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Management accounting in farm businesses

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Abstract

This thesis examines what management accounting (MA) practices are used in farms, how they are shaped and what their implications are. The four papers illustrate numerous linkages between MA, accountability, the firm, the manager and the wider context. Based on interview data, papers I and II explore the "how" and the "why" questions behind the use of MA and specifically performance measures concerning farm animals. Paper I explicates the use of certain practices as resulting from the relative extent of embeddedness in the institutional logics of family, farming and business, which arises through the learning and intensity of stakeholder interactions. Paper II illustrates how dairy farmers' accounts operationalize farm animals, how farmers are made accountable for them and how accountability based on farm animal welfare is conceptually limited yet also posing opportunities through reflections on care. Based on survey and archival data, papers III and IV analyse the linkages of MA and financial literacy to financial outcomes. Paper III tests the positive association between debt and borrowing interactions on the use of performance measures, financial MA and compliance MA practices and their association with financial costs. It also indicates that while financial education is linked to the use of performance measures it is the farmers with a higher need for cognition and vigilant attitude to money as well as farms with more debt that use more financial MA. Paper IV develops a measure of managerial financial literacy of farmers and identifies which practices and financial outcomes it is associated with. Farmers are found to have higher financial literacy than previously suggested and it is positively associated with profitability and more analysis of annual financial statements and considerations of taxation.

Keywords: management accounting, farms, institutional logics, accountability, financial literacy, small firms.

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Ekonomistyrning hos lantbruksföretag

Sammanfattning

Denna avhandling undersöker de ekonomistyrningspraxis som används hos lantbruksföretag, hur praxis utformas och dess implikationer. De fyra artiklar belyser olika kopplingar mellan ekonomistyrning, ansvarsskyldighet, företaget, lantbrukaren och dennes vidare kontext. Baserat på intervjudata undersöks i artikel I och II "hur" och "varför" frågorna bakom användningen av ekonomistyrning och nyckeltal rörande produktionsdjur i lantbruket. I artikel I förklaras användningen av vissa nyckeltal och praxis med utgångspunkt i hur inbäddade företagarna är i de så kallade institutionella logikerna som kan kopplas till familj, jordbruk och företag, samt uppstår genom inlärning och interaktion med intressenter. I artikel II illustreras hur olika nyckeltal representerar produktionsdjuren, hur lantbrukarna görs ansvariga för djuren och hur ansvar kopplat till begreppet djurvälfärd är både begränsat och ger möjligheter genom reflektioner kring djuromsorg. Baserat på en kombination av enkätdata och finansiell data analyseras i artikel III och IV kopplingarna mellan ekonomistyrning, finansiell kompetens och företagens ekonomiska resultat. I artikel III utforskas hur skulder och kontakter med banker kan kopplas till en ökad användning av olika prestandamått och ekonomistyrningsverktyg, vilka i sin tur relateras till finansiella kostnader. Lantbrukare som har mer ekonomisk utbildning använder fler prestandamått, medan de som stimuleras mer av kognitivt krävande uppgifter, har mer vaksamma attityder till pengar samt har högre skulder väljer fler finansiella ekonomistyrningsverktyg. I artikel IV utvecklas ett mått på finansiell läskunnighet hos lantbrukare och testar hur det är kopplat till företagens prestanda och ekonomistyrning. Resultaten tyder på att lantbrukarnas finansiella läskunnighet är högre än vad som tidigare föreslagits och att den är positivt associerad med lönsamhet, mer analys av finansiella rapporter samt skattemässiga övervägningar.

Nyckelord: ekonomistyrning, lantbruksföretag, institutionella logiker, ansvarsskyldighet, finansiell läskunnighet, småföretag.

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Contents

List of publications

This thesis is based on the work contained in the following papers, referred to by Roman numerals in the text:

I. Gottlieb, U.*, Hansson, H., & Johed, G. (2021). Institutionalized management accounting and control in farm businesses. *Scandinavian Journal of Management*, *37*(2), 1–14.

II. Gottlieb U.*, Johed G. & Hansson H. Accounting and accountability for farm animals: conceptual limit and the possibilities of caring for cows (in revision in Critical Perspectives on Accounting).

III. Gottlieb U. Management accounting and debt in micro firms: implications for financial costs (in revision in European Accounting Review).

IV. Gottlieb U.* & Hansson H. Managerial financial literacy – scale development and linkages to accounting practices and financial outcomes in farms (manuscript).

* Corresponding author. Paper I is reproduced with the permission of the publisher.

The contribution of Uliana Gottlieb to the papers included in this thesis was as follows:

I. I developed the problem formulation, the study design and collected the data. We developed the analysis and discussion together. I managed all correspondence with the journal editors.

II. I developed the problem formulation, the study design and collected the data. We developed the analysis and discussion together. I managed all correspondence with the journal editors.

III. I developed the problem formulation, the study design, collected the data, performed all estimations, analysis and discussion.

IV. I developed the study design, collected the data and performed all estimations. We developed the problem formulation, analysis and discussion together.

Abbreviations

FADN	Farm Analysis Data Network
FAW	Farm animal welfare
FES	Farm Economic Survey
FL	Financial literacy
MA	Management accounting
MAC	Management accounting and control

1. Introduction

1.1 Motivation and aim

> Agricultural academics tend not to be interested in accounting and accounting researchers tend to stay clear of agriculture and related industries. Yet, this is one industry that has every single person as a stakeholder, relying on it for food and clothing (Jack, 2005, p. 60).

As emphasized in this quote, the nexus of accounting and farm context is heavily under-researched by scholars from both fields (Argilés, 2001; Argiles & Slof, 2003; Jack, 2005; Ndemewah et al., 2019) and largely concluded to be sparse in terms of empirical findings (Jack & Collison, 2007) and them having theoretical anchoring (Ndemewah et al., 2019). The issues around accounting in farm businesses have been predominantly reserved for research in agricultural economics as the 'key discipline' in farm management (Malcolm, 2004). However, a perception has occurred already in 1979 that "'the farm management job is done', meaning that many academics or practitioners believe that all the required tools for financial planning and analysis have been found and no further change is needed" (Jack & Collison, 2007, p. 672). While non-functionalistic ideas about accounting exist and expand into new theoretical domains (Miller, 1994), the same cannot be said about the empirical reach of the literature, with only a handful of accounting studies of the agricultural context (Jack, 2005, 2007, 2019; Jack & Collison, 2007; Jakobsen, 2017; Ndemewah et al., 2019). Furthermore, even as research on social and environmental reporting has taken off, the practices on the ground have not been addressed (e.g. McLaren & Appleyard, 2019)

and some constituents such as animals remain under-researched (Dillard & Vinnari, 2017). The paucity of research on accounting in the farm context motivates several issues being explored in this thesis to generate insights that are currently lacking and challenge some persistent notions of relevance for both practitioners and accounting scholars.

First, there are numerous understudied linkages between management accounting (MA) use, the farmer practising it, the farm business, the farming sector and the broader society to which farmers as food producers contribute and on whose norms and regulations they depend. The empirical setting of the farms, though scarcely explored in accounting, offers a fertile ground to develop our understanding of accounting as a social and institutional practice (Miller, 1994). The relevance of institutions in farms has been suggested with regards to specific practices, such as gross margin accounting that persists in the form that deviated from its original intent and scope (Jack, 2005; Jack & Collison, 2007) or yield-based performance measures, overreliance on which is even compared to neglect of economic rationality (Jakobsen, 2017). It remains to be further explicated how institutions - as rules, routines and taken for granted meanings infused with value beyond the technical requirements (Thornton et al., 2015) - are reflected or not in other management accounting practices and why more in some than in others. The linkages between farmers, their families and other sectoral stakeholders, such as advisors, lenders and regulators, seem particularly relevant for exploring such historically contingent 'motives' behind the use or non-use of some accounting practices versus others. Accounting literature can therefore contribute to our understanding of accounting in its context as well as gain from further insights into the forming and resolving of institutional complexity.

Moreover, farm management bears even more far-reaching implications beyond the practitioners involved directly or indirectly in the agricultural sector. Farm management deals with the organization of natural resources and handling of sentient animals (Broom, 2011), which are more and more at the centre of attention in terms of sustainability and animal welfare considerations of the public. The practices of farmers, especially concerning animals, bring together a complex set of environmental, ethical and economic considerations (Solomon & Jones, 2013), and become mediated by benchmarking and target metrics (McLaren & Appleyard, 2019) as well as legal obligations (Striwing, 2002). Accounting in this wider scope -

concerning practices and metrics made socially relevant beyond the farm context and reflecting a responsibility for animals - is an area of accounting research that is just emerging (Dillard & Vinnari, 2017; Vinnari & Laine, 2017). In this nascent area of inquiry, the farmers have either not been specifically considered (McLaren & Appleyard, 2019) or even given an impression of "villains" in the empirical material (Laine & Vinnari, 2017, p. 1502) based on people with largely urban lifestyles. On the other hand, the literature on farm animal welfare (FAW) dealing with measures of animal welfare as a state (e.g. Broom, 1991; Broom, 2011) has rather refrained from a more critical analysis of the measurement practices and their wider implications. With such streams of literature in mind, this thesis inquires more holistically regarding the practices concerning farm animals as part of both managerial duties and wider accountability expectations towards farmers. It considers what accounts and considerations of animals imply, how they are made sense of by the practitioners and what their implications are for farmers and animals.

Secondly, the nature of farms as micro or small businesses merits further consideration with regards to financial drivers and implications of management accounting. Limited financial resources of small firms are much emphasised in MA research in these firms (Lavia López & Hiebl, 2015). However, the explicit role of debt (Garcia Osma et al., 2018) and the interactions around borrowing have not been given due attention in relation to MA practices. The role of lenders arguably extends beyond the institutional influences of lenders on the use of MA practices out of legitimacy concerns (e.g. Amans et al., 2015). MA can also be used for analysis and decision-making and done so in different ways in small firms and farms (Ndemewah et al., 2019) due to the lack of employees designated to these roles. Farms may, for example, not have an in-house accountant or receive limited additional services from external accountants beyond the preparation of annual financial statements (Halabi et al., 2010). On top of this, specialized advisors tend to focus more on the production rather than financial aspects in farms (Jakobsen, 2017) and farms as small firms are expected to develop relationship lending (Bigus & Hillebrand, 2017) where fewer lenders are more involved and using more diverse information from the firm. In this context, the relationships with lenders and the role of more debt become particularly relevant to explore with regards to both what MA practices are used and what financial implications this has, such as on

financial costs. This thesis thus explores a broad range of management accounting practices suggested as relevant in farms yet rarely considered in tandem (Ndemewah et al., 2019) in relation to lending relationships and financial costs. The latter is also surprisingly understudied (Garcia Osma et al., 2018) among the more widely considered general financial outcomes in small firms (Helsen et al., 2017; Hiebl, 2012; King et al., 2010; Laitinen, 2001; Lavia López & Hiebl, 2014; Lybaert, 1998; Reid & Smith, 2000) studied directly and without due considerations to the endogeneity concerns (Chenhall & Moers, 2007; Larcker & Rusticus, 2007).

The previously mentioned small firm nature of farm businesses also implies the need for a closer consideration of the characteristics of the managers. Numerous skills and knowledge are required from farm managers to oversee both operational and strategic planning involving non-financial and financial aspects of performance. The characteristics of managers are generally suggested as relevant for both the use of MA (Hiebl, 2014; Plöckinger et al., 2016) and farm financial outcomes (Jackson-Smith et al., 2004; Nuthall, 2001). However, such analyses often rely on a limited set of observed demographic variables such as education or professional experience. Such background aspects proxy for the implied understanding and knowledge that would be relevant for financial practices and outcomes as well as potentially confound a wide range of values and attitudes more explicitly theorised as driving managers choices (Hambrick & Finkelstein, 1987; Hambrick & Mason, 1984; Hiebl, 2014).

To disentangle the personal characteristics of managers relevant for MA this thesis builds upon the conceptualization of financial and business knowledge as financial literacy (FL) (Lusardi & Mitchell, 2014; Lusardi & Tufano, 2015). Specifically, I measure managerial FL in the firm context that has not been explicitly considered (Gaurav & Singh, 2012; Li & Qian, 2019). Managerial FL is further considered separately from a range of demographic and psychological characteristics of farmers and examined in relation to both accounting practices and firm financial outcomes, including profitability, investments, insurance and financial costs.

Analysis addressing the above-mentioned issues in the literature on MA in farm context aims to broaden the knowledge of the use and implications of MA in the farm businesses. This concerns the operationalization, as well as internal and external to the business roles of MA. In doing so, the interesting empirical context of farms further enables to development of the

conceptual understanding of linkages around MA across the levels of the individual, the firm, the professional sectoral context and the broader society.

1.2 Research questions

The thesis is empirically guided in the inquiry of the unknown in the domain of MA in a given context. To do so while considering the identified research gaps, it addresses the "what", "how" and "so what" questions around MA in Swedish farm businesses.

1. What MA practices are used in farms?

The initial question laying the ground for the thesis is the "what" question about MA tools and practices in Swedish farm businesses. The thesis aims to fill the gaps in the literature so far mainly focussing on the farmers' overreliance on non-financial tools (Jack, 2005; Jakobsen, 2017), despite the arguments that market forces, regulations and even family connections influence and sometimes even require the uptake of a wider range of tools for business control, analysis and planning. This thesis thus initially strives to cover what:

a) Indicators or tools are available and used in farms (study I and III);

b) Meaning is attached to their use by the farmers (study I and II).

Addressing these questions has guided the data collection and subsequent inquiries presented below.

2. How is the use of MA shaped?

The core of the thesis is shaped by the "how" questions around MA in farm businesses that build on the identified MA practices and meanings behind them. First, the thesis inquiries *how* the use of different practices, both general and more specific to farm animals, is shaped by internal and external influences. I consider the influences of the managers, their family, lenders, professional stakeholders in the industry and indirectly the general public as conveyed by the national and regional authorities. I inquire how:

a) Some stakeholder influences become more prominent than others (study I);

b) Concepts such as farm animal welfare are reflected in stakeholder influences and resulting accounts (study II);

c) Personal and stakeholder influences are associated with the use of MA (study III and IV).

These "how" questions regarding the use of MA enable the theoretical contributions to the literature on institutional logics in small firms, to the literature on the limits of accountability and the literature on the relationships between MA, financial literacy and managerial characteristics.

3. So what that farmers use MA the way they do?

Finally, the specific studies and the whole thesis allow in part inquire about and in part discuss the implications of MA. In line with the introduced institutional, personal, firm and wider societal factors linked to the MA in the farm context, I reflect on the implications of a range of accounts and MA practices for:

a) Family relations and expectations (study I);

b) Accountability demands, limits and opportunities around farm animals (study II);

c) Firm financial outcomes directly and depending on debt or FL (study III and IV).

1.3 Outline of empirical studies I – IV and disposition

The presented "what", "how" and "so what" types of research questions are addressed across the four empirical studies included in this thesis, outlined in Table 1. Motivated by the research gaps, these research questions reflect a broad scope of inquiry in this thesis, which is further reflected in the methods and data used.

Studies I and II are based on the data from interviews with dairy farmers, farm advisors, bank representatives and other stakeholders. Both studies empirically illustrate which practices, measures and information are used by the dairy farmers to run their businesses in general, as well as manage their livestock under the requirements and controls around FAW. They also conceptually explain why this is done in the current form and what implications it has for the users, their business and the wider social context.

The first study captures the linkages between MA practices and the often taken-for-granted higher-level constructs framing how a farm is managed - institutional logics. This study articulates what the logics entail for the practices used, how family and stakeholders external to the farm are involved in logics reproduction and why we can observe both, a prominence of production-centred non-financial metrics as well as more financial

considerations and measures. MA is thus considered in this study as something linked to and reproduced in broader stakeholder influences.

Table 1. Outline of the empirical studies

Linkages in focus	Conceptual framework	Methods	Data
I.			
Management accounting and control, stakeholder institutional influences	Institutional logics	Multiple case-study, discourse analysis	Interviews
II.			
Accounts, accountability and animals	Accountability	Multiple case-study, discourse analysis	Interviews
III.			
Management accounting, lending relations and financial outcomes	Upper echelons theory	Factor analysis, univariate and multiple regression analysis	Survey, archival
IV.			
Financial literacy, management accounting and financial outcomes	Financial literacy, upper echelons theory	Item response theory, factor analysis, univariate and multiple regression analysis	Survey, archival

The second study further focuses on the sub-set of measures dealing with farm animals and compliments this depiction with accounts of how farmers reflect on their animals' wellbeing and their role in ensuring it. It explores how the measurable and emotive accounts of the farmers are linked to the notion of accountability - as an expectation and awareness of someone (farmers) being responsible for farm animals in a certain way. This study further discusses how the accountability of the farmers in Sweden is closely connected to the concept of farm animal welfare (FAW) that arose in research (Broom, 2011) and permeates the regulatory framework concerning farm animals (SOU 2011:75). In particular, the study also considers how accountability is limited by FAW as its referent concept. It depicts the enabling and constraining role of performance indicators as well as suggests a role for alternative cognitive accounts to further the evolving considerations around animals' wellbeing and accountability for it.

Studies III and IV are based on the archival data of farm business merged with the survey of their owners-managers. These studies test the relationships between the use of MA, firm performance, as well as lending and farmer characteristics.

Study III builds on the empirically identified MA measures in the first two studies assessing their use in a wider sample of farmers. It then specifically addresses the role of debt and lending relationships with the banks for the use of identified MA practices whilst controlling for characteristics of the manager that are of relevance for financial and lending decision-making. Subsequently, the relationships between MA and a borrowing outcome of financial costs are further studied directly and specifically for more indebted firms, all the while paying attention to the endogeneity concerns.

Finally, study IV focuses on the role of financial knowledge of the farmers for the use of MA – conceptualized as managerial FL. Building on the FL literature that has largely focused on general demographic groups and consumers, this study considers which aspects remain to be included in the managerial context and develops a respective measuring scale of FL, tested on farm managers. Using item response theory it measures the latent financial literacy and discusses how farmers as business managers fare across the considered knowledge items, whether this is linked to the MA practices they use and different financial outcomes such as profitability, investments, insurance use and financial costs.

The dissertation is organized as follows. The next chapter introduces and motivates the concepts invoked in the empirical studies and how they theoretically explain the empirical material. Chapter 3 motivates and reflects on the use of research methods applied and the specific data collected. Chapter 4 systematically and concisely summarises the four empirical studies and Chapter 5 discusses the contributions of the thesis followed by suggestions for future research.

2. Conceptual framework

This Chapter first lays out the key terms around management accounting that are central to the thesis. It then proceeds to introduce the conceptual foundations of the different studies in the thesis. I also explain how the different lenses of the papers come together conceptually.

2.1 Definition of key accounting terms

The core focus of the thesis is the exploration of the different facets and linkages around the domain of management accounting, empirically explored in the Swedish farm context. Management accounting is understood as a collection of practices, e.g. relating to budgeting, costing (Chenhall, 2003), rolling forecasting (Malmi & Brown, 2008), etc. On the other hand, management accounting and control (MAC) is a broader set of practices that includes also other controls e.g. personal controls (Chenhall, 2003), which more clearly pertain to the control of human actions and results on top of control of material flows, such as cash or production volume. MA and MAC are thus defined broadly to address the first and second research questions in studies I and II as well as to accommodate analysis of specific practices in studies III and IV.

Furthermore, MA practices are viewed in this thesis as encompassing performance measures considered to make sense of the organizational performance. Following Carlsson-Wall et al. (2016), performance measures are understood as both, specific tools, such as a dashboard, scorecard or measures tree incorporating indicators, as well as 'accounting talk' in which managers mobilize tools and indicators when discussing performance (e.g. Hall, 2010). Therefore, conventional accounting information that reflects the feedback-offering periodic information about the financial situation of the business is only a subset of the information relevant for the work of managers (Hall, 2010) and invoked in the tools and practices considered in this thesis.

Overall, I refer to MA 'practices' in a sense of ways of using management accounting. This pertains to both, written inscriptions (Robson, 1992), such as in the indicators, measures or tools, that provide often quantifiable information and measure something of relevance to the organization, as well as the qualitative dimension of information (including some narratives). The qualitative dimension of information is also relevant to include, especially in

the context of small firms such as farms, where relevant assessments, reports and planning can be done verbally with the employees, for example, in the field. Furthermore, MA practices can further constitute or underlie an account - as a depiction, description or report of something, but also possibly as a mental recollection, focus and awareness of something.

The broad scope of MA practices considered in this thesis goes hand in hand with the intent to elicit the different purposes that management accounting can serve, whether intended or not. Therefore, I view MA as such that can serve decision-making, attention focusing and control purposes, and thus can be linked to managers' actions and subsequent firm performance. However, this thesis also envisages the existence of diverse purposes and implications of MA practices, among which also legitimization (Mellemvik et al., 1988; Meyer & Rowan, 1977) and accountability (Messner, 2009; Roberts, 1991).

To explore the involved wide range of specific tools and indicators, as well as the underlying information and its discussions in this understudied context I first cast the net wide and explore qualitatively which information, indicators, tools, and practices of using these are invoked by the practitioners in the Swedish farming context. This way, I elicit in the first and second studies the previously not explored examples of MAC practices and accounts concerning animals including how they are invoked, when, by whom and why. This broader consideration is then narrowed in papers III and IV focusing on a subset of MA considered in terms of the extent of their use and explored in relation to financial outcomes.

2.2 Conceptualizing linkages

Agriculture is a field that virtually everyone relies on for the food we eat, many benefit from directly or indirectly through employment and most have value-based opinions about, e.g. concerning farm animals. In this field (Powell & DiMaggio, 1991), the thesis explores MA practices as interconnected across different levels of abstraction, from the societal level to the individual level of the farmer. The higher-level factors include, for example, concerns and expectations of the people in Sweden around animal welfare (at least to the extent that these are reflected in the governmental regulations and food processors' controls). Alternatively, a market as a collection of actors and rules of behaviour is another higher-level construct

that this thesis explores concerning MAC practices of farmers. Moving towards lower levels, the thesis also considers the farming sector involving e.g. farmers, their input suppliers, the professional specialized advisory organizations, and the actors that procure produce of farmers, including processors. These are followed by the lower levels of the farm business and the individual farmer with their respective attributes.

Table 2 gives an overview to which extent the studies in this thesis consider the linkages of MA practices across the different levels of abstraction. It is worth noting, that I refer here not to the level at which data was collected (with limited data collection at the societal level) but rather to which extent the analysis reflected considerations of societal, sectoral, farm and individual factors. To elicit the linkages across the different levels, this thesis invokes several conceptual frames, which I introduce below and further elaborate on in the studies.

Table 2. The extent of consideration of MA linkages across the levels of abstraction

Level	Study I	Study II	Study III	Study IV
Societal	Indirectly through the logics	Indirectly through accountability to consumers and the public	-	-
Sectoral/field	Partly linked to the logics	Partly through FAW-related practices and controls	Indirectly through borrowing relations	-
Farm/business	In focus	In focus	In focus	In focus
Individual/ managerial	Partly through the individual extent of embeddedness	Partly through the different extent of reflections on animals	Partly through background and cognitive traits	In focus

2.2.1 Institutional logics

With the title urging to "bring society back in[to]" the institutional analysis of organizations, Friedland & Alford (1991) depicted society as comprised of institutional orders of the market, professions, corporation, family and religion that carry certain organizing principles and symbols, which in turn influence individual and organizational behaviour. Their work has spurred a large body of research (Greenwood et al., 2008; Thornton, & Ocasio, 2008)

that has evolved to conceptualizing these organizing principles as the institutional logics perspective, which is a "framework for analysing the interrelationships among institutions, individuals, and organizations in social systems" (Thornton et al., 2015, p. 224). The institutional logics have been most widely articulated as the "socially constructed historical patterns of material practices, assumptions, values, beliefs and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality" (Thornton and Ocasio, 1999, p. 804). While a full review of the institutional logics perspective would be outside of the scope of this Chapter, I will focus on articulating how as an analytical tool it links the higher conceptual levels to the lower level of the individual, since the thesis at least partly extends across them. I also introduce the notions of embeddedness (in the logics) and enactment (of the logics).

Embeddedness

Essentially, the logics perspective enables an understanding of individuals situated in a societal context, where norms, values, beliefs and taken for granted and historically-contingent assumptions are collectively shaped and trickle down to the organizations and the people that comprise them. Therefore, individuals and organizations are aware of the cultural norms, even if subliminally, and incorporate such diverse norms into their thoughts, beliefs and decisions (ibid. p.269). Individuals are thus viewed as *embedded* in the different institutional logics (Thornton & Ocasio, 2008). Their sense-making is conditioned by the logics as the "frames of reference" (Thornton et al., 2015, p. 224) and as cognitive and cultural "rules of the game" (Greenwood et al., 2014). Individuals, therefore, have agency and capacity to act but do so by "drawing on extant and emergent templates to render their actions meaningful and consequential" (Modell, 2015, p. 778). The sense of self and own identity of the actors is also conditioned by the logics. Lok (2010, p. 1308) notes that "institutional logics not only direct what social actors want (interests) and how they are to proceed (guidelines for action) but also who or what they are (identity)". Watson (2008) stresses that it is interesting to study to which extent people embrace social identities as parts of their self-identity. This way, professionally-linked identity is an important but only partial source of self-identity for most people and one that can have various alterations.

As the individuals are always embedded in some logics, their background is interwoven with the logics. Almandoz (2012, p. 1381) notes that variety in "founder backgrounds influences [firm] establishment rates for reasons that can be traced back to community and financial logics". Actors' background and other individual characteristics are then likely to be important in terms of how and in which institutional logics the actors are embedded. Meyer and Hammerschmid (2006) found that business studies were associated with logic hybrids in the Austrian public sector, while the individuals with private sector experience were more likely to draw on managerial logic. In their study of the diffusion of managerial reforms in the public sector, they thus considered personal factors such as work experience and educational background. The background is important in terms of logics as it reflects some facets of an individual's exposure to certain stakeholders and information. Background thus captures some of the ties (Greenwood et al., 2011, p.342), such as those formed in conferences, clubs and training programs, that link the individual to the field institutions and enable the logic to reach the individual.

The individuals' embeddedness in the logics has been inferred through some of the characteristics, such as their associated primary goals, values, identity, and sources of authority and legitimacy (Thornton & Ocasio, 2008). For instance, a business type of logic linked to the institutional order of the market may promote the focus on goals such as increasing profits and building the competitive position of the firm (Le Theule & Lupu, 2016), growing in size and succeeding in product market competition (Dai et al., 2017). The extent to which individuals draw on the social identities can help to infer embeddedness in the logic linked to this identity (as well as to track logic shifts over time) (Meyer and Hammerschmid, 2006, p. 1012). Concerning other social actors, logics may also reflect sources of legitimacy, such as financial markets versus peers (Almandoz, 2012), and sources of authority, such as financial bodies versus production experts. This way, the thesis addresses undertheorized MAC practices of farmers as more conceptually related to the context, beyond pointing to the relevance of regulations, technology, weather and family (Ndemewah et al., 2019). Instead, I explicate key theoretically-substantiated frames of reference shaping MA practices as well as the mechanisms of how this happens.

Enactment

Institutional logics are understood as such that can shape behaviour, influence priorities, actions and associated material practices, provide structure to the decision-making and practices of the individuals (Thornton, 2004; Thornton & Ocasio, 1999; Thornton & Ocasio, 2008). Logics can also focus attention on a delimited set of issues and solutions (Ocasio, 1997). Of particular relevance to this thesis is the relationship of the logics to MA, of which, the practices around budgets (Amans et al., 2015), income statement (Le Theule & Lupu, 2016), and performance measures (Carlsson-Wall et al., 2016) have been connected to the interplay of institutional logics. While practices depend to some extent on the existing at the time embeddedness in the logics, doing them reflects how and which logics are enacted in those instances. I thus view certain behaviours, including MA practices, stated replication of perceived norms, assertions of beliefs as such that can be understood as logic enactment by individuals.

Furthermore, it is the multiplicity of logics that poses interesting questions such as why some logics get enacted while others don't, when and how with regards to MA. Lounsbury (2008, p. 354) notes that multiple logics can affect practice by enabling varying "cognitive orientation and contestation over which practices are appropriate". This multiplicity of logics has been referred to as institutional pluralism (Kraatz & Block, 2008) and institutional complexity (Greenwood et al., 2011), which are broadly understood to have positive and negative implications. On the downside, there is potential for fragmentation, incoherence, conflict, goal-ambiguity and instability for organizations, while on the upside, organizations get opportunities to meet multiple expectations, ensure their survival and obtain complementarities (Kraatz and Block, 2008, p. 244). More specifically, logics have been discussed to pose as competing or co-existing. While many studies address tensions arising from competing logics, Dai et al. (2017) argue similarly to Greenwood et al. (2011, p. 332) that logics are not always incompatible and may instead reinforce each other. Goodrick and Reay (2011) further talk about a 'constellation of logics', where different logics vary in prominence in different periods in time, further pointing to the dynamic nature of their relationship. They state that logics may be cooperative, implying a possible "win-win" outcome for both logics and that "increases in one logic do not necessarily mean a corresponding decrease in the strength of another logic" (Goodrick and Reay, 2011, p. 401). The

constellations of logics they identified include cases with the equal and significant influence of logics on behaviour, as well as instances when one logic has moderate influence while three others have less influence. Cooperative relationships between logics can be further facilitative and additive. In facilitative relationships, shifts in work practices due to one logic may support changes consistent with an alternative logic. In additive relationships, the number of demands increases (Goodrick & Reay, 2011).

A time and situational dimensions have been also raised as relevant for the interplay of logics. In the study of community banks, Almandoz (2012, p. 1391) noted that logics *at times* "appeared in stark contrast" and that "most organizing teams seemed to be influenced by both financial and community logics, even if in different degrees". Temporal aspects such as an aftermath of the financial crisis (Ramus et al., 2017), the economic situation in the country (Rautiainen et al., 2017) and a later year of the foundation of the organization (Pache and Santos, 2013) were discussed as linked to a stronger influence of the commercial/market/financial logic. The performance of the organization in a certain period was also argued as affecting the extent to which a business logic was balanced with the professional logic and which performance measures were more considered (Carlsson-Wall et al., 2016). Therefore, while institutional logics capture historical contingencies, they are not viewed a fixed, since the organizational fields and institutional orders evolve (Thornton et al., 2015; Thornton & Ocasio, 2008). For this thesis, this implies that the application of the logics perspective is done at a certain point in time around data collection and should thus be viewed as reflective of this period. At the same time, study I further explores the situational interplay of the logics, e.g. relating to the instances of investing or managing feed costs.

The complexity of the interplay of logics is relevant as it is linked to the multiplicity of MA practices which may not be homogeneous in how they address multiple logics. Dai et al. (2017, p. 4) demonstrate "that different MA practices may embody institutional demands in diverse ways and to varying degrees in a single firm", noting that "some aspects of budgeting practices appear to connect multiple logics together" while "[p]erformance evaluation practices are partitioned and compartmentalised, however, responding to separate institutional demands". I am therefore sensitive to how institutionalization may be manifested (or not) across different MA practices, in contrast to studies in the farm context focusing on single practices like non-financial performance measures (Jakobsen, 2017) or gross

margins (Jack, 2005) and thus depicting one side of the myriad of possible institutional influences.

The context in which the logics are analysed is also relevant. On the one hand, institutional logics are neither universal cultural structures nor defined pragmatically in their organizational contexts reflecting specific local practices (Johansen & Waldorff, 2017, p. 62). Thus a professional institutional logic despite its underlying features may be empirically manifested across different contexts through logics such as 'sport' in a football club (Carlsson-Wall et al., 2016), 'artistic' in theatres (Amans et al., 2015), 'social welfare' (Pache & Santos, 2013a) in work integration social enterprises, 'banking' in microfinance organizations (Almandoz, 2012), 'editorial' in publishing field (Le Theule & Lupu, 2016), 'medical professionalism' logic in the health sector (Battilana et al., 2009). What the manifestation of professional logic entails in the farming context and for farmers as professionals is relevant empirically and considered in the thesis. On the other hand, a context of farms as small or micro firms offers relevant insights into the role of the individual farmer by being different to the more researched context of large firms, where logic tensions were explored among competing departments and positions (Carlsson-Wall et al., 2016; Pache & Santos, 2013; Ramus et al., 2017). Since decisions in organizations "are influenced by those who bring to the decision process their interpretation of priorities and preferable outcomes" (Greenwood et al., 2011, p. 342) analysis of small organizations simplifies the interplay of logics, removes some of the constraints attached to a certain position (McPherson and Sauder, 2013) and makes more visible when and how complexity arises and is coped with.

As applied in this thesis, the institutional logics perspective is most explicit in study I. The subset of the external influences proxied by the frequency of contacts with the lenders, advisors and external accounting specialists is further focused on in study III versus personal characteristics of the individuals. Study IV, while focusing on the financial literacy of farmers, still contextualizes this knowledge to their role as managers and the farming context, as well as implicitly views it not as an innate ability but as an acquired knowledge. Lastly, study II, exploring farmers' practices around and considerations of animals, brings forth an analysis of their embeddedness in the demands for accountability that can be institutionally weighted.

2.2.2 Accountability

Accounting often forms a part of certain reporting responsibilities of the businesses, including to the authorities and business shareholders. In this narrow sense, accountability is a responsibility to provide an account and the accountable self, such as a business, is only partially held accountable by disclosing certain information, such as financial accounting or social and environmental disclosures about undertaken actions or events that occurred (Cooper & Owen, 2007). Therefore, even in a narrow sense, accountability is one of the different purposes with which accounting reports and other types of accounts, based on financial or non-financial information may be prepared. Accountability thus concerns not only financial transactions but other societally relevant actions of businesses and individuals, especially those done "behind closed doors" (Roberts, 2009) under a certain degree of secrecy.

Accounts are thus viewed as able to some extent enhance the accountability of organizations and individuals to others, including regulators, specific stakeholders or the public. The normative framework of accountability includes both, official regulations and authoritatively established roles, as well as more subtle traditions and institutional procedures of how things should be done (McKernan, 2012, p. 260), similar to a social contract (Sinclair, 1995, p. 224). Ezzamel & Carmona, (2007) capture this wide scope by distinguishing the levels of accountability as hierarchical, horizontal and self. This structuring reflects to whom one is accountable and in some regard how (with limited formal regulations of oneself). The analysis of accountability as relational (Bovens et al., 2014) thus also connects the practices of MA and other accounts to the different levels including societal (e.g. through hierarchical accountability to the authorities representing the population), sectoral (including horizontal accountability to professional peers, some of which mediate accountability to consumers) and the self as the accountable individual. Accountability thus becomes another dimension to explore the linkages shaping MA.

However, accountability in a more nuanced sense is more than just a responsibility to provide an account, it is also the expectations about what a person or organization "should be able and obliged to explain, justify and take responsibility for" (Messner, 2009, p. 918, citing Cooper & Owen, 2007, emphasis removed). The notion of responsibility thus takes on a wider meaning, beyond reporting, for example, acknowledging ownership of

actions, often with a negative connotation, such as mistakes, fraud or misbehaviours. The accounts may therefore be not only neutral depictions but involve an element of explanation and justification, and accountability as such becomes linked with notions of liability, answerability and responsibility.

Considering the ability of oneself to explain and justify, accountability takes on an understanding of the very condition of being *able* to give an account (Roberts, 2009, p. 959). The constrained ability of oneself to give a complete account of its actions is so far part of the considerations of the limits of transparency (Roberts, 2009) and accountability (Messner, 2009). The conceptual discussion of the limits of accountability becomes especially relevant as businesses are argued to be held to ever higher standards in many regards, e.g. treatment of animals, treatment of employees, consequences for climate change, pollution, deforestation and extinction of species. Individuals in the firm as employees, managers and shareholders are also facing higher expectations for engagement and value creation, for diligent behaviour and productivity, all possibly further complicated by the circumstances of remoteness and distance of those posing the expectations. For example, farmers are expected more and more (including by people who have never been at a farm) to be nature stewards providing ecosystem services and increasing output to feed more people in the world with a lower environmental burden. Against this backdrop, it becomes relevant to consider as Messner (2009, p. 918) puts it "whether more accountability is always and unambiguously desirable from an ethical point of view". The reasoning in this exploration in the literature, as I understand it, is not to dismiss the need for accountability but to rather improve accountability and avoid its distorted forms that merely involve reporting without actual changes to operations (Roberts, 2009), that are defensive rather than aiming to manage organizational interdependencies and that become burdensome from an ethical point of view to the accountable self.

Conceptual development in this regard of the limits of accountability and ways about it (including which accounts would underlie it) forms a part of this thesis. Empirically, I focus on accountability for farm animals and try to unpack what this accountability concerns and how it is shaped both in the formal normative sense as well as the more norm-based one. Considerations of the policy-relevant concept of FAW become instrumental in this effort. With limited available research on accounting and even less on the

accountability for farm animals, I adopt in study II a broad understanding of accountability that considers the more conventional accountability to authorities but also the more nascent notion of accountability to the self of the farmers closest to farm animals.

2.2.3 The farmer in the context: agency of upper echelons

As I emphasized in section 2.2.1 on the institutional logics, individuals are viewed as having agency at the same time as they rely on available institutional templates[1] (sometimes different in different situations). Several studies in the literature on institutional logics consider the background aspects of the individuals (Battilana & Dorado, 2010; Meyer & Hammerschmid, 2006) and I view this background as connected to the institutional embeddedness of the individuals. This embeddedness is unlikely to arise without some agency of the individual, i.e. we are not living our social lives completely passively, letting the change and external environment decide everything we live through. In particular, psychological factors among individual characteristics might affect actor's actions (Battilana et al., 2009) such as to which extent a farmer is self-reflecting or eager to learn more. It is thus relevant to consider the actions of farmers, including their accumulation of financial knowledge and management accounting practices, as a product of both, personal characteristics and the context in which the farmers are in.

To consider such personal characteristics, linkages to other conceptual frames seem warranted. In the firm context, the characteristics of the top managers have been theorized in the upper echelons theory (Hambrick & Mason, 1984). The key tenet is that top managers' experiences, values and personalities influence the interpretations of the situations and affect the choices of individuals (Hambrick, 2007). While the values of individuals are embedded in the institutional logics through the symbolic and material dimensions of experiences, personality and cognitive traits depart from the institutional framework and introduce an additional explanatory dimension. The actions of managers are viewed as based on their interpretations of situations faced and these interpretations are a function of their experiences, values and personalities. The sense-making of managers is thus also bounded, however now by lived experiences, acquired values as well as to

[1] As I do not focus on institutional change I refrain from elaborating on the paradox of embedded agency.

some extent more innate traits. Demographic characteristics have been heavily relied on as proxies of the more challenging to obtain cognitive frames of the managers (Hambrick, 2007; Plöckinger et al., 2016). The more observable demographic characteristics include managers' education, gender, tenure, industry, affiliations and functional backgrounds. This theory was further refined by two considerations: how much managerial discretion there is (Hambrick & Finkelstein, 1987) and how much executive job demands managers face (Hambrick et al., 2005). Discretion was presented as an absence of constraints (including institutional) and as more means-ends ambiguity (Hambrick, 2007) referring to more available alternatives emanating from the context at the sectoral, firm and individual levels (e.g. industry growth, firm governance, individual tolerance for ambiguity) (ibid., p. 335). Executive job demands, conversely, reflect how difficult and complex the managers' work is with regards to task challenges, performance challenges (e.g. demands from owners) and executive aspirations (Hambrick, 2007). Heavy job demands are hypothesised to incline managers to rely more on what they have tried in the past and their choices reflecting more their backgrounds and dispositions (ibid., p. 336).

Overall, high institutional pressures can be thus viewed as linked to lower managerial discretion and higher job demands. Moreover, the upper echelons assumptions that personal characteristics of managers become manifested in their field of vision, selective perception and interpretations can further pose areas for a more thorough understanding of the commonalities between the two theoretical perspectives. However, a conceptual refinement of the exact interlinkages between the institutional theory and the upper echelons theory is outside of the scope of this thesis, e.g. around the characteristics of experience as a product of the institutional embeddedness. Therefore, in the hypothesis-testing studies of the thesis (III and IV) aimed to measure conditional relevance of different aspects across the sectoral, firm and individual levels, it suffices to include the general variables linked to professional experience and education without distilling to which extent they are shaped by institutions versus genetic traits. Including education and professional experiences in the analysis is also warranted by previous empirical studies in the farm context. For example, Jack (2007, p. 668) reviews higher educational attainment as previously linked to the use of more advanced accounting practices as well as herself associates it with the farmers' practices of diversifying their businesses.

Nevertheless, I also distinguish some aspects of individuals as closer to upper echelons argumentation although understudied in this literature (Plöckinger et al., 2016), namely attitudinal and cognitive aspects. I hypothesise, for example, that attitude to money and risk-aversion might be relevant especially for management accounting practices that enable to elicit, measure and understand risks associated with borrowing as well as reflect the financial situation afterwards. I also explicitly consider, cognitive aspects referred to as the "black box" in upper echelons. Specifically, I consider managers' need for cognition (Epstein et al., 1996) as a trait formed early in childhood and linked to learning (Fernandes et al., 2014). While learning as a variable in upper echelons literature has been most widely proxied through education (Plöckinger et al., 2016), the psychological mechanisms behind it are rarely considered. Since it is a personal trait that is linked to learning, it also possibly underlies the acquisition of institutional (Thornton et al., 2015) and more specifically financial knowledge (Fernandes et al., 2014).

Related to these considerations of manager's learning, I also focus more explicitly on its outcomes in terms of financial knowledge. Specifically, I consider FL that includes knowledge in the financial domain, including basic knowledge of relevant financial aspects (Huston, 2010) and knowledge that is relevant for short-term decision-making and sound long-range financial planning (Remund, 2010). FL as a more specific subset of knowledge allows relating to the established literature measuring and conceptualizing the relevance of FL for financial behaviours and outcomes. So far, FL has been very scarcely considered in the firm context outside of educational field experiments (Engström & McKelvie, 2017; Li & Qian, 2019) despite findings that for consumers it is linked to personal behaviours ranging from daily financial management (Hilgert et al., 2003) to long-term investing and planning, including stock market participation (Almenberg & Dreber, 2015; van Rooij et al., 2011), mortgage choices (Moore, 2003), choices of pension accounts with lower administrative fees (Hastings & Tejeda-Ashton, 2008) and retirement planning in general (Lusardi & Mitchell, 2007). Because the relevance of FL for behaviours and outcomes likely extends to the firm context yet is hardly explored, study IV proposes an extended measuring scale of managerial FL and tests its associations with MA practices and firm financial outcomes.

The motivation in this thesis to infer a latent level of financial literacy of farm managers is motivated by acknowledging that financial literacy is not

stripped from context, i.e. individuals like firm managers may acquire other relevant aspects of knowledge than consumers and farming context may shape what these additional aspects relevant for managers are. Financial literacy is thus complementary to the analysis of management accounting as embedded in farm business context.

3. Methodology and data

This Chapter motivates the use of the research designs applied in the thesis. I also present the different types of data collected and the process of collecting it. I also reflect on the learning that this process and the use of mixed methods offered.

3.1 Mixed research methods

The work in this theses sets off from the observations of MA in farm businesses being under-researched both empirically and theoretically, as emphasized in the statement that "[p]aradoxically, very little (if anything) is actually known about the current state of research on MA in FEs [farm enterprises]" (Ndemewah et al., 2019, p. 59). With the research gaps wide-reaching across both socially relevant and organizationally functional aspects of MA, every additional research insight becomes warranted, utilizing both qualitative and quantitative research methods (Tashakkori & Teddlie, 2010).

Therefore, studies I and II apply qualitative research methods centred on the multiple case-study design of dairy farm businesses in Sweden. This was intended to more openly inquire about the MA practices in this field (Argilés, 2001; Jack, 2005, 2007). Uncovering the way practices are made sense of by the farmers as well as why they are done was both an independent aspect of the inquiry as well as one that helped to shape subsequent steps. The qualitative methods were central, for example, to the analysis of institutional logics and accountability. They were also instrumental to understand empirically which indicators, tools and measures can be further examined in a wider sample (study III). Qualitative analysis elicited a higher awareness of the role of context and learning, which I also aimed to reflect in some regards when assessing the notion of financial literacy in study IV. Furthermore, findings from the qualitative method also proved valuable for identifying key aspects to be controlled when using quantitative methods in studies III and IV. Therefore, despite the independent relevance of qualitative methods in studies I and II, their use alongside quantitative methods, as mixed methods (Tashakkori & Teddlie, 2010) in the thesis as a whole, served also a common in organizational research (Azorín & Cameron,

2010) purpose of development, when findings from one method help to inform the use of another (Greene et al., 1989).

However, the mixed-method approach to the overall thesis also brought about other benefits such as triangulating the results with regards to stakeholder relations and acquired knowledge. As both qualitative and quantitative methods have their strengths and weaknesses, applying both allowed to mitigate some weaknesses such as limited generalizability and a certain degree of subjectivity in qualitative methods while also tapping into their strengths such as rich findings from the interview data enabling ground up identification of problems and phenomena. In doing so, the rich in nuance qualitative analysis complemented the understanding of meanings and reasons behind relationships that were also found in the quantitative methods. The complementarity also extended from the quantitative methods, which enabled to examine whether empirically identified concepts such as those about the background of the farmers remained relevant in the explored linkages once controlling for other characteristics such as those of the firm. Thus the combination of methods ranging from identification of patterns and themes to statistical methods involving factor and regression analyses allowed to elaborate both the substance behind concepts and enhance the understanding of conditional relationships between them. The process of combining the methods in the thesis was essentially sequential with regards to the MA practices and considerations of stakeholders, moving from the identification of complexity in study I to its narrowing, systematizing and testing in study III. However, it was also complementary in papers I and IV with regards to different aspects of information and knowledge, one whose emergence is inferred through the stakeholder interactions and the use of MA, as well as one that is evaluated with regards to the test items.

The application of mixed methods research in the overall thesis rests on the epistemological foundations of Deweyan pragmatism (Biesta, 2010). Deweyan pragmatism shifts the dualistic mild-world scheme of knowing and talks about knowing as centred in transactions in nature, which for living organisms become experiences. We get a hold of reality through all experiences as ways of interacting with the environment and not only through knowledge (ibid.). Pragmatism shifts the understanding of knowledge as concerned with the world “as it is” to one that is concerned with conditions and consequences of actions. Knowledge needs action as well as thinking or reflection. Thus in knowledge, causes become means,

effects – consequences and meaning is established (ibid.). In this transactional conception, objects of knowledge are human constructions and transactional constructivism (compared to mind-world-derived subjective constructivism) holds that knowledge is at the same time constructed and real, and has to do with inference. Humans intervene in the existing course of events and in doing so introduce change; we thus do not create out of anything but construct something only as a reconstruction. This position is further referred to as transactional realism (Biesta, 2010). It rejects the forced choice between objectivism and subjectivism and offers philosophical support for the mixed methods research in the thesis. To address different types of questions and produce different types of knowledge a researcher is thus free to rely on several approaches when inquiring.

Such multiple methods further carry with them a need for a broader set of skills, including collecting and analysing different types of data. The types of data collected for this thesis as well as the process of their collection are described next.

3.2 Interviews

To apply a qualitative case-based research approach (D. J. Cooper & Morgan, 2008) that is more suitable for the 'how' and 'why' questions of this thesis I collected and analysed semi-structured interview data (Qu & Dumay, 2011). The interview incorporated questions regarding different aspects of Ferreira & Otley's framework (2009, p. 267) for analysing the design and use of performance measures. This well-established framework for analysis was considered as useful to offer a coherent and more holistic structure to the inquiry in the farm context due to it encompassing a more comprehensive set of information, tools and practices, as well as their linkages between each other and to other organizational aspects. The framework was reflected in the interview guide, which, however, evolved as some questions required further investigation and some did not generate new information over time. I inquired for example, about the background of the farm and the farmer as a natural starting point during the farm visits in my experience. This was typically followed by questions about current operations and organisational structure. Specifically, goals or strategy of the business were asked about, followed by a more lengthy focus on which different types of information, measures, tools, software and guiding documents are considered by the

farmers. Attention was also paid to what the interviewees disclose and to whom, which external controls they face and what demands of the sector they perceive as specific to it.

The interviewees were selected by me from a statistical database of full-time dairy farmers from Statistics Sweden. I deliberately aimed to cover as many regions in the country as possible to capture some of the relevant features of the climatic and regulatory context. This proved very interesting, for example, with regards to the role the livestock units played for the dairy farmers in Northern Sweden as well as to the considerations of the value of farmland in the South. In the resulting twenty interviews with farmers, I visited ten administrative regions extending from Västerbotten to Skåne. Beyond striving for regional diversity I also aimed to reflect farms of different size of operations and different types of production systems, such as conventional and certified organic. I envisaged that even though most farms do not have many employees, the differences in the operations (size of land and herd) could introduce relevant variation in the use of MA due to the amount of information to store and analyse, as well as possibly different standing with the banks due to the available collateral. The production system was also viewed as relevant since I was interested in whether the higher focus on organic production carried with it a different set of measures, indicators and information relevant for the farmer. As a result, six interviews took place in certified ecological farms. Furthermore, seven interviews were in farms with less than 200 cows and thus closer to the statistical average of about 80 cows per farm in the country at the time of the interviews (Hemme, 2019), while nine were at farms with a range of cows from 200 to 800, and four in the farms with over 800 cows. The resulting sample of interviewees thus leans towards larger farms, which I found relevant considering the structural change in the sector (Ferguson & Hansson, 2013) indicating a shift towards fewer larger farms. From this point of view, I was interested to capture the considerations (and possibly use of MA) of the managers of the larger farms, which might become more relevant for other farms in the future.

I contacted the farmers by phone and scheduled the interviews at their farms. On five occasions family members involved in farm management were also present during the interview on the request of the contacted farmers, reflecting the strong role of the family. During the farm visits, the farmers would often give a short tour of their facilities, as well as sometimes show me the specific brochures, documents, spreadsheets and other software

they use for analysis, budgeting, record-keeping and planning. The formal sit-down part of the interview was recorded with the permission of the interviewees, whose anonymity was guaranteed. These interviews lasted on average 70 minutes and were held in Swedish. A professional company was recruited for transcribing the interviews.

Besides the interviews with farmers, I also conducted nine interviews with other sector stakeholders, including farm economic and production advisors (4), bank representatives (2) dealing with farmers, representatives of governmental agricultural authority (1), animal welfare research organization (1) and consumer organization (1). These took place at a later stage of the overall qualitative data collection from 2017 to early 2019. The choice of interviewees was motivated by the information from the farmers, indicating certain organizations as field actors relevant for the MA practices. Individuals in the organizations were selected partly using the snowball approach and partly by me searching for individuals with the most relevant job descriptions. Representatives of the animal welfare and consumer organizations were also interviewed to learn about other perspectives not fully captured by other interviewees.

As a reflection on the process of interview data collection, I think the interview guide and recordings proved instrumental in this learning process for me to be able to maintain the interview structure and to capture the relevant aspects possibly missed during the interview. Preparation for this data collection was also very important with regards to the course I took in qualitative analysis as well as specific readings on the possible biases during the interview and how to minimize them. However, I would also be remiss to not also acknowledge that as with any other skill, interviewing was improving with experience. It is thus particularly relevant, I think, to not only code the data as the data collection proceeds but also to methodologically reflect, note and set targets for aspects of own interviewing skills which can be further improved after each undertaken interview. The transcript of the interview is a helpful tool for this concerning which questions were asked, about what, when and how. Additional reflection notes about the non-verbal substance of the interview and retrospection for one's navigation of it are further relevant.

Moreover, the interview data was also complimented with several legal and policy reports specifically in study II to more closely consider the regulatory framework and how societal concerns are reflected in the policy

discussions around FAW. For this, I considered the content of relevant documents concerning the agricultural sector and the public more generally.

3.3 Survey

As the second type of primary collected data, I used a survey to complement the interview insights, assess the use of MA in a wider range of farm businesses and analyse the relationship between the use of MA and other firm outcomes and characteristics of the farmers. The survey was both grounded in the extant literature as well as inquired about new relevant aspects regarding: the use of MA practices (where both previously considered and new items were asked about), the aspects of FL (including established and new measuring items) and a range of firm and farmer characteristics (grounded in both established measuring scales and aspects specifically relevant to the context explored). I designed a questionnaire to be administered specifically to the sample of farmers across all farm types represented in the database of the Farm Accountancy Data Network (FADN) since I also got access to this data (presented below). The survey was pre-tested on nine university students with a farm background and two farmers in crop and pig production. The invitation letter stated that the participation is voluntary and completely anonymous to the research team, that the survey primarily inquires about the use of management accounting but also has questions relating to the understanding of some financially relevant aspects for farm management. It was also mentioned that the findings will be matched with the FADN data and that learning regarding the linkages between the survey-measures aspects and firm performance will be analysed and communicated to the farmers. Due to the evaluative nature of the financial literacy questions, it was stated that participants would be able to see the correct replies to these questions and the reasoning behind them immediately upon completion to offer some immediate learning benefits from participation.

The survey was made available in a web-based digital form by a consulting firm specializing in survey data collection. The survey was distributed to all farms in the FADN database as of March 2020 (1020 farms). The invitation was sent out by the Swedish Board of Agriculture, who also sent out two email and one post reminders over six weeks. Anonymous survey responses were collected by the consulting company and I was able

to match them to the farm data from FADN using a matching code to maintain the anonymity of both, the survey and FADN data.

A total of 162 replies were collected, representing a response rate of 15.9%, which is similar to comparative studies of MA in a small firm context (Howorth & Westhead, 2003; King et al., 2010). Administering the survey exclusively to the FADN farms was motivated by the rich data available at the farm level for the FADN farmers, which was viewed to warrant a potentially lower final sample size. Besides 162 completed survey responses, 7 more respondents completed between 1 and 22 questions, and 5 more respondents did not complete a single question. The average time among those who completed the survey in one sitting was 20 minutes. Among the respondents, 21% were specialized in field crops, 26% in milk production, 29% in other grazing livestock, 14% in granivores, including mostly pigs and poultry, and 1% in mixed production. These shares across types of production were representative of other FADN farms, except for a lower share of milk-producing farms among the survey respondents (difference of means statistically significant at 5%).

3.4 Archival data

Finally, I also analysed secondary data from the FADN database, provided by the Swedish Board of Agriculture. This data is collected annually from a sample of Swedish farmers and is a part of the wider data collection in the EU, overseen by the European Commission. This secondary data provided detailed information on numerous financial aspects and outcomes of the farm businesses. Specifically, I obtained two types of data. On the one hand, I had the FADN database with 'SE' denomination of variables that were cleaned according to the FADN procedures and concerned a wide range of monetary panel data (for an overview, see European Commission, 2019). On the other hand, I also had the data from the Farm Economic Survey (FES) of the Swedish Board of Agriculture. This data is the broader dataset that later feeds into the FADN database but has a wider range of variables, for example about the labour of the farm. These datasets covered the latest available period from 2013 to 2018 (although initially, only data until 2017 was available). These datasets were merged jointly with the survey data.

3.5 Review of empirical material and research quality

The above-described data amounted to a rich empirical dataset that covered as the units of observation the individual farmers, the firm, and the sector (through interviews with stakeholders and policy documents). An overview of the collected empirical material is presented below in Table 3.

Table 3. An overview of empirical material in studies I-IV

Level	Study I	Study II	Study III	Study IV
Method	Semi-structured interviews	Semi-structured interviews, document analysis	Questionnaire matched with FADN and FES data	Questionnaire matched with FADN and FES data
Sample	31 interviewees (24 - at dairy farms, 7 - other stakeholders)	33 interviewees (24 - at dairy farms, 9 - other stakeholders)	162 farmers	162 farmers
Type of material	Qualitative	Qualitative	Quantitative	Quantitative

It is also important to reflect on the quality and possible limitations of the data and ensuing analysis methods. In particular, validity is a key issue for the readers to be able to trust the analysis and the findings. In the collection and analysis of the qualitative data analysis, I consider Maxwell's (1992) categorization of descriptive, interpretative, theoretical, generalizing and evaluative validity. For descriptive validity, the interviews were recorded and transcribed by professional third party services, ensuring the factual accuracy of the verbal accounts. Interpretative validity was pursued by offering extensive quotes that help to substantiate and exemplify the emic perspective of the interviewees. For theoretical validity that extends beyond the interviewees' meaning, I thoroughly considered the empirical material in tandem with theoretical considerations in the literature, including how institutional logics can be understood and their manifestations empirically observed. Following the occurrence of repeated patterns in the data that reflected conceptualizations and previous empirical examples, I thus considered, argued and reflected on the theoretical implications of the material. Such reflections considered both, the concepts and the relationships

explained theoretically. However, I was also alert to other possible venues for explaining the material and strived to motivate my theoretical choices in the studies. Generalizability in the qualitative analysis concerned the development of the theoretical understanding, which in turn might be useful for explaining why the relationships or processes considered might lead to different outcomes in different situations. Thus external generalizability was not sought and, instead, an illuminating account of the specific setting was viewed as sufficient. The focus was rather on internal generalizability within the dairy farmers in the Swedish context and a particular point in time. I thus tried to collect as many points of view as possible, reflect on the nature of the interview situation and what it could not allow eliciting. Evaluative validity was also less relevant in that I strived to restrict evaluative judgements when trying to understand the qualitative data. The instances of analysis giving an impression of evaluation are mostly linked to the discussions in the previous literature using certain evaluative expressions.

In the quantitative data collection and analysis, considerations of internal validity involved pre-testing the questionnaire and discussing it with research colleagues and those administering the survey to avoid ambiguity and confusing formulations. For construct validity, I used when available established and tested item formulations of the constructs being measured. Reliability, as the consistency of measurement instruments, was also safeguarded by performing and discussing relevant statistical tests. The data were also examined in terms of conforming to the assumptions of the statistical tests. External validity should be also considered, namely as the extent to which the findings can be extrapolated to people, contexts and time. The findings from the analysed sample of the farmers in the FADN network are thus most closely generalizable to other FADN farmers in Sweden. Statistical tests such as the t-test comparison of means of the analysed sample and the remaining FADN farmers not participating in the survey, in general, supported the representativeness of the analysed sample, while also suggesting the farmers in it to have more higher education and be roughly two years younger. With this in mind, the findings can be viewed as an upper bound of the broader FADN farmers in terms of several aspects of interest, such as formal education. FADN farmers in Sweden as the field of observation to which the questionnaire is addressed, in turn, constitute a sub-sample of the wider population of farmers in Sweden. While FADN methodology intends to have a representative sample, it is nevertheless

representative of only commercial farms due to its entry threshold of economic size (Mari, 2020). This means that the findings are especially relevant for the more educated farmers in the commercial farms in Sweden. As for the period, while several years of data are considered with regards to the farm variables, the questionnaire variables concerning the individuals and the use of MA are cross-sectional and thus cannot be externally generalized into other periods.

Finally, the limitations of the scope of data collected can also be reflected upon as these are of relevance for the findings. When considering individual characteristics the focus has been on the one individual per farm who was registered as owner-manager and 96% of which self-identified as the main economic decision-maker. The thesis thus does not explicitly explore the attributes of the management *teams* (Hambrick, 2007), e.g. the background and cognitive proxies of all relevant family members involved in farm management. While the interviews offered several insights into joint family management and the quantitative analysis controlled for these aspects, the details of the family members were not explicitly in focus. Moreover, the dynamic and evolving nature of MA practices could not be explored with the cross-sectional survey and interview data. This prevents the analysis of the process nature of MA practices, financial learning and their linkages of MA and FL to financial outcomes, where cyclical relationships may be likely.

4. Summary of appended papers

This Chapter provides a summary of each of the four empirical studies in the thesis, providing an overview of each study's positioning, aim, data used, key findings and main contributions. The insights from all the studies are then brought together in the next Chapter 5 that elaborates on the overall contribution of the thesis.

4.1 I. Institutionalised management accounting and control in farm businesses.

This study analyses how farmers' use of management accounting and control (MAC) constitutes a social and institutional practice in dairy farms as examples of the rarely studied firms that are both, small as well as family-owned and -controlled. The study is thus grounded empirically in the literature exploring the use (and non-use) of MA in firms, where the family and small firm size have been viewed to have a negative role on the use of MAC, their sophistication and formalization, as well as purposes of MAC practices (Lavia López & Hiebl, 2015; Prencipe et al., 2014; Rizza & Ruggeri, 2018; Salvato & Moores, 2010; Senftlechner & Hiebl, 2015). However, the literature largely assumes that the relevance of MAC derives from roles that are understood and defined a priori, signalling a highly functionalistic concept of MAC and lack of awareness of how farmers themselves understand MAC and make it meaningful (e.g. Ahrens & Chapman, 2007). In the studies of accounting in the farm context, there is also a lack of theorization on the multiple and often competing influences of the family, market, natural conditions, policies and technology on the use of MAC (Ndemewah et al., 2019). Few available studies that offer theoretical explanations for the overreliance on certain tools indicate the strong role of institutional influences of the farming context (Jack, 2005; Jakobsen, 2017).

Therefore, this paper inquires: how do institutional influences shape the use of MAC in dairy farms? In doing so, it conceptually considers the farmers' embeddedness in the institutional logics (Friedland & Alford, 1991; Thornton et al., 2015) of the family, farming and business and how this embeddedness reflects the use of MAC. The paper also uncovers when logics may pose tensions in the context of small family firms and how farmers cope with these tensions in their enactment of logics. In both regards, the paper

pays special attention to the family members, lenders and sectoral advisors among stakeholders that are involved in conveying certain historical contingencies and value-laden notions of how things are to be done.

The analysis builds on the semi-structured interview data with dairy farmers in Sweden and several representatives of key stakeholder groups. Taking a qualitative case-based research approach (D. J. Cooper & Morgan, 2008) the paper considers the importance of value-laden contexts, meanings and interpretations (Ahrens & Chapman, 2006)

The findings lend nuance to the suggested 'negative' role of family on the sophistication of MAC, indicating not only the relevance of the family through co-ownership, joint management and emotional bonds but also how the family logics may affect who handles the accounting (e.g. women), when (e.g. when making investments and at certain family life stages) and for what purposes (e.g. to justify and support families' idea-driven investments rather than in decision-making). The paper also explains how and why MAC can be used even by managers in small firms who are close to actual operations. Secondly, the paper explains the significant impact of external stakeholders as carriers of logics on logic embeddedness and enactment. It finds that this influence relates to the intensity of interactions, involving their number, frequency and perceived closeness, as well as the learning involved in the interactions. It also shows how MAC feature in enabling these.

The study contributes first, by tying together existing research on the separate influences of family and size on MAC and explaining how MAC is used despite the expected dissuading roles of the family (Ndemewah et al., 2019; Prencipe et al., 2014) and small size (Hall, 2010; Heinicke, 2018; Lavia López & Hiebl, 2015). In doing so, it also adds to the emerging literature on the use of MAC in farm businesses (Argilés, 2001; Jack, 2005, 2007; Jakobsen, 2017; Ndemewah et al., 2019), by showing that farmers are not devoid of an 'economic logic' (Jakobsen, 2017) but rather embedded in the business logic to varying extents. Secondly, the institutional analysis allows yielding a deeper understanding of the role of stakeholders for small family firms. By exploring stakeholder influences in terms of interactions and the MAC tools that are involved, the paper contributes to articulating the mechanisms through which stakeholders infuse logics into organisations (Greenwood et al., 2011; Thornton et al., 2015), namely how stakeholders through MAC enable institutional knowledge and information to become available, accessible to and activated by actors such as farmers. The paper

emphasises the intensity and the learning of stakeholder interactions and shows how MAC tools and practices mediate and enable both. This helps us understand how stakeholders matter for logic embeddedness as well as for the enactment of logics, including in situations of logic tensions, such as concerning investments and decisions regarding major costs or revenues. In these cases, the paper further shows how stakeholders are involved in farmers' ways to cope with multiple logics by aligning logics and prioritising among them using diverse though simple MAC tools and practices. This adds to the literature on how accounting and related managerial practices can be used to cope with logic multiplicity and tensions (Carlsson-Wall et al., 2016; Goodrick & Reay, 2011; Greenwood et al., 2011; Kraatz & Block, 2008; Pache & Santos, 2013b; Ramus et al., 2017; Rautiainen et al., 2017).

4.2 II. Accounting and accountability for farm animals: conceptual limit and the possibilities of caring for cows.

This paper explores the relations between farmers' accounts of farm animals, farmers' accountability for farm animals and the farm animal welfare (FAW) that guides the regulations concerning farm animals. This explored nexus illustrates how farm animals and their situation are conceived in policy, operationalized into metrics in practice and reflected upon by those who directly manage them.

This study is positioned in the emerging literature in accounting on farm animals, whose situation has been so far depicted in counter-accounts originating outside of the farming industry (Laine & Vinnari, 2017; Vinnari & Laine, 2017) or in emerging benchmarks for upstream food businesses (McLaren & Appleyard, 2019), thus leaving the practices of accounting for animals in the farm context so far not reflected. Moreover, the consideration of farmers' responsibility for animals has been predominantly reserved to agricultural literature on FAW (Fraser, 1995, 2003) or, when considered in accounting, grounded in the empirics that are motivated by views of animal farming as immoral a priori (Vinnari & Laine, 2017). There is, therefore, a need to depict and reflect on how animals are accounted for by farmers within the farm context and under the regulations that aim to protect animals while holding farmers accountable for certain practices (Veissier et al., 2008).

Therefore, this study inquires how the farmers account for farm animals, whether they are accountable for them, and, if so, how and to which extent. This involves a consideration of a broader scope of accounts of animals and the notion of limits to accountability (Messner, 2009). As accounts of animals, we thus explore both, the accounts based on measurable metrics of animals, such as financial or performance indicators that concern them, as well as the more reflective and emotive accounts of farmers that stem from close physical proximity to the animals and relate to self-conscience of one's behaviour concerning animals (Dellaportas, 2019; Roberts, 2003). Accordingly, this paper also explores accountability as beyond the mere responsibility to report and render accounts of animals to authorities, and explores the room and possibilities of accountability to self.

The paper utilizes primarily the interview data with dairy farmers, their advisors and lenders, as well as regulatory- and consumer- organization representatives in the Swedish context. Relevant regulations and industry standards with regards to animals are also considered. The qualitative data underlies the multiple case-study approach adopted for analysis.

The findings explicate how the measurable and the emotive-based accounts of animals in the farm context result in two non-mutually exclusive conceptualizations of animals. One conceptualization objectifies animals as a production resource, stemming from a heard level and measuring health-related FAW aspects that align with producing capacity. While this is a constraining conceptualization in several regards, it also enables an alignment within the sector that provides an array of metrics to improve animal health. Another conceptualization is linked to care, involves reflections about the animals' feelings and aspects of FAW linked to animals' behavioural expressions. While constrained to the emotive and cognitive realm, this conceptualization involves aspects of "caring" as beyond "providing" of resources. It offers an opportunity for an expression of unwilled response and susceptibility to the animals (Messner, 2009) and can thus contribute to the accountability to the self. Using the concept of FAW as an example, the paper also proposes that accountability can be limited by the boundary of the referent concept on which it arises. This limit does not concern "how" one may not be able to account fully for everything one lives through (Messner, 2009), but rather the "what" of accountability, in terms of its conceptual foundation and assumptions. Empirically, such a

foundation is shown as implying that farm animals are to be protected as much as possible so long as they can still be used in food production.

The study contributes to the scarce literature in accounting on the farm animals and FAW (Laine & Vinnari, 2017; McLaren & Appleyard, 2019; Vinnari & Laine, 2017) by shedding light on the perspectives of farmers and the mutually enabling and constraining linkages between accounts and FAW. The paper also extends the literature on the extent and limits of accountability (Joannides, 2012; McKernan, 2012; Messner, 2009; Roberts, 2009). It suggests that accountability is not only limited by the ability of the accountable self to render a complete account of its experience (Messner, 2009) but also based on which referent concept (Dubnick, 2014) and thus underlying norms and assumptions it is sought. Despite the conceptual boundary of what is to be accounted for, the paper draws attention to the possibility of accountability to the self (e.g. Roberts, 2009, 2018), interlaced with self-reflective accounts around care (Dellaportas, 2019), i.e. mental reflections of emotive relationship with the animals and oneself doing a good job following one's conscience.

4.3 III. Management accounting and debt in micro firms: implications for financial costs.

This study focuses on the role of borrowing for MA use in farms as micro firms. Small firms are widely acknowledged to have fewer resources which is argued to be negatively associated with the use MA due to labour and cost constraints (Halabi et al., 2010; Heinicke, 2018; Lavia López & Hiebl, 2014). While borrowing may increase the availability of funds, the lenders are also likely to exert certain formal and information pressures on the borrowers, e.g. linked to the budgeting practices (Amans et al., 2015) or the quality of financial reporting (Bigus & Hillebrand, 2017). As small firms generally rely on private lenders instead of public capital markets, banks as such lenders become more important for liquidity and investments in terms of both funding offered and advice associated with repayment (Hilkens et al., 2018). Debt pressures have been thus explored in terms of their influence on a more interactive use of MA within an organization (Garcia Osma et al., 2018). Yet in small firms that tend to have more relationship lending with fewer banks (Bigus & Hillebrand, 2017) the specific nature of contacts with the lender may be also important beyond the number of banks involved (Garcia Osma

et al., 2018) as banks may use contacts to better appraise and follow up on the lending situation. Moreover, in micro firms with few employees the implications of relationship lending likely extent to not only traditional MA practices like budgeting (ibid.) but a wider range of information including non-financial one (Berry et al., 1993; Bigus & Hillebrand, 2017) that thus becomes relevant to consider. Lastly, the stronger role of managers in such micro firms may imply that their money- and risk attitudes and believes may be relevant factors to control for with regards to borrowing, the use of MA as well as the outcomes of borrowing such as the cost of debt so as to reduce the likelihood of omitted variables biases.

Therefore, this study analyses on the one hand: how are debt and borrowing interactions associated with the use of different MA practices in micro firms, when personal characteristics of the managers are controlled for? It also inquires: how are the different MA practices linked to financial costs in micro firms? Specifically, I consider diverse practices ranging from the extent of following up on production indicators to the analysis of annual accounting reports. In terms of debt and borrowing relationships, I consider respectively the debt to assets ratio and the frequency of contacts with the bankers. Measures of financial costs are considered as interest and financial fees relative to debt, total costs or total output. The hypotheses being tested are that more debt and borrowing interactions are associated with higher use of MA practices and that more MA use is both directly and in firms with more debt associated with lower financial costs.

The study uses survey data matched with firm FADN data for 161 Swedish farm businesses. This allows capturing the perceived use of different MA practices, financial costs and various relevant covariates of the firm, its main manager and the contacts with key financial stakeholders.

Confirmatory and exploratory factor analysis is used to measure the perceived use of MA practices as well as latent traits, such as the need for cognition and vigilant attitude to money. Regression analysis is further applied to explore the direct association between leverage and the use of MA practices as well as the role of borrowing relations where leverage and frequency of bank contacts are jointly considered in relation to the use of MA. Subsequently, MA practices are also directly and in tandem with more debt explored in relation to financial costs. Relevant farm-, stakeholder-, background- and psychological covariates, as well as instrumental variables

estimation, are considered to explore and minimize the endogeneity concerns in the paper.

The findings distinguish three types of MA use indicative of performance measures, financial MA practices and compliance MA practices. Regression analysis further indicates that higher debt to assets ratio is associated with the higher use of performance measures and financial MA practices, while more frequent borrowing interactions are linked to more use of compliance type measures. Therefore, banks that typically rely on analysis of financial statements also likely promote their use among farmers through more frequent contacts. Using more of overall and compliance MA practices is further associated with lower relative financial costs to output and to total costs. As firms get more debt and use performance measures or financial MA more they also have lower financial costs relative to output and to total costs, which may be due to the firms growing. Yet as they get more debt and use financial MA practices they also incur a higher cost of debt, indicating that financial MA practices may either reveal important risks to the banks or that their use follows and tries to manage the higher costs of debt.

The study adds to the literature on the use of a wider range of MA in small firms and farms in particular concerning the types of practices occurring (Jack, 2007, 2007, 2019; Jakobsen, 2017; Lavia López & Hiebl, 2014; Ndemewah et al., 2019), the role of borrowing relationships in small firms when managers' characteristics are controlled for (Garcia Osma et al., 2018; Hiebl, 2014; Lavia López & Hiebl, 2014) and MA's financial implications in farms and small firms (Argilés, 2001; Argiles & Slof, 2003; Guenther & Heinicke, 2019; King et al., 2010; Laitinen, 2001).

4.4 IV. Managerial financial literacy – scale development and linkages to accounting practices and financial outcomes in farms.

This paper explores FL (Fernandes et al., 2014; Lusardi & Mitchell, 2007; Lusardi & Tufano, 2015) as knowledge in different financial domains including money basics, borrowing, investing and saving (Remund, 2010). Key aspects of FL with regards to money basics and borrowing have been conceptualized and measured (Lusardi & Mitchell, 2007; Lusardi & Tufano, 2015) for different demographic groups such as students, pensioners and consumers more generally (Fernandes et al., 2014; Lusardi & Mitchell,

2014). In such analyses, FL has been found linked to different personal financial behaviours and outcomes (Almenberg & Säve-Söderbergh, 2011; Behrman et al., 2012; Carpena et al., 2011; Gerardi, 2010; Hastings & Tejeda-Ashton, 2008; Hilgert et al., 2003; Lusardi & Mitchell, 2007; Lusardi & Tufano, 2015; van Rooij et al., 2011). However, there has been very little consideration of the role of FL of managers and in the firm context, especially the context of small and micro firms, where the owner-manager may be involved in all aspects of financial decision-making thus directly affecting firm financial outcomes.

Therefore, this study aims to measure managerial FL and explore how it relates to firm MA practices and financial outcomes. This involves, first, extending existing FL measures designed largely for consumers towards a measure capturing aspects relevant for farm financial management across the domains of FL and in the context of farm businesses. Secondly, FL is then explored in relation to the relevant MA practices of managers and financial outcomes such as profitability, investments, insurance use and financial costs.

A survey of farm owners-managers in Sweden is used to measure the level of the latent FL and the use of relevant practices, whereas FADN data offers objective measures of firm outcomes.

To measure the latent FL, contrary to previous studies using a total number of correct answers or factor scores, this paper applied Item Response Theory's three-parameter model, which is specifically designed for binary data on test outcomes and allows to better evaluate the new measurement items. Subsequently, the estimated FL scores are considered in regression analysis in relation to the ordinal extent of use of MA practices as well as financial outcomes (directly or as an interaction with MA practices). In doing so, managers' characteristics suggested to be linked to FL such as numeracy, need for cognition, economic education and age are also controlled for.

The findings indicate high levels of understanding across the concepts considered, suggesting that managerial tasks may offset older age, rural context and low level of education, previously suggested to be associated with lower FL. Considering our sample as the upper bound of FL of farmers in the Swedish context, our findings show a high understanding of both generic economic concepts, as well as the new firm-related aspects, including different accounting relations as well as marginal and variable costs. The results of regression analysis further point to FL being positively

associated with return on assets and investments in fixed assets, while FL jointly with the analysis of annual financial reports is also linked to lower financial costs.

The paper contributes to the scarce studies assessing FL of managers (Engström & McKelvie, 2017; Li & Qian, 2019) as it develops an extended measure of FL that captures the understanding of aspects concerning asset management, taxation, variable and marginal costs, risk and relations between key accounting concepts. This suggests that professional tasks are also particularly important attributes besides demographic characteristics in studies of the drivers of FL (Lusardi & Mitchell, 2014). The study adds to the accounting literature utilizing upper echelons theory (Hiebl, 2014; Plöckinger et al., 2016) by indicating FL as relevant distinctly from business education for the analysis of annual reports and tax considerations in micro firms. Moreover, the study also adds to the literature on financial implications of FL (Almenberg & Säve-Söderbergh, 2011; Behrman et al., 2012; Carpena et al., 2011; Gerardi, 2010; Hastings & Tejeda-Ashton, 2008; Hilgert et al., 2003; Lusardi & Mitchell, 2007; Lusardi & Tufano, 2015; van Rooij et al., 2011) by showing FL of managers to be positively associated with profitability and warranting further research into the causal relationships between the two in the firm context.

5. Concluding discussion

This Chapter offers a concluding discussion by taking an overarching perspective of the thesis. The conceptually and empirically relevant findings underpin the contributions, while the findings also substantiate several more specific take-away messages as recommendations for practitioners. Finally, suggestions for future research are also outlined.

5.1 Contributions

This thesis addresses interdisciplinary research where so far "[a]gricultural academics tend not to be interested in accounting and accounting researchers tend to stay clear of agriculture" (Jack, 2005, p. 60). In this nexus, the thesis as a whole advances the understanding of the interlinkages of MA practices across the individual-, firm-, sectoral- and societal levels. On the one hand, this involves a more nuanced understanding of how practices are shaped in the complex and interwoven set of factors of the managers and their small family businesses operating in the farming sector (Lavia López & Hiebl, 2015; Ndemewah et al., 2019). On the other hand, the thesis also highlights new linkages of the MA practices to socially relevant implications through expectations of accountability, FAW regulations, as well as individual emotive connections of farmers to farm animals.

Concerning the first research question of what MA practices are present in the farm businesses, the thesis shows a broad range of practices with varying degrees of availability, scope of focus and normative implications. The practices presented in the thesis relate to the higher-level guiding and meaning-offering notions of what a farm is, how a family operates it and how it has to be viable as a business. In study I this brings into view practices extending beyond the previously mentioned in farm context production yields, margins, benchmarking indicators and budgets (Jack, 2005, 2019; Jakobsen, 2017; Ndemewah et al., 2019). I elicit a variation of the scope of practices, e.g. from checking the bank account for liquidity to formal calculations subtracting subsidies and forecasts. Additional less structured practices also emerge, e.g. controlling employees' expenses by setting own example of not "wasting money"; controlling through more informal talks in the field; controlling salary costs by specifically opting for a limited liability legal form versus a sole proprietorship; comparing own financial statements

with publically available statements of similar firms in the country, etc. On the other hand, practices done less also come to light, such as not always discussing the financial situation of the firm externally due to its links to the family finances, not always designating book-keeping tasks to those with prior experience or even motivation and not necessarily basing decision making around investments on the financial calculations (and rather using calculations for reassurance or to bring on board the lenders).

Moreover, a wide range of practices also emerges when considering accounting as part of wider accounts (e.g. Miller, 1994) that serve both internal (e.g. managerial) considerations and also external reporting purposes. The analysis in study II points to the benefits and limitations of both formalized calculation-based practices and the more intuitive emotions-laden accounts of managers. For example, measuring, benchmarking and reporting certain aspects such as bacteria count of cows enables the individual farm to track and improve its performance (including financial) as well as contribute to sectoral progress once indicators are aggregated. Yet it also implies the potential for earlier culling, narrowing of the focus from other relevant aspects of the animal and an externally invoked responsibility for a subset of FAW that aligns with production goals. Conversely, farmers' mental accounts of the animals linked to farmer's emotions are by default difficult to induce, imprecise and unquantifiable, yet also such that open room for a more internalized sense of responsibility and accountability to the self and for a wider range of aspects of the animal's well-being (extending more to its psychological state). Overall, the thesis thus emphasises the relevance of considering a broader range of MA practices and related accounts. These become manifested when one takes into account the complexities around operating a farm as a relatively small firm and with family members, a farm that is faced with highly socially relevant concerns around FAW yet also lending and overall market pressures.

Concerning the second question, the thesis discusses how MA practices are shaped at the interplay of the context and the manager. When the emphasis is placed on the context, we can examine how MA is moulded in the interplay of institutional logics of the family, farming and business. Independently, they highlight different purposes and circumstances around practices. For example, the family is involved not necessarily by giving rise to agency conflicts (Prencipe et al., 2014) but as such that shapes the assumptions of female partners or spouses "having to" to take up accounting

practices or that MA is done to (externally) substantiate ideas already decided upon by the family rather than only input into decision-making. Considered jointly, the logics further suggest that managers are simultaneously embedded in several of them yet to varying degrees. This further emphasizes that the variation in practices may be less due to the family's role and more due to low embeddedness in the business logic. Such differences in relative embeddedness manifest in which practices are used more and with which level of details as well as how they are reproduced in logic enactment (what is prioritized and/or aligned) in certain situations of ambiguity, for example, the discussed situations of investing or adjusting feed costs.

The role of the context is reiterated with regards to animal-related indicators and farm-level practices through the role of regulations, policies and rules of industry actors, standardized and replicated indicators of animals and a narrative emphasising health aspects of FAW. Such wider influences not only shape the availability of indicators and norms associated with their use but also result in related practices being subject to accountability demands and pressures of the farmers.

The thesis considers stakeholder interactions (both physical and mediated through institutional infrastructure) as instrumental to how contextual factors are reflected in the MA practices. Specifically, the intensity and the learning involved in the interactions have been highlighted. Learning from stakeholder interactions is argued as such that enables the embeddedness in the symbolic and material structures of the logics and respective institutional knowledge. Learning is also argued to be enabled by MA tools in terms of how they are discussed by stakeholders separately and jointly, how they promote learning through certain design features and how they are used in coping with certain situations of logic tensions. The intensity however involves the frequency and the perceived closeness of the interactions with lenders, family, advisors, other farmers, regulators. These are linked to how practices have come to be used and reflected upon. When it comes to specifically the lenders the thesis further helps to distinguish the interactions with lenders and the role of debt as such. In particular, the findings emphasise that while overall, more debt is positively associated with more use of financial MA and performance measures, the frequency of contacts with bank representatives as farms also have a higher debt to assets ratio is however linked to a higher extent of using compliance type MA practices,

such as analysing annual financial statements. Therefore, the borrowing context is relevant for different practices including financial ratios, budgets and forecasts (not the least through perceived legitimacy concerns of farmers associated with business logic as shown in study I). Yet it appears that practices become particularly geared towards the use of more standardized financial statements as farms interact more with bankers and increase debt.

When the emphasis is placed more on the managers, the role of their background, learning pre-dispositions or claimed interests (e.g. some not liking to work with numbers but with people, some very keen on learning more and adapting to change) comes to light in relation to their MAC practices. This is not detached from the context in that the aspects of the manager both derived from experience and more innate are likely intertwined with which context the managers have been previously embedded in and/or how they cope with it. While not focusing on explaining the relationship between the context and the manager as such, the thesis nevertheless reflects on this (Greenwood et al., 2011; Meyer & Hammerschmid, 2006; Thornton et al., 2015) in terms of the relative extent of embeddedness of a farmer in the logics. In terms of varying extents of embeddedness the thesis not only introduces common institutional influences but also accounts for different manifestations of the relative embeddedness and existence of different approaches to coping with logic tensions. In terms of the intensity of stakeholder contacts, some farmers are, for example, showed to not be passive parties but rather actively and purposely initiate contacts with lenders beyond the instances of loan acquisition.

In terms of learning involved in the interactions, we show farmers that bring up their educational and professional experiences to also indicate that they deliberately reflect on what further knowledge would be relevant for them to develop (for managing their farm as a "business" or to invoke in discussions with bank representatives). Aspects such as the need for cognition and vigilant attitude to money, associated with financial MA practices, indicate that such practices may have a perceived relevance for some managers seeking to obtain more information and being cautious about spending. Financial and economic education, conversely, is rather associated with performance measures and compliance types of practices, pointing to these being more covered in the formal and informal learning experiences. The relationship between FL (as an understanding and knowledge developed through formal and informal learning) is also more specifically addressed in

relation to MA practices. FL - as associated with previous financial education and a higher need for cognition - is shown to be further linked to the extent of analysing annual financial statements and taxation issues. Even without causal claims, this reiterates the relevance of financial understanding in relation to managerial practices, especially those that farms as small firms have to do anyways (yet may put more thought into with higher FL).

Finally, the role of other personal aspects related to self-reflection, compassion, empathy and emotional intelligence are also alluded to in the thesis. These are viewed as such that underlie the spectrum of accounts that farmers develop of animals beyond what they are externally expected or required to provide.

Therefore, the considered aspects in this thesis relating to the sectoral level (through stakeholder interactions), the firm level (e.g. debt, size of operations and involvement of family and non-family partners) and individual level (e.g. FL, financial education, cognitive and attitudinal attributes) are identified as relevant when analysing how MA practices are shaped in farms as small and micro firms.

Concerning the third research question regarding the implications of the MA practices, the thesis brings forth their relevance across the various levels. At the individual level, I observed the claims of confidence and security stemming from: farmers doing "what others do", seeing that they perform not worse than others in benchmarking, using non-financial performance measures in areas they view themselves to have more impact on, and having a plan like a budget to cope with stress in periods of low liquidity. In relations between the manager and the family, the practices around MA were generally observed to enable prioritising of family needs, wishes and even contingencies to further preserve good relations and generational succession. However, in terms of bookkeeping and perceived as sensitive discussions around the financial situation, the family logic could potentially become problematic if it implies gendered expectations and impedes learning due to lack of subject conversations and a designation of responsibilities not based on interest and/or previous competence.

At the firm level, MA practices were shown important in resolving tensions among the institutional logics in certain situations, either when used by the farmers alone or in the joint interactions with stakeholders. Specific implications of MA practices were also considered in relation to financial costs both directly and jointly with the FL of managers. The negative

association between compliance type MA practices and financial costs relative to output suggest MA to relevant for this sub aspect of financial outcomes, even though causal inferences cannot be claimed. This is reiterated when analysing financial statements more is done by managers with also higher FL. The positive association between specifically financial MA practices and the cost of debt as firms also get more debt, indicates however that farms may use financial MA practices more as the debt burden increases overall and in terms of the cost of debt. Lastly, while MA as such is not found positively associated with profitability directly or for farmers with higher FL, an independent relevance of FL was still observed as it was associated with a higher return on assets in farms.

Finally, broader societal implications of MA practices have also been discussed in the thesis. The available and complementarity to economic considerations farm-level measures of animals, when aggregated through industry actors and considered by policy makers enable monitoring, follow-up and assessments of primarily health and behavioural aspects of FAW. The public concern about FAW becomes construed into accountability for farm animals that is operationalized as such that heavily falls onto the farmers as primary care providers and owners. The expectations of accountability are shown as sensed by the farmers and permeating into their different actions and considerations. However, the thesis also shows that emphasis on some aspects like health, even if good, may sometimes imply their sufficiency (despite other emerging notions such as e.g. feelings and psychological states of animals). Moreover, when farm-level practices through the rules and regulations rely heavily on referent concepts such as FAW, the broader potential of accountability for animals may be limited and the considerations of who is accountable may be confined to farmers while bracketing accountability of food consumers.

5.2 Recommendations

The practical take-away messages of this thesis are addressed to primarily farmers, advisors, policy-makers and lenders.

The findings suggest that farmers may find it relevant to reflect more on who is best placed to deal with which MA practices, taking into account motivation and expertise alongside other relevant factors. A wider and more diverse network of contacts is also viewed as relevant in light of

opportunities to learn from contacts, get new perspectives and more critically reflect on some taken for granted ways of managing the farm business. A proactive and informed approach to the contacts with lenders may be relevant to better build long-term relationships and learn from such interactions (including which MA practices and financial knowledge are desirable by lenders even before debt amount and its cost grows). Opportunities for synergetic discussions with experts in different areas further appear relevant to consider to aim for more holistically sound actions especially in relation to investments and large potential cost/revenue decisions. Due to the association of FL with firm profitability and FL being heavily linked to financial and economic education, it appears warranted to take up more of such education through formal and informal channels, especially in relation to (and closely preceding) investments and borrowing. With the structural developments of the sector in mind and considering the aspects of FL with opportunities for further learning the thesis also identifies risk-related practices, e.g. using derivatives, asset valuation aspects and interest compounding as relevant to further strengthen farmers' awareness and understanding of. Finally, qualities of compassion, attentiveness and cognitive empathy should be considered as particularly relevant and promoted among those who work closest with farm animals. Reflecting on how one both provides for and emotionally cares for animals were found to present opportunities for a more personal conscious sense of responsibility. This may also likely be warranted in terms of early adapting to the constantly evolving understanding of animal wellbeing and the regulatory and normative framework adapting to it.

Advisors and machinery suppliers working with farm managers may find it relevant to reflect on their supply of in some cases duplicating and largely non-financial performance measures. Such performance indicators and systems could be further developed towards higher complementarity with financial objectives to prevent net financial losses at the highest levels of production. Integration with or taking into account accounting data in advisory services geared towards production changes may be also relevant in this regard. Likewise, bringing together experts with complementary skills and knowledge not only in cases where the farm faces financial difficulties but rather for constant improvement may also be relevant to consider, especially in situations of investing or dealing with production decisions concerning particularly large costs/revenues. Economic advisors might

consider tailoring their practice recommendations based on perceived traits of the farmers since those having a more vigilant attitude to money and prone to cognitive elaboration (keen to search, reflect over information, engage in effortful thought, entertain and evaluate ideas) tend to use financial MA practices more other things equal.

Educators may find it relevant to reflect on the association of more economic or financial education and training with performance measures and compliance practices but not financial MA practices. While this may be due to the farmers optimizing their time and prioritizing certain practices over others it may be also relevant to consider to which extent different practices are emphasized in educational programs in the farm context. Knowledge aspects relating to asset valuation, risk management and interest compounding seems also warranted to be further promoted in formal and informal learning. Educators in the context of FAW may find it relevant to consider how best to consider the issues of empathy and self-reflections in the educational programs for farmers in a way that may genuinely promote these.

Policy-makers dealing with educational interventions in the areas related to FL may find it relevant to consider that the FL of vocational demographics such as farm owners-mangers may be higher than what would be expected considering older age, living in rural areas and lower formal education. This may warrant consideration of the relevance of more specific and difficult training interventions compared to non-managerial demographic groups.

Lastly, all the stakeholders in the farm context, including regulators, input suppliers, processors and lenders may find it relevant to observe how their connections with the farm businesses are influential. It is not only through formal rules but also through implied norms (both in communication and in how tools are designed) that these stakeholders carry substantial implications for what information the farmers feel like they have to consider, the tools they may feel obliged to prepare and the resulting accountabilities they face.

5.3 Avenues for future research

The undertaken analysis in the thesis and its findings suggest several venues relevant for further research.

First, in terms of the scope of MA, further analysis of personnel-related controls in the farm context would be relevant. As the agricultural sector

undergoes structural change towards fewer larger farms the farm owner-managers become more distant from production and face specific challenges related to recruitment, motivation and control of the behaviours and outcomes of the work of their subordinates. Some of these issues surfaced during the interviews and analysis in this thesis, e.g. the perceptions of what controls are viewed (less) culturally acceptable in this context. More research focusing on the nature of the personnel controls in the farming sector, the challenges and implications around them would be relevant. Cultural controls (Malmi & Brown, 2008), especially clan controls and involved socialization processes (Ouchi, 1979) would be useful to consider in such analysis alongside the broader policies and norms around employment in the farm businesses in Sweden. Observations as part of the data collection may also be particularly useful.

Second, the notion of accountability for farm animals merits further research that more explicitly extends beyond the responsibilities of the farmers. As policy-making relies on FAW in a utilitarian way (e.g. McInerney, 2004) considering its social utility, it is relevant to explore the difficulties of a) inferring the public utility/values around farm animals (including considerations of their intrinsic value by some as empirically suggested by Johansson-Stenman (2018)) and b) of the practices of balancing different value-laden stakeholder positions around FAW. The interplay between environmental policy objectives and the objectives of increasing agricultural output further offer a particularly rich empirical setting to study the accountability for farm animals when 'regimes of truth' (Messner, 2009) collide. At the consumer level, it is interesting to uncover the nature of accountability for farm animals, the conditions when it emerges and the ways it may be promoted.

Third, the associations between MA practices, FL and firm financial performance would merit further research and validation with more data as well as more suitable methods for understanding causality. Specifically, field experiments would be a useful tool for disentangling the causal relations between MA/FL on the one hand, and firm financial performance on the other. This thesis suggests such an analysis to be particularly relevant with regards to debt and investment outcomes (relating to MA) and profitability and costs (relating to FL). Due to the specific aspects of debt and costs, involvement of lenders and advisors in research might be particularly useful. Additionally, longitudinal analysis of the use of MA would further help to

explore the linkages to firm performance and what constitutes the extent of MA use, e.g. which practices follow which, in which situations and how these are perceived as useful by the users. With regards to the usefulness, non-financial outcomes, such as the psychological comfort mentioned in the interview data in this thesis, might be also relevant to measure more explicitly. It would also be relevant to replicate the findings of the use of MA and its association to financial performance in non-farm small firms in another relevant context.

Finally, the background of the actors including their education and professional experience and its links to the values and beliefs can be explored further while considering the institutional theory's notion of institutional embeddedness as well as the upper echelons theory. A better understanding of the linkages between the multifaceted nature of a manager's background and values, beliefs and attitudes may offer insights to both theories and contribute to a more holistic understanding that builds on both.

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Popular science summary

What is management accounting in farms? Why is it used in a farm context and why is its use relevant for businesses and society? These types of questions are addressed in this thesis.

Based on interviews, survey and financial data from farms in Sweden, the analysis found a wide range of information, indicators, and analysis tools used in farm businesses. These are important alongside other farm animal welfare indicators and practices due to the motives of why they are used, outcomes they are linked to and accountability they construct for the farmers. Performance measures such as indicators of volume and quality of production, other indicators from the benchmarking software and contribution margins are found particularly incentivised in the farming context. They are promoted in interactions with advisors, other farmers and upstream and downstream business partners of farmers, to the point that they acquire a certain norm-like status. These practices turn out to be associated with more debt and lower relative financial costs to output and total costs, possibly due to firms growing. Performance measures are also more associated with financial education than financial practices such as the use of financial ratios, goals, budgets, liquidity plans and costing. The latter practices tend to be rather used by those with a higher need for cognitive elaboration and money vigilance, more debt and higher cost of debt. The thesis also distinguishes a compliance type of practices that involves the analysis of financial statements and tax considerations. These practices are found positively associated with the involvement of external accountants and auditors, more frequent contacts with bank representatives as the farms get more debt and higher managerial financial literacy. For this, a measuring scale of managerial financial literacy was designed and assessed in the farm context. It suggested high understanding among respondents of especially

variable costs, accounting terms and inflation, while compound interest rate and asset-related aspects proved more difficult. Financial literacy is further found positively associated with farm profitability.

Populärvetenskaplig sammanfattning

Vad innebär ekonomistyrning hos lantbruksföretag? Varför används ekonomistyrning och på vilket sätt är den viktig för företag och samhälle? Denna typ av frågor berörs i avhandlingen.

Baserat på intervjuer, enkätdata och finansiella data från lantbruksföretag i Sverige fann studien att lantbrukarna använder ett brett utbud av information, indikatorer och analysverktyg. Dessa är viktiga tillsammans med andra styrmedel för djurens välfärd utifrån motiven till varför de används, de resultat de är kopplade till och den ansvarsskyldighet de skapar för lantbrukarna. Prestandamått som indikatorer för volym- och produktionskvalitet, täckningsbidrag och övriga mått från lantbrukets benchmarking-programvaror uppfattas som särskilt främjade i lantbruket. Dessa mått blir främjade i interaktioner med rådgivare, andra lantbrukare och affärspartners i värdekedjan, och till en sådan grad att indikatorerna får en viss normliknande status.

Användningen av dessa indikatorer är kopplade till högre skulder och lägre finansiella kostnader relaterat till inkomster och till totala kostnader (vilket kan bero på att gårdarna lånar för att växa eller för att modernisera). Prestandamått är också mer kopplade till finansiell utbildning än vad användningen av mer ekonomiska mått är (t.ex. finansiella nyckeltal från räkenskapsanalyser, finansiella mål, budget, likviditetsplanering och kostnadsberäkning). Dessa i sin tur används mer av lantbrukare som stimuleras mer av kognitivt krävande uppgifter, som har mer vaksamma attityder till pengar, högre skulder och högre skuldräntor. Avhandlingen skiljer också på analys av finansiella rapporter och skattemässiga överväganden som kopplas till det företaget måste redovisa. Dessa är positivt kopplade till samarbetet med externa revisorer, en högre grad av finansiell läskunnighet hos lantbrukaren och mer frekventa kontakter med

bankrepresentanter när skulderna ökar. Detta testades genom att utforma en skala för att mäta finansiell förståelse hos företagare och genom att testa skalan hos lantbruksföretag. Resultaten tyder på betydande finansiell förståelse hos respondenterna, särskilt när det gäller rörliga kostnader, tolkning av bokföringsposter och begrepp som inflation, medan begrepp som ränta på ränta och olika aspekter relaterade till företagens tillgångar visade på lägre förståelse. Slutligen har finansiell läskunnighet också visats vara positivt kopplad till lönsamhet.

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This thesis focuses on management accounting practices in farm businesses. It adds to our understanding of what practices are used in farms, how they are shaped and what their implications are. Four papers comprising the thesis use interview, survey and financial data from the Swedish farm context. The findings describe, estimate and explain numerous linkages between management accounting, accountability, farm outcomes, financial literacy of the farmers and the wider context.

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