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1. Introduction

It seems that the familiar notion of profit meets with increasing criticism. In the past few years numerous publications have appeared recommending new standards for measuring the results of an enterprise. We shall indicate these standards under the collective name of shareholders' value concept. Increasingly, one might ask the question whether profit thinking is still relevant. Among economists a discussion about the (informative) value of profit thinking has broken out. For decades on end the profit (determination) has served in the judgement of the profitability of an enterprise. Based on this many years' service, profit thinking has proved its value. However, in the past few years we have seen the elements time preference and risk to be more and more at the centre of interest. In determining profit no attention is paid to this. People are increasingly aimed at future cash flows in value determination. Value in this respect is understood to be the present value of the future operational cash flows (free cash flows). The profit of value thinking therefore concerns that the factors time preference and risk, which are essential to entrepreneurship, receive the attention they deserve. When changes arise, often the question of 'the roots' turns up. Can we learn something from history? When we relate this question to our subject, we soon happen upon the name of Pacioli. What would he have thought about the profit of value thinking?

In this 'paper' we shall give the floor to Pacioli himself, after having depicted the character of an era.¹ Next we shall draw the line on to the present. First we shall dwell upon the right of organizations to exist, then we shall go into bookkeeping as an indicator for action, after that the interest of a money orientation will be dealt with and this leads us to dealing with (market) values. Summary and conclusions wind up this 'paper'.

2. The character of an era

Human thinking is partly determined by our surroundings. If these surroundings are subjected to strong changes, this will undoubtedly influence the way in which people deal with their surroundings and each other. In Pacioli's days the world was strongly changing. The structures of the middle ages made way for a society of a different shape. Although developments are hard to define within time limits, it is yet generally assumed that the year 1500 may be regarded as a dividing line between the dark middle ages and the enlightened modern time. This vision is too restricted and therefore incorrect. It is rather easy to prove that, especially in the field of economic thinking, there has been question of a much more gradual transition. Some scholastics had already been making sharp remarks about man's economic actions. Remarks that went right against the usual ideas of their time. In the middle ages daily life was strongly determined by the church. Christian theology was the guideline for all aspects of life. The result was that there was no question of a clear division

between the political, spiritual and economic spheres. Society was based on how to survive. Tried methods and approaches were handed on from each generation to the next, without any conspicuous innovations being added. Production surpluses that might serve as means of exchange hardly existed, or not at all. The exchange of goods remained restricted to some local barter. Life was limited by the own area, bad means of conveyance and a traditional way of living hardly formed an incentive for starting on risky adventures. Sanctioned by religiously inspired rules of life, man was after certainty in his own circle, which was more or less protected.

At the end of the middle ages, 1350-1500, there is already question of great shifts. The marching of the Turks and finally the occupation of Byzantium in 1453, many Greek scholars had fled to Italy. They brought along numerous costly manuscripts and great knowledge of the Greek antiquity. This brought new insights in many fields to Italy. Great social changes took place, too. The feudal power is disappearing to make way for a class of burghers. Social relations are changing; a dividing line between the political, religious and economic spheres of life comes into existence. The production capacity grows and as a result more trade arises naturally. Taking decisions is less dominated by spiritual values, freedom of contract arises, although guided more by rational considerations. The individual comes apart from the collectivity and begins to organize himself on that basis, too. The social relations are becoming more formal. Better transport facilities make distances less troublesome. Man stands up and the horizon is shifted. Showing initiative and taking risks bring fame and riches within the reach of new groups. People like the Genoese sailor Columbus get a chance to manifest themselves. Surety can no longer be found in the own, restricted circle. Also the ancient concepts in relation to human actions are ready for revision. In the economic sphere the first impulse is given by two theologists; San Bernardino da Siena, O.F.M. (1380-1444) and Sant'Antonino, O.P. (1389-1459) the archbishop of Florence. They have both left behind an extensive oeuvre (De Roover, page 43) and occupied themselves with economic questions. Their sermons bear witness of this. They may be regarded as pioneers for the trade coming up. The old question of the 'justified price' gets quite a practical effect with them. An individually univocal answer cannot be given to this. This implies that the collectivity - for trade does not exist in order to earn money, but by serving the community one will be rewarded - has to fix the price. How can this be done practically? Bernardino points at the market. The estimation of the market, which tells what is the general value of certain goods at a certain time, in a certain place (De Roover, pg.20)². Also towards the difficult issue of interest they both take a finely tuned position. In their view interest could just be charged in many cases. In this they certainly do not take a position that is generally accepted in church. This caused the necessity to hide it in all kinds of ingenious constructions to decrease³. The known adage from the early middle ages: "nullus christianus debet esse mercator" (Roll, page 45) is beginning to lose its shine. Even to such an extent to make Pacioli remark: "... the merchants are strongly at the centre of interest, because they form the cornerstones of our republic." (Pacioli, chapter XXXV). Of course these developments did not take place without striking a blow. Traditional (religious) thinking remained the guideline for many. Attacks on it seldom remain without consequences.⁴

3. Pacioli's ideas

With a view to Pacioli's course of life, it is quite likely that he was familiar with the economic views of Bernardino and Antonino. In his Summa, too, we find this characteristic mixture of religious and secular thinking that also stands out in other documents of that time.⁶ These

documents hardly contain any economic analyses in our sense of the word.⁹ The authors mainly intended to teach people and to educate them. The why is hardly discussed. The how all the more, the recommended approach being set as standard. Generally in these books the following subjects turn up: arithmetic for the mercantile practice, managing an enterprise, making up contracts, trading customs and (double) bookkeeping.

Pacioli sees the part of man on this earth in the light of the biblical message. Man, God's creature, fulfills a derived creation assignment and the entire human existence is in God's honour. This also applies to merchants of course. In order to remain in business it is necessary to make a legal and reasonable profit. Therefore they have to start their business and bookkeeping by calling in God's name. In bookkeeping this is concretely done on the first page of each (bookkeeping) book. Furthermore the Holy name of God is to remain on their mind all the time. (Pacioli, chapter II). This is apparently not just a matter of form. He regularly reminds the reader of it. In chapter IV he adds these sentences to a number of practical warnings: "But above all, remember God and your neighbour; never forget to attend to religious meditation every morning, for through this you will never lose your way, and by being charitable, you will not lose your riches...". Then he quotes the famous Bible-text (St. Matthew 6:32-33): "...for your heavenly Father knoweth that ye have need of all these things. But seek ye first the kingdom of God, and his righteousness; and all these things shall be added unto you." In chapter VI he also returns to the subject, and not for the last time either. "Among good Christians there is the good custom to mark their first books with that glorious sign from which every enemy of the spiritual flees and before which all the infernal spirits justly tremble - that is, the holy cross..".

Pacioli begins bookkeeping by recording the inventory. He uses the word 'inventario', which means: that which one will find. The reason he states for this is: wherever there is no order there is chaos. "Ubi non est ordo, ibi est confusio". No chaos, but order. In this way he also carries on the creation assignment. Moreover, he seconds the approach to bookkeeping of the ancient civilizations, Assyria, Mesopotamia and Egypt. The oldest known bookkeeping 'documents', in the form of clay tablets, consists of inventory statements. In chapter I he already mentions three issues that are in his view of the greatest interest for doing business. There he remarks: (1) "The most important of these is cash or any equivalent...(2)... to be a good bookkeeper and ready mathematician...(3).. to arrange all the transactions in such a systematic way that one may understand each of them at a glance. (If not) ... they would have no rest and their minds would always be troubled."

In Pacioli's days the interest debate was not exhausted yet. In the early middle ages charging interest over amounts made available was regarded to be a very dubious action, which was formally even forbidden. This was justified with an appeal to what people thought they read in the Bible. (Compare the interdiction to charge interest today in the Arab world). It is obvious that this interdiction of interest is a barrier in an expanding economy. The interdiction was skirted by asking all kinds of commissions for services not rendered (this method is also applied in the Arab world today). Pacioli points out the possible abuse and gives a number of precautionary measures (Pacioli, chapter XXIV). When dealing as a banker: "For ink, paper, rent, trouble and time you get a commission, which is always lawful, even though through a draft there is no risk of travel, or the risk when money should be transferred to third parties, etc. as in actual exchanges, of which we have spoken in its place." It is obvious that asking a commission for the factor 'time' is nothing but charging interest. The ancient notion that 'time'

belonged to God and that it is therefore improper for a man to ask payment for this, is totally absent here. Effortlessly Pacioli seconds the range of thought of Bernardino and Antonino, without wasting many more words on the subject.

The factor risk, too, is clearly dealt with (Pacioli, chapter IV). "... for things are never too clear to a merchant on account of the different things that may happen in business... More bridges are necessary to make a good merchant than a lawyer can make. Who is the person that can count all things that can happen to a merchant - on the sea, on land, in times of peace and abundance and times of war and famine, in times of health or pestilence?" A good merchant may be expected to know exactly what to do in markets and exchanges, even when circumstances are unsure.

It is obvious that a person who is so strongly aimed at the daily course of events also attaches great interest to market information. Therefore Pacioli has a view of bookkeeping that differs considerably from that of many bookkeepers of today. Everything of interest should be entered into the books. "Finally, I must say that in this memorandum book nothing should be omitted. If it were possible, it should be noted what many others had said during the transaction because, ..., the merchant never can be too plain". (Pacioli, chapters VIII and IX). So everything must be recorded. Market information is obviously part of his bookkeeping system. An able bookkeeper will enter all those transactions in the Journal later on. This can be done in a condensed way. It is no longer necessary to mention all the details, since they are already in the Memorial. Therefore the Journal must refer to the Memorial time and again. Nothing may be entered in the Journal that has not first been mentioned in the Memorial. Furthermore, it is no surprise when Pacioli appears to think that current market prices must be used in the bookkeeping (Pacioli, chapter XII and XX). This was apparently not unusual. In the same chapter he observes that the merchant must not deviate from the prevailing customs.

In all this he remains practical. Bookkeeping costs money. Recording everything to the smallest detail, is too costly. For small things we must not use separate accounts. "Officials do not bother with details" (Pacioli, chapter XXII).

Pacioli says that bookkeeping is necessary to be continuously informed of how the enterprise is running. The results are recorded per transaction, c.q. shipment. Apparently he is less interested in a periodical, fixed closing date. Running a business is a continuous process and at every moment the merchant must gain insight in the present state of affairs. Bookkeeping is necessary for knowing what one has to do. The function of accounting for the business clearly stands to serve the business policy. (Pacioli, chapter XXII and XXIII). Here the bookkeeping is necessary, but yet nothing but: "...the expression in writing of the arrangement of his affairs, which the merchant keeps in his mind, ..."

For if the merchant does not know every detail of his business then: "...your money will go like flies - That is, you will lose it." Moreover, it is also an excellent means to help maintain friendship in business. Especially in partnerships it is important to give each other insight into the state of affairs regularly. "Frequent accounting makes for long friendship". (Pacioli, chapter XXIX). An incitation that Bernardino, too, already issued to his listeners. (De Roover, page xx). We are winding up with an exhortation from one of the last chapters (Pacioli, chapter XXXV). "Every day, the last thing in the evening, just before going to bed, you shall glance over this (memoranda) book to see whether everything which should have been done has been done, etc. and you shall cancel with your pen the things that have been done, ..." An exhortation that we find again with the Puritans, centuries later, also fed by the Christian religion.

4. The right of organizations to exist

From time immemorial people have reflected on the manner in which man deals with his surroundings and moulds it. Organizations form an important manifestation of human creativity. A structure of people and means aimed at reaching targets. People often organize themselves in the enterprise way. Why? Creating an enterprise is in the first instance only useful, if the organization's expected internal coordination expenditures are smaller than the customer's expected external transaction expenditures. These expected transaction expenditures also include those expenditures that ensue from the risks that are involved in entering into transactions. However, this condition is insufficient for letting the organization continue to exist. More is needed for continuity. The organization must be able to add value. For, the transformation process with which an organization occupies itself, transforming input into output, costs money. The output is brought about by various participants and they desire a reward for their exertions. The value of the money turnover must be greater than the value of the expenditures that are related to marketing that turnover; including the expenditures that are connected to the provision of capital. For the providers of equity this means that sufficient shareholder value can be created.

The continued existence of the enterprise depends on its capacity to generate sufficient value. From the macro-economy point of view, too, this is a requirement. For our national income is formed by finding the aggregate of the added value of all organizations.⁷ Companies that do not add value decrease the national income in a way. In the long term liquidation is their fate. Naturally it is important for all those involved in the organization that they get insight into the course and the outcome of the transformation process. To achieve this, we must search for a way to record and inform which does justice to the interests of the various participants.⁸

5. The source as indicator

Here we arrive at the field of bookkeeping. As we saw, Pacioli recommends bookkeeping as a method to create order in the chaos.

The increased quality of the information leads to risk reduction. Then Pacioli clearly states (chapter XXIX) that bookkeeping is in fact nothing else than the reflection, expressed in a certain way, of the business data, which the entrepreneur has in his mind. Thus he says in so many words that bookkeeping is a model; a reflection of reality. We already remarked that in doing business according to Pacioli, money plays a crucial part. (He does not touch upon profit here). Starting from this part, his point of view is that a businessman needs to be a good bookkeeper and has to be very good at figures. Furthermore, he has to arrange all transactions so systematically that the nature of the business can be understood at a glance. It is obvious that Pacioli regards bookkeeping as a model to catch an economic reality. Of course, Pacioli's ideas have not gone through time undamaged. Translators and followers have added their own range of thought. Time and place were perhaps urgent reasons to do so. For example the Dutchman Jan Ympyn Christoffels published a translation of the Summa in Antwerp in 1534. This book is the first to explicitly observe that the supply of goods must be entered against cost price. Pacioli never said any such thing.⁹ Gradually an accountability oriented model of an economic reality came into being.

This bookkeeping model has served us well for many years on end, and is partly still doing so.

Yet a complication arose. In the long run it was not only used for knowing the own business, for as a merchant one has to be well informed continuously of the ins and outs of the organization. Also those, who had to provide the books with an attest naturally got into touch with it. Yet there is the extra difficulty that for knowing the business and for accounting for a business it is not always desirable to have the same model of vision. Stronger still: the same approach may lead to completely misleading information. So the profession split up. Next to the bookkeeper there came, mostly from outside, an auditing bookkeeping expert. Naturally he has less difficulty checking the financial consequences of the executed transactions than judging all considerations on which the transactions were based. Yet the importance of bookkeeping lies right in policy making, says Pacioli.

Returning to Pacioli's starting-point, 'money' appears to have the most important place with him. In this context he does not speak of (bookkeeping-) profit. Profit may be defined as: revenues minus expenses. This definition immediately raises two questions: what are revenues and what are expenses? Answers to these questions will soon show that opinions about this may differ considerably. Ordering system (FIFO against LIFO) and creative variations of this may quite disguise the representation. In this way the reliability of the image may be endangered. The result is that people, who are not familiar with the economic 'reality', will confuse the image with that 'reality'.

6. The bag of money

A simple metaphor may explain the problems described in the previous paragraph. One might say that both at the beginning and at the end of the enterprise there exists a bag of money. With the bag at the beginning one establishes the firm and expands it. Right at the end, when all is completed and settled, there is again a bag of money. Let's hope this last bag is bigger than the first.

Now the question arises how one keeps track of the growth of this bag of money during the lifespan of the organization.¹⁰ The bookkeeping approach tries to register this growth. Furthermore, decisions have to be taken continuously about the question: in which year shall I show which mutation of value.

In this process one may go back into the past or anticipate on the future, for instance with the item provisions. A further complication arises by the fact that many books are primarily set up in order to produce a good account. Naturally, this is a function which should not be underestimated. Yet we have to ask ourselves if this does not cause other, quite relevant factors to receive too little attention. It seems to be increasingly clear that for taking management decisions an information system that is set up purely on a basis of bookkeeping, is insufficient. For important elements, like time and risk are hardly taken into consideration, or not at all. This justifies the question whether we should try and find a good alternative. The merchant's daily actions, with all considerations on which they are based, has to be at the centre again. At any rate, Pacioli gives us a clue.

Returning to our simple example of the bag of money at the beginning and at the end of the life cycle of an organization, we must at least answer one more question. What value do these bags of money represent? We prefer not to fall into the trap of traditional nominalism. The notion of (economic) value tries to offer a solution for this. The notion is far from new. As early as in the twenties of this century it was used by the American economist Irving Fisher. The economic value is the net present value of the future cash flows (flows of money). The

stress here lies on the moments when the cash flows become available and the risks that are inherent to the anticipated events. The difference is evident. Within the traditional bookkeeping system profit, P , is the difference between equity at the end of the period, EQ_1 , and equity at the beginning of the period, EQ_0 : $P = EQ_1 - EQ_0$. This result (profit) is often measured in realized material assets. In the economic approach the stress lies on: which value have we created. This often concerns matters that are hard to measure, like: research, development, internal and external loyalty. This does not mean that the profit notion should not have any value. However, at certain points it is clearly inadequate. System changes may exert great influence, risk is not taken into account, the investment needs remain off the picture, nor does the dividend policy receive attention. Value thinking is in this respect superior to profit thinking.

7. The market value as alternative

The above shows that two important objections against profit thinking may be brought up, being ignoring the time aspect, as well as not structurally taking risk into account. The profit of value thinking lies in the fact that in value thinking these two aspects are structurally incorporated in the valuation. The value of the enterprise is understood to be the present value of the future cash flows.¹¹

$$V = \frac{(\text{cash1})}{(1+c)} + \frac{(\text{cash2})}{(1+c)^2} + \dots$$

In which:

V = value of the enterprise

casht = cash flow at moment t ;

c = cost of capital of the enterprise.

In this value definition the time preference is taken into account by turning the future cash flows into present value. The risk aspect is shown in the cost of capital of the enterprise, which functions as a discount factor in the value definition. For this cost of capital is the risk-free interest rate added to rises for the various risks.^{12 13}

Let us look at our example again. The total profit is the difference between the value at the end of the period and the value at the beginning of the period. Note that this difference is equal to the (net) cash flow. In profit thinking it is irrelevant how the cash flows are divided within the period under survey. Also the risk at which the capital has been placed, is left off the picture.

As long as risk cannot be controlled, it is hardly relevant to pay attention to it. However, in the past few years we have seen the creation of financial instruments with which financial risks (interest and currency risks) may be transferred. Naturally a price has to be paid for this shift. Running (financial) risks is therefore no longer exogenously determined, but belongs to the policy decisions. The weighing of risk and expected profit is of importance in this respect. The professional magazines regularly publish contributions dealing with the valuation of financial instruments like options. An option is a right to buy an agreed quantity of an underlying value against a price fixed previously (execution price), during a certain period. Since the option represents a right, the value of an option is at least zero. However, for the writer (the seller) of the option right there is a theoretical chance of an unlimited loss. The problem is how to

value such an option. In profit thinking this is a hard task, while in value thinking the market value of the option can be taken.

Theoretically, with the rise of the option as a financial instrument, the mutual relations between the providers of capital are elucidated more and more from the option theory¹⁴. Say an enterprise has only two capital titles out, being one share and one bond. With regard to the price formation of these capital titles the shareholder may be regarded as the holder of an option on the enterprise and the bondholder as the owner of the enterprise who has written the option involved. (Van Horne, page 289-290).

As we said, an option has a minimal value of zero. The value of the equity is therefore also minimally equal to zero. The negative value of the equity, that sometimes occurs in the bookkeeping system, is an inexplicability. For the provider of equity has no debt to the enterprise and may at any time give up his possession of shares.

8. Conclusion and summary

Every system is well usable until the moment when a better system is available, while the new system will naturally appear to have its defects as well. The bookkeeping system has proved its value for years on end. However, in the past few years more and more clearly some defects in this system have turned up. These defects concern the fact that the time preference and the risk are not considered in a structural way. The profit of value thinking can be found in the processing of time preference and the risk in value determination.

Studying the work of Pacioli, we learn that he attached great value to the reality content of the bookkeeping. Not in terms of reality according to a model, as we regularly find it in profit thinking, but in a reflection that is as true as possible, of all economic considerations.

Moreover, he has an open eye for the risk factor inherent to entrepreneurship and he continuously speaks about the interest of market information and current prices. Of course in the past it was not always possible at all to act in the way we can do now. Covering risks and exchanging information are easier today and the costs involved are considerably lower. In certain respects markets function more smoothly than they used to do. For Pacioli it was no use to go deeply into factors that were, practically speaking, ineligible for policy.

Reading his work, the prevailing sense is admiration. Admiration for a man who managed to provide the merchants of his day with quite a lot of useful information in brief. A man who did this with great understanding of the daily course of events and with great sense of what was experienced as proper in his days. A man with a sober outlook on entrepreneurship, who keeps placing this entrepreneurship at the centre. A man who has understood the bases of value thinking (time value of money and risk) and would undoubtedly feel ill at ease in bookkeeping profit thinking.

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1. We use the book of J.C. Geijsbeek. This author lets Pacioli speak by means of photographic reproduction, giving an English translation. In some points this translation can probably not stand the test of present-day criticism. Besides, this translation was made by an accountant, who was strongly aiming at apologetic purposes. For this 'paper', however, this is not a decisive objection, in our opinion. To a lesser extent we used the book of J.G.Ch. Volmer. This translation is strongly influenced by the (German) translation of E. Jaeger.

2. San Bernardino is one of the first thinkers in the field of economy, who introduced the notion of 'subjective use' (complacibilitas). Thus the subjective notion of value receives all attention for the first time. Bernardino derives this notion from the Provençal scholastic Pierre de Jean Olivi, O.F.M. (1248-1298).

3. "...they distinguished between overt usury, which was charged openly on a loan, and palliate usury, which was cloaked in the garb of another contract. Thus, usury could be hidden in an emptio venditio (purchase-sale) by simply charging a higher price on credit sales than on cash transactions." (De Roover, page 30).

Apart from that, San Bernardino devotes an entire sermon to the special ways to avoid the issue of interest. (San Bernardino, sermon 39, art. 2, sections 1, 2, 3 and 4).

4.Erasmus (1467-1531) had to offer his resignation as professor at the Catholic University of Louvain. Within the United Provinces there was greater freedom. Fortunately we know his words: "Wherever I have my library I am at home."

5.This habit is only slowly disappearing. Many manuals of later days, for instance that of Jacques Savary (*Le parfait négociant*) from the seventeenth century, are clearly religiously inspired. Savary was certainly not a saint but a rather hard businessman (De Roover, page 14).

6.This is also the reason why Schumpeter spends little attention to Pacioli in his 'History of Economic Analysis' (as a matter of fact he spells Paccioli)

7.For the sake of simplicity we are not dealing with the problems of evaluation at macro-economic level. At this level the value of employees at universities is determined on basis of their salaries, independent of their achievements.

8.The opinions on this are certainly not stable. Not only with regard to the theory but also to practice. A nice illustration of the latter is formed by Philips. This company was warmly in favour of the application of replacement value for many years. In 1976 they said: "Philips has been very satisfied with the application of the replacement-value theory, for both internal and external reporting purposes." At the end of 1992 Philips announces its return to the application of historic cost prices.

9.See Geljsbeek (1914).

10.There are some problems here. Next to the matching problem we also have the changes in value of money and goods to deal with. Furthermore it is not always clear what has to be recorded. Certain items only appear 'off balance sheet'.

11.More extensively described in Dorsman (1993, chapter 1).

12.For a more detailed determination of the relevant cash flows we are referring to Dorsman & Van der Hilst (1993).

13.Future investment needs influence the cash flows; the dividend politics pursued influences the cost of capital.

14.In this contribution we are only trying to indicate that the implication of the financial instruments also extends itself to the mutual rights structure between capital titles. In the framework of this article it would go too far to go deeply into the matter. We confine ourselves to referring to Dorsman (1993, chapter 4).