Shareholder Value as a basis for strategic business decision making in family farms

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Shareholder Value als Basis strategischer Unternehmensentscheidungen im landwirtschaftlichen Familienbetrieb

1 Introduction and presentation of problems

The conditions and the basic framework of agricultural businesses are subject to constant changes. An annually decreasing number of enterprises and a rise of capital investment amongst the remaining enterprises demand strategic decision making in the sphere of business management, which in turn includes the sphere of cash management. Book balances and cost estimation systems are limited in this way. Even in capital companies the philosophy of business decision making is based on two components – on an effective cash flow to the shareholder in the form of dividends, and on the developments of value of the business shares. Recently the concept developed by Rappaport, of shareholder value analysis, has been increasingly applied in the form of diverse Discounted Cash Flow methods for the evaluation of business strategies in capital companies. The definite aim of strategic business management is to increase the shareholder value of businesses that, to express it simply, are dependent on the discounting of expected cash

Zusammenfassung

Methoden der Unternehmensbewertung, insbesondere Discounted Cash Flow Verfahren, werden bislang überwiegend im wertbasierten Management großer Kapitalgesellschaften eingesetzt. Dieser Beitrag untersucht die Praktikabilität ihrer Anwendung unter den speziellen Rahmenbedingungen landwirtschaftlicher Familienunternehmen. Dazu werden zunächst die Probleme des Rechnungswesens aufgrund der vorherrschenden kleinbetrieblichen Unternehmensstrukturen des Agrarbereichs dargestellt. Darauf aufbauend wird ein Bewertungsmodell konzipiert, welches Unternehmen bei der Auswahl strategischer Handlungsalternativen unterstützen soll. Der Ansatz wird an einem Marktfruchtbetrieb, der eine Umstellung auf biologische Wirtschaftsweise in Erwägung zieht, veranschaulicht. Abschließend wird die Eignung der Methode in der landwirtschaftlichen Unternehmensplanung diskutiert und auf Problembereiche hingewiesen.

Schlagworte: Unternehmensbewertung, Unternehmensplanung, Shareholder Value, Discounted Cash Flow, landwirtschaftlicher Familienbetrieb.

Summary

Various methods of business evaluation, especially Discounted Cash Flow methods have been employed up until now in value based management of large capital companies. This study proposes to examine the practicability of applying these methods within the special framework of family farming businesses. In the first instance the accountancy problems due to the existing special circumstances within smaller business structures will be displayed and analyzed. Based on this, a simple evaluation model will be drawn up, which should serve as useful in providing a choice of alternative action in business strategy. The estimate will be assessed using an arable farm, which is considering a change to organic production methods. In conclusion the suitability of the methods for farming business planning will be evaluated and problem areas will be highlighted.

Key words: Business evaluation, business planning, discounted cash flow, family farm, shareholder value.

flows to the business proprietor. There are numerous authors who refer to Discounted Cash Flow as the theoretically correct method for business evaluation and therefore also for business decision making (e.g. MOXTER, 1980; DRUKARCZYK, 2001; WENUSCH, 2001; SEICHT, 2002).

Principally it is necessary for the evaluation of business strategy to consider the business as an entity. The advantageousness of a business strategy for the business proprietor can be determined by the expenditure flow as balance between in- and out payments between the proprietor and the business, and the net profit evaluated according to the market fluctuations. The basis of an economically plausible evaluation of business decision making is the long term attainable cash flow to the business proprietor (SEICHT, 2002). Business strategies can therefore be evaluated by the dimensions of the discount cash flows (COPELAND et al., 2002).

Principally the value-based business planning strategy is based on a relationship between financing theories and planning doctrine, co-operating to realize a future orientated investment calculation. Business decisions are not made, as in the case of the cost analysis calculations or finance book keeping, by considering the difference between costs and revenues, or respectively, the differences between income and expenditure. Far more they are based on the comparison of the enterprise values of the individual strategies measured according to the cash flows to the capital provider as the decisive criteria (HENZLER, 1988).

In family farming businesses these evaluation methods have, until now, enjoyed no significance. This could be due to the fact that family farming businesses, as compared to capital companies, have a number of special structural characteristics that lie not only in the factor endowment, but also in the generation of data. The aim of the following study is to provide a concept based upon a shareholder value assessment that will provide a model for strategic alternatives for family farming businesses. Furthermore the purpose of this paper is to illustrate a possibility for methodically consistent evaluation of strategically directed decisions that can be augmented by practically fungible calculations. To round up the explanation, the model will be demonstrated on a practical example. Finally, after the examination and discussion of the model farm, the results will be discussed and problem areas will be dealt with.

In this study a family business is defined as a business that is in possession of a single individual or a family, and is managed as a one man enterprise. The business management is executed by the business proprietor and is managed with family labor.

2 Shortcomings in the traditional methods of accountancy as regards the strategic business planning in family farms

Traditional accountancy methods utilize inadequate evaluation methods. The methods of finance book keeping as well as cost estimation do not orientate themselves accordingly to the attainable market prices for capital and floating assets. Moreover, the right of choice in the evaluation and depreciation methods influences the expenditure, or respectively costs in present and future periods, independent of the market price development. Not only the application of alternative evaluation methods, but also the legal regulations can influence the attained performance over a longer period of time (RAPPAPORT, 1998). Additionally, in the case of tax accounting, the acceptable evaluation procedures are chosen for tax reasons and not for decision making considerations.

A further problem that traditional cost estimation incurs is the calculation of past costs (sunk costs) in the form of updated capital expenditure. The decisive characteristic of sunk costs is their irretrievability. The economic advantage of a future strategy does not, however, depend on the sunk costs but on the future expenditure (PIKE and NEALE, 2003). Particularly in the case of family farming businesses, the sunk costs are of great relevance due to the long term usage of producer goods.

Deficits in traditional accountancy also manifest themselves through the exclusion of future investments. The investment process in family farming businesses is generally not of a continual nature. In management accounting and financial reporting, however, usually a continual depreciation in the form of consumption is taken into account. On the other hand, cash flow methods can include investment processes and the associated in and out payments, taking private and external capital into consideration within precise periods of time. The time of execution and the type of investment is as important as the investment sum.

Additionally, business cash management is closely associated to private financial household needs. Those family farms that are operated largely as one man businesses can, as opposed to capital companies, include private expenditure within the framework of their financial possibilities. Traditional accountancy methods hardly take this interaction into consideration. This usual strict separation of business and private sphere in accounting should be lifted (BODMER, 2001).

Private expenditure and investments change the capital structure of a business and therefore influence the yield in subsequent periods through higher interest rates for borrowed assets. Taking this into consideration it would seem logical to differentiate between the household cash flows and the cash flows to the external capital provider, as these factors can influence the tax gain and thereby the profit tax. Also in cost calculations the cash management interaction between the business and household are wholly ignored. Only in the assessment of capital expenditure are the interest rates adjusted to the prospective cash management situation. A value orientated business management in family farming businesses requires a financial plan which recognizes the economic interdependence of business and household as a fundamental factor. However a yearly book balance is not a necessary requirement for this process.

Traditional accounting also neglects the monetary time value. Sums of money that fall due at different points in time must, however, be made comparable. In this way payments that flow to the business household in the first years of a budget plan phase, must be valued higher than those at the end of this period of time (RAPPAPORT, 1998). The dynamic methods of investment appraisal, in there function as special internal accounting calculations, attempt to integrate these compound interest effects, but because they only focus on partial areas, the results are too unexacting in respect to the effects on the business as a whole. Especially in family farming businesses with longer production cycles and starting phases in production changes these compound interest effects should be integrated into the decision making process.

3 Details of data preparation for family farming business

The farming family business can be categorized as the typical small or middle sized business. External auditing in the field of agriculture, especially in its tax assessment function, is governed in some countries by numerous special legal regulations, for example fixed profit assessment methods. This results in deficits that manifest themselves within a rudimentary internal management accounting system. According to HACHMEISTER (2000), cash flow projection is not dependent upon an annual book balance. As an alternative, cash flows can be projected directly from the movement in bank accounts and cash in hand.

A successful method of quantifying strategic business decisions has to be adjusted to the actual circumstances. Costs and results, as outcomes of internal budget assessment, can be assessed with sufficient precision up to the level of gross margins. The advantage of the gross margin is that it has a dimension relative to the cash flow (SEICHT, 2001). Also it enables the prediction of production methods dependent on period specific exogenous variables, for example, by means of linear optimization models. The advantage lies therein that the economically relevant factors can also be encompassed using relatively simple auditing methods. Through correction and supplementation it is therefore possible to generate an evaluation of relevant cash flow from the operative area. By establishing an investment and finance strategy, the cash flows to the business household and the capital provider, which take the in and out payments encompassed within the gross margins into account, can be assessed. This theory demonstrates that cash flows in the family farming business are relatively simple to assess and are principally not dependent on an annual auditing balance. However, if the evaluation of tax payments is required, then an obligatory profit and loss statement must be shown in the accounting books for profit tax return purposes. In the case of businesses that fall under the flat rate tax assessment category, this is not necessary.

The family farming business is also characterized by the inclusion of production factors in the form of property and land, as well as private labor, into the business framework. Basically, the business evaluation method in family farming businesses is based upon the same traditional profit and loss assessment, working on the opportunity cost estimation principle. The procedure is also similar in the respect of Discounted Cash Flow methods, where the expenditure costs of the various production factors are taken into account as calculable components. Resulting from this, additional information can be generated as to what extent a business strategy is dependent on a more efficient application of work time or work capital.

4 Concept of a valuation model

4.1 General considerations

In theory a model of any business evaluation should be a simplified reflection of reality. All those business evaluation methods appertaining to general business economics, which are based on cash flow, have, as already mentioned, been summarized under the concept of Discounted Cash Flow methods. The Discounted Cash Flow method is characterized by

the employment of projected effective cash flows to the capital provider of the business as the standard for evaluation (FRIEDRICHS, 2001). The value of a business is estimated according to a period specified cash flow. For this reason most Discounted Cash Flow methods include not only cash flows from the business to the proprietor, but also payments to the external capital provider (BECK, 1996). From the perspective of the household, however, the regular cash flows (private expenditure) after profit tax and taking the market price orientated capital at the end of the planning phase, as well as the fluctuation of borrowed assets into account, are relevant contributing factors to business decision making. As a result the advantageousness of a business strategy can be assessed by the additionally created economic value added, over a defined period of time (PIKE and NEALE, 2003).

4.2 Evaluation model

This following illustrated concept, which is based on the specifications of a family farming business, should provide a model for evaluation. It therefore differentiates from the general idea in that it includes the profit tax and labor as additional evaluation components. The basic model of capital companies is founded on the assumption that all the cash flows to the capital provider and the exchange rate of the company shares are relevant. The enterprise value can be estimated according to the following equation:

$$EV = SHV + CV$$

The enterprise value (EV) arises out of the sum of discounting cash flows to the business proprietor (SHV) and the external capital provider (CV). Additionally, the profit tax household payments resulting from the business strategy are to be deducted. As long as the estimation of the shareholder value in family farming businesses is only based on the cash flows to the business household – flows to equity (FtE) – it is not possible to differentiate as to what extent a greater or lesser investment of labor influences the shareholder value of the business strategy. For this reason, the monetarily valued labor is used as a calculable factor in this model. The shareholder value is assessed accordingly to private expenditure after deduction of profit tax (T) and labor costs (L), and in addition to own capital shares by liquidation of the investment value (RV) at the end of the planning phase. Accordingly, the shareholder value of a business strategy can be estimated using the following formula:

$$SHV = FtE - T - L + RV$$

Whereby

$$FtE = \sum_{n=1}^{N} \frac{cf_n^e}{(1+e)^n}$$

$$T = \sum_{n=1}^{N} \frac{t_n^e}{(1+e)^n}$$

$$L = \sum_{n=1}^{N} \frac{(h \times w)_n^e}{(1+e)^n}$$

$$RV = \frac{(A-C)_N}{(1+e)^N}$$

$$SHV = \sum_{n=1}^{N} \frac{cf_n^e}{(1+e)^n} - \sum_{n=1}^{N} \frac{t_n^e}{(1+e)^n} - \sum_{n=1}^{N} \frac{(h \times w)_n^e}{(1+e)^n} + \frac{(A-C)_N}{(1+e)^N}$$

The value of the cash flows to the creditors corresponds to the nominal value of the credit capital. It is calculated from the repayments and interest payments of the external capital utilized in the business, through discounting with the credit capital cost estimate. The value percentage of the credit capital provides information as to what extent the creditors participate in the total enterprise value and this increases the information content. The capital structure of a business is influenced not only be the cash flows from the operative areas, but also through investment and financing strategies. The value percentage or, respectively, the current credit capital value, is calculated according to the following formula:

$$CV = \sum_{n=1}^{N} \frac{cf_n^f}{(1+f)^n}$$

Explanation of symbols:

A = Value of assets in the year "n"
cf_n^e = Private withdrawals of the household in the years "n"
cf_n^f = Payments to creditors in the years "n"
C = Value of credit capital in the year "n"
CV = Present value of credit capital
e = Cost of equity
EV = Enterprise value
f = Cost of credits
FtE = Present value of the Flows to Equity (FtE)
h = Hours of Work
L = Opportunity costs of labor
n = 1, 2 … N = planning periods

SHV = Shareholder value
t_n^e = Income tax payments of the household in the years "n"
T = Present value of tax payments
w = Hourly wages

5 Pointers for data generation

The evaluation model is based on the prognosis of the cash flow, the profit tax, the assessment of the investment capital and the capital expenditure. The starting point illustrates a prospective finance plan both for the business and household. Because the cost management is based on the interdependence between business and household, the capital transfer between the private sphere and the business has to be assessed in form of monetary estimated private expenditure and investments. The business budget planning and capital provisions are therefore not only influenced by business strategy, but also by the private sphere (Table 1).

The model illustrated is a prognosis of cash flows for each individual period in the planning phase. In order to achieve this, it is necessary to assess not only private expenditure, but also those cash flows appertaining to the operative business spheres and also investment and finance strategies at exacting periods of time. Moreover, the expected profit tax must be assessed. The projection of cash flows on a business level is derived from gross margins, whereby included calculable value estimates are disregarded. In addition to the gross margins, capital binding and capital releasing procedures (e.g. planned investments, asset sales), as well as other payment effective fixed costs (e.g. land tax, insurances etc.), are to be assessed and included into the budget finance plan.

Table 1: Determination of cash flows from the total gross margin
Tabelle 1: Ableitung von Zahlungsströmen aus dem Gesamtdeckungsbeitrag

	Initial monetary inventory
+	Total gross margin[1)]
-	Payable fix costs
-	Disbursements for the acquisition of fixed assets
+	Deposits from the sales of fixed assets
+/-	Decrease/increase of the circulating capital
+	Deposits of credit capital
-	Interest payments for outside funds
-	Disbursements of credit capital
-/+	Private withdrawal/private inserts
=	**Final monetary inventory**

[1)] Corrected around calculable estimated values.

6 Model demonstration

6.1 Starting point of the case study

In the following section the applicability of the theoretic Discounted Cash Flow concept in strategic business planning is evaluated by means of a conventional arable farm which is considering a transformation to organic production. The data calculations project a planning phase of 10 years.

A farming business without livestock cultivates exclusively own areas extending over 60 ha of arable land and has comprehensive personal mechanization at its disposal. The existing cultivation plan is illustrated in Table 2 and is calculated by means of a linear optimization model. In order to make direct payments profitable within the framework of the common European agricultural policies, a required amount of acreage has to be set aside. The participation in the Austrian Environmental Program (OePUL) furthermore requires a cultivation of intermediate grassland. Additionally, the utilization of yield augmenting business measures is limited and already included in the gross margin. For the receipt of premiums, crop rotation restrictions are to be adhered to and are included in the cultivation plan of the illustrated model. Altogether, the initial phase shows a total gross margin of 33900 EUR.

Table 2: Gross margins for the first planning period for conventional production
Tabelle 2: Deckungsbeiträge der ersten Planperiode bei konventioneller Wirtschaftsweise

Product	**Hectare**	**Gross margin in EUR per ha**	**Total gross margin in EUR**
Winter wheat	27.0	150	4050
Summer barley	9.0	100	900
Sun flower	5.0	50	250
Potatoes	12.0	300	3600
Vetch	3.0	-170	-510
Set-aside area	4.0	-30	-120
Intertillage	17.0	-60	-1020
Gross margin from production			**7150**
Decoupled payments			12760
Environmental payments			14000
Total gross margin			**33900**

The planning and evaluation of the current assets are estimated within the framework of gross margin calculations.

The stock from crop production, as well as business equipment, is not illustrated due to the presumption that the application of equipment and the corresponding cash flow follow are always in the same time span. Dependent upon and in correspondence with the production planning, are the investment decisions in the area of plant and equipment. In the example farm in the fourth phase of the budget plan a new tractor valued at 56500 EUR is acquired, and no further investments are planned. Ultimately, for a comprehensive budget, the payment effecting fix costs in the business of 6000 EUR are also raised in the first planning period.

A budget plan requires a definition of a budget premise relative to the application of own and credit capital. This definition must be assessed on part of the proprietor by weighing up the extent of capital costs, capital availability and of the respective risks involved. In the illustrated model it is assumed that the business budget, due to the farmer's adversity to risks, should use own capital as far as possible. Generally, this is the characteristic strategy in the majority of family farming businesses.

In the model business the average interest rates are estimated at 2% after tax on current invested capital and 5% on credit capital, to keep the calculations simple. It is also assumed that the business in payments, despite an annual efficiency increase, will decrease by 1% because of price decreases and shortening of subsidies (Table 3). The payment effective fixed costs, as well as private expenditure on the other hand, increase.

Table 3: Forecast annual change of the payments
Tabelle 3: Prognostizierte Veränderung der jährlichen Zahlungen

Total gross margin with conventional production	-1.0%
Total gross margin with organic production	-3.0%
Payable fix costs	1.5%
Household consumption	2.0%

Thereby the procedure in budget planning can be demonstrated as follows (Table 4). At first the free cash flow during a period of time is utilized to finance the private expenditure. Should the free cash flow be larger, then the household will save the surplus amount. Should the free cash flow be less than needed by the business family, or should the expenditure not be covered by own capital, then the business has to employ credit capital. Alongside of the budget plan the income tax return for the household can be predicted for every planning period. The illustrated example farm determines its taxable income within the framework of a fixed gain system, whereby only social benefit contributions, as well as interest on credit capital, are subtracted according to their current rate.

Although financial own assets can be built up during the first planning phase, their stability decreases due to sinking

Table 4: Budget plan for conventional production (EUR)
Tabelle 4: Finanzplanung bei konventioneller Wirtschaftsweise (EUR)

Plan Period		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Household	Cash flow from gross margin	33900	33600	33300	33000	32700	32400	32100	31800	31500	31200
	Payable fix costs	-6000	-6100	-6200	-6300	-6400	-6500	-6600	-6700	-6800	-6900
	Investment and Disinvestment				**-56500**						
	Free cash flow	**27900**	**27500**	**27100**	**-29800**	**26300**	**25900**	**25500**	**25100**	**24700**	**24300**
	Interest on liabilities					-2620	-2770	-2960	-3210	-3500	-3850
	Deposit of credit capital				52360	2860	3850	4870	5920	7000	8120
	Disbursement of credit capital										
	Amount of credit capital				52400	55300	59200	64100	70000	77000	85100
Cash flow to household		**27900**	**27500**	**27100**	**22560**	**26540**	**26980**	**27410**	**27810**	**28200**	**28570**
Enterprise	Interest on own resources		50	80	90						
	Income tax	-2620	-2550	-2550	-2550	-1540	-1480	-1410	-1310	-1200	-1070
	Household consumption	-23000	-23500	-24000	-24500	-25000	-25500	-26000	-26500	-27000	-27500
	Amount of own resources	2300	3800	4400							

Own resources period 1: 0 Interest own resources p.a.:[1] 2% [1] short term, after taxes
Credit capital period 1: 0 Interest credit capital p.a.:[2] 5% [2] fees included

cash flows and the rising private expenditure in the later years. The investment in the fourth planning period necessitates the use of a larger amount of external capital, whereby the interest charges rise dramatically. A positive contrasting effect is the sinking of taxes. At the end of the 10th planning period the external or credit capital has risen to 85100 EUR.

6.2 Planning of the alternative strategy of organic production methods

In considering a change to organic production, the first step is to predict the future attainable gross margins, taking the legal and natural circumstances into account. In doing so, it must be noted that an adjustment of the crop rotation to suit the requirements of organic agriculture will be necessary within the framework of operative production planning. In the first two years the produce must be marketed as so called "change over goods", at considerably lower prices than is usual for organic produce (Table 5).

A specially limiting factor in the field of organic production is the nitrogen supply of the plants. That is why lucerne is included as a bi-annual culture in the cultivation program. The potato acreage must be reduced for phytosanitary reasons. Winter wheat and summer barley remain components in the program, and only sun flower is replaced by the higher corn maize in the gross margin. Altogether a total gross margin of 45700 EUR can be reckoned with in the first changeover year.

The changeover in production necessitates machinery investments. The investment budget estimates that a net investment sum of 7000 EUR is necessary for the first budget year (Table 6). In addition, the buying of a tractor must already take place in the third budget plan phase. Finally, a rise in the payment effective fixed expenditure, resulting from the increasing management expenditure and the inspection costs relative to the organic farming methods, must be taken into account. The estimated change in cash flows is illustrated in Table 3. With the same budget premiums as in traditional strategy, there would be a private capital of 43900 EUR at the end of the budget planning period. A short term credit capital would only be necessary in the third planning period.

6.3 Assessment of Discounted Cash Flows

The various business strategies can now be evaluated according to the Discounted Cash Flow. For the proprietor of a family farming business those cash flows that can be profitable to the business after tax are of interest. Furthermore, the value of own resources in investment assets at the end of the planning phase are of relevance, as this leads to differences in the dependence on plan variation (Figure 1).

Land is excluded in the evaluation of assets because a business termination is not taken into consideration here. The flows to equity are discounted relative to the input of private resources. The amount of working hours is assessed at 10 EUR per hour and the cash value is deducted. The current value of own resources in the case of a fictive liquidation at the end of the budget planning phase raises the shareholder value, and, in contrast, the credit capital assets discounted by capital interest lower the value of own resources at the end of the period. A continuation of the current strategy using "conventional production methods"

Table 5: Gross margins for the first planning period for organic production
Tabelle 5: Deckungsbeiträge der ersten Planperiode bei biologischer Wirtschaftsweise

Product	Hectare	Gross margin in EUR/ha		Gross margin in EUR total	
		Conversion	Organic	Conversion	Organic
Winter wheat	12.0	200	450	2400	5400
Summer barley	6.0	150	350	900	2100
Corn	8.5	300	650	2550	5530
Potatoes	5.0	1100	1800	5500	9000
Vetch	2.5	-170	-170	-430	-430
Lucerne	26.0	-160	-160	-4160	-4160
Intertillage	14.0	-60	-60	-840	-840
Gross margin from production				**5920**	**16600**
Decoupled payments				12760	12760
Environmental payments				27030	27030
Total gross margin				**45700**	**56400**

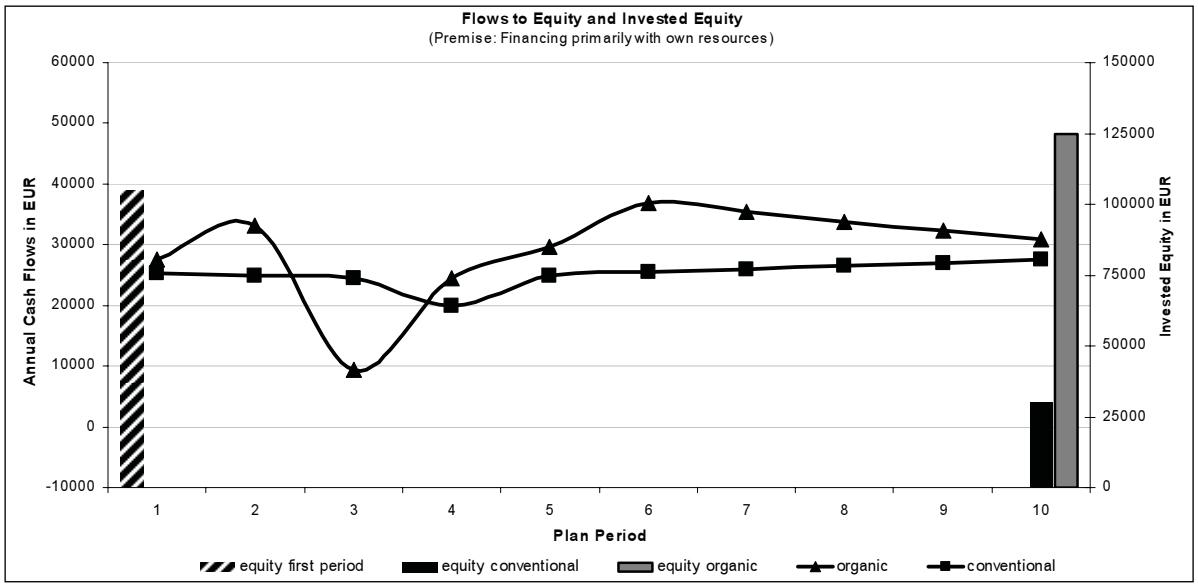

Figure 1: Cash flows and net assets depending on the business strategy
Abbildung 1: Zahlungsströme und Eigenkapitalentwicklung in Abhängigkeit von der Unternehmensstrategie

Table 6: Budget plan for organic production (EUR)
Tabelle 6: Finanzplanung bei biologischer Wirtschaftsweise (EUR)

	Plan Period	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Enterprise	margin	45700	44300	53100	51500	50000	48500	47000	45600	44200	42900
	Payable fix costs	-8500	-8600	-8700	-8800	-8900	-9000	-9100	-9200	-9300	-9400
	Investment and Disinvestment	-7000		-56000							
	Free cash flow	**30200**	**35700**	**-11600**	**42700**	**41100**	**39500**	**37900**	**36400**	**34900**	**33500**
	Interest on liabilities				-1180	-440					
	Deposit of credit capital			23560							
	Disbursement of credit capital				-14930	-8700					
	Amount of credit capital			23600	8700						
Cash flow to household		**30200**	**35700**	**11960**	**26590**	**31960**	**39500**	**37900**	**36400**	**34900**	**33500**
Household	Interest on own resources		90	290			90	320	520	670	790
	Income tax	-2620	-2550	-2550	-2090	-2380	-2550	-2550	-2550	-2550	-2550
	Household consumption	-23000	-23500	-24000	-24500	-25000	-25500	-26000	-26500	-27000	-27500
	Amount of own resources	4600	14300			4600	16100	25800	33700	39700	43900

Own resources period 1: 0 Interest own resources p.a.:[1)] 2% [1)] short term, after taxes
Credit capital period 1: 0 Interest credit capital p.a.:[2)] 5% [2)] fees included

results in an enterprise value of 170900 EUR, of which own resources amount to 118700 EUR (Table 7).

Should the farmer change over to organic production, then the shareholder value would rise to 170700 EUR (Table 8). The higher reductions for the value of labor and the higher tax burden would be more than compensated by the increased flows to equity. In the illustrated farm it demonstrates that the alternative strategy would be advantageous under the given circumstances.

The composition of the individual value components of shareholder value are illustrated in the "Conventional Production" chart in Figure 2. The farmer benefits from both: the own resources and the calculable components of the estimated labor time (as long as this is self-employed labor). In addition the knowledge of the total enterprise value in relation to the shareholder value is of relevance, because information on business debts can be derived from this and conclusions concerning the finance risks can also be made.

Table 7: Discounted cash flow for conventional production
Tabelle 7: Discounted Cash Flow bei konventioneller Wirtschaftsweise

		Plan period									
Net present value (EUR)	**Σ**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Flows to equity	189400	26070	24020	22120	17210	18920	17980	17070	16190	15340	14520
Income tax	-13600	-2450	-2230	-2080	-1950	-1100	-990	-880	-760	-650	-540
Labor	-72300	-9820	-9130	-8490	-7890	-7330	-6820	-6340	-5890	-5470	-5090
Residual value of equity	15200										
Residual value of liabilities	52200										
Enterprise value	**170900**										
Residual value of liabilities	-52200								Discount rate equity:		7%
Equity value	**118700**								Discount rate credits:		5%

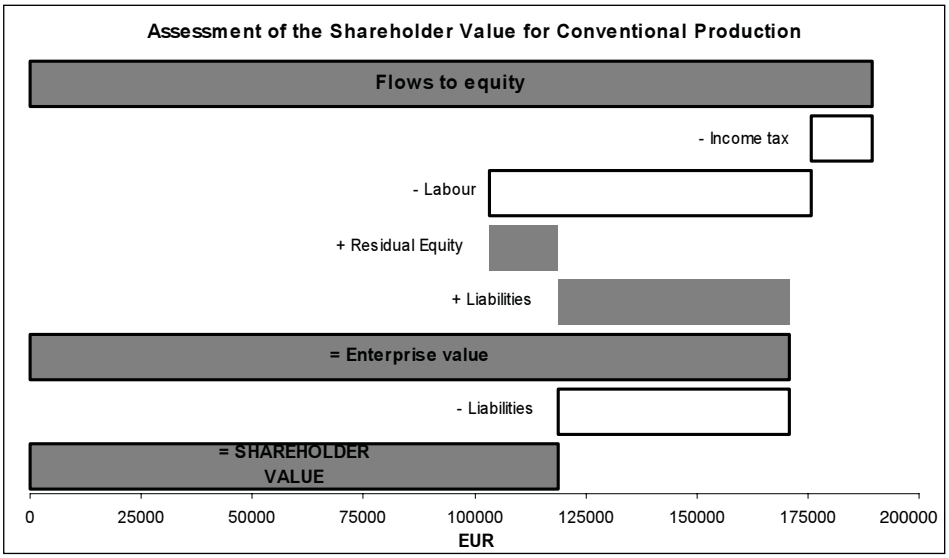

Figure 2: Components of the business and shareholder value in the calculated farm for conventional production
Abbildung 2: Komponenten des Unternehmens- und Eignerwertes im Betrieb mit konventioneller Wirtschaftsweise

Table 8: Discounted cash flow for organic production
Tabelle 8: Discounted Cash Flow bei biologischer Wirtschaftsweise

		Plan period									
Net present value (EUR)	**Σ**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Flows to equity	219400	28220	31180	9760	20290	22790	26320	23600	21190	18980	17030
Income tax	-17500	-2450	-2230	-2080	-1590	-1700	-1700	-1590	-1480	-1390	-1300
Labor	-94700	-12800	-11910	-11090	-10320	-9610	-8940	-8320	-7750	-7210	-6710
Residual value of equity	63500										
Residual value of liabilities	0										
Enterprise value	**170700**										
Residual value of liabilities	0								Discount rate equity:		7%
Equity value	**170700**								Discount rate credits:		5%

7 Conclusions and further considerations

7.1 Advantages of the shareholder value theory and critical remarks

The illustrated concept of business decision making is based on shareholder value estimates in family farming businesses. The model is based on market relative evaluation methods and illustrates the value appreciation processes of alternative business strategies. Alongside the inclusion of non effective out-payment assets for the production factor labor, the paying off of capital production factors after investment theory considerations can be included in the decision making calculations. Through the total evaluation of the business on the basis of future cash flows an additional perspective of legitimate criticism on the application of auditing

and cost estimating parameters is provided. The shareholder concept attempts to find those strategies that advocate a higher market value of own resources or, respectively, a more efficient application of labor. The strategic direction of a business follows on exclusively from the positive contribution to the enterprise value. Hereby it is possible to calculate the rising capital costs in family farming businesses.

This method allows for the direction of the business according to the economic interest of the proprietor and is not based on short term maximization, but on the realization of strategic and transposable operative plans. A further advantage of this method is the consideration of the close connection between business and household. The financial interdependence between these two spheres can be relatively simply illustrated and is included into the business decision making process. As far as the availability of data is concerned the evaluation model does not make any great demands. No yearly book balance is needed for the prediction of cash flows. The gross margins often applied in operational planning can be utilized as starting point.

The integrated investment, tax and budget planning is an important advantage of Discounted Cash Flow methods. Contrary to other budget planning systems the business is analyzed as an entity, which reduces the rate of distortion and negligence of information. The adequately illustrated possibilities for future prognosis as well as the evaluation of different payment periods by means of discounting are of great relevance for the purpose of this budget planning instrument. After having considered all the sub-planning areas and reaching an estimate it is possible to make a comparison of more alternative strategies. Altogether Discounted Cash Flow methods manage to illustrate the close intertwining of household and business very successfully.

Some literary sources criticize that the increase in the enterprise value rate follows exclusively financial goals and on the other hand, totally neglects the interests of the stakeholder. As far as the stakeholder is concerned RAPPAPORT (1998) argues that the demands of the stakeholder can only be met on a long term basis through a successful business. Therefore the primary goal must be a future orientated strategy choice and evaluation.

7.2 Open questions and further considerations

The theoretical doubts regarding this method of application should not be overlooked despite the advantages, whereby in particular the difficulty in determining the discount rate is one of these disadvantages. This should be deduced from the interest rates of own capital together with a risk premium. Whereas the risk free interest rate can be deduced relatively simply from the yield from state loans, the assessment of a consolidated risk surcharge is difficult to calculate.

The Capital Asset Pricing Model (CAPM) of Modigliani and Miller is the most quoted method in business economic literature (e.g. KRAG and KASPERZAK, 2000). According to this the business yield on capital markets is dependent on the expected risks. This systematic risk is relative to the diversion of the yield of a single item of security in total market yield (e.g. KRUSCHWITZ, 1999). For those businesses not quoted on the stock exchange, as is the case in the field of farming, the transformation of the principle consideration of the CAPM seems difficult. Apart from the methodical problems there are also various other critical points.

The risk diversification through compilation of portfolios is not possible in family farming businesses. After all, one cannot work upon the presumption of a business being in constant state of being able to go into liquidation (BEHRINGER, 2002). These two arguments are demonstrated in practice because the majority of family farming businesses invest nearly all their own resources in the business and therefore a scattering of business risk is not possible. If the business were to be liquidated, a following new investment in a farming business is, in most cases, not possible due to the non-availability of relevant markets. A business decision of this kind is not reversible, which is the reason that a "business shut down" is mostly postponed as long as possible. Finally the success of a family farming business is largely dependent upon the person of the business manager, and so risks can be influenced greatly by personal transactions (BEHRINGER, 2002). An integration of this factor into the risk interest rate seems impossible. Some literary sources recommend a corrective procedure with reductions for risk or also sensitivity analyses (e.g. EHRMANN, 1999; HENSELMANN and KNIEST, 2002; JACOB, 2001). Finally it can be concluded that the problem of risk factor control has not yet been completely solved (FAMA, 1996).

An additional problem is the high sensibility of the Discounted Cash Flow system in the choice of predictable plan horizons and the determination of alternative investment periods. It is also difficult to ascertain the business residual balance value for the period of time after the detailed planning horizon. This is not really due to any specific problem in Discounted Cash Flow methods, because all the business

planning techniques are limited by a time horizon. However, the problems relative to this method should be brought to notice.

First of all RAPPAPORT (1998) suggests two alternative strategies to assess the residual value. On the one hand liquidation values should be discounted at the end of the budget planning period as is the case illustrated in the model. Hereby the enterprise value is, on continuation of the business after the detailed budget planning period, tendentiously undervalued. In contrast to this the present value of an enduring annuity can be taken into consideration. This tends towards a danger of overestimating the residual value, because the lasting continuity seems just as improbable. It is therefore of great importance to take these factors into consideration within the framework of a one man business and evaluate different strategies according to the same principles.

In family farming businesses special evaluation questions arise in connection with operating expenditure. It must be considered that the cash flow does not show salaries for labor within the family. Should there be no extension workers the question of salary assessment is not of any great importance. Only if the different strategies also lead to different labor requirements it may be worth considering whether a monetary evaluation would be of use. If a total termination of the business is not excluded, then the personal labor expenditure should be assessed with a calculable business salary (BEHRINGER, 2002). Whereby it would be sensible to plan this particular choice as a personally adapted strategy, as here there can also be discrepancies in private expenditure through changed social insurance contribution payments and income tax burdens.

Similar questions arise concerning the evaluation of property and ground. If a sale is not to be considered, then the alternative attainable leasing price is relatively simple to assess. If a sale of farming tracts were to be considered on a long term basis, then the market value estimation must be accounted. Furthermore the buildings in use for the business can only in rare cases be let, due to the close vicinity to the living quarters of the business family. It is not clear whether a value can be taken into consideration at all in this case.

Finally, further possible application areas of Discounted Cash Flow should be brought to notice. Its establishment as a constant controlling tool for family farming businesses should be considered because of its future orientation, whereby particularly the tax and budget planning can deliver important information regarding liquidity. The Discounted Cash Flow predicts the long term profitability of the business. Not least it therefore can exercise a possible information function for credit capital providers. In this connection the often rudimentary records of family farming business need to be brought to notice. The possibilities and potentials of the shareholder value application are not by any means exhausted.

In conclusion, it can be added that the application of shareholder value business methods also enables a record of the liquidity of the farming household both on a business level and private sphere to be estimated. The important knowledge of this intertwining and interdependence of capital structure between the two spheres of business and household has, presumably up until now, not been illustrated as successfully by any other method of business accounting.

Note

[1] OePUL: Austrian program for an environmentally compatible, extensive and natural habitat protecting agriculture, based on the regulation (EG) No. 1257/99 for rural development.

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Eingelangt am 26. April 2006
Angenommen am 21. Februar 2007