An adjusted Lintner-model for The Netherlands

Dorsman, A.B.; van Montfort, C.A.G.M.; Vink, I.

1999

faculteit der Economische Wetenschappen en Econometrie

SERIE RESEARCH MEMORANDA

An adjusted Lintner-model for The Netherlands

A.B. Dorsman
K. van Montfort
J. Vink

Research Memorandum 1999-20

vrije Universiteit amsterdam

An adjusted Lintner-model for The Netherlands

A.B Dorsman. K van Montfort and I. Vink [1]

Abstract

The informative value given by the announcement of distribution of dividend has already been investigated. One of the leading studies on this matter is Lintner (1956). Lintner found a relation between mutation in dividend, profits in the current financial year and the dividend in the last financial year. This dividend-model is known as the Lintner-model. When the mutation in the dividend differs from what was to be expected by this dividend-model, Lintner finds this to have informative value regarding the amount of profit in the future.

In 197 1 I/B/E/S International started a financial data-file, The Institutional Brokers Estimate System (I/B/E/S). This data-file contains the expectations of the analysts regarding profit. Since 1989 I/B/E/S is collecting this data also for Dutch firms. In this article an extra variable is added to the Lintner-model, namely the expectations collected by I/B/E/S mentioned above. The purpose of this article is to find out if there is still informative value regarding the amount of profit in the future when the mutation in the dividend differs from what was to be expected by this adjusted Lintner-model.

I. Introduction

Since Jensen & Meckling (1976) used the agency theory on the relation between management and stockholder, a lot of research has been done regarding this matter. The agency theory views the relation between two sides. These two sides will

[1] A.B. Dorsman is a professor in economics at the University Nyenrode. senior researcher at Palladyne asset management and also connected to the Free University of Amsterdam.
K. Van Montfort is associate professor in econometrics at the Free University of Amsterdam.
I. Vink is currently Risk Manager with EDU Traders in Amsterdam.

be described as the principal and the agent. The agent makes decisions regarding the interests of the principal. The agent receives compensation from the principal for his activities. This compensation does not only depend on the effort made by the agent, but also on the result of his activities. The principal would like to know about the effort made by the agent, but it is difficult for the principal to get insight on this information. One assumes there is information-asymmetry between management and stockholder, This asymmetry will probably not be restricted to the information concerning the amount of effort made by the agent, but will also be applicable on other issues like the expected amount of profit in the future.

Because of the different interests and the information-asymmetry between management and stockholders, problems rise on both sides. The problem management has is how to convince the outside world that the firm his healthy and has good expectations for the future. The stockholders also have a problem in obtaining reliable information concerning the firm. Because management will always say everything is well, regardless of the real situation. Akerlof (1970) described a similar situation on the market for used cars. The author shows that on markets with information-asymmetry between the participants its is important to give guarantees, even if only verbal.

The managers of healthy firms need a way of telling it is going well. To give their signal more credibility they have to do this in a way that managers of less healthy firms can't follow. One way of achieving this, is with dividend. Assuming managers are reluctant to lowering dividends in the future, a bigger increase in dividends than was to be expected is quite a strong signal. This shows that management is truly convinced the high level of dividends can be maintained in the future, which must mean the expectations for the future are good. Managers whose expectations for the future are not so good will not increase their dividends in the same way. For them this would increase the probability of having to decrease the dividends in the future to an unacceptable level, and this is a situation they would want to avoid. From this it can be concluded that a bigger increase in dividends than was to be expected, contains information regarding the future profits of the firm.

In this article it will be investigated if an adjusted Lintner-model gives a better description of dividend policy in The Netherlands, in comparison with the usual

Lintner-model. Also, we will try to find extra information regarding the future profit using the adjusted Lintner-model.

The structure of this article will be as follows. In paragraph 2 there will be given a description of the data that is used. Also in this paragraph there will be an inquiry to whether the dividend in The Netherlands has a tendency to stabilise. If so, this would mean that a deviation from this strategy would contain information. In paragraph 3 there is a description of the Lintner-model. This model has been developed in the fifties, Since then the stockholders have a lot more information at their disposal, like the data I/B/E/S is collecting regarding the profit expectations for Dutch firms. This gives rise to the adjusted Lintner-model presented in paragraph 4. In paragraph 5 the summary and conclusions of our findings will be presented.

2. *Data and Dividend stabilisation*

Data

The data used relates to the period 1986-1996. Two data-files have been used. The profit expectations have been acquired from the I/B/E/S-data-file. The profit and dividend data come from the data-file of ING Barings Research and have been adjusted for stocksplitting and issues of stock. The companies incorporated in this inquiry appear in both data-files and are mentioned in appendix A.

In The Netherlands one does not only receive cash dividends, but also stockdividends. Stockdividends are dividends that are paid with stocks and are nothing more than a mutation of the amount of stocks in the bookkeeping. There is no cash flow between the company and stockholder like it is the case with cash dividends. In The Netherlands private persons are charged with incometaxes over the amount of cashdividend they receive. With stockdividends, provided they come from the fiscal free agioreserves, there are no such taxes. Hence private persons prefer stockdividends to cashdividends because of fiscal reasons. This preference is not the case when certain financial institutions are concerned who do not have to pay income taxes over the cashdividend received, like for example a pension fund.

The payment of dividends from agioreserves means that benefits from the fiscal advantage it provides are 'wasted' on certain financial institutions, like pension funds, which did not have to pay income-tax in the first place. That is why in The Netherlands, stockholders usually have a choice in the type of dividend they receive. This is called choisedividend and it means the stockholders can chose between cash and stockdividend. In general the value of the cashdividend from which one can chose is a bit higher than that of the stockdividend (tax effects not taking into account). This has the consequence that pension funds will choose for the cash dividends, while the private investors who do have to pay incometaxes over the cash dividends will choose for the stockdividends. Because these effects are not equal for every investor, and to be independent of the different tax measures, in this study only the position of the pension funds will be taken into account.

Dividend stabilisation

Miller & Modigliani (1961) claimed that dividend policy is irrelevant to the value of the organisation. Hence, from the amount of dividend one does not get extra information concerning the future of the organisation. Miller & Modigliani worked with the following assumptions:

1. Perfect financial markets.
2. Rational dealing of the investors.
3. Complete knowledge.

But, for real financial markets these assumptions do not hold. There is information-asymmetry between management and stockholders, which is contradictory to assumption (1). Also if the claims made by Miller & Modigliani were true, there would be no apparent reason for the amount of dividend relative to profit to be constant, This is because dividend would be irrelevant in the decision-making of management.

In Dorsman (1988) a variable is mentioned named stabilisation factor. This variable is defined as follows:

When there is a positive profit in year t-l and year t:

$$DS_{i,t} = Dr_{i,t} / Wr_{i,t} \qquad (1)$$

with,

$DS_{i,t}$ = The stabilisation factor of fund i for year t.

$Dr_{i,t}$ = The relative mutation in dividend of fund i from year t-l to year t.

$Wr_{i,t}$ = The relative mutation in profit of fund i from year t-l to year t.

Table 1 states the mean and standard deviation of the stabilisation factors in different years for the organisations in our data set who meet with the restriction that profit has to be positive in year t-l and year t. Over the entire period of 1986-1996 the mean of the stabilisation factors for the companies included in the calculations is 80.6%. This means that, on average, the relative increase in dividends is 80.6% of the relative increase in profit. The mean stabilisation factor varies each year. It reaches its maximum and minimum in the two consecutive years 1987 and 1988. In October 1987 there was a crash of the stock market. It is possible that the companies have chosen for an extra increase in the dividend over 1987, that was paid in May 1988, to show that they were fully recovered from the crash of the stock market, To compensate for this increase, the next year the increase in dividend staid behind the increase in profit. From then on the development in the payment of dividends should continue in the old pattern.

Table I: Mean and standard deviation of the stabilisation factor together with the number of observations that were used for the calculations. Source.. Data-file ING Barings Research.

Year	Mean	Standard Deviation	Number Observations
1986	0.850	0.223	66
1987	0.921	0.241	72
1988	0.694	0.203	68
1989	0.838	0.156	89
1990	0.828	0.147	91
1991	0.799	0.151	90
1992	0.789	0.140	97
1993	0.761	0.144	97
1994	0.755	0.162	93
1995	0.835	0.151	101
1996	0.808	0.123	107
Average	0.806	0.049	
Total			971

Based on the data in table 1 we conclude there is dividend stabilisation. The results found here are somewhat different from a earlier study, Dorsman (1988). The value for the stabilisation factor found here is 10% higher then the value found in the earlier study. The period of time covered in the study of Dorsman (1988) was 1973-1983. This difference of 10% can be explained by the increasing importance of Investor Relations (see also Dorsman, van Dijk and de Ruiter (1995)). In the context of good Investor Relations policy stabilisation of dividend is not recommendable. When applying stabilisation of dividend, just like with stabilisation of profit, the stockholder is presented with an even progress of the company. But stockholders are becoming less interested in such evenly growing figures. Stockholders want to have reliable data representing the current situation, concerning the organisation. One way of achieving such data is by analysis of historical figures combined with actual values, Stockholders are therefor not happy with the stabilisation of figures since it would distort this kind of analysis.

1. A higher value of the stabilisation factor (closer to one) means a decrease in efforts made to stabilise dividends. When this value is close to zero, it means that there is very little fluctuation in dividends while profit could still fluctuate considerably. This means that the development of dividend is kept at a steady pace, regardless of profit. The other extreme is a stabilisation factor of one. Any change in profit would have an immediately effect on dividends. This means no stabilisation. Further more, the period spanned by the data in this article is economically very favourable. It is a relative long period, this means that at a certain point the buffer (which is kept to compensate for an eventually period of low profits in the future) is full and the amount of dividends does not get distorted any more.

3. The Lintner-model

In 1956 Lintner came to the following conclusions regarding payment of dividends, after interviewing 28 managers of companies in the United States:

1. Mutations in payments of dividend are more important than the actual amount of the dividends.
2. Corporations try to achieve a certain percentage of dividend payment on the long run.
3. Mutations in dividends are very much correlated with mutations in profit.
4. Managers are reluctant to decrease dividends after first having increased them.

Based on these conclusions Linter developed a model, which has become known as the Lintner-model, to explain the mutation in dividends each year. One assumption in this model is that managers will try to pay an amount of dividends that is an optimal percentage of the profit made. This is explains for the next equation:

$$D_{i,t}^* = r_i^* W_{i,t} \qquad (2a)$$

with,

$D_{i,t}^{*}$ = The optimal amount of dividend for fund i year t.

r_i^{*} = The optimal amount of dividend as a percentage of the profit, for fund i.

$W_{i,t}$ = The profit company i made in year t.

The value of r_i^{*} will be between 0 and 1. As companies usually wont pay more dividends then that there was profit.

When the profit changes the actual amount of dividend paid differs from the optimal amount that follows out of (2a). To compensate for this difference the company will gradually adjust the dividends. This is what can be seen in the next equation:

$$E[\Delta D_{i,t}] = c_i \, [D_{i,t}^{*} - D_{i,t}] \qquad (2b)$$

with,

$E[\Delta D_{i,t}]$ = The expectation of $(D_{i,t} - D_{i,t-1})$.

$D_{i,t}$ = The dividend of corporation i in year t.

c_i = Velocity at which a company adjusts the dividend

The velocity c_i will be between 0 and 1. Higher values of c_i correspond to higher velocity in adjusting the dividends.

Lintner also introduced a constant term. Because it is assumed that corporations are reluctant to decrease dividends, this constant term would have to be positive. This constant term together with equations (2a) and (2b) form the Lintner-model:

$$D_{i,t} - D_{i,t} = \alpha_i + \beta_{i,1} D_{i,t-1} + \beta_{i,2} W_{i,t} + \mu_{i,t} \qquad (3)$$

with,

$\beta_{i,1} = -c_i$.

$\beta_{i,2} = c_i \, r_i$.

$\mu_{i,t}$ = The random disturbance.

An empirical inquiry

For every fund in appendix A there has been made an estimation of the Lintner-model for the period 1989-1996 [2]. Some of the companies that were used for the calculations in paragraph 2 have now been disregarded because their financial year did not terminate in December. The result of these regressions can be found in table 2. This table includes the mean and standard deviation of the estimated coeffkients in the regressions for the various funds, as well as the mean and standard deviation of the t-statistics for these coeffkients. The mean and standard deviation of the various determination coefficients (R^2) are also included in this table. The last row contains the mean and standard deviation of the Durbin Watson statistics of the regressions made. To give a better impression of how these values are distributed, various quantiles for each of these values are also mentioned in this table.

[2] In the empirical inquiry in the validity of the Lintner-model and the adjusted Lintner-model. the data over the years 1987 and 1988 is omitted. This is due to missing data from I/B/E/S during this period, but also because these were two extreme years as we have shown in paragraph 2. From results not shown here it follows that the estimated parameters in the Lintner-model aren't influenced much by restricting the data to the period 1989-1996.

Table 2: The mean and the standard deviation of the estimated parameters and the t-values, the correlation coefficient, the Durbin Watson and different quantiles generated by the ordinary least square estimation of the Lintner-model.

Para-meters	Mean	Standard Deviation	10 %	30 %	50 %	70 %	90 %
a	0.558	1.980	-0.214	0.015	0.177	0.436	1.390
$t(\alpha)$	0.964	2.140	-1.990	-0.098	0.531	1.596	3.008
β_1	-0.627	0.411	-1.004	-0.871	-0.708	-0.498	-0.010
$t(\beta_1)$	-32.903	262.686	-18.566	-6.206	-3.240	-2.108	-0.557
β_2	0.192	0.161	0.023	0.105	0.181	0.290	0.396
$t(\beta_2)$	34.189	263.692	0.691	1.988	3.675	6.817	22.069
R^2	0.742	0.262	0.344	0.667	0.839	0.927	0.993
DW	2.075	0.702	1.218	1.660	2.045	2.569	2.955

Because of the high value of R^2 and de mean value of the t-statistics one can conclude the original Lintner-model is still valid. The residuals show a constant variance and from the Durbin Watson statistic there is no reason to reject that there is no autocorrelation between the residuals of the same fund.

From table 2 one can conclude that the constant term in the model is positive. From results not shown here it follows that 76% of the companies, for which this regression was estimated, gave a positive estimator of the constant term. This is accordingly to the findings of Lintner in 1956, that managers are reluctant to decreasing dividends.

Also from table 2 it can be seen that β_1 lies between -1 and 0, this is accordingly to the expectations stated earlier. Again, from results not shown here, it follows that 62.75% of the regressions made had an estimated β_1 that lay between -1 and 0. When a significance level of 10% is used, 80.39% of the estimated β_1 differ significantly from zero. For β_2 we found a mean of 0.224 (which is between 0 and 1 like we expected). We found 80.39% of the estimated β_2 to differ significantly from zero with a significance level of 1%.

Like it was mentioned earlier, with the estimated coefficients in the Lintner-model one can calculate the parameters r_i^* and c_i in equations (2a) and (2b). The mean optimal amount of dividend as a percentage of the profit (r*) is equal to β_2/c_i. Here we found a value for r^* of 28.9%. This means that on average, the corporations included in the inquiry want to pay an amount of cash dividends that is equal to 29% of the profit made.

4. The adjusted Lintner-model

The original Lintner-model can be augmented with the use of extra knowledge. One could assume that managers are more willing to increase dividends, when the expected profit for the next financial year is higher then the profit for the current financial year, and vice versa. Nowadays it is possible to incorporate such knowledge in the Lintner-model. This is simply because now there is data available which makes this possible. Since the late eighties, the expectations of various analysts concerning future profit, are being recorded. This gives us the opportunity to adjust the Lintner-model with an extra variable, namely the mean of the expectations of various analysts for the profit that is to be made the next year. This data tends to be very reliable, on average the figures we have from I/B/E/S deviate 9% from the actual profit made in the next year.

The data acquired from I/EVE/S is used in the model. We have to keep in mind that the number of analysts who contributed to these figures is not known. The information that would be relevant to the investor is the deviation of the profit-expectation from the current profit. We assume that management makes use of the knowledge it has concerning the future profits when establishing the dividends for next year, and also that analysts (when taking the current investors relation policy into account) can make a reliable prediction of this knowledge management has. Then the adjusted Lintner-model would look as follows:

$$D_{i,t}-D_{i,t} = \alpha_i + \beta_{i,1} D_{i,t-1} + \beta_{i,2} W_{i,t} + \beta_{i,3} (IBES_{i,t} - W_{i,t}) + \mu_{i,t} \tag{4}$$

with.

$IBES_{i,t}$ = The I/EVE/S figure for the expectation made in year t of the profit made by company i for year t+1

The remaining variables have the same interpretation as in equation (3).

We are interested in knowing if $\beta_{i,3}$ is equal to zero. Thus, if the extra variable is rightly introduced or not. This means we will try to reject the null hypothesis $\beta_{i,3} = 0$.

Some of the companies used for the estimation of the original Lintner-model had to be omitted. This is because no data, concerning estimated profit was available on these companies. The period spanned by the data used to estimate this adjusted Lintner-model is 1989-1996. This is because the necessary data was not available for earlier years. Table 3 shows the results from the estimation of this model.

Table 3: The average estimated coefficients, the mean, the t-values and the quantiles of the estimated coefficients and their standurd deviation, the R^2 and the Durbin Watson of the adjusted Lintner-model..

Parame-ters	Mean	Standard deviation	10 %	30 %	50 %	70 %	90 %
α	0.559	3.369	-0.568	-0.040	0.092	0.406	0.887
$t(\alpha)$	0.628	2.012	-1.992	-0.134	0.53 1	1.596	2.927
β_1	-0.689	0.349	-1.078	-0.872	-0.748	-0.514	-0.214
$t(\beta_1)$	-8.645	21.916	-14.674	-6.309	-3.127	-1.820	-0.756
β_2	0.255	0.254	0.05 1	0.141	0.260	0.334	0.466
$t(\beta_2)$	6.209	15.343	0.577	1.507	2.445	4.400	9.922
β_3	0.083	0.3 12	-0.193	-0.000	0.066	0.160	0.358
$t(\beta_3)$	0.693	2.155	-1.512	-0.477	0.535	1.291	2.648
R^2	0.823	0.192	0.547	0.757	0.900	0.958	0.994
DW	2.086	0.602	1.280	1.727	2.039	2.445	2.836

From table 3 it follows that the extra variable is indeed relevant, and is justly augmented to the original Lintner-model. When the extra variable is used there is a clear increase in the determination coefficient from 0.742 to 0.823. The remaining coefficients have roughly the same value as in the ‘old’ Lintner-model. In table 3 one can see that the coefficient of the extra variable does not differ significantly from zero. This means that we are not able to reject the null hypothesis stated earlier. Nevertheless one should keep this variable in the model when the increase in the determination coefficient is taken into account. Because this means that, with the extra variable the model is able to give a better explanation of the mutation in dividends.

What is interesting to investigate now is how much do the residuals resulting from the adjusted Lintner-model should influence any predictions concerning the future profit. To find an answer. the next model will be estimated.

$$\Delta W_{i,t+1} = \gamma_{1,i} + \gamma_{2,i}\ u_{i,t} + \nu_{i,t+1} \tag{5}$$

with,

$\Delta W_{i,t+1}$ = Mutation in profit of company i from year t to year t+1

$u_{i,t}$ = The residuals resulting from adjusted Lintner-model.

$\nu_{i,t+1}$ = The random disturbance.

Table 4: The OLS-estimates of the parameters of equation (5)

Para-meters	**Mean**	**Standard deviation**	**10 %**	30 %	50 %	70 %	90 %
γ_1	0.625	4.182	-0.788	-0.000	0.217	0.521	1.269
$T(\gamma_1)$	0.832	1.547	-0.661	-0.001	0.381	1.316	2.962
γ_2	2.953	14.451	-6.702	-1.400	1.057	5.557	16.031
$T(\gamma_2)$	0.287	0.935	-0.854	-0.191	0.276	0.751	1.615
R^2	0.132	0.151	0.003	0.025	0.067	0.175	0.416
DW	1.954	0.708	0.985	1.646	1.954	2.425	2.920

1. From table 4 it follows that all of the coefficients do not differ significantly from zero. Apparently the residuals from model (4) do not contain any information concerning the future profit, accordingly to model (5). However, it remains possible for the unexpected mutation in dividend of year t and the mutation in profit from year t to year t+l to have a relation other then the one investigated here. It might be possible that management only uses dividend as a signalling tool on certain occasions. This possibility fits well within a good dividend policy in the context of the investors relations policy. In appendix B the results from the estimation of model (5) are mentioned, where the variable used is the residuals of model (3) instead. The results found in table 4 still hold for this model based on the residuals of the traditional Lintner-model.

5 Summary and Conclusions

In this article the dividend policy of Dutch companies is investigated. Miller & Modigliani state in their traditional article that, under certain assumptions, the amount of dividend paid is irrelevant to the stockholders. However these assumptions do not hold in practise. We have shown that relative mutations in dividend are smaller than relative mutations in profit in the same year. This means that dividend is not some irrelevant figure that management looks at when all other decisions have been made, like Miller & Modigliani suggest it. For some time now people have thought about the relevance of having a dividend policy. Already in the fifties it was Lintner who developed the Lintner-model to explain the mutations in dividend. The exogenous variables in this model are figures concerning profit and dividends. Nowadays there is a lot more information available. The I/B/E/S data-tile contains figures about the profit-expectations made by analysts. In this article the traditional Lintner-model is expanded with one exogenous variable, namely the expectation analysts have of the profit for next year. This is because we assume that when management makes their dividend-proposal, which in practise is also the actual amount of dividend paid, they also take their expectations of the future profit into account. The adjusted Lintner-model is able to give a better explanation of the mutations in dividend than the traditional model.

Finally we tried to use the residuals of the adjusted Lintner-model to predict the future profit. From our inquiry it could not be shown that these residuals have any use for such predictions.

Appendix A The companies involved in our research

Aalberts, Brocacef, AEGON, Ahold, Ahrend, AKZO Nobel, Alanheri, Amsterdam Rubber, AOT, ATAG, Athlon, Barn, Batenburg, Beers, Begemann, Blydenstein-Willink, De Boer Unigro, Boskalis Westminster, Burgman Heybroek, Koninklijke Ten Cate, Cindu, CSM, CVG, DICO, Van Dorp Despec Groep, De Drie Electronics, Koninklijke Econosto, Elsevier, EMIS, EVC, Fortis Amvev, Frans Maas, Gamma Holding, Gelderse Papiergroep, Getronics, Geveke, Giessen-de Noord, Gist-Brocades, Gouda Vuurvast, Unique Internationaal, Grolsch, Grontmij, GTI Holding, Hagemeyer, HBG, Heijmans, Heineken, HES Beheer, Hoek's Machines, Hoogovens, Hoop Effectenbank, Hunter Douglas, IHC Caland, Internatio Muller, Kas-Associatie, KBB, Kempen & Co, Klene Holding, KLM, Pakhoed, Koppelpoort, Krasnapolsky, Kuhne & Heitz, Landre & Glinderman, Macintosh, Van Melle, Van der Moolen, Mulder Boskoop, Multihouse, Naeff, NBM-Amstelland, Nedap, Nedlloyd, Nedschroef, Neways, NIB, Norit, Nutricia, OCE, Van Ommeren, Ordina, OTRA, P & C Groep, Philips, Polynorm, Porceleyne Fles, Royal Dutch, Reesink, Rood Testhouse, Roto Smeets de Boer, Samas, Schuitema, Schuttersveld, Simac, Smit Internationale, Spfinx Gustavsberg, ASR, Stork, Telegraaf, Textielgroep Twente, Tulip Computers, Twentsche Kabel, Unilever, VNU, Volker, Vredestein, Wegener Arcade, Weweler, Wolters Kluwer.

Appendix B The OLS-estimates of the parameters of equation (5), wherby the residual variable of equation (3) has been used as explained variable.

Parameters	**Mean**	**Standard deviation**	**10 %**	**30 %**	**50 %**	**70 %**	**90 %**
γ_1	0.475	5.129	-1.020	-0.120	0.216	0.534	1.531
$T(\gamma_1)$	0.943	1.929	-0.603	-0.009	0.400	1.327	3.016
γ_2	11.226	100.324	-6.576	-1.563	1.422	4.681	12.570
$T(\gamma_2)$	0.360	1.068	-0.742	-0.274	0.311	0.811	1.710
R^2	0.151	0.171	0.005	0.028	0.087	0.169	0.442
DW	1.932	0.704	0.911	1.536	1.730	2.323	2.065

Literature

Akerlof,G. (1970), The market for 'Lemons': qualitative uncertainty and the market mechanism Quaterly Journal of Economics, vol. 89, blz. 488-500.

Dorsman,A.B., Dijk,H.L.L. van en Ruiter,A.J.C. de (1995), An empirical research of the relevance of investor relations (in dutch), Bedriifskunde, nr. 3, blz. 75-79.

Dorsman,A.B. (1988), Dividend and dividendpolicv (in ducth), Stenfert Kroese, Leiden/Antwerpen.

Jensen,M.C. en Meckling,W.H. (1976), Theory of the firm: managerial behavior, agency costs and the ownership structure, Journal of Financial Economics, vol. 3, blz. 305-360.

Lintner, J.(1956), Distribution of incomes of corporations among dividends, retained earnings, and taxes, American Economic Review, blz. 97-l 13.

Miller,M.H. en Modigliani,F. (1961), Dividend policy, growth, and the valuation of shares, Journal of Business, vol. 34, no. 4, blz. 41 l-433.