THE PRESENT VALUE OF INVESTMENTS IN MILK QUOTA IN THE NETHERLANDS

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Abstract

The maximum price of milk quota is the price a dairy farmer can afford to pay based on the expected future cash flows. This price strongly depends on the variable costs per additional kilogram of milk, the marginal income tax rate and the duration of the EC quota system. Based on a duration of 20 years, dairy farmers realizing low variable costs and facing high tax rates are in a good posisition to compete succesfully on the milk quota market.

Introduction

Since the introduction of the milk quota system in the European Community (EC) in 1984, every year about two to three percent of the total milk quota volume in The Netherlands has been transferred from one owner to the other (PZ, 1992). This figure demonstrates a great interest in milk quota among dairy farmers. Farmers often wonder how much they can afford to pay for milk quota. In this article a maximum price is deducted based on expected future cash flows. This maximum price can be a helpfull tool in investment analyses. In this article maximum prices for investments in milk quota are calculated and discussed.

Maximum price computation

The present value of future cash flows is a measure of the maximum price a dairy farmer can afford to pay for milk quota. In order to obtain this present value all future cash inflows and cash outflows related to the purchase of milk quota should be considered and discounted. The sum of this discounted future annual net cash flows is the present value (Boehlje and Eichmann, 1984). From this present value one can subtract the initial cash outlay of the investment to find the net present value. The present values published in this article are a guideline of the maximum price a farmer can pay from the investment analysis point of view. This present value is called maximum price of milk quota and is defined as the quota price reached when the next equation is true: net present value = 0. The underlaying idea is that investments

are only desirable when the net present value is greater then zero.

Additional cash inflows related to the purchase of quota are caused by the sale of milk and livestock. Additional cash outflows are related to purchased feed, breeding, veterinary and livestock supplies, fertilizer and hired labor and machines. These money outlays are the variable costs on a dairy farm. The difference between additional receipts and additional variable costs is called additional contribution margin (= marginal contribution margin).

The investment in milk quota is accompanied by an investment in dairy cattle, feeding stock and accounts receivable. Assumed is that the investment in milk quota does not require additional investments in land, buildings and machinery. Also the extra labour needed tot take care of the extra cows does not cause any additional outlays.

The purchase of milk quota increases the contribution margin and also profit before taxes. However milk quota depreciation decreases profit before taxes. Assumed is a depreciation period for milk quota of 10 years. In The Netherlands tax authorities today allow depreciation periods with a minimum length of 5 years. Interest on debt used to finance the investment is not included as a cash outflow since it will be included in the computation of the cost of capital. The investment is assumed to be completely payed with borrowed capital. Depending on the marginal tax rate, this decreases the cost of capital for the investment project.

Most of the basic data used in this study are summarized in appendix 1.

Maximum price for different types of dairy farms

In table 1 maximum prices of milk quota are presented for dairy farm types that differ in marginal contribution margin (MCM) and marginal tax rate. There are great diffences in MCM between dairy farms in The Netherlands. In general MCM decreases when livestock units per hectare increases. This is mainly caused by the increased need to purchase additional feed when livestock units per hectare increases. At lower levels of livestock units per hectare, purchase of quota might cause more intensive land use, decrease of the sale of feed or less diversification.

Table 1 Maximum price of milk quota in HFl with varying
        marginal contribution margins (MCM) per kg milk,
        varying marginal tax rates and a duration of the
        quota system of 20 years.

| | marginal tax rate | | | |
MCM	0%	38%	50%	60%
0,35	2,85	3,20	3,35	3,50
0,45	3,75	4,25	4,40	4,60
0,55	4,65	5,25	5,50	5,70

The MCM's mentioned in table 1 are averages for different
types of dairy farms in The Netherlands (Anonymus, 1990):
-    Farms with high roughage expenses have an average MCM of
     HFl 0,35 per additional kilogram of milk
-    Farms that are self supplying for their roughage have an
     average MCM of HFl 0,45 per additional kilogram of milk
-    Farms selling home grown roughage have an average MCM of
     HFl 0,55 per additional kilogram of milk.
Within farm type categories one can find a wide variety of
MCM. Differences between farms in MCM are mainly caused by
the levels of milk price, livestock sales, feeding costs and
livestock costs.

Contribution margin and tax rate influence

From table 1 it can be concluded that MCM has a great
influence on the maximum price of milk quota. Dairy farmers
with a high MCM can afford to pay more for milk quota than
those with a low MCM. Thus MCM greatly influences the possi-
bilities to increase farm size.

Also dairy farmers with a high tax rate can afford to pay
more for quota than their colleagues confronted with low
rates. The positive influence of tax rate on maximum price is
mainly caused by depreciation and interest; both decrease tax
payments.

The duration of the milk quota system

Table 1 is based on a duration of the milk quota system of 20
years. However farmers have no certainty about this duration.
The present system officialy ends in the year 2000. The
european ministers of agriculture will have to decide about
the prolongation after this year. Today investors in milk

quota have no perfect insight in the length of the duration. Achieving quota carries the risk of limited use of this production right. Therefore in table 2 the maximum prices of milk quota are presented in case of a quota duration of 10 years.

Table 2 Maximum price of milk quota in HFl with varying marginal contribution margins (MCM) per kg milk, varying marginal tax rates and a duration of the quota system of 10 years.

	marginal tax rate			
MCM	0%	38%	50%	60%
0,35	2,00	2,00	2,05	2,05
0,45	2,65	2,65	2,70	2,70
0,55	3,30	3,35	3,35	3,35

From the comparison of the tables 1 and 2 one can conclude that a shorter duration decreases the maximum prices. The reason is obvious: the farmer benefits from the CMC only during 10 instead of 20 years.

The influence of the marginal tax rate upon the maximum price strongly diminishes when the duration is decreased.

Todays prices for quota in The Netherlands vary between HFl 4,- and HFl 4,50 per kg milk. Thus much closer to the prices mentioned in table 1 than those in table 2. This indicates that buyers of quota expect the quota system to be continued a long time after the year 2000. The relative high quota prices in The Netherlands compared to the surrounding EC member states will also be influenced by the great interest in increasing farm quota and the tough competition on the quota market.

Additional issues concerned with the purchase of quota

When farmers have to decide about buying quota, they will not only pay attention to the maximum price they can afford to pay. The ability to pay future principal plus interest also plays an important role. According to the experiences of dairy farm advisors this point is even of more importance to famers when buying quota than the increase in profitability or the present value of the investment.

Besides buying quota, dairy farmers in The Netherlands can also purchase additional quota by leasing. Leasing is an interesting option for farmers expecting a short duration of the quota system, farmers lacking borrowing power or farmers with low income tax rates.

Based on the present prices for milk quota in The Netherlands, it can be concluded that only tax paying dairy farmers with a marginal contribution margin of HFl 0,45 or higher, take a financially sound decision when they decide to purchase milk quota. This means that the present situation offers good growth opportunities for dairy enterpises that are self supplying for roughage and have average to low variable costs.

References

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Boehlje, M.D. and V.R. Eichmann, Farm management, John Wiley & Sons, New York, 1984
PZ, De huur en verhuur van leveringsrechten van melk: het leasen (in Dutch), Paper Produktschap voor Zuivel, Den Haag/Rijswijk, 1992

Appendix 1

Data used in to compute maximum prices of milk quota

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a   Additional investments when purchasing milk quota:
   -    dairy cow HFl 2000,- per head
   -    dairy heifer HFl 1500,- per head
   -    dairy calf HFl 700,- per head
   -    stock an accounts receivable HFl 360,- per dairy cow
     At a replacement rate of 35%, the total investment per dairy cow is HFl 3085,-. Using an average milk production per cow of 7000 kgs, this means an additional investment of HFl 0,44 per purchased kg milk quota.
b   The purchase of quota is not accompanied by investments in land, buildings and equipment. Also the outlays for fixed labour remain unchanged.
c   Interest rate 9%
d   Length of fiscal depreciation period 10 years