the previous year’s financial performance. Therefore, both agricultural advisor pressure, as well as his desire to find out how his farm is performing compared to his peers, results in his farm’s financial records being sorted in January each year.

Stakeholder power focuses on the power various stakeholders can have through a variety of demands on farmers for financial information and how they influence financial decisions made on farms. The existence of farm debt and the reliance of farms on DAFM/EU payments can significantly increase the power of these stakeholders in their relationship with farmers. Both Farmers 1 and 5 have significant farm debt and consequently many financial decisions are centred around their relationship with their bank. For example, Farmer 1 uses online banking regularly over the summer months to track the farm bank account as he has several loan repayments due and wants to avoid breaching the overdraft facility on his account. Farmer 1 also finds that recently his bank has been demanding farm financial information more regularly which has increased his focus on the farm’s ePM.⁵ He outlines:

“Well, the banks started looking for it [ePM] and they are on my back about it. It has helped me too to go for the loans and they have changed in attitude that they are looking all the time for accounts and profit monitors.” **Farmer 1**

⁵ The Teagasc eProfit Monitor (ePM) is an online financial analysis tool available to Teagasc clients.

⁴ Department of Agriculture, Food, and the Marine.

Farmer 5 reports that she must sell cattle at the wrong time of the year to service debt repayments as her farm overdraft is not large enough to support financing requirements. The power of certain stakeholders and the implications of damaging the farm’s relationship with them (for example, loss of funding from the bank, removal of EU supports, taxation penalties) can create significant financial pressure on farms and create frustration and confusion when the requirements from each stakeholder in terms of the timing, format, and content of financial information varies.

Dominant versus vernacular financial literacy practices focuses on the interaction between dominant and informal financial literacy practices (Barton and Hamilton, 1998). There is a contrast between the formal financial outputs on farms (for example, financial/taxation accounts, Teagasc ePM) and the more informal financial outputs that farmers prepare to inform decision-making. While formal outputs required by various institutions are standardised across all farms studied, informal texts and analyses vary considerably. In certain situations, various stakeholders reinforce the use of standardised financial outputs, such as in Farmer 1’s case of the bank asking for the farm’s ePM output which would already be prepared by Teagasc for use in discussion groups. It is also notable that some farmers fail to understand what standard outputs tell them and their preparation is often outsourced to Teagasc and their accountant (for example, Farmer 2, 4 and 5). Farmer 3’s bank requires annual farm accounts as part of a loan application, but he struggles to interpret them as he has his own way of viewing farm performance. He stresses:

“You’d be looking for a loan during the year and you’d send the bank down to the accountant and get all that he’d like, unfortunately there was a set of accounts [farm financial statements] I don’t understand them at all and I’m long enough at them to know that I should I’ve a fairly basic set up like you know but those set of accounts are for the taxman you know.” **Farmer 3**

Similarly, for Farmers 2, 4, and 5, while they prepare an ePM, they give it little consideration as they have alternative ways of measuring the farm’s financial performance. The prevalence of informal or vernacular financial literacy practices are evident in the cases studied with “back of the envelope” calculations or informal partial budgeting (see examples in Fig. 3) prevalent on a day-to-day basis and represent farmers’ interactions with financial literacy, which is consistent with the findings of Hayden et al. (2021a). Farmer 1, for example, discusses the cost of housing cattle for the winter using his own mental arithmetic, when he asserts:

“We were just away for ten days, and we put in nine cull cows in the shed. The other neighbour is feeding them, but they’re going to have six round bales of hay ate for ten days for nine cows and we’re working it out a €35 a head, it’s working out at €2 a cow a day, and that’s only dry cows. So, you see that and factor that in.” **Farmer 1**

While Farmer 4 judges the farms financial performance by how much is in his bank account at the year-end, a yardstick that is regularly referred to by all farmers interviewed.



Farmer 1



Farmer 3

Fig. 3. – Examples of farmers’ own financial analysis & record keeping.

5.4. Dimension 6 - temporal context

This dimension focuses on temporality in the context of how financial literacy practices change over time. The nature of financial literacy practices on farms means that they evolve and adapt due to either internal (for example, involvement of a new generation) and/or external (for example, bank requirements, new technologies) influences. The emergence of these new practices is not always a smooth process, and the process of embedding new financial literacy practices on farms is a complex phenomenon. Two themes emerge in this dimension: *learning on the job* and *technology*.

Learning on the job refers to how farmers’ financial literacy practices appear to evolve to meet their own individual requirements. Farmers 2, 3, and 4 have no formal second level education and none of the farmers have targeted financial education in terms of running a business or reading financial statements. However, through a mix of social learning in discussion groups, formal learning through advisor meetings, informal learning through family members, and ad-hoc discussions with advisors, farmers evolve an approach to financial literacy that is sufficient to their needs. Farmer 3 developed his detailed financial routine from his sister and adapted it over the years to suit his needs. While for Farmer 4, changes to financial literacy practices are slow as there is an importance attached to tradition and a reluctance to change from current habits. He has never undertaken farm financial management courses and credits his current approach to financial literacy practices to experience. He stresses:

“I would never have done courses or anything on finances or any type of management skills or anything. That was just something you either had or you didn’t have, you either learned the hard way or you didn’t. I suppose a lot of it was just through experience of life.” **Farmer 4**

However, for other farmers, often due to an inflection point in the farm lifecycle, changes to financial literacy practices occur faster as they seek to adapt to a new set of objectives and farm finances. Due to increasing debt levels, Farmer 1 has an active role in preparing the farm’s ePM each January (as part of his discussion group) to understand the farm’s financial performance early in the year and to improve his financial decision-making. Farmer 2 has engaged an external book-keeping service provider who visits bi-monthly to prepare VAT returns. These recorder (bookkeeper) visits provide Farmer 2 with a learning opportunity where he can ask questions and understand why certain financial texts and records are required. For both, the opportunity of learning appears to focus on social situations (discussion group participation and bookkeeper visits) which reflect a more informal environment where both farmers appear comfortable in discussing financial related topics.

Technology impacts the nature of financial literacy practices of farmers and across all cases, the adoption of technology is utilised to increase efficiency and reduce labour input. However, the adoption of financial related technology appears to be slow and often linked to concerns around privacy, tradition, and the lack of availability of farmer-friendly technology. Some elements of technology appear to be having a significant impact on farmers’ financial literacy practices, for example, the increased adoption of online banking and card payments. For Farmers 1, 2 and 3, online banking plays an important role in how they manage farm finances, and it provides increased flexibility and accessibility compared to traditional monthly bank statements. Farmer 1 uses online banking to track repayment dates of loans and to ensure there is enough money in the farm bank account to service them. Farmer 2 is beginning to access online banking services, with the assistance of his wife or daughters, and feels it is a resource that will be very helpful to him going forward. Therefore, he is actively looking for an IT skills training course to improve his confidence in this area. Farmer 3 accesses his online banking to keep track of the farm bank account and to assist in preparing VAT returns on a bi-monthly basis. However, Farmers 4 and 5 are reluctant to engage with online banking due to privacy concerns

("big brother"), the tradition of getting the bank statement in the post, and due to confidence in their current approach of estimating the farm bank balance and checking at the local ATM.

The impact of technology on how farmers engage with their banks is another key insight in the cases explored. While Farmers 1 and 2 find these changes useful (for example, quick lodge facilities), other farmers feel that technology has replaced the personal relationships within the banking system that had been important in the past and has resulted in simple financial tasks being made more difficult. For Farmer 5, her prior experience of working in the IT industry, and her experiences of dealing with banks, have made her reluctant to engage with online banking. She feels that between her mother's detailed approach to managing the monthly finances, and the location of an ATM close to her home to check the bank balance if needed, there is no requirement for online banking for the farm.

The movement towards card payments, as opposed to the traditional use of chequebooks, is something observed across all case farms. The flexibility of card payments to pay suppliers over the phone, rather than having to travel to provide a cheque, is something that appeals to farmers. Farmer 1 proclaims:

"I'm starting to pay more now with a card. That's useful for ... anything under €30 or that small it's handy." **Farmer 1**

However, there are some issues that farmers encounter which delay the adoption of card payments. Farmer 2 finds that some agricultural outlets, such as his local mart, do not accept card payments which means that he needs to make payments using his chequebook. Both Farmers 1 and 2 find that card payment receipts are a lot harder to maintain, compared to traditional chequebook stubs, for end of year records. As a result, both farmers must ask suppliers to staple card receipts to invoices before they leave the store to ensure they are not misplaced. Farmer 3 found that card payments initially did not appear clearly on his bank statement (i.e. the name of the supplier being paid) and this made it difficult to track expenditures for inclusion in the end of year accounts and made him reluctant to use this method of payment. This is something that has improved in the past few years and has made him a lot more comfortable using card payments for the farm.

In summary, the above findings illustrate the relevance of a social practice lens in examining financial literacy practices on family farms. Dimension 1 provides a core focus on the key financial literacy events on the farm including when and where they occur and who is involved. This is then complemented by the remaining five dimensions of the framework which broadens the perspective of financial literacy by including the social, cultural, institutional, historical and temporal influences. Using the example of the filing practices that each farmer undertakes for their financial records, while this could be seen as a general house-keeping activity, the social practice lens provides scope for a more nuanced understanding of such an activity. For example, who in the household is in charge of managing these financial records (for example, the farmer, a spouse, or a child), how has this role evolved over time, how do institutional factors influence this activity (e.g. tax, bank or farm advisory requirements), and how often are they organised (for example, how does this task fit in with the other farm management tasks and which takes priority).

6. Discussion and conclusion

Family farms are a crucial part of the economic, environmental, social and cultural fabric of the EU. However, the continued decline of these enterprises, coupled with the challenging financial landscape those remaining currently face, is a concern for policymakers and focuses attention on gaining a deeper understanding of what financial literacy practices look like on these farms. This study set out to explore financial literacy practices on farms using a social practice lens. In doing so, we demonstrate that financial literacy is not a universal concept that can be examined solely using a knowledge-based approach. Our findings

highlight connections between the empirical data gathered and the dimensions of financial literacy as a social practice framework, thereby developing a rich and comprehensive understanding of farmers' financial behaviour and how it is situated in particular times and places (Bay et al., 2014).

This study offers several contributions. It identifies and applies a new theoretical lens to explore the financial practices undertaken on farms. This conceptualisation of financial literacy practices as social practices (Bay et al., 2014) provides a more socially and culturally sensitive lens than the technical financial management textbook perspective that has dominated studies to date, and it complements the existing literature to include the socio-cultural aspect of financial management on farms (Vanclay, 2004). We position our research in the emerging field of financial literacy in MSMEs rather than financial management. This bi-dimensional conceptualisation of financial literacy (Huston, 2010; Graña-Alvarez et al., 2024) encompasses the financial knowledge of the individual (in this case, the entrepreneur or owner-manager) and the application of that financial knowledge in the financial management of the business (for example, budgeting and capital investment appraisal). We acknowledge the overlap and conceptual confusion between financial management and financial literacy, and we see financial literacy as a better conceptual fit in the MSME setting as the unit of analysis is the owner-manager (the farmer). Our study seeks to contextualise financial literacy in the actual financial practices of MSMEs, in this case farming enterprises. These financial literacy practices manifest in events and are influenced and shaped by social, cultural, temporal, technological, historical and institutional circumstances. This new perspective addresses the deficit of theory driven research in this area (Ndemwah et al., 2019) and will inspire a refreshed interest in farm finance studies by bringing together the previous collection of findings on farmers' financial practices under a comprehensive theoretical framework. It complements the increasing acceptance of the role of local or vernacular accounting systems in mainstream accounting literature (Kilfoyle et al., 2013; Goretzki et al., 2018; Mättö et al., 2022) which focuses on financial activities in context.

Building on Bay et al. (2014), this study demonstrates how Barton and Hamilton's (1998) six dimensions of literacy as a social practice can be extended to the domain of financial literacy. These dimensions provide a practical overarching framework to explore financial literacy practices in context. Following recent qualitative research in the farm financial management literature (Hilkens et al., 2018; Hayden et al., 2021a, 2021b), we highlight evidence of the importance of issues around concurrent literacies, institutional influence and temporality. A key empirical contribution is to capture in detail the complexity of how financial literacy practices manifest themselves in family farms. The farms in this study are at the intersection of the conflict between traditional (for example, pen and paper, importance of social interaction) and modern financial literacy practices (for example, use of technology, focus on efficiency and automation) providing a unique insight into the complex dynamic of financial literacy and how it is influenced by a variety of internal and external factors.

The event-based empirical investigation strategy of financial practices and the six dimensions can be used to examine financial literacy in other contexts. It is a practical framework and methodology for integrating Molina-Garcia et al.'s (2023) triple layers of context in financial literacy studies. These include the micro level (organisation ownership and structure, motivation and strategy), meso level (industry structure including temporality) and macro level (socio-cultural-economic factors, demographic features, political, historical, technological and geographical forces). It is also useful in examining changes in financial literacy over time.

This study also contributes to the area of practice in farm finances. Our findings have important implications for farmers, educators, lenders, agricultural advisors, accountants and other key stakeholders in the farm financial ecosystem. The in-depth understanding of financial literacy practices on farms and how farmers engage with financial texts

presented will allow practitioners and educators to identify particular moments in the farming calendar when farmers' attention is focused on the financial aspects of the farm. For example, advisors could communicate to farmers the benefits of targeting quieter periods in the farming year to undertake financial activities. This focus on the temporality associated with financial literacy practices on farms can be used to target timely financial advice and financial education initiatives to maximise their impact to an engaged audience. We also provide insight into how financial education could be more effectively targeted at farmers (and more broadly) by examining financial literacy practices through a social practice lens. A recognition of the social and interactive nature of financial literacy facilitates better programme design. Education programmes need to be practice, rather than skill, driven with a focus on understanding why participants are engaging with the programme and what they want to achieve. For example, education programmes could provide farmers with sample financial templates informed by vernacular practices to provide practical advice to assist them in organising and maintaining their financial records. The traditional linear focus of financial education to improve a particular skillset which will then result in improved financial behaviour is overly simplistic given the findings in this study. Furthermore, the dominance of a "pen and paper" based approach to the financial literacy practices across all the farms in this study contrasts with the increased use of technology in many other aspects of farm management. Several reasons were identified for this, including a sense of tradition with the physical financial records for the farm (for example, chequebooks, receipts, bank statements), concerns about the privacy and security of financial technologies, and satisfaction with the current approach to the farm's finances. Notwithstanding this, even in the cases where farmers were open to the use of IT to help reduce the time intensive task of financial recording keeping and analysis on the farm, the absence of farmer friendly software, coupled with farmers' lack of confidence in their ability to use new technology correctly, is something that appears to be limiting the adoption of technology in the financial literacy practices of the farms. For practitioners, this highlights the importance of being able to identify those farmers who have a desire to adopt financial technologies and to focus on how they can adapt their offerings (in the case of banks and financial software providers) and advisory services (in the case of agricultural advisors and accountants) to ensure that they are fit for purpose at a farm level. In addition, the involvement of the broader farm family in farm financial literacy events suggests a clear role for these family members in facilitating the adoption of new technology and/or financial practices on the farm.

Finally, this study provides an important policy contribution. Recent initiatives by the European Commission highlight the importance of financial literacy by calling on member states to develop their own national financial literacy strategies (European Union/OECD, 2022). Furthermore, agricultural policy focuses on the need for farms to be economically viable. Consequently, we argue that farmers are a cohort where financial literacy policy interventions should be targeted, and this study provides recommendations for policy interventions in this regard. Policymakers need to provide investment to facilitate the delivery of financial education and training programmes to farmers that are aligned to the social practice concept, that support the adoption of farmer-friendly financial technologies, and that include an acknowledgement that one size does not fit all. Furthermore, we contend that the informal and social learning environments provided for participants in group forums (for example, discussion groups – which have been a core pillar of knowledge transfer policy initiatives), must be structured in a way that facilitates the sharing of knowledge on farm financial literacy practices in a manner that recognises vernacular practices and caters for the privacy and sensitivity that is associated with such practices. If not, discussions relating to farm finances in group situations will be limited (Hilkens et al., 2018).

The key findings of this research should be interpreted in the context of its limitations. The nature of the methodology adopted means that the findings cannot be generalised to the broader population of farmers or

enterprises (Eisenhardt and Graebner, 2007; Yin, 2009). The case farmers were all clients of Teagasc, which was a deliberate strategy on the part of the researcher to facilitate a level of access to allow for the research phenomenon to be comprehensively explored. Furthermore, all farms were involved in the same farming system (cattle rearing), which was deemed necessary to minimise external variation beyond the phenomenon of interest (Eisenhardt, 1989), but this means the findings may not apply to other farm systems. In the same vein, the findings belong to a specific time. Finally, the case studies chosen all come from a single country, Ireland, which limits the insight that may be available from exploring financial literacy as a social practice across different geographical regions. Despite these limitations, the novel and exploratory nature adopted provides scope for future researchers to examine the phenomenon of financial literacy in a broader context. The first possible application is to explore different farming contexts (for example, dairy, sheep, tillage) and/or by contrasting these different systems of farming. Secondly, given the noted regional differences in financial literacy (Lusardi and Mitchell, 2014), there is also potential for future research avenues to explore geographical differences using the framework. Thirdly, the findings on financial literacy practices in this paper have strong parallels with research on vernacular accounting systems (Kilfoyle et al., 2013; Goretzki et al., 2018; Mättö et al., 2022). There is potential to expand the role of context in accounting systems research by using the social practice theoretical lens employed in this study. Finally, from a temporal perspective, the impact of COVID-19 on the adoption of technology for farmers was significant and many of these technology adoptions have continued since pandemic restrictions have lifted (for example, online livestock auctions). Therefore, a comparison of the pre and post COVID-19 financial literacy practices on farms would be another fruitful avenue of future research as the timeline for this study was pre-COVID-19.

As the first comprehensive application of Barton and Hamilton's (1998) social theory of literacy to the domain of financial literacy, the richness of the findings attests to the fit of the framework. The social practice lens provides an avenue to explore core issues at the heart of understanding financial literacy practices on family farms including when particular financial literacy events occur, who is involved in these, what roles they play, and, finally, where these events and associated practices take place. On a broader level, our findings suggest that a qualitative approach to financial literacy, while limited in terms of an ability to extrapolate findings, provides a valuable contribution to the existing financial literacy literature by addressing influences not fully accounted for within existing theoretical frameworks. This context-theorizing perspective based on established literacy theory enables researchers to examine situations and temporal circumstances that shape and form financial literacy practices on family farms. It complements current research and calls for definition and measurement clarity in the emerging concept of financial literacy in MSMEs (Molina-García et al., 2023; Graña-Alvarez et al., 2024). In particular, the six dimensions outlined in this study provide a practical framework and methodology to incorporate the three layers of context - micro, meso, and macro (Molina-García et al., 2023) - in financial literacy studies. Therefore, this theoretical lens is not limited to farming and has the potential to be extended to explore financial literacy practices in other sectors and settings.

CRedit authorship contribution statement

John Nolan: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Teresa Hogan:** Writing – review & editing, Supervision. **Michael T. Hayden:** Writing – review & editing.

Declaration of competing interest

As the authors of this paper we confirm the following:

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Appendix 1. Source: NFS (2022)

Financial Situation of Farming Systems¹

Farm System	Average Family Farm Income (FFI) ²	Direct Payments as a % of FFI	% of Farmers with Off-Farm Income	% of Farms that are Economically Viable
Dairy	€148,598	14%	11%	93%
Cattle – Rearing	€8324	182%	46%	13%
Cattle – Other	€18,554	92%	47%	34%
Sheep	€16,324	116%	51%	25%
Tillage	€76,013	40%	45%	79%
National Average	€44,936	42%	40%	43%

1 Teagasc National Farm Survey 2022.

2 Family Farm Income (FFI) is calculated by deducting all farm costs from total gross output. Family labour is not included as a cost, so FFI is the return to family labour, management and investment.

Data availability

The data that has been used is confidential.

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