

Essays on the dynamics and heterogeneity of capital structure, risk and profit, with special reference to farm businesses

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Chapter-6

Valorization

6. Valorization

The world has been witnessing major shifts in the agricultural sector in recent years. Price volatility has increased, with sharp swings in product and input prices. Global markets are highly integrated and hence affected by macro-economic disturbances, disease outbreaks and adverse weather events such as floods and droughts. With agricultural policies abandoning production and price-supporting schemes, farmers are now more exposed to market forces than in the past. Aimed at gaining a better understanding of the dynamics of the farm business in the midst of such trends, this dissertation explores capital structure, risk management and profitability in farm business. The findings of this dissertation have implications for farmers, policy-makers, researchers and the society at large.

In chapter two, I examine the applicability of the pecking-order and signaling theories to farming, the effects of farm-specific and macroeconomic factors in determining the target capital structure, and the speed of adjustment to the target. The implications of the findings for farms (farm operators) mostly start from their preferences for debt financing. As a higher probability of financial distress increases bankruptcy costs, farms should aim to reduce these costs by giving higher priority to internal financing. Farms are also encouraged to maintain extra capital as a buffer.

The positive association between farm size, profitability, and the speed of adjustment to the target leverage suggests that a stable lending system could help to minimize financial distress among farms. As a more stable lending system injects more confidence into the agriculture sector, farms can adjust their capital structure much cheaper and faster. Since the speed of adjustment to the target capital is a positive function of farm size, a recent trend in the Dutch farm sector, i.e. a decline in the number farms but an increase in farm size (scale), fits nicely with this phenomenon. The results suggest that farms should adjust their capital structure less frequently because the cost of adjustment to the target is higher for smaller farms.

The results of chapter two could also help policy-makers and lenders to develop effective instruments to control and influence the financial leverage of farms. For example, the estimate of farm size indicates that the speed of adjustment is slower for smaller farms. This

suggests that size is considered a predominant signal of farm creditworthiness. It also suggests that policy-makers should consider size when designing policy instruments to facilitate access to credit. Governments should put in place prudent regulations that monitor credit allocation by lending institutions in the farming business. In economic sectors where banks are major capital providers, as is mostly the case in farming, a shift away from lending conditional on assets as collateral towards lending based on a farm's key performance indicators is recommended, as this will encourage farms to engage in investments and innovations that will enhance their competitiveness in the long-run. Public-policy makers can also encourage a cooperative banking model as an alternative to the predominant commercial bank-based lending system in the agricultural sector.

The understanding gained from studying the applicability of the pecking order and signaling theories to the farming business benefits both farms and lending institutions. Since historical financial performance is used as a valid signal, farms are encouraged to keep accurate and detailed financial records. These records also enable lenders to better understand the dynamics of farm financing decisions and easily identify creditworthy farm businesses through the appropriate signals. The fact that the pecking order and signaling theories of capital structure explain the leverage dynamic of farm business suggests that farms rely heavily on retained earnings. Specifically, those farms that have higher levels of retained earnings after a profitable season are better equipped to reduce their debt obligations during periods of operational risk. They may well minimize the risk of bankruptcy costs and financial distress. In addition, it is important that universities (research institutions) and banks (alone or in cooperation) should engage in discourse to develop tools, e.g. platforms, that offer farmers insight in the vulnerability of income in various markets and in capital choice strategies, so that they may make timely and informed decisions. An example of such an initiative is the Commodity Risk Management Expertise Center (CORMEC), a joint initiative by Wageningen University and the University of Illinois at Urbana-Champaign on topics of market-risk management in the agribusiness sector, among other things.

From a development-economics point of view, the findings suggest that farms use internally generated funds when they go through periods of credit constraint. In periods of macroeconomic instability, however, they appear to reduce not only external financing but also the use of internal funds in their capital structure. Specifically, this implies that if farms lowered their reliance on external financing and reduced their use of internal funds, perhaps they would end up also cutting back farm investments and household expenditures. This, in turn, would adversely affect the production capacity of farms, negatively influencing economic growth. By providing easy access to and availability of further funds, however, banks and other credit providers, such as private-equity and crowd-funding initiatives, might cancel or mitigate the impact of limited access to finance on farm investments and competitiveness.

Chapter three presents empirical evidence of the risk-balancing behavior of Dutch farms as one of the integrated risk-management tools while accounting for unobserved heterogeneity. The findings have implications for farms, financial institutions, and public policymakers. The importance of leverage and farm profitability in farm risk-balancing behavior has at least two important implications. First, farms rely heavily on the availability of and access to loans. Given the fact that farm businesses have minimal access to equity markets or none at all, policies aimed at helping farms manage their risk should make access to credit facilities a priority. In addition, the heterogeneity of farm risk balancers suggests that financial institutions can use these characteristics, i.e. segment-based heterogeneity, for risk profiling and loan evaluation in each segment. Second, farm profitability and risk-balancing are strongly related, suggesting that farms use their retained earnings as a buffer when exogenous shocks disturb the optimal total risk level. As a result, the effects of farm-support programs, such as subsidies and direct payments aiming at stabilizing profit, cannot be easily identified. This, in turn, should spark a discussion about the linearity of the relationship between risk-management policy instruments and total farm risk.

Furthermore, with the identification of farm segments and the provision of information for profiling each segment, public policymakers will be able to target these segments more effectively and design risk-management strategies that best suit each segment. The results also

suggest that more attention should be paid to both observed and unobserved factors in designing and implementing individual risk-management instruments and in assessing their impact on the farm sector.

At a societal level, the findings also contribute to the on-going debate on the impact of farm risk management policies on farm viability. If some of the farm risk exposures are covered by government policy, it may reduce the incentive to use other alternative strategies such as diversification, price hedging and insurance. The findings thus point to externalities, i.e. undesired consequences, of farm risk-balancing, known as ‘the risk-balancing paradox’ in the risk management literature: farm policies intended to support farms unintentionally end up introducing more risk to farms. From a farm perspective, the level of risk mostly remains higher or the same, regardless of government intervention. This suggests that promoting the uptake of additional risk-management instruments, such as hedging and commodity futures, is both relevant and timely. From a development economics perspective, farms that tend to use their level of debt (leverage) to balance their risk will ultimately suffer credit constraints caused by their levels of risk, which will hamper their exploitation of investment opportunities. This makes it very difficult for these farms to gain and sustain competitive advantages.

To cope with these negative externalities of farm risk-balancing behavior, I propose that farms and policy-makers focus on the introduction and development of alternative risk management responses (strategies). These responses could include, but are by no means limited to, a production response, i.e. low-risk production, diversifying enterprises and crops, and geographically dispersing production, a marketing response, i.e. obtaining market information, spreading sales by making several sales during a year, forward contracting, hedging, and futures trading, and a financial response, i.e. insuring against losses, maintaining reserves, managing the pace of investments, acquiring assets, limiting leverage, and working off-farm.

It should be highlighted that even though managing agricultural risks is mainly a responsibility of farmers themselves, the government irrefutably also has roles to play, ranging from designing effective risk-management strategies to support their implementation in agriculture. Policy makers, for instance, can devise rural development policies aimed at

offering greater off-farm employment possibilities, which may have a far better influence on the stability of farm household incomes than policies directed at stabilizing agricultural markets. In addition, training activities might be also necessary to sensitize farmers to the need for more systematic risk management. Finally, politicians should be aware that their decisions are perceived as one of the most important risks in agriculture. Chapter 3 underlines the fact that minimum intervention prices or payments triggered when prices or returns are low as a result of catastrophic losses may even be counterproductive as they tend to induce more risky farming practices. In recent years, the Dutch government has made consistent efforts to shift away from ad hoc responses to catastrophes, promoting public-private partnerships and supporting the development of plans to deal with catastrophic risks. This includes the operation of a livestock veterinary fund and the introduction of several insurance schemes, including a recently subsidized multi-peril crop insurance (OECD, 2011). This has to be part of a long-term strategy as it may take several years for these instruments to prove efficient.

Finally, chapter four aims to answer what drives long-run farm profitability. The question of why differences in profit persistence occur is found to be equally fundamental as profit existence and profit persistence could be driven by different factors. Answering these questions is important from a managerial, theoretical and public-policy perspective. With farming becoming highly competitive, it is crucial that farmers are aware of the factors that could affect their overall profitability and persistence. From a farm management perspective, much of the available literature on sustained competitive advantage implies that farm managers need to invest resources in the search for an advantage, which, if successful, will allow their farms to realize consistent rewards over longer periods of time.

Interestingly, working capital is found to be one of the robust findings that determine long-run farm profitability and its persistence. Working capital becomes even more crucial as a buffer during periods of financial crisis and credit constraints, when access to external funding, mostly bank loans, will typically be difficult. Some of the reasons may include: (a) financial crises may cause a credit crunch for agricultural borrowers, which, in turn, disrupts the functioning of the loan/credit markets for farms, (b) following an economic crisis, the

demand for income-elastic food products may lead to a reduction in income from farming, and (c) constraints on public budgets due to the crisis may lead to spending cuts in agriculture. Thus, ensuring adequate working capital is most important for farms to survive, gain and sustain their competitive advantages.

The implications of these findings for farm management are that financial and non-financial resources are important for value creation and generate sustained competitive advantages. Financial resources provide farms with assets that are needed to create and leverage value. Non-financial resources provide complementary resources, in terms of information, control, skill, risk management, etc., that are needed to leverage financial resources. Another management implication is that farmers can use the framework of the resource-based view to configure how to use their resources (both financial and non-financial) to make their farm business model, i.e. their strategies, valuable, rare, inimitable, and non-substitutable. Resource-based thinking gives a good footing when developing new directions for an individual farm. It could, for example, be used as a guiding tool when considering how to deploy a farm's current resources and which other resources to create and make available in order to make profitable changes.

Finally, with the aim of communicating the major findings to the general public, all chapters of this dissertation were presented at international conferences in different parts of the world, such as the NC-1177 meeting on Agricultural and Rural Finance Markets in Transition in 2016 (Denver, USA), the American Agricultural and Applied Economics Association (AAEA) conference in 2017 (Chicago, USA) and 2018 (Washington D.C, USA), and the European Association of Agricultural Economists (EAAE) congress in 2017 (Parma, Italy). In addition, the main findings of this thesis have been used by the Commodity Risk Management Expertise Center (CORMEC)⁶⁴ to educate/train farmers in the areas of risk management, farm competitiveness and capital structure.

⁶⁴ CORMEC is a joint initiative of Maastricht University, Wageningen University and the University of Illinois at Urbana-Champaign, among others parties, addressing topics of market risk management in the agribusiness sector (https://www.wur.nl/en/CORMEC_Wageningen/Commodity-Risk-Management-Expertise-Centre-CORMEC.htm)

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