RATES OF RETURN ON COMMON STOCKS IN INFLATIONARY ENVIRONMENT

by

F.Hülya Onur

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In this study rates of return on common stocks at increasing rate of inflation and at decreasing rate of inflation are examined.

While in the last few years a large number of studies related to inflation and rates of return on common stocks are undertaken, few analysis have been performed on this subject on Turkey.

After reviewing the literature, Turkey's economical structure and the rates of return both in nominal and real terms are analyzed.

Then, we tested whether common stocks can hedge inflation during two subperiods, characterized with increasing and decreasing inflation rate.

As a result, taking three-year holding periods, we can conclude, that common stocks cannot hedge investors against inflation at increasing rate of inflation.

ENFLASYON ORTAMINDA HİSSE SENEDİ VERİMLİLİKLERİ

Bu çalışmada yükselen ve azalan oranlardaki enflasyon altında hisse senetleri verimliliği incelenmiştir.

Son birkaç senede Amerikan Sermaye Piyasasında enflasyon ve hisse senetleri verimliliği ile ilgili birçok çalışma meydana getirilirken, bu konuda Türkiye'de çok az analiz yapılmıştır.

Literatürü gözden geçirdikten sonra, Türkiye'nin ekonomik yapısı ve hem nominal hem de reel olarak hisse senedi verimlilikleri incelenmiştir.

Daha sonra artan ve azalan enflasyon oranları olarak karakterize edilen iki ayrı dönemlerde, hisse senetlerinin enflasyona karşı dayanıklı olup olmadığı test edilmiştir.

Sonuç olarak üçer yıllık elde tutma dönemlerini ele aldığımızda hisse senetleri yatırımcıyı artan enflasyon oranları döneminde koruyamamaktadır.

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LIST OF SYMBOLS

C.P.I.	Consumer Price Index
N	Sample size
Nom.	Nominal
r	Rate of return
S	Sample standard deviation
$\bar{X}$	Mean rate of return of sample
z	Standardized variable score
σ	Population standard deviation
μ	Population mean

I. INTRODUCTION

Most of the Western countries have experienced double-digit inflation in recent years. The high rate of inflation, which is associated with a high degree of instability, has caused great concern to the governments, consumers and investors.

The traditional view was that nominal returns on assets should go up with inflation on the average, as they represent the same real assets. It was hypothesized that common stocks are a perfect hedge against inflation, since the value of the physical assets owned by the companies increases with inflation. The suggestion mentioned above proved to be true during periods with low inflation rates, but put in question as most parts of the world entered a phase characterized by double digit inflation rates and stagflation. During these periods first objections to the above theory have risen stating that common stocks are negatively affected by inflation. The objective of this study is to analyze the rates of return on common stocks in Turkey at increasing inflation rate and at decreasing inflation rate periods.

The capital markets in developing countries should try to channel domestic sources into productive investments to provide healthy financial structure for corporations, to provide for an equitable income distribution by enabling the public the purchase of common stocks. But in Turkey there isn't fully developed capital market, and especially stock market has been inactive. It is too difficult to obtain healthy information about the quantity of the existing common stocks in Turkey. The supply of shares are limited in both the primary and secondary markets. There are many structural reasons behind the fact that common stocks are not being used in accumulating funds from private sources. Following may be stated: Family corporations are not open to public, interest rates on loans were kept low, possibility to repay loans obtained in foreign currency in Turkish Lira, use of internal and external loans instead of increasing shareholders' investment, ownership of banks by major holding companies, low amount of dividens, the negative attitude of public towards common stocks. Especially during 1979-1981 bankers offered bonds and certificate of deposits with shorter due dates and higher rates of return and this was another fact which played a negative role that a stock market couldn't establish. All these reasons can be examined in another study.

The analysis in this study will be carried out in two subperiods. First subperiod (1978-1980) is characterized by increasing inflation rates. The second subperiod (1981-1983)

experienced decreasing inflation rate.[1] Also one-holding period rate of returns will be calculated for the period 1978-1983. The aim of this study is to measure the rate of return of the Turkish shareholders both in nominal and real terms between these periods.

This study consists of four chapters. In chapter two a review of literature is presented. Rates of return on common stocks is reviewed in section A and recent developments about the effects of inflation on common stock returns are provided in section B. Chapter three presents the empirical results. Section A describes the market briefly and section B describes the data employed in the empirical tests and presents the empirical testing of the hypothesis. The results of the tests are given in section C. Chapter four provides conclusions.

[1] Source: Wholesale Price Index 1963:100.

II. REVIEW OF LITERATURE

We undertake in this chapter a review of the existing literature. Although internal rate of return method constitutes the basis of the calculations carried in chapter three, the other models for calculating the rates of return on common stocks and the effects of inflation on common stock returns are also reviewed in this chapter.

A. Rate of Return on Common Stocks

Many investors' decisions to invest in a given stock are based upon a knowledge of what other have earned on that investment in the past. With the availabilty of high-speed digital computers a considerable volume of empirical research about realized rates of return on common stocks could has been done since 1960's.

The first study done by L.Fisher and J.H.Lorie(9) and published in 1964, reveals that equal investments in all New York Stock Exchange common issues over various time periods, 1926 through 1960, provided generous returns over most lengthy time periods. They found that during the period 1926-1960, the rates of return, compounded annually on common stocks with reinvestment of dividends were nine per cent for tax exempt

institutions, whereas it is 8.2 per cent for persons in the low-income tax brackets and 6.8 per cent in the high-income tax brackets. The rates computed for the postwar period (1950-1960) are substantially higher than for the periods prior to the war.

In 1968 they(10) extended their findings through 1965. They found that in all the 820 overlapping and therefore not independent time periods within the 40 years only 72 of the periods showed negative rates of return. In these years common stocks performed better than bond and real estate. They(11) claim that the personal income tax has a great negative effect on wealth.

Another study about rate of return on common stocks is done by J.P.Herzog(14). He studied the yield performances of bonds, preferred and common stocks. Calculations were carried forward from 1929 to 1962. The sample kept small in order to limit the diversification within the sample. Only high-quality securities are chosen and so infant and declining industries were ignored. He found that timing in buying and selling the securities, have strong influence on yield performance.

Another study done by Brigham and Pappas(4) examines the rate of return on 658 industrial and utility firms stocks during the period 1946 through 1965. They showed what percentage of the total return is attributable to dividends and what percentage to capital gains. Returns are calculated on

the reinvestment basis with internal rate of return formula. The averaging process used in the study assumes that each of the 658 stocks is purchased in proportion to its market value in the initial year. The major findings of the study was as follows:

On holding periods of six or more years before-tax returns averaged about 15 per cent and after-tax returns 12 per cent respectively. Dividends accounted for about 38 per cent of the total before-tax returns and capital gains 62 per cent. On an after-tax basis dividend percentage declined to 30 per cent, while capital gains rose to 70 per cent. About 11 per cent of the capital gains are attributed to higher P/E ratios and 89% to the growth in earnings. But these relationships were not stable among different or even within given industries over time. When the periods being compared include fluctuations the differences will be more apparent.

B. The Effects of Inflation on Common Stock Returns

Until the 1970's economists believed that inflation was good for the stock market, because companies could raise prices faster than wages (see Cohn and Lessard(5)). Indeed in the 1960's the stock market was considered the great inflation hedge. According to the classical theory nominal returns should go up with inflation, as they represent the same real assets (see Lintner(16)). It is assumed that the expected

rate of return equals the expected real rate plus the expected rate of inflation (see Lintner(16)). The relationship between inflation and rates of return on marketable securities was a subject of many empirical studies: After classifying each of eleven different periods from 1937-1968 as either inflationary, non-inflationary, Reilly, Johnson, Smith(19) conclude that stocks are not complete inflation hedges, at times partial hedges.

Ben Branch(3) conducted a study considering common stock returns in 22 countries between the periods 1953-1969, also found that stocks may be a partial hedge against inflation. Quadet's(18) findings also shows that inflation exerted a negative influence on returns.

Jeffrey F.Jaffe and G.Mandelker(14) conducted a study for the period of 1953-1971 and found a negative relationship between the anticipated and unanticipated rate of inflation and the returns on common stock. C.Nelson's(17) findings are also consistent with them.

A study done by Doç.Dr.Ünal Bozkurt(2) between the periods 1973-75 shows also that the stock returns cannot hedge the Turkish stockholders against inflation.

A regression test performed by Euge F.Fama and G.William Schwert(8) comparing the rate of return on common stocks, bonds and real estate on anticipated and unanticipated rates of inflation between the period of 1953-1971 had the

following results. Real estate, such as building, land is a complete hedge against anticipated and unanticipated rates of inflation, whereas bonds are hedging only against anticipated rates of inflation. The real return on equity is negatively related to both anticipated and unanticipated inflation.

Zwi Body's(1) work including 1953-1972 data have shown that real returns on common stocks over holding periods of one, three and 12 months are quite uniformly and significantly depressed by inflation. He also found that over one and three months holding periods, real returns on equities were significantly and negatively related to both expected rates of inflation and to unanticipated inflation.

A study done by Henry C.Wallich(21) also shows that the experience of American households with real estate has been better than their experience with stocks. The value of corparate equity holdings of households dropped from 144 per cent of disposable income in 1968 to 59 per cent in 1976, while land and building value rose about 3 per cent during this period.

After the relationship between inflation and common stock returns studied extensively by the researches mentioned above, G.William Schwert(20) extended the evidence, that common stocks are negatively related to inflation rate by analyzing the reaction of daily stock returns to the announcement of the C.P.I. inflation rate. He found that stock market reacts to unexpected inflation around the time

when the C.P.I. is announced and the stock market doesn't seem to react to unexpected inflation during the period when the C.P.I. is sampled.

Fama(7), in his article published in September, 1981 claims that stock returns are determined by forecasts of more relevant real variables and negative stock return-inflation relations are induced by negative relations between inflation and real activity.

Irwin Friend and Joel Hasbrouck(12) found that the inflation-related decline in the value of stocks is attributable partly to adecline in real dividends and earnings. They judged that changes in the expected level of long-run inflation at least part of the negative impact of the level of expected inflation on real returns explain. They regressed various expectation measures and found a negative and significant impact on both expected and unexpected inflation. They concluded that the level of expected inflation on realized returns were smaller than generally suggested in the previous literature.

N.Bülent Gültekin (13) tested the Fisher hypothesis, which states that real rates of return on common stocks vary in a one-to one correspondence with expected inflation and found negative relation between nominal stock returns and inflation rates for the period 1/1947-12/1979 using time series regression. The research included 26 countries. He concluded that the stock-return inflation is not stable over time and

that there are differences among countries.

The work of Theodore E.Day(6) developed the relation between real stock returns and inflation in a multiperiod economy with production. While much of the previous work assumes that the rate of return on stocks is a dependent variable, which responds to variations in the expected and/or unexpected components of inflation, his model emphasizes the joint dependence of both inflation and real stock returns on exogenous productivity and government policy stocks. He found that the relation between expected real returns and expected inflation depends on the form of the economy's production function. When the production function shows constant returns to scale, his model explains the negative relation between real returns and inflation which has been observed in other empirical studies.

III. METHODOLOGY AND FINDINGS

A. Background[2]

The developments regarding capital market are related to a great extent to economical and political developments in the country.

In order to test whether common stocks are inflation hedged or not, we chose two periods which show different characteristics in many aspects including the inflation rate.

1. The Period Between 1978-1980

At the beginning of 1978 the most serious danger facing the Turkish economy was the threat of a depression. Over the past few years the economy had suffered an increasing weight of problems and in 1978 the situation was aggravated by inability to meet her foreign currency obligations. The situation between 1978-1980 can be outlined as follows to help us interpret the wide-spread rate of returns during this period: The stagnation in the investment area continued. There

[2] Figures and numbers used in this section are taken from TÜSİAD "The Turkish Economy 1978-1983".

were several reasons for this. First, the industrialization strategy hadn't been properly defined; energy, communications, transport problems delayed the development of large scale industrialization effort; negative developments in the field of labour relations decreased the productivity; the acute foreign exchange shortage obstructed the realization of projects both at the investment and operational stages. So, intermediary financial institutions failed to operate efficiently to contribute effectively to the financing of major projects, the exchange rate policy had the effect of promoting imports while discouraging the production and exports. The inflation rate was increasing in these years; it was 52.6 per cent, 63.9 per cent and 107.2 per cent in the years 1978, 1979, 1980 respectively. In order to decrease the inflation rate, at 24 January, 1980 the economic stabilization programme had begun to be implemented. In order to cut the consumption rate tight monetary policy measures are set.

The liquidity shortage and stagnation occured. Because of free interest rate policy the capital market, especially the stock market was negatively effected. The overall picture of this period was not bright.

2. The Period Between 1981-1983

As the result of the stabilaziton programme the rate of inflation was decreased from 107 per cent to 37 per cent. It was realized together with an increase in GNP growth rate

from a negative 1.1 per cent in 1980 to a positive 4.1 per cent in 1981 and 4.6 per cent in 1982. Tight monetary policy played the primary role in this success. Money supply which had increased 56.7 per cent in 1979 and by 58.4 per cent in 1980, rose only 36.7 per cent in 1981. A second factor was the liberalization of interest rates, which went into effect on July 1, 1980. It influenced the saving-investment process. The removal of restrictions on interest rates hadn't only limited consumption expenditure, it had also eliminated speculation and the accumulation of stocks of both domestic and imported goods. Tight monetary and fiscal policies had, on the other hand created an exportable surplus, which might be considered as of the decrease in domestic demand. Industrial production, which had fallen by 5.6 per cent in 1979 and by a further 5.5 per cent in 1980, increased by 9.1 per cent in 1981[3] and 6.3 per cent in 1982. Factors negatively affecting capacity usage had relatively changed with low demand becoming the most important factor in 1981 followed by financing difficulties while raw material was the most important problem.

After four years of acceleration of the rate of inflation, it was decreased from over 100 per cent to around 40 per cent in 1981. In July, 1981 the new Capital Market Law was published. Under the new law, trade in securities and

[3] The improvement resulted from an easing of supply shortages following the increased availability of foreign exchange and the settlement of labour disputes.

company shares, private bonds were subject to supervision by a Supreme Capital Market Regulatory and Supervisory Board. And on Febr.1, 1982 the Capital Market Law took full effect.

This law brought confidence to the investors. In 1983 with general elections and the return to parliamentary rule the government allowed more relaxed application of the 1980 measures. The effects of a less tightly controlled money supply were seen by a rise in domestic demand, by a decrease in export earning as a reduction in the supply of export credits and by serious difficulties in the financial sector. Public sector funds were diverted to the support of the several major broker houses, of a number of manufacturing companies and of the three banks which failed during the year, and investment failed to show any improvement.

These and other factors resulted in an increase in the inflation rate. Inflation climbed from 25.2 per cent in 1982 to 30.6 per cent in 1983. But compared to the previous period (1978-1980) inflation rate was reduced from one-hundred per cent to some 25 per cent. The achievements of the three years to 1983 resulted in Turkey's regaining her credit worthiness.

Under the light of the economic and political picture of the two periods 1978-1980 and 1981-1983, which are mentioned above we analysed and made a test on our data.

B. Data and Tests

We gathered data for 6 years 1978-1983 made up of the 34 companies stocks, which are open to the public to a great extent. The firms and their sectoral distribution is shown in Table A1.

In order to compute the three-year holding period return for the 1978-1980 and 1981-1983, we use the Internal Rate of Return method.

$$P_o = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots\ldots + \frac{D_n + P_n}{(1+k)^n}^4 \qquad (1)$$

$$= \sum_{t=1}^{n} \frac{D_t}{(1+k)^t} + \frac{P_n}{(1+k)^n}$$

where

k = the internal rate of return

D_t = the cash dividend received in period (t)

P_o = the initial market price of a share of common stock

P_n = the market price of a share at the close of period (n).

Annual returns on stocks for a single period is a clearly defined concept combining dividend receipt during the

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[4] This formula capitilizes the cash flow, dividends plus the share's terminal market value. The internal rate of return is defined as that rate of discount (k) which equates the present value of the cash flow generated by the share with the present value of the investment outlay necessary to hold it.

year and capital payoff at the end of the year per Turkish Lira invested at the beginning of the period. It is dividend yield plus price ratio.

$$R_t = \frac{D_t}{P_o} + \frac{P_n}{P_o} \qquad (2)$$

The ex-post 1978-1983 annual nominal returns on the 34 stocks are shown in Table A5 and A6. The prices used in our formulas are annual average stock prices. Each annual average price[5] is used as (P_n) and the previous year annual average price is used as (P_o).

In order to test the impact of inflation on stock returns two different subperiods are chosen. In first three-year holding period (1978-1980), inflation rate was very high. We used the Wholesale Price Index in computing real stock returns. As we couldn't obtain the data for exact dividend pay-out time, we assumed that they are evenly distributed and we adjust dividends with yearly index. The capital gains are adjusted with year-end index.

C. The Results

When we analyze the stock returns, we see that there are great differences both in nominal and real terms between

[5] Another alternative approach would be taking the year-end values or n-days average year-end value. We used annual average price as (P_n) in order to eliminate the fluctuations following a rights issue or the dividend announcement.

the periods 1978-1980 and 1981-1983 (see Table 3.1).

TABLE 3.1. Rate of Returns for Three-Year Holding Period

1978 - 1980		1981-1983	
Nominal r	Real r	Nominal r	Real r
$\bar{x}$= 8.04	$\bar{x}$=-34.97	$\bar{x}$=72.45	$\bar{x}$=37.32
s=16.44	s= 10.23	s=66.25	s=54.64

Taking one-holding period returns in the year 1980 all the real returns are negative and in 1979, 44 per cent of the nominal rates of returns and 100 per cent of the real rates of returns are negative (see Table A5). All the real annual mean rates of returns for the years 1978, 1979, 1980 are negative (see Figure A1). In 1980 although annual average nominal return is 6.5 per cent, it is -48.68 per cent in real terms. Three-year holding period returns for 1978-1980, annual average nominal rates of return is about eight per cent, the dispersion factor is 16.67, and in real terms the results are -35 per cent and 10.23 respectively. The returns in nominal terms are spread from negative to positive 50 per cent, whereas in real terms they are all negative (see Table A2, A3, A4).

When we take the second three year holding period into consideration, the single-year returns can be summarized as follows: In the year 1981 for the first time nominal rate of returns are realized above 100 per cent (see Table A7). In the

year 1982 both nominal and real rates of returns are mostly positive (see Table A8). In the year 1983 the rate of return on common stocks reached its peak-point. The rates of returns are 142 per cent in nominal and 85 per cent[6] in real terms respectively (see Table A6). Three-year holding period average returns for the years 1981-1983 are positive both in nominal and real terms. Inflation adjusted real returns show great variability. Coefficient of variation is 146, which is very high. The rate of return variability among common stocks can be explained as follows: Our sample is non-homogeneous regarding its operating sectors. The firms profitability and their rate of return can be different also in this regard. When timing is chosen properly, the investors can make profits from the investment in stocks. The single-period returns of 1981, 1982, 1983 are positive in real terms, although the inflation rate is between 25-30 per cent (see Table A6). But in the period between 1978-1980 because of the bottlenecks in the economy mentioned previously and increasing inflation rate, the stock returns are mostly negative.

In order to test the results scientifically we use mean-test. We test whether the observed differences could have been due to chance alone or whether there are significant differences between the rates of return on common stocks.

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[6] The highest rate of return realized in the year 1983 can be due to reevaluation and minimum dividend pay-out ratio requirement according to the decree of the Capital Market Board and due to tax reduction.

$$H_o : \mu_1 = \mu_2$$

$$H_1 : \mu_1 \neq \mu_2$$

$$\mu_{\bar{x}1 - \bar{x}2} = 0 \qquad \sigma_{\bar{x}1-\bar{x}2} = \sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}$$

where we used the sample standard deviations as estimates of σ_1 and σ_2.

$$z = \frac{(\bar{X}_1 - \bar{X}_2)}{\sigma_{\bar{x}1-\bar{x}2}} \tag{3}$$

For a two tailed test the results are significant at a five per cent level if z lies outside the range -1.96 to 1.96. Hence we conclude that at a five per cent level there is a significant difference in the rate of return of the two periods, because our z score 6.5 is greater than 1.96.

After we tested the hypothesis we saw that second period's rate of return-decreasing inflation period- has a mean return greater than that of the first period's. We conclude on the basis of a one-tailed test at a level of significance of five per cent to reject also the null-hypothesis, because z score, which is 6.5 is greater than 1.645. Thus we can conclude at this level of significance, that there is significant difference between the rate of returns of the two periods and the mean-rate of return for holding period 1981-1983 is greater than that of the period 1978-1980, characterized with increasing rate of inflation and stagflation.

More definite conclusions would require a detailed analysis to test whether the difference is only due to inflation or there are other reasons. This is well beyond this study. A further research can be helpful to highlight this point.

IV. CONCLUSIONS

The aim of this study was to find out the rate of return of the Turkish shareholders between the increasing and decreasing inflationary periods. After testing the results we conclude that the mean-rate of return for the period 1981-1983 characterized with decreasing inflation rate compared to the 1978-1980 period, is greater than this period. During 1978-1980 savings serving as base to investments, have been subject to negative rates of return and production, use of capacity and investments have decreased causing deterioration in all kinds of economic activities. In this period inflation rate was increasing.

Rates of return on common stocks in nominal and real terms have positive partly due to tight economic policy applied in 1981-1983 and partly due to measures which are taken by the Capital Market Board.

The conclusion to be drawn from the analysis is that an understanding of the inverse correlation between the rate of returns and the inflation rate requires the decomposition of the rate of returns into the variables that determine them,

followed by an analysis of the relationship of these variables to the inflation rate. This is the direction that future empirical work should take.

The conclusion of this study is that common stocks were not able to hedge during periods with high, increasing inflation rate and stagflation.

As long as the economy is not in good condition we cannot expect that savings will be channelled to the capital market. Stock market was negatively affected by varying profitabilities, uncertain dividend pay-out policies and lack of objective data and information. Stock market may acquire its place in the economy considering the efforts of new laws and participating entities in capital markets. But as we have seen its development depends heavily and primarily on success in bringing the inflation rate down.

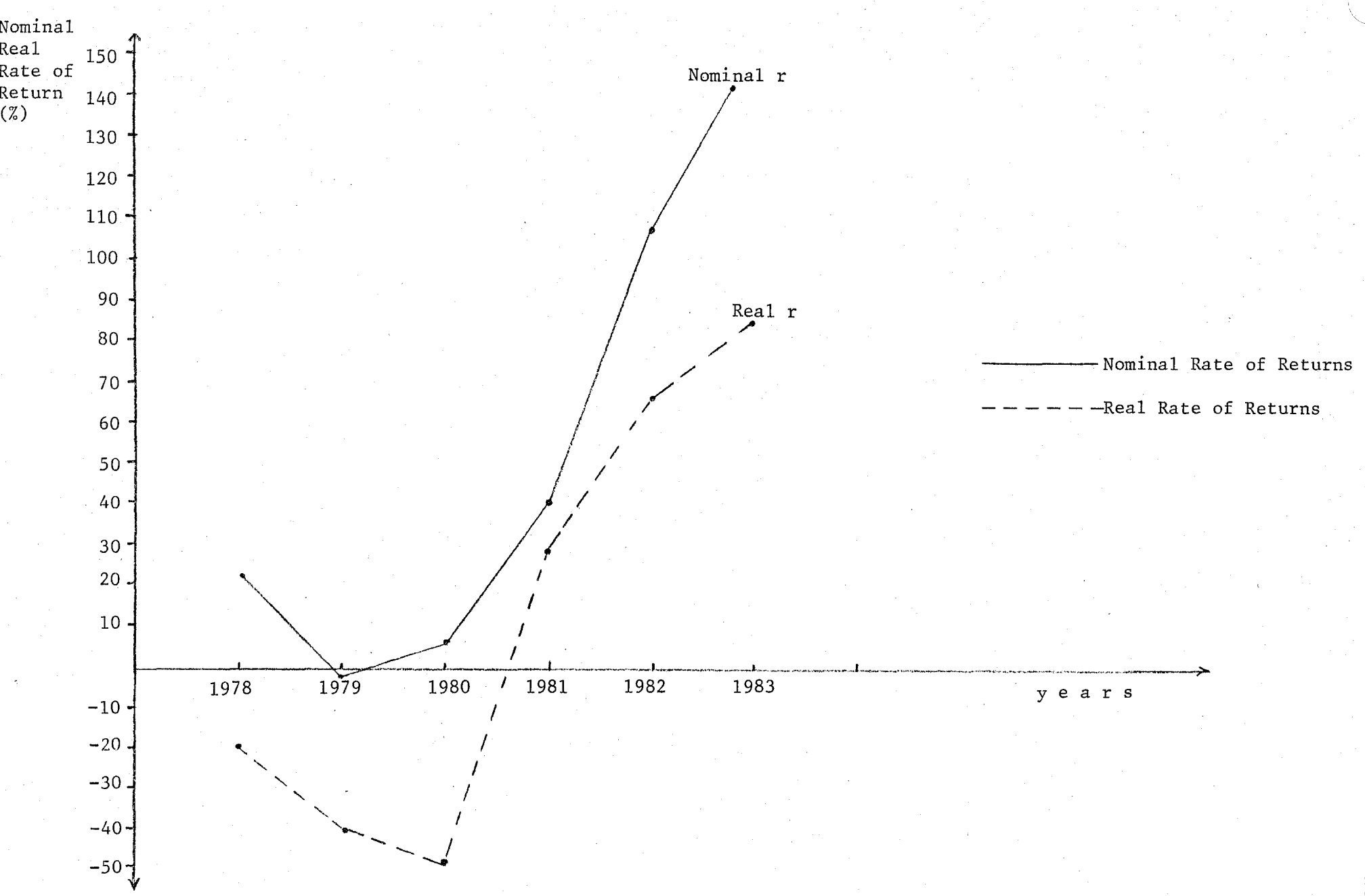

Figure A1. Average Rate of Returns (1978-1983)

TABLE A1- Firms and Their Sectoral Distribution

Cement Industry

1- Akçimento
2- Aslan Çimento
3- Bursa Çimento
4- Çimsa

Rubber Industry

1- Good Year
2- Uniroyal
3- Lassa

Wrapping Industry

1- Kartonsan
2- Olmuksan

Chemicals, Fertilizer Industry

1- Bagfaş
2- Hektaş
3- Gübre Fabrikaları
4- Koruma Tarım
5- Plastifay

Electrical Appliances Industry

1- Makina Takım
2- Nasaş
3- Türk Siemens
4- Çukurova Elektrik

Metal Goods Industry Products

1- Altaş
2- Rabak
3- Türk Demir Döküm

Textile Industry

1- Mensucat Santral
2- Sifaş
3- Polylen
4- Kordsa

Glass, Wood-Forestry Products

1- İzocam
2- Kav Orman
3- Anadolu Cam
4- Sunta Tahta
5- Pimaş
6- Türk Şişe Cam

Banking

1- İş Bankası
2- Yapı ve Kredi

TABLE A2- Rates of Return for Three-Year Holding Period

	1978 - 1980		1981 - 1983	
	Nom.r	Real r	Nom.r	Real r
1- Akçim.	9.3	-35.3	58.7	24.4
2- Altaş	10.4	-33.6	31.3	5.7
3- An.Cam	23.4	-26.3	135.9	89.3
4- Aslan	-5.8	-45.8	10	-15.6
5- Bursa	27.5	-22.3	69.1	33
6- Çimsa	32.8	-19.4	274.1	205.9
7- Çuk.El.	12	-31.7	94.3	57.1
8- Gübre F.	-2.6	-41.1	92.5	54.2
9- Good-Year	5.7	-35.7	254.1	187.9
10- Hektaş	1.2	-38.6	90.3	51.8
11- İş Bank.	50.8	- 9.8	52.4	22.1
12- İzocam	1.5	-37.9	65.8	30.3
13- Kav Orm.	44.4	-11.9	105.2	63.5
14- Kartonsan	-5.6	-43.2	78.8	41.7
15- Kordsa	-2.4	-41.2	143.8	92.6
16- Koruma T.	-7.4	-44.1	95.9	55.8
17- Koç H.	12	-32.6	87.8	55.5
18- Mak.Takım	-15.8	-49.1	3.3	-19
19- Mensucat S.	2.2	-38.1	-10.6	-31.4
20- Nasaş	3.7	-37.3	19.3	-5.8
21- Olmuksan	-1.7	-41.3	23.9	-3.3
22- Sifaş	24.2	-25.4	106.7	64.3
23- Sunta	-2.5	-41.6	-29.4	-45.8
24- Şişe Cam	25.2	-24.5	71.3	35.6
25- Plastifay	7.6	-35.1	65.7	31.8
26- Polylen	20.7	-27.2	112.4	69.1
27- Rabak	-9.8	-45.6	63	29.2
28- T.Demir D.	23.2	-24.2	-17.3	-36.5
29- Uniroyal	9.3	-34.4	82.1	46.9
30- Pimaş	1.6	-38.3	49.5	17.8
31- Bağfaş	-21.5	-53.1	92.4	54.1
32- Yapı Kredi	-9.7	-47.8	-40.4	-54.2
33- Lassa	-11	-48.2	15.3	-10.2
34- Siemens	20.6	-27.4	116.2	71
	$\bar{x}$= 8.04	$\bar{x}$=-34.97	$\bar{x}$=72.45	$\bar{x}$=37.32
	S=16.44	S= 10.23	S=67.25	S=55.46

TABLE A3- Distribution of Rates of Return for Three-Year Holding Period

	1978 - 1980		1981 - 1983	
Rate of Return(%)	Nom.	Real	Nom.	Real
0<	12	34	4	9
0-10	10	-	2	1
11-20	4	-	2	1
21-30	5	-	1	4
31-40	1	-	1	3
41-50	2	-	1	2
51-100	-	-	15	12
100-200	-	-	6	1
200>	-	-	2	1
	34	34	34	34

TABLE A4- Negative Rate of Returns for Three-Year Holding Period

Negative Rate of Return (%)	1978 - 1980		1981 - 1983	
	Nominal	Real	Nominal	Real
0,1-10	9	1	1	3
11-20	2	2	1	2
21-30	1	7	1	-
31-40	-	12	1	2
41-50	-	11	-	1
50>	-	1	-	1
	12	34	4	9

TABLE A5- Rates of Return on Common Stocks (1978-1980) (%)

	1978		1979		1980	
Firm	Nom. r	Real. r	Nom. r	Real. r	Nom. r	Real. r
1	9	29	20	-27	- 0.4	-52
2	8	29	-9	-44	43	-31
3	80	18	1	-38	1	-51
4	15	-25	-10	-45	-19	-61
5	71	12	28	-22	-15	-59
6	25	-18	14	-30	71	-17
7	18	-23	17	-29	-1	-52
8	-17	-46	-23	-53	57	-24
9	-9	-40	9	-33	24	-40
10	5	-31	-17	-49	23	-41
11	64	7	46	-11	42	-31
12	38	-9	1	-38	-37	-70
13	68	10	32	-19	31	-37
14	54	1	-20	-51	-38	-70
15	9	-29	-25	-54	16	-44
16	-19	-47	1	-39	-0.3	-52
17	13	-26	-19	-51	64	-21
18	43	-6	-51	-70	-23	-63
19	30	-15	-4	-41	-22	-62
20	10	-28	4	-37	-4	-54
21	22	-20	-9	-44	-17	-60
22	44	-6	14	-30	13	-45
23	47	-4	-23	-53	-25	-63
24	98	30	5	-36	-14	-58
25	25	-18	-29	-57	47	-29
26	54	1	11	-32	-5	-54
27	-19	-47	11	-32	-19	-61
28	50	-2	28	-22	-11	-57
29	18	-23	15	-30	-7	-55
30	-10	-41	-4	-41	29	-38
31	-26	-52	-36	-61	5	-49
32	-20	-48	26	-23	-27	-65
33	-11	-42	-21	-52	1	-51
34	20	-21	8	-34	38	-33
	$\bar{x}$=23.74	$\bar{x}$=-19	$\bar{x}$=-0.26	$\bar{x}$=-39.05	$\bar{x}$= 6.48	$\bar{x}$=-48.68
	S=31.72	S= 20.85	S=21.55	S=13.16	S=29.34	S= 14.28

TABLE A6- Rates of Return on Common Stocks (1981-1983) (%)

	1981		1982		1983	
Firm	Nom. r	Real. r	Nom. r	Real. r	Nom. r	Real. r
1	21	-12	88	50	95	49
2	22	-11	47	17	28	-2
3	108	52	232	165	97	51
4	-7	-32	31	5	9	-17
5	128	67	32	5	49	14
6	218	132	478	362	209	137
7	43	5	151	101	162	101
8	90	39	70	36	1m2	78
9	73	26	764	590	432	307
10	43	5	96	57	207	135
11	52	11	42	13	70	30
12	-22	-43	156	104	240	160
13	50	9	121	77	203	132
14	26	-8	97	57	187	119
15	45	6	182	125	385	271
16	63	19	124	79	312	215
17	13	-17	132	85	358	251
18	10	-20	19	-5	-18	-37
19	-30	-49	-8	-27	11	-15
20	41	3	6	-15	6	-19
21	16	-15	29	3	28	-2
22	1	46	81	45	170	107
23	-17	-39	-46	-57	-21	-40
24	15	-16	162	109	99	52
25	30	-5	44	15	210	137
26	15	-16	177	121	397	281
27	53	12	62	29	82	39
28	-30	-49	-25	-40	7	-18
29	79	31	85	48	85	42
30	91	40	47	17	64	26
31	103	48	75	40	96	50
32	-70	-78	-45	-56	29	-1
33	-15	-38	6	-15	77	36
34	29	-5	162	109	331	230
	$\bar{x}$=40.76	$\bar{x}$=28.82	$\bar{x}$=108.05	$\bar{x}$= 66.15	$\bar{x}$=142	$\bar{x}$=85.26
	S=54.79	S=40.02	S=150.88	S=120.52	S=129.23	S=98.94

TABLE A7- Distribution of Rates of Return for the Years (1978-1983)

Nom.Rate of Return(%)	1978	1979	1980	1981	1982	1983
0<	8	15	18	7	4	2
0-10	5	7	3	2	2	3
11-20	5	7	2	4	1	1
21-30	4	3	3	5	1	3
31-40	1	1	2	-	2	-
41-50	4	1	3	5	4	1
51-100	7	-	3	7	8	9
100-200	-	-	-	3	9	4
200-300	-	-	-	1	1	5
300 >	-	-	-	-	2	6
	34	34	34	34	34	34

TABLE A8- Distribution of the Negative Rates of Returns for the Years (1978-1983) (%)

Negative Rate of Returns (%)	1978	1979	1980	1981	1982	1983
0,1-10	2	5	6	1	1	-
11-20	5	3	6	2	-	1
21-30	1	5	4	3	1	1
31-40	-	1	2	-	-	-
41-50	-	-	-	-	2	-
50 >	-	1	-	1	-	-
	8	15	18	7	4	2

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