

Money management methods in trading and investing

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Abstract: In this paper, we briefly discuss six basic methods of money management in trading and investing and analyze their effectiveness on the Warsaw Stock Exchange. The most efficient methods are the Martingale and Ralph Vince's methods giving profits of 1731% and 1453%, respectively.

Keywords: kelly criterion, stock market, money management, position sizing, pekao, thorp, investing, trading

INTRODUCTION

Most of the theoretical papers about investing are focused on answering the question: *in what and when to invest?* But another important issue is money management, which means how much an investor should invest. In an extreme case, it may happen that the investor, using a strategy with a positive expected value, will go bankrupt because of poor money management [Wójtowicz 2013, p.111].

Despite this, the topic of money management is ignored or marginalized in most publications. There have only been a few papers published on this topic [Thorp 2007].

In this article, we describe the most popular methods of money management in trading and investing:

- *The Irene Aldridge's* method of money management for a short term speculation is a compromise between aspiration to full optimization and maintaining relative simple calculations.
- *The Ralph Vince's* method relies on maximizing the relative growth rate of the investor's capital. This method allows to utilize all the information on a distribution of the investor's profit. The solution obtained from this method also has many other advantageous properties [Ziembra 2005].
- *The method proposed by Edward Thorp* is a simplified version of the Vince method. It permits the investor to simplify calculations, but it has some adverse properties.
- *The Van Tharp's* method relies on matching basic methods of money management with the investor's preferences.
- *The Rayan Jones's* method is an improvement of the simplest method of money management, consisting in buying one contract for a given value of the investor's wealth.
- *The Martingale method* relies on increasing a bet size after taking a certain series of losses which is much more frequent than the probability of such an event. Unfortunately, this method is very risky and can lead to ruin.

In the last part of this article, we present our own example of applying the above-listed money management methods on the Warsaw Stock Exchange.

I. MONEY MANAGEMENT ON A SINGLE FINANCIAL MARKET

Money management on a single financial market includes situations when the investor uses one or more investments or trading strategies on a single market.

I.1. Money management for short term speculation

The method was proposed by Irene Aldridge [Aldridge 2010] for traders (investors with a very short time investment horizon) who practice high-frequency trading (i.e. making speculative transactions implemented in seconds or even less).

In this method, it is assumed that the trader completes transactions on a single financial market using many strategies simultaneously. They would also like to determine the degree of involvement of their wealth in a single strategy. The simplest solution is an equal distribution of capital to all the strategies. For example, for four strategies one should allocate 25% of their wealth in a single strategy.

The advantage of this method is the simplicity of the calculations. Unfortunately, this way does not utilize any historical information about the results of the strategies. It is obvious that an application of such data should give a more profitable solution to the investor.

Hence, in a second approach, one studies the historic trends of all the strategies and checks which distribution of the capital gives the greatest profit. The disadvantages of this method are large computational complexity and time constraints.

The method proposed by Aldridge is a combination of these two solutions. It allows us to find a relatively optimal solution and, at the same time, it shortens the time needed to find the solution.

At the beginning, we assume *we have information about the historic results of the investigated strategies*.

First, we sort all the strategies using the Sharpe ratio, starting from the strategy with the largest value of the ratio. The Sharpe ratio for a given strategy is defined by the following equation [Aldridge 2010, p.76]:

$$\text{Sharp ratio} = \frac{\text{Profit expectation from a single transaction}}{\text{Standard deviation of profit from a single transaction}} \times TR$$

where TR is the estimated number of transactions which are made during a year. This is found through the product of the mean number of transactions in a day and the number of days in a year.

Second, we include an even number of strategies with the highest Sharp's ratio in our portfolio, wherein half of them should be positively correlated with the market and the second half - negatively.

Third, we sort the strategies (those that were included in the portfolio) by their current liquidity (the number of transactions that were made during a given period of time).

Fourth, we combine the strategies positively correlated with the market with the strategies correlated negatively into pairs. The combination is made on the basis of the current liquidity, i.e. that a positively correlated strategy with the highest liquidity is combined with a negatively correlated strategy with the highest liquidity (among the strategies that are negatively correlated), and so on.

Fifth, for every pair of strategies we separately optimize the variance of the portfolio consisting of these two strategies alone. The optimization relies on finding the participation of all the strategies in the portfolio, giving a minimal variance.

As a result, the trader makes transactions for any pair of strategies (of the portfolio), investing the maximum of their wealth in every strategy, yet less than the limit defined in the fifth step. The total of the investor's portfolio involvement should be less than the level defined before, which in turn should be less than the sum of the limits of all strategies.

The advantage of this method is a relative precise optimization and the simplicity of the calculations.

The disadvantage of this method is that it cannot be used in a quite common situation when the investor only uses a single strategy. In that case it cannot be combined with any other strategy.

1.2. Maximizing the relative growth of the investor's capital

The method has been proposed by Ralph Vince [Vince 1990].

It assumes that an investor invests their money on one financial market and only uses one investment strategy.

Vince introduces the notion of a divisor which is understood as a value which lets the investor to define how many units (e.g. shares) he should buy with the given capital and the largest possible loss on a single share [Vince 1990, p. 80]. The divisor should be from the interval (0,1).

For example, assume that the largest possible loss is 100 dollars and the divisor, f , chosen by the investor is 0.25. Then $\frac{100}{0.25} = 400$, so the investor should buy one share for every 400 dollars of their capital [Vince 1990, p. 88].

At first, the investor should determine the period of time from the historical data, best reflecting the situation on the given market. Next, the investor should check – using the aforementioned data from the chosen period of time – the relative growth of capital using a given strategy and chosen divisors f between 0.01 and 0.99 at intervals of 0.01. By these calculations, the investor should choose the divisor generating the biggest relative historical growth of capital. We shall say that the divisor with this property is an optimal divisor, and we denote it below with the symbol f^* .

With the assumption that the distribution of profits for a given strategy - on a given market - will not change in the future, the divisor f^* has the following properties: (1) it maximizes the investor's capital in the long run [Breiman 1961, p.72], (2) it minimizes the expected time (comparing to portfolios constructed using other methods) needed to achieve a fixed financial goal [Breiman 1961, p. 68], and (3) the investor using f^* will not go bankrupt [Hakansson and Miller 1975].

In practice, using the optimal divisor may create a big variance in the investor's capital [Wójtowicz 2013, p.108-109]. Moreover, if meanwhile the distribution of profits for the given strategy will change (e.g., the maximal loss may increase drastically) and the investor will still use the old divisor, he may go bankrupt [Wójtowicz 2013, p. 111].

Ralph Vince has never given a theoretical justification of his method. Due to that, it is neither quoted nor discussed in scientific papers. In practice, Vince's method consists of maximizing a function constructed by means of the distribution of gains and losses on a given market. We discuss it briefly below.

Let us consider a general case. Let the symbol Y denote a random variable describing an investor's financial result:

$Y = (a_1, \dots, a_n, -b_1, \dots, -b_m)$, where a_1, \dots, a_n are pairwise different non-negative values (hence, at most one of them equals 0), and b_1, \dots, b_m are strictly positive, $n, m \geq 1$. Further, let the distribution of probability for Y be of the form

$$P = (p_1, \dots, p_n, q_1, \dots, q_m),$$

with $p_i, q_j > 0$ for all i, j . In the next part of this paper we assume that $E(Y) > 0$ (that is, the average financial result of investing is profitable).

If b_s denotes the maximal loss: $b_s = \max\{b_1, \dots, b_m\}$, then X denotes the random variable, with the same distribution of a probability P , of the form Y/b_s :

$$X = \frac{Y}{b_s} = \left(\frac{a_1}{b_s}, \dots, \frac{a_n}{b_s}, -\frac{b_1}{b_s}, \dots, -\frac{b_m}{b_s} \right) = (A_1, \dots, A_n, -B_1, \dots, -B_m),$$

where $A_i = \frac{a_i}{b_s}$, $B_j = \frac{b_j}{b_s}$, $i \leq n, j \leq m$. Then $E(X) = \frac{E(Y)}{b_s} > 0$.

The values A_i are non-negative, pairwise different, and B_j belong to the interval $(0,1]$ with $B_m = 1$. We also have

$$E(X) = \sum_{i=1}^n p_i A_i - \sum_{j=1}^m q_j B_j > 0.$$

The generalized Kelly's function G is defined by the formula

$$G(f) = \sum_{i=1}^n p_i \ln(1 + f A_i) + \sum_{j=1}^m q_j \ln(1 - f B_j).$$

In [Wójtowicz 2013, p.113-114] it was proved that the function G has the following properties:

(P1) it is concave on the interval $[0,1)$, $G(0) = 0$ and there exists $f_c \in (0,1)$ such that $G f_c = 0$,

(P2) there exists a global maximum f^0 of G with $f^0 \in (0, f_c)$; it is a solution of the equation $G'(f) = 0$;

(P3) the number f^0 , defined in (P2), is the optimal divisor for the Vince's method, which means that $f^0 = f^*$,

(P4) $G'(0) = E(X)$.

An example of G is presented in the second section of this paper.

1.3. A simplified Vince's method

This method has been proposed by Edward Thorp [Tharp 2008, pp. 214-215], and it is a simplification of the Vince method.

First, as in Vince's method, the investor determines a historical period that best reflects the situation on the given market. Next, the investor calculates a divisor defined by the formula [Tharp 2008, p. 214]:

$$\hat{f} = \bar{p} - \frac{1-\bar{p}}{T}, \quad (1)$$

where:

\bar{p} is the quotient of the number of profitable investments by all investments,

T is the quotient of the average profit by the average loss of an investment.

The advantage of this method is a simplification of calculations, which are simpler than in Ralph Vince's method.

The disadvantage of Thorp's method is that, in the long run, the investor applying the parameter \hat{f} achieves less profit than applying the optimal divisor f^* (which maximizes the investor's profit, see property (P3) above). Moreover, if \hat{f} is bigger than f^* , the investor should be aware that larger decreases in their capital would be observed than when using f^* [Wójtowicz 2013, p.108-109].

In an extreme case (i.e., when \hat{f} is bigger than f_c , see property (P1) in Subsection 1.3), the investor applying the simplified method may go bankrupt [Wójtowicz 2013, p. 111].

1.4. Adapting money management to investment goals

This method was proposed by Van Tharp [Tharp 2008]. The author indicates that the investor may not be interested in maximizing profit, Sharpe ratio or minimizing their risk. Due to that, every investor should explicitly specify their investment goals and manage their wealth in a way that allows them to achieve these goals.

1.4.1 The measure of utility of a strategy in methods of money management

Van Tharp has defined a new ratio (System Quality Number) which, based on historic results of a strategy, allows one to determine the utility of the strategy in achieving investment goals [Tharp 2008, p.28]:

$$\text{System Quality Number} = \frac{\text{Expected gain from a single transaction}}{\text{Standard deviation of profit from a single transaction}} \sqrt{\text{Number of transactions}}$$

The higher the ratio, the easier it is for an investor to achieve their goals.

1.4.2 Basic methods of money management

Van Tharp discusses five basic methods of money management [Tharp 2008, Section 8]:

1. Buying one contract for a given size of investor's wealth.
2. Equal division of wealth among all markets.
3. Specifying the percentage of wealth involved in every transaction.
4. Buying such a number of contracts on a given market, for the volatility position sizing of this market over a fixed period of time (e.g., five days) to be lower than a given percentage of the share of wealth.
5. Buying such a number of contracts for the share of wealth needed to secure the transaction to be less than a given percentage value of the wealth.

To illustrate the five, above-listed methods by examples, let us consider five investors *Alan*, *Ben*, *Carl*, *Dirk* and *Edwin* applying each of the methods separately.

Alan practices money management by buying one contract for a given size of his wealth. He would like to buy one contract for 10 thousand dollars. At the moment, Alan possesses 10 thousand dollars, and therefore, he can make a transaction to buy only a single contract. When his wealth grows to 20 thousand dollars, Alan can buy 2 contracts. When his wealth decreases to 17 thousand dollars, he may only complete transactions to buy one contract. This means that, in this method, an investor can buy only an integer number of contracts.

Ben practices money management by equal division of his wealth onto all markets. He divides his wealth, which is 2 thousand dollars, onto two markets, shares of A and B companies. Assume that, on the share market of company A, a signal appeared to buy the stock with one share costing 100 dollars. According to his plan, Ben should engage half of his wealth and buy 10 shares for 1,000 dollars.

In the next three scenarios we assume that an investor has 1,000 dollars and decides to risk 3 percent of his wealth in a single transaction; thus *they will risk 30 dollars each*.

Carl practices money management by risking a fixed percentage of share of wealth in any transaction. He decides to buy shares of a company which cost 10 dollars per share. When the price will drop to 9 dollars, Carl will withdraw from this transaction. Hence his risk for a single share is 1 dollar, and so Carl buys 30 shares.

Dirk practices the fourth method of money management. He measures the volatility position sizing on a given market as the difference between the highest and the lowest price from the previous week. Dirk decides to buy shares of a company with 5 dollars of volatility; which is also the risk of a single share. Hence Dirk buys 6 shares.

Edwin practices the fifth method of money management. He decides to buy a contract on shares which require 10 dollars of margin for a single contract; this is also the risk of a single share. In this case, Edwin buys 3 contracts.

In practice, the most advised and easiest method of money management is risking a fixed percentage share of wealth in any transaction.

1.4.3 Optimizing a chosen method of money management

After choosing a method of money management, an investor should define the value of a parameter optimal for our goals (for example, the percentage of wealth risked in a single transaction).

Next, the investor should determine the historic period of time that best describes the price fluctuations on a given market. Using this information, the investor should determine the distribution of profit for their strategy

and run numerous simulations (e.g., 10 thousand) of 100 future transactions. Before running the simulations, the investor should define a satisfying return from 100 transactions and the biggest acceptable relative decrease of his wealth (let's call it the investor's ruin).

In the next step, one should check the results for different values of parameters and find optimal values for the following six criteria:

- the largest average mean return,
- the largest average median return,
- the greatest probability of reaching an investment goal,
- the biggest value of a parameter for the probability of ruin less than 1,
- the biggest value of a parameter for the probability of ruin equals 0,
- the biggest difference between the probability of ruin and reaching an investment goal.

As a result, we should get 6 different values of parameters for 6 different criteria.

Using this data, the investor should choose the value that best satisfies thier preferences. To make it easier, for each of the six optimal parameters separately, one should check its probability of ruin, reaching an investment goal, the average mean return, and the median return.

The advantage of Van Tharp's method is creating a new measure of utility of a given strategy, which clearly reflects the specificity of the short-term speculation. Moreover, Van Tharp has defined new criteria which better allow to describe an investor's preferences, and has created the tools to meet them.

1.5 The advanced method of buying one contract for a given size of investor's wealth

The Rayan Jones's method [Tharp 2008, p.161-196] is a development of the method of buying one contract for a given size of investor's wealth. For example, assume the investor buys one contract for every 10 thousand dollars of their wealth and that they start with 10 thousand dollars; hence they will buy another contract but only when their wealth increases by 100%. If the investor had 100 thousand dollars, they would buy another contract after their wealth increased by 10%. This means that *investors with less money to start have a smaller chance to multiply their capital*.

Because of this limit, Jones has proposed a new way of defining the level of capital, which allows a smaller investor to buy a new contract:

$$\text{New level} = \text{Current number of contracts} \cdot \text{Delta} + \text{Old level}. \quad (2)$$

Here *Delta* denotes a monetary value defined by the investor describing risk tolerance (the smaller the *Delta*, the bigger the risk).

For example, assume the investor has 25,000 dollars. They invest in one contract and their *Delta* equals 2,500 dollars. Therefore, they will buy another contract when their wealth increases to $1 \cdot 2,500 + 25,000 = \$27,500$. For such wealth they should have 2 contracts. When their wealth increases to $2 \cdot 2,500 + 27,500 = \$32,500$, they will buy next contract, and so on. However, if their wealth dropped below 27,500 dollars at an earlier point, they should sell the contract bought before (and stay with one contract).

In this method, we do not assume anything about the risk associated with investing in a single contract. But if we make such an assumption and use this method then, along with the increase of investment engagement, the investor's risk rapidly grows and next it gradually decreases [Tharp 2008, p.162].

The advantage of this method is that *the investor with a small amount of capital can increase their commitment to the market at a quicker pace and has a greater possibility to increase their wealth*.

Unfortunately, the key elements of this method have never been defined. Jones has neither given us the method of defining the level of investor's engagement for a single contract nor pointed on how to define the parameter *Delta*.

Moreover, this method requires frequent changing to the investor's engagement, which can be hard for big price movements. There is also no assumption about risk connected with a single contract, which is of crucial importance in practice. For example, assume we buy a contract for \$10. If we decide to close the transaction when the price drops to \$9.50, we risk \$0.50 per contract. If we assume to close the transaction when the price drops to \$5, we risk \$5 per contract and our risk is 10 times higher.

Moreover, a rapid growth of investor's risk connected with the growth of their involvement on the market can be a very big threat.

1.6 Martingale strategy

The strategy was defined by Larry Williams [Tharp 2008, pp. 205-207]. This method is additionally based on the assumption that the investor is aware of the distribution of gains for the strategy. In addition, in a single transaction, the investor risks a fixed nominal amount or percentage of their assets.

Let us assume that, on the basis of historical data, the investor estimated the probability of generating a loss at q . In fact, however, the frequency of occurrence of their losses during the first time interval was at u , where u is significantly higher than q . In these circumstances, the investor should increase his involvement on the market. The probability of the investor incurring a loss in the next transaction is still at q , yet in the long run the frequency of occurrence of the investor's losses should converge to q . Such convergence will only occur if the frequency of losses is lower than q in a certain future period of time. Therefore, through increasing his engagement on the market, the investor will recover the assets previously lost in the event of higher wins, or even register a certain amount of gain.

The advantage of this method is its simplicity.

Unfortunately, Williams fails to specify when the frequency of loss occurrence can be considered significantly different from the probability of occurrence of loss according to the distribution. Nor does he indicate the initial engagement of the investor, or consider the fact that the investor cannot increase his engagement infinitely, for reason of limited liquidity on the financial market.

An investor using this strategy must take into account major decreases of their wealth and the resulting mental burden; in the event of occurrence of a longer series of losses, which is always a possibility, the investor who continuously increases his engagement will ultimately go bankrupt.

2. EXAMPLES OF MONEY MANAGEMENT ON THE STOCK EXCHANGE

The Irene Aldridge method was excluded from the analysis due to the fact that, unlike the other methods, this one applies only to high frequency data.

The money management methods are illustrated with the example of Pekao SA shares. The examples do not take into account the money management method for a short-term speculation because it cannot be applied to daily interval data.

The analysis covers the share prices for the period from 2003-09-05 to 2005-09-16.



Diagram 1. PKO SA share prices during the period from 2003-09-05 to 2005-09-16

Further analysis is based on the investment method, which consists of

- (a) buying shares when the momentum indicator with parameter 10 changes from negative to positive, and
- (b) selling shares when the momentum indicator switches from positive to negative.

The value of the momentum indicator with parameter 10 on the given day is the difference between the closing price of the given day and the closing price ten days prior.

Furthermore, the following assumptions were made:

- (i) No transaction costs;
- (ii) Access to unlimited leverage, i.e. the ability to invest multiple times higher capital than actually available;
- (iii) No security deposit requirements; and
- (iv) Ideal market liquidity.

To determine the optimum parameters, the time series was divided into the following two periods: from 2003-09-05 to 2004-07-15 and from 2004-07-16 to 2005-09-16. An assumption was made to the effect that the investor has the initial wealth amounting to a value of PLN 1 million.

The first period was used to determine optimum parameters for the particular methods. During that time, the investor's maximum loss was at PLN 5.5 per share. If the investor invests all their wealth in the company's shares, without using financial leverage, then according to the adopted strategy, they would close 16 transactions and generate a 45.94% gain during that period.

The period from 2004-07-16 to 2005-09-16 was used to verify the money management methods based on the parameters determined according to the first period. If the investor invests all their initial wealth of PLN 1 million in the company's shares, without using financial leverage, then according to the adopted strategy, they would yield a 51.18% gain during that period. In addition, maximum relative decrease of his wealth would be at 4.06% for the period.

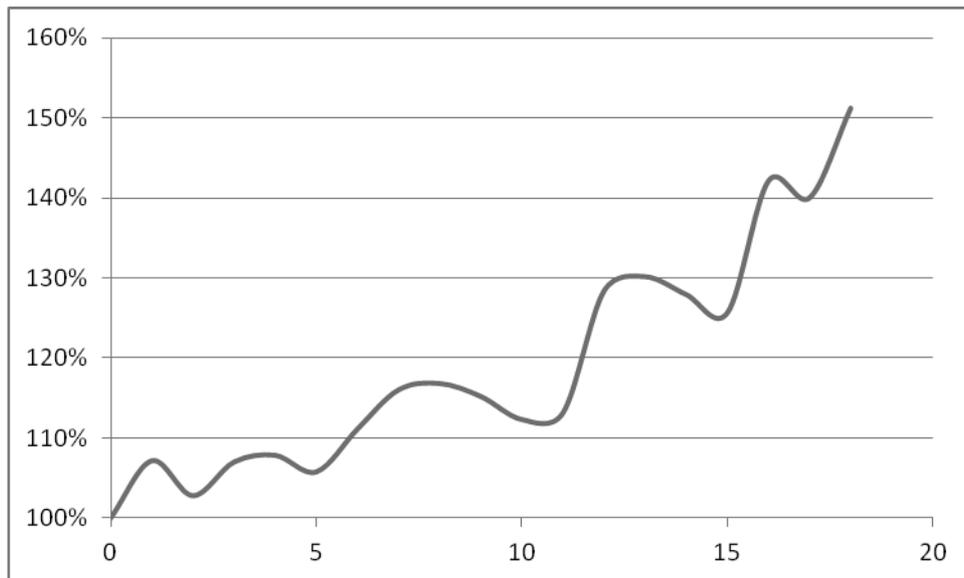


Diagram 2. Relative status of the wealth of an investor that does not use financial leverage during the period from 2004-07-16 to 2005-09-16 after subsequent transactions.

2.1. Maximization of the relative increase of the investor's wealth

Based on the investor's performance during the period from 2003-09-05 from 2004-07-15, the function G has been estimated as follows:

$$\begin{aligned}
 G(f) &= \sum_{i=1}^8 p_i \ln(1 + fA_i) + \sum_{j=1}^5 q_j \ln(1 - fB_j) = \\
 &= \frac{1}{16} (\ln(1 + 4,27f) + \ln(1 + 2f) + \ln(1 + 1,64f) + \ln(1 + 1,45f) + \ln(1 + 0,64f) + \\
 &\quad + \ln(1 + 0,55f) + \ln(1 + 0,27f) + \ln(1 + 0f) + \\
 &\quad \ln(1 - 0,18f) + 4 \ln(1 - 0,36f) + \ln(1 - 0,45f) + \ln(1 - 0,64f) + \ln(1 - f)
 \end{aligned}$$

Through numerically solving the equations $G(f) = 0$ and $G'(f) = 0$, we get $f_c = 0.9$ and $f^* = 0.48$.

Diagram 3 is a graphic presentation of function G .

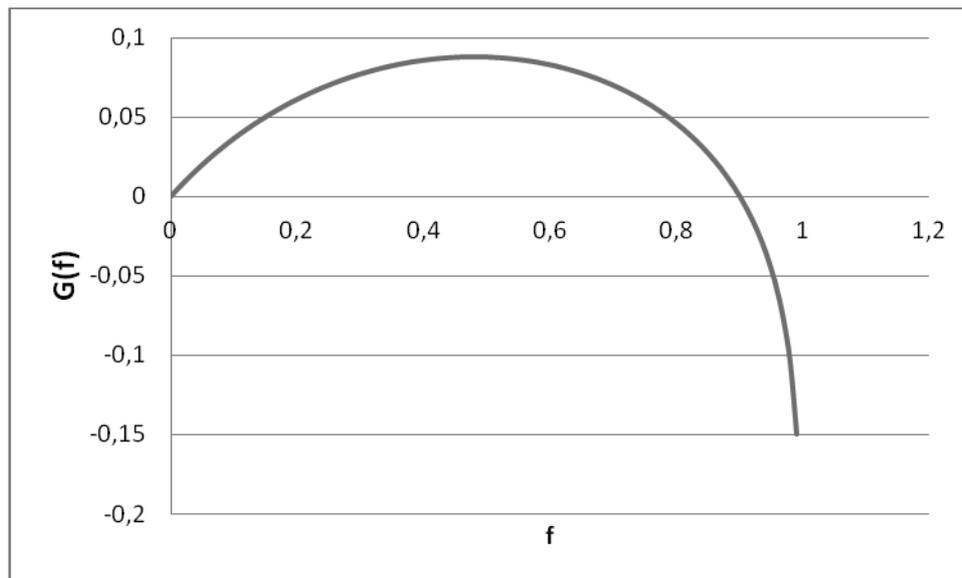


Diagram 3. Generalized Kelly's function $G(f)$, estimated on the basis of the investor's performance during the period from 2003-09-05 to 2004-07-15

Using the 0.48 divisor determined in the preceding period, the investor would make a 1453.48% profit and the maximum relative decrease of his wealth would be at 43.64%.

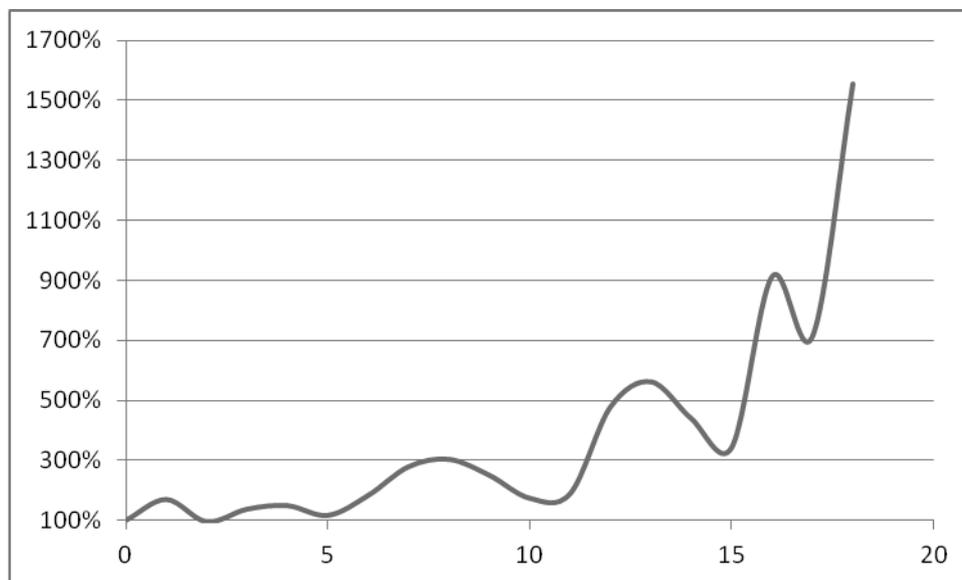


Diagram 4. Relative status of the wealth of an investor using the relative wealth increase maximization method during the period from 2004-07-16 to 2005-09-16 after subsequent transactions.

2.2. Simplified R. Vince's method

Probability p of an investor making a profit when using a momentum indicator-based strategy, estimated on the basis of the initial period, was 0,5, with the average profit 7.44, and the average loss 2.56. Therefore, the value of the divisor determined according to the simplified method was $\hat{f} = 0.33$ (see (1)).

Using the 0.33 divisor determined according to the simplified method, the investor would make an 878.64% profit and the maximum relative decrease of his wealth would be at 30.48%, occurring between the first and the second transaction. This is illustrated on diagram 4.

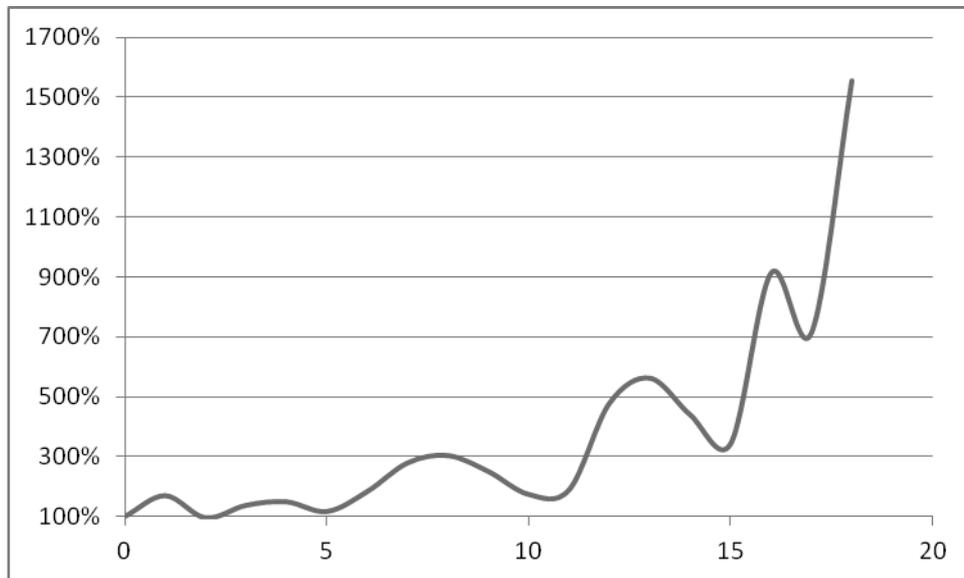


Diagram 5. Relative status of the wealth of an investor using the simplified R. Vince's method during the period from 2004-07-16 to 2005-09-16 after subsequent transactions.

2.3. Adapting money management methods to investment goals

Based on the distribution of the initial period's profits and losses, 10 thousand simulations were carried out in Excel software. Each simulation consisted of 100 consecutive transactions. On this basis, optimum divisors were selected on the basis of six different criteria. The overall assumption is that the investor is striving to accomplish 400% profit after 100 transactions and is willing to risk the loss of their entire wealth. Optimum divisors for these criteria are presented in the following table.

Table 1. Optimum divisors in terms of the particular criteria for an investor aiming at gaining 400% profit after 100 transactions and accepting the risk of losing their whole wealth.

Criterion	Divisor
Largest average mean return	0.99
Largest median return	0.99
Maximum divisor at nil probability of bankruptcy	0.08
Maximum divisor at <1 probability of bankruptcy	0.99
Maximum probability of achievement of the goal	0.22
Maximum difference between probability of goal achievement and bankruptcy	0.21

Consequently:

- The maximum average return at 3138% will be achieved by an investor who uses a divisor of 0.99;
- The maximum median return at 3762% will be achieved by an investor who uses a divisor of 0.99;

- The maximum divisor at nil probability of bankruptcy is at 0.08;
- The maximum divisor at <1 probability of bankruptcy is at 0.99 and the probability of bankruptcy for this value was at 30.65%;
- The greatest probability of achieving the goal, at 96.94%, will be accomplished by an investor who uses a divisor of 0.22;
- The largest difference between the probability of achieving the goal and the bankruptcy, at 95.54%, will be accomplished by an investor who uses a divisor of 0.21.

Performance of an investor using each particular divisor is illustrated by diagram 5.

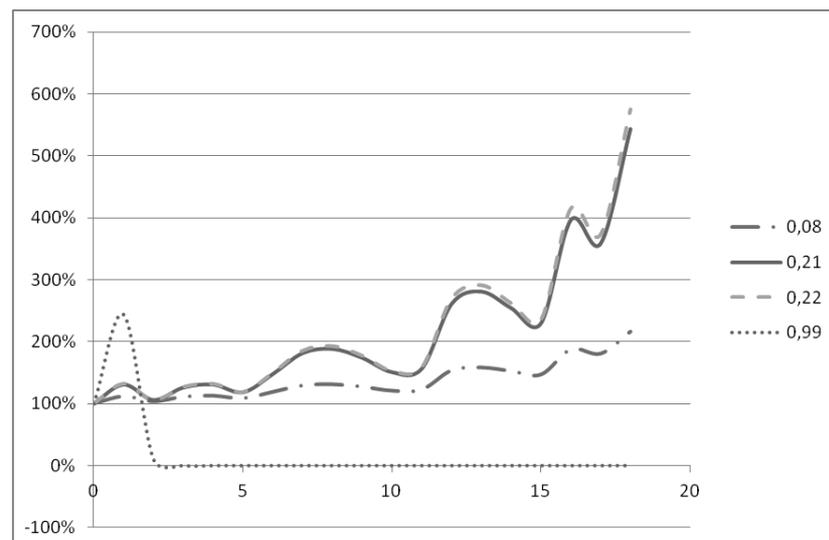


Diagram 6. Relative status of wealth of an investor using divisors optimized for the given criterion.

In addition:

- An investor using the divisor of 0.99 will go bankrupt after the second transaction;
- An investor using the divisor of 0.08 will make 216% profit with the largest relative decrease of wealth at 7.85%;
- An investor using the divisor of 0.21 will make 543% profit with the largest relative decrease of wealth at 19.98%;
- An investor using the divisor of 0.22 will make 575% profit with the largest relative decrease of wealth at 20.88%.

2.4. Advanced method of buying one contract for the given value of the investor's wealth

During the initial period, the investor's largest loss was at PLN 5.5. Thus, an investor willing to risk 3% of their wealth in a single transaction should buy $\frac{0,03 \cdot 1\,000\,000\text{ zł}}{5,5\text{ zł}} = 5456$ shares. Therefore, let us assume that initially the investor having a wealth of PLN 1 million buys one contract in a single transaction, consisting of 5,400 shares.

Let Delta be at PLN 100,000. Then, the investor will buy a second contract when their wealth reaches PLN 1,000,000 + 1 · PLN 100,000 = PLN 1,100,000 (see (2)). The third contract will be bought when his wealth reaches PLN 1,100,000 + 2 · PLN 100,000 = PLN 1,300,000.

An investor applying this strategy will make 52.38% profit with the largest relative decrease of wealth at 4.52%.

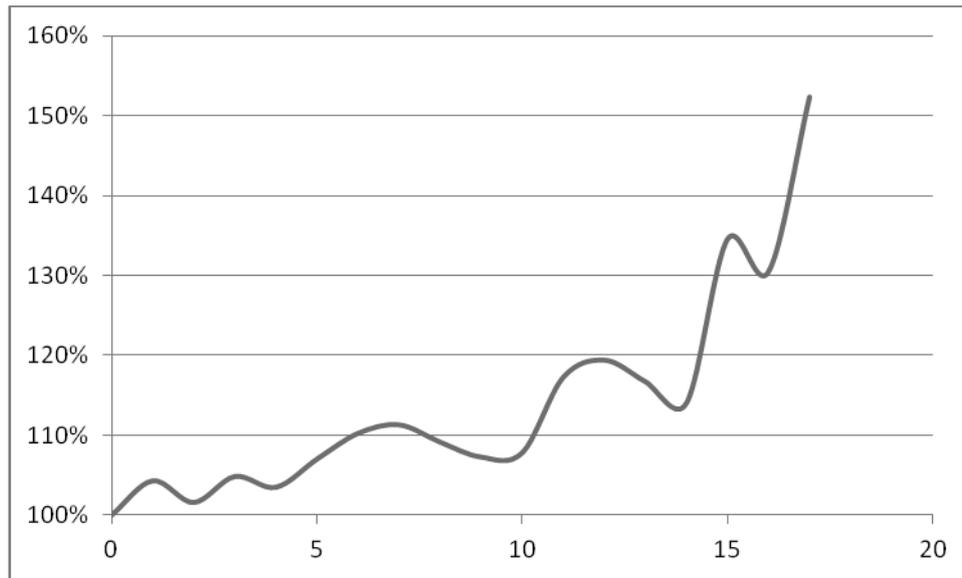


Diagram 7. Relative balance of wealth of an investor using the advanced strategy of buying one contract for the given value of the investor's wealth

2.5 Martingale strategy

On the basis of data of the first period from 2003-09-05 to 2004-07-15, the probability of loss was determined at 0.5. A martingale strategy was developed on this basis, where the investor uses the divisor of 0.48 (see Table 1), determined through maximizing the relative increase of the investor's wealth, provided that the investor generated nil or one loss in the last three transactions. However, if the investor incurred two or three losses in the last three transactions, i.e. the frequency of such losses was higher than the probability of their occurrence, we expect the investor to increase his commitment using the 0.6 divisor.

An investor applying this strategy would make 1731.78% profit and the largest relative decrease of his wealth would be at 43.64%.

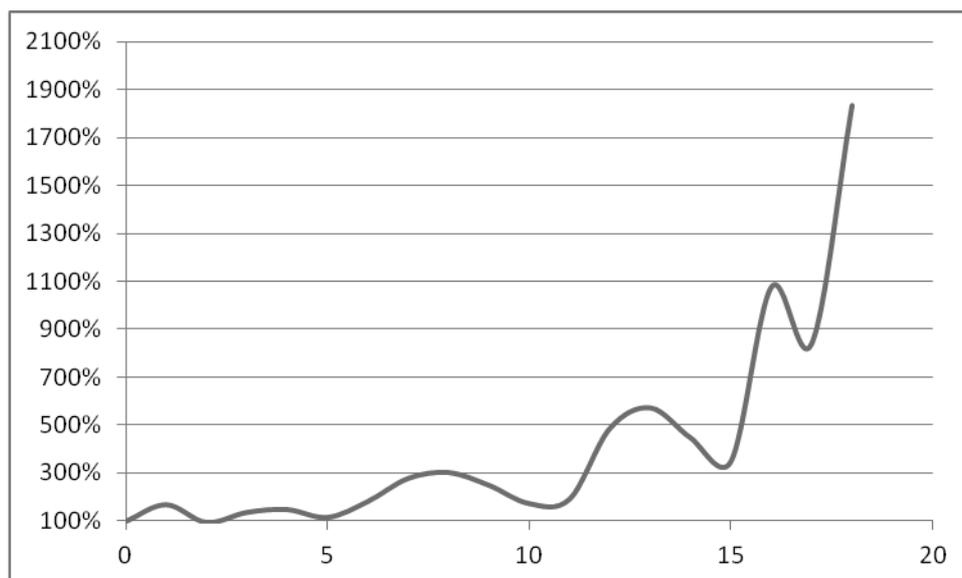


Diagram 8. Relative status of the wealth of an investor applying a martingale strategy during the period from 2004-07-16 to 2005-09-16 after subsequent transactions.

SUMMARY

The Irene Aldridge money management method for a short-term speculation is a successful compromise between aiming at full optimization and maintaining relative simplicity and comprehensibility of calculations. However, it cannot be applied to the most common case, i.e. an investor applying a single investment strategy.

Ralph Vince's method, which consists of maximizing relative growth of the investor's wealth, has a number of beneficial characteristics. Yet it exposes the investor to a significant risk of major decreases of their wealth. Also, this method has its theoretical foundations which have not yet been examined.

The method proposed by Edward Thorpe offers a potential gain which is not higher (and usually is significantly lower) than that derived from Ralph Vince's solution.

The Van Tharp method is capable of fulfilling the investor's expectations. However, it is so general that it cannot be compared to other methods.

With Rayan Jones's method, one can bypass one of the key disadvantages of the simplest money management method, in which an investor with low capital has fewer options of commitment, compared to an investor with significant wealth. Unfortunately, the key components of this method have not been determined precisely, which is a restriction of its applicability.

The martingale strategy involves extremely high risks, which renders it highly useless considering the lack of determination of numerous key issues.

Application of the particular money management methods on the market of Pekao SA shares generated the following profits:

- 1731% for the martingale method;
- 1453% for Vince's method;
- 878% for Thorpe's method;
- 216% to 575% for van Tharp's method (disregarding bankruptcy);
- 52% for Rayan Jones's method.

The examples of practical implementation of the money management methods have demonstrated that with the use of a profitable strategy and a high level of awareness of its distribution, money management can multiply an investor's profits while simultaneously multiplying his risk. Yet the use of the wrong method, or inaccurate determination of goals could lead to bankruptcy of an investor following a strategy with positive expected value.

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Reward Management in Small and Medium Enterprises on The Basis of Alfa I Omega, Głogów, Poland

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Abstract: Since the turn of the century, the number of fluent non-native speakers of English across the world has quickly accelerated. The use of English as a global lingua franca, including its widespread acceptance as the universal language of business, has ascended across multiple social and economic environments. However, in spite of the strengthening union between regular English language use and the world of business, many post-secondary institution graduates are inadequately prepared for the realities of the cross-cultural business transactions they will face in their professional lives. In spite of growing evidence that something is amiss, many business educators maintain oft-used teaching methodologies that can be heavily dependent on practices that include adapted course books or traditional grammar-based themes. This author has found that such methods, by their failure to inculcate *both* the communicative abilities needed for future leaders *and* the high level of language fluency needed for such roles, do not always prepare students to later adapt to a world composed of multicultural complexities. Hence, this work proposes the use of a dynamic method which would better instill both business English and managerial communication skills in students – and one that would allow them to increase their cross-cultural and communicative competence. This method is known as the case study approach. The following work begins with the premise that the approach can effectively help students to acquire a comprehensive range of vocabulary, speaking and understanding skills as they elevate their English language fluency. Then, by outlining the case of a real, functioning business, and describing the challenges and aims of that business, the author will show how the approach can be used as an effective managerial teaching tool in new communication spheres and environments.

Keywords: business English, case study management, cross-cultural competence, internet-based support, employment contracts, reward system, motivational tools

INTRODUCTION

In the context of a growing globalization paradigm and the increasing importance of English as a global language, communication skills in – as well as knowledge of – so-called ‘business English’ and communication management skills is self-evident. A task for instructors of business English and communication in management lecturers is to discover and develop more efficient and effective instructional programs and methodologies.

The acquisition of English as a second language within the framework of managerial communication competence requires on-going analysis and debate. We have concluded that the case study method in an e-learning arena may be one of the most efficient tools for conducting, organizing and managing business English and communication in organizational education. Furthermore, it can lead to the practical acquisition of business English cross-cultural competences and abilities. Cultural, ethnic, racial, social and linguistic diversity are present in most international business dealings. Even in countries where only minor cultural and ethnic differences exist, business English and management teaching as a subject must take into account the interconnected and multicultural world of today.

The case study method, supported by e-learning, can be a very powerful tool for acquiring communication skills in business and in the sphere of the interpersonal. The challenges are multi-dimensional. The instructor must find suitable cases that can assist the student to centralize and solidify previous knowledge and at the same time provide a rich educational, cross-cultural and linguistic component. Additionally, these cases should focus on the student’s acquisition of broad managerial skills, and assist business English college and university instructors in adapting to their new roles as facilitators of learning in a traditional setting that is supported by e-learning. As Sławek Magala of the Rotterdam School of Management has stated, “Managers are paying lip service to cultural issues; they say that culture and communication are important, but do little to improve either.” (Magala, 2007, p. 18). While educating students in business English-competence, management and the social sciences, post-secondary institutions have often failed to effectively address cross-cultural communication issues and challenges.

In this context, this chapter seeks to answer the question of what sort of business English and management communication skills might be required for global intercultural and cross-cultural competence.

Also, the author poses further questions regarding which business communication skills are being taught, acquired and fostered in management and business English courses in colleges and universities where English is taught as a second language, or used for teaching in a non-English-speaking country, such as Poland? What are the best methods to use in teaching students so they can acquire business English and managerial communication skills, thereby adding to increased cross-cultural and communication competence – both personal and professional?

English as a Global Language

According to Carmela Briguglio of the Curtin Business School, Curtin University of Technology, Perth, Australia, while scholars may not agree on the factors that have led to the preeminence of English in commerce internationally, there appears to be no disagreement recognizing the current importance that English holds in the business world (2005, p. 3). According to Phillipson and Skutnabb-Kangas, “There would seem little doubt that English is, increasingly, a global language. Even those who decry this fact acknowledge it.” (Phillipson & Skutnabb-Kangas, 1999, p. 85). Although it is difficult to obtain precise data in this area, Crystal (1997) estimates that nearly one quarter of the world’s population, or between 1.2 and 1.5 billion people, are already fluent or competent in English. Ironically, the number of ‘native speakers’ or ‘first language speakers’ of English may be declining. Furthermore, Crystal (1997) estimates the number of first language speakers of English in some 56 countries to be around 337 million while the number of second language speakers continues to grow (Graddol, 1999).

Is this enough to make English a ‘global’ language? According to Crystal (1997) English not only has a large number of first language (L1) speakers in a number of countries, but it has also been made the official language in a number of others (e.g. Ghana, Nigeria and Singapore) and a priority foreign language in many more. Kachru (in Crystal, 1997) describes the spread of English as three concentric circles. The countries where there are the most L1 speakers of English (e.g. the UK & USA) represent the inner circle; the countries which were formerly colonized and where English is now the official language (e.g. India & Singapore) form the middle circle; and those where English is increasingly being taught as a foreign language (e.g. China, Greece & Poland) are in the expanding outer circle. The growth of English speakers, coupled with economic developments on

a global scale, new communications technologies, the explosion in international marketing and advertising, as well as mass entertainment, have supported the continued expansion of English as a global ‘lingua franca.’ “There has never been a time when so many nations were needing to talk to each other so much. There has never been a time when so many people wished to travel to so many places; never has there been a more urgent need for a global language” (Crystal, 1997, p. 12). Briguglio (2005) adds that, especially in latter part of the 20th century, the breadth of the spread of English around the world was unprecedented and that the spread of English, underpinned by the current economic power of the United States, is accelerating.

The importance of English as a global language is likely to continue to grow in the foreseeable future (Crystal, 1997). In the field of business, arguably, it will grow more rapidly than in other areas. We need to keep in mind that many, if not most, future business interactions in the global arena will take place between English speakers from different national/cultural backgrounds, only some of whom will be L1 speakers of English. In this scenario, ‘native speakers’ will not necessarily be advantaged. Indeed, they might well be disadvantaged, lured into a false sense of security by the belief that “everyone speaks English,” and no extra effort is necessary in order to facilitate intercultural communication. This false sense of security can develop in students and professionals in the expanding outer circle countries such as Poland, including international students studying in Poland, many of whom speak English as a second language.

The Challenge

As stated earlier, our challenge is to better prepare the business graduate with business English communication skills which will enable him or her to successfully negotiate through a web of multicultural complexities. Our goal is to manage business English education and the acquisition of business English managerial competencies to reflect the cultural, racial, social and linguistic diversity present in both globalized trade and in the world economy. The final product is a well-educated business graduate who is not only able to communicate in English, but is well aware of the existing diversity and challenges which he or she will face in the future. In opinion of this author, the present strategies and methods of managing business English education do not provide complete answers to the above dilemma. Today’s methods largely focus on acquiring either ESP (English for specific purposes),

or on independent BET (business English teaching). Additionally, most business English courses focus on developing general communication skills. Our curriculum inheritance is characterized as follows:

- Historically, business English teaching and management methods were mainly adaptations to course books.
- The original assumption which was that the foundation for these courses – that is, the grammar/vocabulary dichotomy – was invalid. This dichotomy produced ineffective and time consuming instruction.
- Grammar as an element was subordinate to lexis (Lewis, 1993).

Peter Daly from the EDHEC Business School (Lille – Nice, France) has also observed case studies available to language learners and teachers. He elaborates on a methodology of how these case studies can be exploited to maximize student-talking time in the language classroom. He has stated, “Not all case studies are the same and with different levels of difficulty and skills trained the choice of case study is tantamount to the success of your class.” (Daly, 2002, p. 1).

As Daly indicates, the most important considerations for case study preparation and teaching are thorough case review and appropriate internet-based support provided to each group, commensurate with their level. The use of e-learning resources supports business, intercultural management, communication and managerial skills acquisition and language skills. According to Daly, “Case studies are extremely rich in content and can provide the learner with the potential to consolidate already acquired knowledge and train specific language and managerial skills. Language teachers inexperienced in the use of the case study method may be inhibited by the content-based nature of the case study and therefore shy away from using case studies in class. This teaching methodology should help teachers plan their classroom to ensure effective execution of a case study”. (Daly, 2002, p. 1).

This author suggests a method which builds on the aims of Daly (who has stressed the principal goal of language acquisition, with secondary attention given to the general business managerial communication skills), by focusing on business communication as a management skill. It accepts that while acquisition is of primary importance, students should be encouraged to develop their fluency in English over their accuracy. With the notion that they can excel in fluency – in spite of possibly lacking in accuracy – while gaining English skills for the business world, students are

supported in gaining knowledge of content directly related to economics and management. It is hoped that students' gains in the mastery of content-based knowledge enhances their integration into the society at-large, giving them added communicative skill both at work and in their extra-curricular social lives. Such a comprehensive approach aims to increase competence in today's intercultural world village.

The author believes that the approach advocated above is a viable alternative to using suitable case studies which are not content-led and do not presuppose an in-depth knowledge of a specific subject matter. In the case of transitioning from a focus on language acquisition to further adaptation of content under challenging circumstances, Crowther-Alwyn has suggested an eclectic approach. "While there are various publications on the market which respond to the language teachers' needs, there are some books that offer simulations with prescribed roles" (Crowther-Alwyn, 1997), while others integrate mini-cases at the end of each chapter dealing with a specific topic such as international marketing or finance (Cotton, Falvey & Kent, 2000; 2001).

Why the case study method?

At this point, the author will address some obstacles that instructors discover in utilizing case study methods. Some of the factors which contribute to instructor "discomfort" are as follows:

- they do not feel confident;
- they have never used cases in the past;
- business English books come with CD's, and tests, and teacher support materials;
- the case study process is too loosely structured to some instructors who are inured to regimentation and predictability of textbooks;
- reaction to each case is unpredictable;
- business English books usually carry reputable names and are recommended;
- case teaching may initially require more intensive preparation;
- e-learning support requires the possession of suitable technology and a good grasp of this technology.

Instructors who are accustomed to a transmission style of teaching may feel that teaching is not really happening if they use simulations or case studies (Daly, 2002). However, the advantages of case studies are numerous. Some of them are set out below, adapted from Daly:

- It is possible to inspire critical thinking and reflective learning in the learner.
- Change within a learning mode is a fresh approach.
- It is possible to train managerial communication skills, such as holding a meeting, negotiating a contract, or giving a presentation. Case studies force students into real-life situations that require them to get involved in managerial communication.
- The research often elevates the students' knowledge of the complexities of the interconnected human environment. The author believes that this makes them better world citizens.
- Case studies foster collaborative learning and team-working skills in the language learner. Extensive research completed by Prof. Magdalena Wyrwicka indicates that the following interpersonal skills are necessary for success in today's business environment:
 - the ability to make contacts and communication;
 - friendliness and cooperation;
 - the ability to adjust;
 - auto-reflection abilities;
 - openness to criticism;
 - the ability to compromise (Wyrwicka, 2001).

Daly adds that improvement of the student's organizational skills can be substantial, as case studies are sometimes very dense in information. The key is to condense this information into logical sections and organize them so that a clear picture of the problem or issue emerges. Case studies can be used to improve the student's written and oral communication. Non-verbal communication skills are also practiced by using case studies, as students working together in close-knit groups learn how to maximize effective, fruitful interaction by increasing respect for each other's cultures, by being flexible and by showing a willingness to negotiate mutually-beneficial results. Pease (1997) reminds us that many of our messages are communicated through body language that has unique features depending on one's cultural background. What's more, there is an element of flexibility to teaching through case studies, in that even an instructor without a business background may be trained to effectively facilitate a group of students who are studying a case.

While teaching with the case study method, it is very important to explain the case to students and, in some cases, read the case with them to explain what is expected. One can never assume that providing a student with an internet link to a case, along with a brief explanation, will suffice. We have often found

that many advanced non-natives or native speakers do not possess adequate business English vocabularies. Native speakers in the business community do need to study business English, as it is a specialized ability and a skill that must be acquired. We can provide the example of a full case study in the area of HR management, with a set of questions and teacher notes that can be utilized in management of the case for the purpose of learning and communication. With this comprehensive approach, it is hoped that HR and managerial competences can be acquired in business colleges and universities across various economics, business and social science programs.

I. ORGANIZATIONAL SETTING

Alfa i Omega (AIO) was established in October 1991 in Głogów, Poland. Głogów is a town in southwestern Poland, in the Lower Silesian Province, with a total population of 67,953 (Central Statistical Office, 2009). Southwestern and southern Poland are both areas with high levels of investment in the steel and mining industries. Many companies from neighbouring Germany, as well as many other international corporations, have opened their production plants in the southwestern and in southern Poland.

AIO's main areas of interest are safety, security and health at work. AIO services a wide range of industries, including: chemical manufacturing, Polish oil and gas companies, electricity companies, coal mines, salt mines, steelworks, glassworks, food processing, general industrial, pharmaceutical, electronics manufacturing.

AIO was founded as a general partnership between two friends, Jan Nowak and Adam Kowalski, and had no other employees at that time. The partnership between two friends lasted for nine years, but in 2000 they made a decided to divide the capital and end their cooperation. The main reason was a conflict of interests. Nowak wanted to expand AIO sales from regional to country-oriented as well as, and had new ideas for gaining new working partners. In October 2000, Adam Kowalski took half of AIO's capital and left the company. Jan Nowak again formed a partnership, this time with his wife Anna Nowak. The partnership between Anna and Jan Nowak set new standards for AIO. As managers, they put pressure on AIO to improve performance and quality of products and services the company has been delivering. AIO invested in new company's facilities, employed more workers, made its own brand and invested in company's marketing.

Since AIO's inception, the company has been cooperating with many well-known manufacturers and importers mainly from Germany. Among AIO's main suppliers are German companies, such as AS- Arbeitsschutz, Carl Wilden GmbH, Kachele-Cama-Latex, Peter Greven GmbH, and Polish Mps. AIO is an exclusive representative of three companies for the Polish market.

AIO is a fast-developing company, as protection of individual workers has become an important requirement in Polish industries. AIO is presently recognized as one of the largest companies in Poland selling safety, security and health-at-work products. The company also specializes in: providing safety, security and health in the workplace, providing safety solutions to help manufacturers across a wide range of industries to reduce workers' injuries, choosing proper gloves for chemical applications, and offering comprehensive business solutions to assist manufacturers in achieving their cost reduction.

The quality and efficiency of AIO's management system is proved and documented by the certificate ISO 9001:2008.

2. HISTORICAL BACKGROUND OF THE CASE

The Republic of Poland is a country in Central Europe. Poland shares borders with Germany to the west; the Czech Republic and Slovakia are to the south; Ukraine, Belarus and Lithuania are to the east; and the Baltic Sea and Kaliningrad Oblast, a Russian enclave, are to the north. Poland is a member of the European Union, NATO, the United Nations, the World Trade Organization, and the Organization for Economic Cooperation and Development.

Poland's economic history exemplifies a transition from a centrally-planned economy to a primarily capitalistic market economy. These changes have occurred since the fall of the communist government. The development of the private sector has been possible since liberal law on establishing new firms was introduced. Restructuring and privatization of coal, steel, rail transport and energy sectors has been ongoing since 1990. Although privatization of such sectors meets a very strong public criticism, nowadays Poland is struggling to fulfill all structural reforms to be able to enter into the European Single Currency (Euro). Joining the EU was extremely significant for Polish citizens. The work of importers and exporters, especially, became much easier. They no longer had to

wait in queues in customs before sending or receiving their commodities. The times of paying import duties in order to import products from European Union countries have ended.

3. POLISH LABOUR LAW SUMMARIZED

Polish labour law is determined in the Labour Code, as well as in other laws such as: collective labour agreements, a company's labour regulations, its regulations related to remuneration, international law, including the World Labour Organization's conventions and recommendations as well as international agreements (Polish Ministry of Economic Affairs and Labour, 2015).

The Labour Code mostly contains regulations connected with contract of employment, including: entering into a contract, its termination, expiry, remuneration, hours of work and vacations. Work regulation defines the rights and duties of employers and employees connected with order in the place of work, mainly:

1. Organization of work, conditions of workers' presence in an office's territory during and after working hours, providing employees with tools and materials, as well as with working clothes and shoes, individual protection and personal hygiene concerns.
2. System and schedule of working hours and additional vacation: working hours equal to 8 hours each day; working hours should be scheduled in a way that provides employees with 39 additional vacation days a year.
3. Night-time work as well as on Sundays and holidays; night-time work includes any 8 hours occurring between 9 p.m. and 7 a.m. Night-time can be no longer and no shorter than 8 hours. Salary per 1 hour during night - time should be 20% higher than lowest salary per 1 hour. Pregnant women, women who have children who are younger than one year, and those who are under-age (below 18 years old) are forbidden to work at night.
4. Sundays and holidays: working on Sunday or on a holiday is defined as working between 6 a.m. on the holiday and 6 a.m. on the next day, unless the employer has defined different hours. The Labour Code defines in detail when this kind of work is permitted. Employees working on Sunday are entitled to a day off during the work week.
5. Overtime work: overtime work means work over working-time standards, defined according to the

Labour Code regulations. This kind of work is admissible only if rescue action is necessary or in the case of special employer's needs - in this case, an employee cannot work overtime more than 4 hours each day and 150 hours each year.

Under-age, pregnant women and others, if the detailed regulations state so, are completely prohibited to work overtime. Relative prohibition concerns women caring for their children under four years old. For overtime work each employee is entitled to 50% of his salary during the first two hours and 100% of his salary during the remaining hours.

4. TOTAL AVERAGE MONTHLY GROSS WAGES AND SALARIES IN POLISH ZLOTY- POLISH NATIONAL CURRENCY (PLN) AND USD-\$

The average gross monthly salary provided by Central Statistical Office was 3783.46 PLN in 2014, which is equal to 1019.00 USD*. According to the Central Statistics Office, in the first half of 2015, overall average monthly gross wages and salaries across the national economy amounted to 3953.72 PLN (1064.86 USD), an increase of 3.6% on the previous year.

In the public sector, average wages amounted to 4481.42 PLN (1206.98 USD) (an increase of 2.5% as compared to the same period during the previous year). In the private sector, average wages amounted to 3721.11 PLN (1002.21 USD). The buying power of the average monthly gross wages and salaries across the national economy was 5.0% higher than last year. This increase was higher than the increase observed between 2013 and 2014 (the preceding year-on-year increase was 3.5%). Compared to the first half of 2014, an increase in wages and salaries was observed in all sectors; the highest growth was observed in the following sectors: administrative and support service activities (a growth of 5.7%), information and communication (5.5%), financial and insurance activities (4.9%), professional, scientific and technical activities (4.7%), construction (4.6%), accommodation and catering (4.5%), trade, repair of motor vehicles (4.3%). The lowest growth in wages and salaries were observed in mining and quarrying (it grew by 0.4%), transportation and storage (1.3%), and in public administration and defense. Compulsory social security grew by 2.5% (Central Statistical Office, 2015).

*Amount in USD was calculated based on the exchange rate from Oct 14, 2015; average exchange rate provided by National Bank of Poland, 2015.

The registered unemployment rate for Poland is 8.3%, as of December, 2016 (Central Statistical Office, 2016).

5. TYPES OF EMPLOYMENT CONTRACTS IN POLAND

All Polish citizens have the same rights to medical care, old-age and disability pension, and also to family and sickness benefits. Everyone who would like to benefit from the social security schemes has to adhere to compulsory compliance with regulations, as well as with country legislation. The authority of social services is administered by the Ministry of Labour and Social Policy. The health insurance benefits competent authority is the Ministry of Health.

For the worker to be insured, one's employer has to pay insurance contributions which are assessed on the basis of each employee's salary. There are two types of insurance available in Poland, social insurance and health insurance. For a Pole signing a contract of employment with a Polish or foreign employer operating in Poland, this means that the employer is obliged to transfer the contribution in an amount assessed on the basis of employee's salary pursuant to the regulations in effect. In case of self-employment, people may contribute to various insurance types.

It is important to mention that, according to rulings by the European Court of Justice, an employed person is anyone who provides work for some period of time while under the direction of another person in return for remuneration. In the case of Poland, the Ministry of Labour and Social Policy clarifies who is recognized as employed, self-employed and non-employed.

Every employee is subject to social and health insurance legislation. According to the place of work principle, if one is employed or self-employed in Poland, he or she is subject to the Polish social security compulsory legislation.

A contract of employment implies an economic dependence and subordinate relationship between the employer and employee (the worker). It is a contract in which an employee is binding him or herself to provide services (work) under the employer's guidance, at a time and place specified by an employer. An employer binds him or herself to pay a bilaterally agreed-upon amount for the employees' work and covers state health and social security payments.

The most common types of contracts of employment are: permanent or ongoing contracts, contracts for specific periods of time, contracts for specific work

and contracts of mandate (a contract for specific work). In 2015, which is an election year in Poland, various parties propose sweeping changes to the labour law. They claim it will be easier for all parties to enter into work agreements clarifying rules on social security, health insurance premiums and total tax due on various types of employment contracts.

A permanent contract is the most favourable type of contract for an employee. An employee feels secure, and it gives him or her stabilization of employment. Moreover, it is also beneficial for the employer, as one has an opportunity to build a good and long-lasting relationship with employees. On the other hand, it is also least preferred by employers due to maximum taxation and compulsory social and health benefits premiums that must be paid by employers on the employee's behalf, on the top of the agreed-upon salary. In fact many owners of small to medium enterprises see this responsibility as an extra tax paid by the employer. The burden of this legislation is putting many small enterprises out of business, and some are forced to use various contracts not covered under state employment law to stay in business, at the same time risking that their employees are not properly insured regarding social security and health insurance. Many new small and some medium enterprises resort to hiring new workers based on small business to small business relationships to avoid compliance with strict employment law and associate codes. This forces new entrants and the unemployed who are seeking work to start their own small firms in order to find even part-time work.

A contract of employment for a specific period of time is one of the most popular contracts of employment in Poland nowadays. An employer and an employee draw a contract for a specific time (one year, two years, ten years, etc.). An expiration date can be stated two-fold, either by giving a specific date (e.g. "the 15th February, 2017") or by giving the name of the event (e.g. the end of summer holidays in Polish schools). The contract expiry date has to be stated in the contract. Under contract for specific work, the contractor (worker) carries out a specific work.

A contract of mandate (a contract for specific work), is a contract under which a contractor (employee) undertakes to perform a specified task for the owner. Art. 734 of the Legal Act specifies that by the contract of mandate the contractor undertakes to perform a specific legal transaction for the principal. It may seem that there is not much difference between these two contracts; however, the contract for specific work/called in Polish "umowa o dzieło" is much more favourable for employers, as health and social

insurance premiums are the employee's responsibility. Many times, these are not paid at all, or they are avoided. It may, however, negatively influence the employer-employee long term relationship, as most employees are still looking for permanent contracts in which employers pay for all social and health insurance costs and ensure those benefits include additional benefits, such as membership in health clubs, tickets to events and extra bonuses available only to permanent employees. A contract for specific work can be drawn when a work or service performed is tangible. To be recognized as tangible work under Polish law, the following can be classified: painting, writing a book, building a fireplace, translating a catalogue or something similar to these activities. Many employers use a flexible definition of tangible assignment. For example, giving university lectures, counseling students and providing service jobs such as customer service and secretarial jobs qualify to be included under contract for specific work or task. The State Work Agency for Inspection of Labour Law may, after investigation of such contract, force an employer to convert the contract for specific work to one of full employment, with all social security and health premiums that need to be paid retrospectively from the contract's inception.

Under a properly constructed and executed contract of specific work, in practice no health or social insurance payments are required. The employee has to pay only an income tax, which lowers employment costs for the employer. The contract of mandate is not employee-oriented, as it leaves employees without any health and social benefits. It may be used in some circumstances allowed under labour and civil code laws, but not as a primary employment contract specifying employer-employee relations.

According to the Ministry of Labour and Social Policy /<http://www.mpips.gov.pl/en/working-conditions/>, basic rights and obligations of the employee are provided for in the Act of 26 June 1974 – Labor Code (Journal of Laws of 1998, No 21, item 94, as amended), mainly in Section 10, entitled “Occupational Safety and Health.” The key obligation of the employee is to comply with the rules and principles of occupational safety and health (OSH). Pursuant to Article 211 of the Labour Code, the employee is particularly obligated to:

- know the rules and principles of OSH, participate in the relevant training and instruction, and take required examinations,
- perform his or her work in compliance with the principles and standards of OSH as well as comply

with all instructions and guidelines given by superiors in this respect,

- ensure the proper condition of machinery, equipment, tools and devices as well as the order and cleanliness of the workstation,
- use collective protection measures, as well as the assigned personal protection measures, clothing and working footwear in accordance with their intended use,
- undergo initial, periodical, control as well as other recommended health assessment and comply with all medical guidelines,
- immediately notify the superior of any accident or hazard to human life or health occurring at work, as well as warn colleagues and other persons present in the danger zone about the hazard,
- cooperate with the employer and superiors in complying with the OSH obligations.

6. BASIC INFORMATION ON OCCUPATIONAL SAFETY AND HEALTH FOR EMPLOYERS

Basic obligations of the employer are provided for in the Act of 26th of June, 1974 – Labour Code (Journal of Laws of 1998, No 21, item 94, as amended), mainly in its SECTION TEN, “Occupational safety and health”. Pursuant to Article 207 § 1, the employer, who is responsible for the status of occupational safety and health (OSH) at the establishment, is obligated to protect the employees' life and health by ensuring safe and healthy working conditions for them, making appropriate use of the progress in science and technology. Under § 2 and 3 of the said article, the employer is in particular obligated to:

- organize work in a manner that ensures safe and healthy working conditions,
- ensure compliance at the establishment with OSH rules and principles, give instructions to remedy any failures in this respect, as well as check whether such instructions are complied with,
- ensure the development of coherent policy to prevent accidents at work and occupational diseases, taking account of technical issues, work organization, social relationships and the impact of the working environment agents;
- consider the protection of health of young people, pregnant or breastfeeding female employees and disabled employees within the undertaken preventive actions;
- ensure compliance with orders, statements/submis-

- sions, decisions and instructions issued by the entities supervising working conditions;
- ensure compliance with the recommendations of the social labor inspector, and
 - be acquainted, so far as to be able to comply with the relevant obligations, with the regulations on labour protection, including OSH rules and principles.
 - Detailed obligations of employers, with respect to occupational safety and health, include, among others:
 - assess and document occupational risk resulting from the work performed, and apply the required preventative measures that reduce the risk, as well as advise employees of the occupational risk related to the work performed; this includes following the rules of protection against occurring hazards. (Art. 226 of LC),
 - undertake, at his or her own expense, tests and measurements of agents that are harmful to one's health, keep the results of such tests and measurements and make them available to the employees (Art. 227 § 1 section 2 of LC),
 - undertake initial, periodical and controlled health assessments for the newly-employed and already-employed workers (Art. 229 § 1 – 3 of LC) and comply with the prohibition of employing a person without a valid medical certificate stating no counter indications to render work at a given workstation (Art. 229 § 4 of LC),
 - provide the employees employed in particularly onerous conditions with free-of-charge, appropriate food and drinks, in-so-far as is required for prevention (Art. 232 of LC),
 - systematically analyze the reasons for accidents at work, occupational diseases and other diseases related to working conditions, and apply the appropriate preventative measures in line with the results of such analysis (Art. 236 of LC),
 - ensure training for employees with respect to occupational safety and health, prior to their commencement of work and holding periodical training sessions in this respect (Art. 2373 § 2 of LC),
 - undergo training in occupational safety and health that is required to fulfill the obligations of the employer in this respect; the training should be held periodically (Art. 2373 § 21 of LC),
 - provide the employees free of charge with personal protection measures, protecting them against hazardous and harmful agents present in the working environment and give them instructions for use of such measures effectively (Art. 2376 § 1 of LC),
 - provide the employees free of charge with working clothing and footwear that meet the requirements specified in the Polish regulations of the employee's own clothing could be destroyed or soiled considerably, consistent with the relevant technological, sanitary or OSH requirements (Art. 2377 § 1 of LC),
 - in a case when more than 100 employees are employed, the employer is required to establish a service for occupational safety and health, to perform advisory and control functions, and in cases where less than 100 employees are employed, a person with other working duties or, in case there are no competent employees at the establishment, a specialist from outside the establishment should be tasked with duties to be performed by the OSH service. The employer who completed the training necessary to perform safety and health service tasks may carry out these tasks on his or her own if he or she (1) employs up to 10 employees, or (2) employs up to 20 employees and is classified into a business activity group where the risk category, within the meaning of regulations on social insurance for accidents at work and occupational diseases, is defined as level three or lower (Art. 23711 § 1 and § 2 of LC),
 - consult with employees or their representatives about all measures related to occupational safety and health (Art. 23711a § 1 of LC),
 - in cases when more than 250 employees are employed, the employer must establish an occupational safety and health committee, to act as an advisory and opinion-making body to the employer (Art. 23712 and 23713 of LC); consultations as regards OSH may take place within this committee (Art. 23711a § 5 of LC),
 - comply with the prohibition to employ women for particularly onerous jobs or jobs that are harmful to their health (Art. 176 of LC) and prohibition to employ minors for jobs they are not allowed to take up (Art. 204 § 1 of LC).

The obligations of the employer as with regard to occupational safety and health are also provided in the executive (secondary) regulations issued on the basis of authorizations given by the Labour Code (Ministry of Labour, 2015).

7. THE STRUCTURE OF ALFA I OMEGA (A DETAILED DESCRIPTION)

At present, AIO employs twenty-two workers. Additionally, it is outsourcing some work to external companies. Sixteen full-time employees work at AIO's headquarters in Głogów. Six external sales representatives work in their own areas, with flexible working hours. The majority of employees live close to the company's headquarters in Głogów, except external sale managers. AIO has its external sale representatives in the areas of: Katowice, Rzeszów, Wrocław, Poznań, Warszawa and Gdańsk. Over the years, AIO's owners have built friendly relationships with all employees. The owners and employees refer to each other by their first names, which is very unusual for Polish companies. AIO is recognized locally. The owners have good relations with local community, as AIO supports local schools, charities and sport events.

The structure of the company may be divided into five departments: administrative, accountancy, IT, sales, warehousing plus drivers and two caretakers (cleaning staff). Additionally, AIO employs extra workers for short periods of time when company is facing a large amount of additional work. The owners of AIO both have equal power within the company. However, to make the work easier they have divided the work. Anna Nowak is mainly responsible for sales – therefore the sales department, warehouse and drivers are assigned to her. Anna supervises imports and sales of goods. She takes part in important sales meetings and is responsible for contact with the most important clients. Jan Nowak is in charge of AIO's financial condition and is responsible for some of the human resource (HR) functions. His work is dedicated to finance and marketing – therefore accountants, ad-

ministrative workers and IT workers report to him. As far as HRM is concerned, Jan does job descriptions, primary selection for new employees, contracts, pay and benefits. There is no HRM department. The functions of HR are performed by the two owners. They both take part in job interviews, counselling, and they make decisions concerning motivation and training and development. (Figure 1)

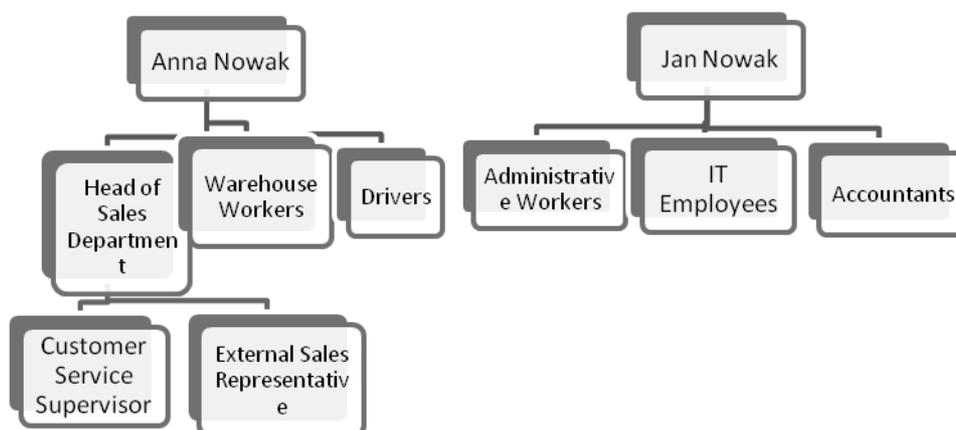
Relations between Importing and Selling:

AIO has two sales departments, internal and external. The head of the sales department is also responsible for ordering goods from Germany. The employee doing this job at AIO is woman and is in her early thirties. She is bilingual (Polish - German). The process of importing goods proceeds through several stages. Once the amount of needed goods is established, they are ordered, by an AIO employee, from a German business partner. Afterwards transport is organized to ship goods from Germany to Poland. Usually goods are transported by freight-forwarding companies. Lastly, products are checked within AIO headquarters by warehouse workers and shipped to AIO's customers in Poland.

Problems Faced:

As AIO was expanding its offer by acquiring new business partners, as well as opening its offer to new areas of Poland, two problems have been identified by AIO's owners and employees. First, it was noticed that there was an insufficient and uncompetitive reward system. Second, it became clear that it would be necessary to choose an appropriate type of contract which would be profitable, motivational and fair for AIO and its employees.

Figure 1. AIO's organizational structure



Reward Management in AIO

The reward system in AIO used to be very simple and not employee-orientated. Such a reward system was very popular in Poland for many years, and is still found among many companies. A salary was seen as a tool for rewarding employees for performed work. There were no motivational factors. Most employees were treated equally, and worked the same number of hours. Warehouse workers earned a little bit less than office workers. There was not much distinction between an accountant and a customer service worker. At some point AIO started to expand more and more. It hired new employees, internal and external sale representatives. Giving a similar amount of money to everyone was seen as no longer a fair practice.

The sales department had a specific reward system. Sales groups as a whole were given a base salary plus a percentage (approximately 5%) of AIO's total net sales attained during each month. Sale representatives were not getting many sales, because they knew that even if they did not sell much, their colleague probably would sell something, meaning that they would still get a reward at the end of month. Moreover, after hiring two sales representatives the amount of sales did not increase. Sales representatives did not work efficiently. This situation caused communication problems and conflicts among sales department employees. The owners were amazed that after AIO hired new employees, the company's sales still were at the same point and the sales representatives were in conflict. This was the point at which the owners decided to change the whole reward system within AIO. Hence, in 2006, the reward system underwent an enormous transformation.

Presently, the reward system is one of the most basic tools for managing employee motivation at AIO. The heads of AIO have found that rewards that are given for performance have a big impact on motivation and on the actual performance of AIO's employees. The owners share Griffin's (2008) view about motivation and rewards – that rewards are related to motivation and to performance. As an organization, AIO wants employees to perform at relatively high levels, and must make it worth their effort to do so.

The Reward System for the Administrative Department Employees:

There are two employees in the administrative department. One speaks fluent German, the other fluent English. Administrative employees are rewarded with base gross salary of 4000 PLN (1036 USD) *

The Reward system for the Accountancy Department Employees:

There are two employees in this department. Both employees get base gross salary of 4000 PLN (1036 USD) *

The Reward System in the IT Department:

Each employee in the IT department has a base salary, although they have opportunities for extra rewards. Employees are given rewards based on their performance. IT employee may receive additional rewards by sharing and implementing his or her new ideas that are related to AIO's performance. It may be something such as the new design of the website or new ideas for increasing sales through the internet. This reward is usually determined by the individual's performance and overall contributions to the organization. The base gross salary equals 3500 PLN (906.85 USD). *

The Reward System in the AIO's Sales Department:

Internal Sales Department: There are three employees in the internal sales department. They also work within AIO's working hours and in its headquarters. They are responsible for contact with external sales representatives, contact with current clients, searching for new clients, monitoring the number of commodities, and making sales and ordering plans. Internal sales department employees receive a base salary and percentage (from 5 to 15%) of the total personal net sales as a bonus attained in each month. The internal sales department base salary is higher than those in the outer department, as they have more responsibilities. The base gross salary equals 5000 PLN (1295.50USD). *

External Sales Department: AIO employs six external sales representatives. Each has been given an area in Poland within which he or she works. Their working hours are flexible. They are required to work eight hours per day and are granted one day a week when they stay at their homes doing administrative work. They are not required to come to company's headquarters that day. Each external sales representative receives a car, a laptop and a mobile phone. They are responsible mostly for current sales, searching for new clients, as well as for the care and management of present customers. The reward system of these employees is a bit more complex. First of all, they receive a base salary plus sales commissions. Because their productivity can be easily and objectively measured, they receive a percentage (from 5 to 15%) of their total net sales of every month. The base gross salary equals 3500 PLN (906.85 USD). *

The Reward System for Warehouse Employees:

There are three warehouse workers employed by AIO. They are responsible for receiving and shipping commodities, preparing commodities for drivers and keeping orders in the warehouse. All three receive a base salary. In case there is a shipping order that needs to be prepared – for example a large order preparation – employees receive performance-based rewards. The base gross salary equals 3500 PLN (906.85 USD). *

The Reward System for Drivers:

There are two drivers working for AIO. Generally, drivers work also within AIO's working hours but there are a few days in a month when they have to start work at 6 a.m. Each day they are in AIO's headquarters and are responsible for delivering AIO's commodities to customers in area of Głogów. Once a week, one of them must go to Germany to pick up commodities from one of AIO's partners. During that time, according to Polish labor law, one is given an expense account. In cases where there are no deliveries, drivers are responsible to help in the warehouse. Drivers are also paid a base salary plus performance-based rewards. The base salary equals 3500 PLN (906.85 USD). *

Contracts between AIO and its Employees:

When AIO hires new employees, each is given a trial period contract for three months. Up until 2006, each employee, after a three-month trial contract, was given a contract of permanent employment. Employees were sure of their position permanence within AIO; their motivation was decreasing significantly. Since AIO decided to expand to new areas of Poland, the owners of the company started to search for new methods of employing workers (various contracts with different levels of basic and extended benefits and employment security to motivate them more efficiently). Currently the structure of employment is characterized by the following:

- As a new employee is being employed, he/she has a three-month trial contract.
- This three-month period is a time for the employer to decide whether the person chosen is appropriate for this position. It is also a time for the employee to decide whether it is an appropriate job for him or her, and to see how he or she feels in AIO's working environment.
- Within this period, AIO covers its employees' social and health insurance costs.

- If the employer is satisfied with employee's performance after this three-month period, the employee is offered a temporary contract for a specified period of time.
- Two-year temporary contract:
- If an employee is doing his or her best during the two-year period, he or she will be promoted with a permanent employment contract after two years. The two-year period is a time for the employee to show his or her ongoing motivation towards work and their ability to produce measurable effects of their labour. Within this period, AIO cover its employees' social and health insurance.
- A permanent employment contract is given to those who have been working hard, meeting and exceeding all work-related requirements, for the last two years. As mentioned above, the permanent contract is very profitable for the employee. Within this period AIO cover its employees' social and health insurance.

Contracts for seasonal workers:

AIO uses two types of contracts for seasonal workers:

- A contract for specific work agreement, to carry specific tasks with social and health insurance premiums covered by employer, usually without an extended benefits package. Contracts for specific work are assigned within AIO for the following jobs: hosting events during international fairs and seasonal jobs for students during holidays.
- A contract of mandate is given when the outcome of the casual employee's performance is tangible, e.g. the translation of products catalogue, building a new warehouse, etc.

*Amount in USD was calculated based on the exchange rate from 31st of October, 2015; 1\$ = 3.86 PLN

Summary of Rewards System:

AIO uses three types of rewards: base salary, performance-based rewards and nonmonetary rewards. Base salary is a gross income that an individual is paid each month, regardless of their performance. A performance-based reward is given to employees on the basis of the value of their contributions to the company's performance. Employees who make greater contributions are given higher pay than those who make lesser contributions. Rather than increasing the person's base salary at the end of the year, an individual instead receives five to 15% of their net sales in con-

junction with demonstrated performance during that performance period (at the beginning of each month). This kind of reward system is very likely to be used when performance can be objectively assessed in terms of number of units of output or similar measures, rather than via a subjective assessment by a superior. Nonmonetary rewards are also other ways by which AIO's employees are rewarded for their performance.

- Prior to Easter and Christmas, AIO uses monetary and nonmonetary rewards for each of their employees. All employees receive equal nonmonetary rewards but monetary rewards are based on individual employee's performance during the year. These are given to employees during formal Easter and Christmas dinners when all employees are present.
- For those who show outstanding performance AIO's has a special training available. Training is held by external training companies or by AIO's German partners.
- In case an outstanding performance is required from the whole company, AIO can count on its employees. Sometimes situations require an extra job performance effort which has to be done as quickly as possible. Therefore, everyone in the headquarters has to work together very hard to achieve this goal. After good cooperation and achieving a desired goal, employees always get a reward, as this will motivate them for future job assignments.

Monetary and nonmonetary rewards increase employees' motivation to work. Furthermore, AIO's head management has found another way to motivate their employees. They enable their workers to set their own goals, make decisions, and solve problems with their responsibility. This strategy applies mainly to the administrative and sales departments. What's more, AIO owners wanted to increase motivation of IT and accountancy workers, Therefore, they give them the possibility to make decisions on their own.

AIO's owners are aware of the fact that motivation is important at work, although they also know how important communication in an organization is. Once each month, AIO organizes whole company meetings. These meetings usually begin with a short training session for employees. During the afternoon, there is a dinner in a restaurant. If possible, AIO's partners from Germany attend these meetings. As AIO's employees underline, it is much easier and enjoyable for them to work with people they know in person, rather than working with people known only via e-mails or telephone conversations.

QUESTIONS RELATED TO THE CASE STUDY

1. Identify reward systems in "Alfa and Omega". Is the reward system used by AIO an efficient and effective way of motivating employees work according to their job requirements?
2. What motivational tools are used by AIO owners? Would you consider them as effective in a small to medium enterprise in your country?
 - Would you recommend any changes to AIO's owners?
3. Role play exercise:

A focus group has been set up to consider issues of hiring new employees and signing contracts with them. The goal of the group is to create a list of evaluation criteria for job positions and to choose appropriate types of contracts of employment for each job position.

The group should hire 5 new employees:

 - a customer service supervisor,
 - a translator of a new catalogue from German to Polish,
 - an external sale representative,
 - a part-time worker to help in a warehouse,
 - a translator and an interpreter for a five-day international exhibition in Milan, Italy
4. Questions for class discussion:
 - Why is it important to motivate employees? How should employers motivate their employees?
 - Unlike in the old reward system, the new strategies implemented in the AIO include quantitative and qualitative components. In what ways do the implemented strategies encourage employees' motivation towards work and team work?
 - Consider what effect would the introduction of the Euro as a currency in Poland in the future on the AIO's imports from Germany.
 - Consider and discuss similarities and differences in providing employment contracts and motivation systems in similar types of companies between Poland and your country.

TEACHER'S NOTES

1. Reward system implemented in AIO
 - Base salary
 - Merit reward system
 - Incentive reward system

AIO uses a combination of base minimum salary with additional commission as an incentive

2. Motivation strategies used in AIO:

- Empowerment
- Participation
- Reward system

CONCLUSIONS AND RECOMMENDATIONS

During the writing of this article we often confronted our own notions of what is really important for our students. It is a phenomenon that is central to the professional existence of this author. It is his conclusion that the most valuable skill that may be acquired from thorough examination of case studies is the ability to deal with the unknown. This is a crucial skill for a future manager, engineer, business graduate economist or social scientist. The current era is punctuated by accelerating change, and the unknown is ubiquitous. In our own way, it is hoped that the concepts hereby outlined, as well as the methodologies advanced as a result of this research, provide bridges over which those who come after us will travel.

It is worth noting that future research could be beneficial in the area of the interplay of social media and e-learning, while utilizing the case study as a managerial teaching tool in new communication spheres and environments.

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