The Adjustment Of Security Prices To The Release Of Stock Dividend/Rights Offering Information

A Thesis
Submitted to the Department
and the Graduate School of Business Administration
of Bilkent University
in Partial Fulfillment of the Requirements
for the Degree of
Master of Business Administration

by
BEGÜM ÇADIRCI

January, 1990

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I certify that I have read this thesis and in my opinion it is fully adequate in scope and in quality, as a thesis for the degree of Master of Business Administration.

Assoc. Prof. Kürşat Aydoğan

I certify that I have read this thesis and in my opinion it is fully adequate in scope and in quality, as a thesis for the degree of Master of Business Administration.

Assist. Prof. Ümit Erol

I certify that I have read this thesis and in my opinion it is fully adequate in scope and in quality, as a thesis for the degree of Master of Business Administration.

Assist. Prof. Gökhan Çapoğlu

Approved by the Graduate School of Business Administration

Prof. Sübidey Togan

A B S T R A C T

The Adjustment of Security Prices To The Release of Stock Dividend/Rights Offering Information

BEGÜM ÇADIRCI

MBA in MANAGEMENT

Supervisor: Assoc. Prof. KÜRŞAT AYDOĞAN

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This study investigates market adjustment to the release of stock dividend/rights offering information for the stocks listed in IMKB First market for the period 1986-1989. The adjustment of security prices is analyzed in the context of a market model which takes market related factors into account.

Direction and speed of adjustment are measured through residual analysis. Weekly security returns are regressed against returns in the market to find average and cumulative residuals around the event date. The regression model and beta coefficients are found to be significant.

The results indicate that the adjustment process is slow and positive cumulative average abnormal returns are observed after the event date. This leads to the rejection of market efficiency in semi strong sense and possibility of an above normal profit.

Keywords: semi strong form market efficiency, average abnormal returns, cumulative average abnormal returns, event date

Ö Z E T

Bedelli / Bedelsiz Sermaye Arttırımının Hisse Senedi Fiyatları Üzerindeki Etkisi

BEGÜM ÇADIRCI

Yüksek Lisans Tezi, İşletme Enstitüsü

Tez Yöneticisi: Doç. Dr. KÜRŞAT AYDOĞAN

Temmuz 1990, 73 sayfa

Bu çalışma bedelli / bedelsiz sermaye arttırım haberlerinin 1986-1989 dönemi içinde Birinci Pazarda işlem gören hisse senedlerinin fiyatları üzerindeki etkisini pazar modeli çercevesinde incelemiştir. Pazardaki fiyatların ayarlanma hızı ve yönü hata terimi analizi ile ölçülmüştür. Haftalık hisse senedi getirileri ile pazar getirisi kullanılarak doğrusal regrasyon yapılmış, arttırım günü etrafındaki ortalama ve kümülatif hata terimleri hesaplanmıştır. Regrasyon modeli ve beta katsayıları anlamlı bulunmuştur.

Sonuçlar, pazardaki fiyatların arttırım haberlerine yavaş ayarlandığını ve arttırım gününden sonra da positif kümülatif hata terimleri olduğunu göstermiştir. Bu, yarı kuvvetli pazar etkinliğinin olmadığını ve normalin üstünde kazançlar sağlanabileceğini göstermektedir.

Anahtar Kelimeler: Yarı kuvvetli etkinlik, ortalama hata terimi, kümülatif hata terimi, arttırım günü.

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I. INTRODUCTION

In modern economies, financial assets arise due to the need for financing excess of investment over saving, because savings are usually not equal to investment in real assets for all economic units in an economy over all periods of time.

The purpose of financial markets is to allocate savings efficiently to ultimate users. The more diverse the patterns of desired savings and investment among economic units, the greater the need for efficient financial markets to channel savings to ultimate users. The ultimate investor in real assets and the saver should be brought together at the least possible cost and inconvenience (Van Horne,1986:561).

For economic growth and adequate capital formation efficient financial markets are necessary. With the development of financial markets, both saving units and borrowing units will have more alternatives. As the number of alternatives to channel funds from ultimate savers to users increase, utility of all the economic units will be increased.

The market for common stocks, the basic source of long term equity financing source for corporations, constitutes an important alternative both for short term and long term investment opportunities for individual investors.

If the security markets are efficient, given the set of available information, the price of a security can be used as the best estimate of the security's value.

If security prices can be relied upon to reflect the economic signals which the market receives, then they can also be looked to provide useful signals to both suppliers and users of capital, the former for the purposes of constructing their investment portfolios, and the latter for establishing criteria for the efficient disposition of the funds at their disposal. Lack of confidence in the pricing efficiency of the market tends to focus the attention of both investors and raisers of capital on potentially wasteful techniques of exploiting perceived inefficiencies, and away from a more positive recognition of the messages contained in the market's prices (Keane,1985).

If security markets are efficient in the semi-strong sense, security prices will reflect all published information and past price data.

The aim of this study is to analyze the adjustment of securities prices to the release of stock dividend/rights offering information in a market model which also takes market related factors into account.

This study covers the four year period from January 1986 to December 1989. In part II of this study some definitions, effect of stock dividend and rights offerings on investor wealth and relevant literature are summarized. In part III, an explanation on the sample and methodology used in analyzing the adjustment of security prices to the release of stock dividend/ rights offering information, is given. Weekly returns are regressed against returns in the market to find average and cumulative residuals around the event day. Part IV includes findings, conclusions and suggestions for further research.

II. A REVIEW OF LITERATURE

A. Some Definitions

1. Stock Dividend/ Stock Split and Rights Offerings

Stock Split: The New York Stock Exchange defines a stock split as a distribution of additional shares that exceeds 25% of those outstanding. In a stock split, the total number of authorized shares is increased by a specified amount. A stock split is accomplished by reducing the par or stated value per share of all authorized shares so that the total par value of all authorized shares is unchanged. In contrast to a stock dividend, a stock split does not result in a transfer of retained earnings to contributed capital. No transfer is needed because the reduction in the par value per share compensates for the increase in the number of shares. The primary reason for a stock split is to reduce the market price per share, which tends to increase the market activity of the stock (Welsh and Short, 1987).

Stock dividend: Payment of additional stock to stockholders. It represents nothing more than a recapitalization of the company; a stockholder's proportional ownership remains unchanged.
With a stock dividend, the par value is not reduced, whereas with a split, it is. Because the par value stays the same, the increase in number of shares is reflected in the common

stock account. The net worth of the company remains the same.

In either case,(stock split or dividend), each shareholder retains the same percentage of all outstanding stock that (s)he had before the stock dividend or split.

There is no change in the firm's assets or liabilities or in shareholders' equity and there is no change in the total market value of the firm's shares.

In Turkey, percentage of additional shares distributed usually exceeds 25 % (resembling a stock split), but no change in par value is observed (resembling a stock dividend). However, an increase in net book value worth due to the effect of revaluation fund transfer, described below, is observed. (From here on, distribution of additional shares at no cost will be referred to as a stock dividend.)

In order to cope with the inflationary effects on accounting numbers, especially on tangible assets, firms are allowed to create a " **revaluation fund** " account under the liabilities side of the balance sheet. This account is later transferred into shareholders' equity by issuing new shares- that is by increasing number of shares outstanding. Besides the above mentioned revaluation fund, retained earnings can also be used in financing stock dividends. However, there is a huge difference between those two dilution sources. When stock dividends are financed by retained earnings, the firm can not benefit from the tax shield present in revaluation fund creation and trasfer. Revaluation results in increased asset book value, and increased depreciation charges act as a tax shield.

With a stock dividend, funds are transferred from retained earnings or revaluation fund to the common-stock and paid in capital accounts.

Rights offering: Instead of selling a security to new investors, firms offer the securities first to existing shareholders. Under the preemptive right, existing common stockholders have the right to preserve their proportionate ownership in the corporation. In Turkey, an additional share of stock can be bought at par value, which is usually 1000 TL. With the assumption of an efficient capital market, each right will then worth:

$$R_o = \frac{P_o - 1000}{N+1}$$

where R_o = market value of one right when stock is selling rights-on,

P_o = market value of a share of stock selling rights-on,

1000 = subscription price per share,

N = number of rights required to purchase one share of stock[1]

When the stock goes ex-rights the market price

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[1]The definitions and the formula are from Van Horne (1986)

theoretically declines. The theoretical value of one share of stock when it goes ex-rights is therefore;

$$P_x = \frac{(P_o * N) + 1000}{N + 1}$$

where P_x is the market price of the stock when it goes ex-rights.

2. Effect Of Stock Dividends / Rights Offerings On Investor Wealth

Stock dividends and rights offerings only multiply the number of shares per shareholder without increasing the shareholder's claim to assets. Although the market price of the stock is expected to decline proportionately, so that total value of investors' holding remain the same as before, the declaration of a stock dividend/rights offering may convey information to investors.

As early as 1956, Barker examined stock splits and showed that rates of return are substantially higher to holders of split shares undergoing cash dividend increases, but not to holders of split shares not culminating in increased cash dividends. Therefore, if investors believe that the firm will maintain the same cash dividend per share after the stock dividend as before, then the stock dividend can also be a thing of value to the investor. In this case stock dividend increases total cash dividends. This will lead to an increase in

cumulative average abnormal returns after the announcement date. However, if the securities markets are efficient, no change should be seen after the event day.

When a stock dividend/ rights offering is announced or anticipated, the market may interpret this as a signal to an increase in its total wealth with the assumption of no change in dividend per share ratio. This will lead to an increase in cumulative average abnormal return (CAAR). If markets are efficient, the adjustment process will be quick and no increase in the CAAR after the event day will be seen.

Another reason for an increase in CAAR is the favorable impact of distribution of new shares thru revaluation fund on firm's after tax income. When new shares are increased thru revaluation fund transfer, increase in assets side leads to a similar increase in depreciation expenses which act as a tax shield.

Although stock dividends can be financed thru revaluation fund transfer, these two events do not usually occur at the same time. Revaluation fund creation is usually long before the stock dividend/rights offering decision.

There may exist a belief among investors that those stocks in the market that have larger number of shares outstanding may have higher liquidity than those with smaller number of shares outstanding. An increase in the number of shares traded in the market may be interpreted as a signal for increased liquidity and may have a favorable impact in valuation of the stock.

Stock dividends/rights offerings can reduce stock price to

a more affordable level. Since this will increase trading activity for the stock, stock dividends/rights offerings can be interpreted as a favorable event.

All of the above motives originate from a correct interpretation of the published information (announcement). However, market may also interpret new information as a signal for above normal profit due to the expectation of an extraordinary increase in wealth. This expectation may increase trading activity and inflate prices.

CAAR is expected to return to its pre-split level when the information turns out to be unfavorable.

3. Forms Of Efficient Market Hypothesis

Market efficiency is generally discussed within the framework presented in Fama's 1970 survey article. A market in which price always "fully reflect" available information is called efficient. Fama suggested that the efficient market hypothesis (EMH) can be divided into three categories: the **"weak form"**, the **"semi-strong form"**, and the **"strong form"**. If the securities markets are efficient in the weak form sense, then investors should not be able to consistently earn abnormal profits by simply observing the historical prices of securities. The semi-strong form EMH asserts that security prices adjust rapidly and correctly (direction and speed) to the release of all publicly available information. Under the strong form EMH, security prices are expected to fully reflect all information,

including both published and unpublished (monopolistic) information. In that sense strong form EMH becomes an extreme null hypothesis as Fama (1970) noted.

4. Semi- Strong Form EMH

Under the-semi strong form, current prices fully reflect not only all past price data but also such information as earnings reports, dividend anouncements, stock splits, and macroeconomic data. If the securities markets are efficient in the semi strong sense, then investors should not be able to earn abnormal rates of return by utilizing trading strategies based on publicly available information.

B. Empirical Tests Of The Semi-Strong Form EMH

Tests of the semi-strong form EMH typically focus on the adjustment of securities prices to a particular kind of information-generating-event- e.g., a stock split, dividend change or earnings report. Each individual test contributes supporting, but not conclusive, evidence to an aggregate body of evidence on the validity of the EMH.

Fama, Fisher, Jensen and Roll's (FFJR,1969) classic test of the semi-strong form EMH examined stock price performance near stock split announcement dates to detect any unusual residual patterns. Because a split simply changes the denomination of ownership, announcement of a split does not

necessarily provide the market with new information. Therefore, evidence of neutral performance in the wake of the split announcement would support the semi-strong form EMH. But FFJR presumed that splits may be associated with the appearance of more fundamental information, usually involving dividends. The approach of FFJR relies heavily on the market model originally suggested by Markowitz .FFJR used a technique to combine residual returns of many securities on the basis of event, rather than on the basis of time, and computed "cumulative average residuals" near the split announcement.

To estimate a "normal" return, FFJR made use of Capital Asset Pricing Model.Security returns were regressed against the returns for an index constructed from all stocks listed on the New York Stock Exchange. The error term represents the residual, or abnormal, return.

FFJR also measured the cumulative average abnormal return (CAAR) by adding the average abnormal returns AAR_t over time, with the time periods centered around the date of event or the announcement date.

In general, if markets are efficient, the CAAR should be close to zero.

This procedure for calculating and analyzing abnormal returns centered around the date of a particular event is still widely used today. Bar-Josef and Brown (1977) reexamined stock splits using moving betas. FFJR estimated systematic risk (β) after eliminating the period surrounding the effective split month. Their methodology implicitly assumes that the systematic

risk of split securities is unaltered around the time of a split.

Earlier research indicated an increase in total cash dividends, usually within one year after the effective split date. But, since the dividend information may be uncertain prior to the split announcement, the period surrounding the effective split date may be one in which abnormally large variability in security returns occurs. Bar-Josef and Brown examined whether or not this variability is shown in increased systematic risk. They compared the cumulative average residuals obtained by using moving betas with those using FFJR's "constant beta" method in which the period surrounding the effective split month is eliminated. The results suggested that FFJR may overstate the benefits accruing to investors in split shares.

Charest (1978), on the other hand obtained and compared competing estimates of abnormal returns (residuals). He also tested trading rules involving fixed and variable monthly investments for profitability. He improved on the past literature in many ways and documented how stocks behave around the three main types of split events: proposals, approvals and realizations. Charest also assesed the performance of various trading rules triggered by these events. He also saw that stocks' returns were more volatile around split time.

Ball and Brown (1978) used an event-based approach similar to FFJR's in attempting to relate share models to estimate earnings surprise, they studied price changes over the 12 months preceding and six months following the annual earnings report.

Ball and Brown admitted that "the annual income report does not rate highly as a timely medium since most of its content is captured by more prompt reporting media." It is thus hard to avoid the conclusion that most investors knew the earnings information contained in the annual report before it was released, although some evidently did not.

Scholes'(1972) test of whether price effects of large block trades are the result of "trading pressure" or " information effects" is also considered to be a supportive evidence of semi-strong form EMH. Scholes found that the price decline must have been due to the additional information that someone is willing to sell a large block of a firm's stock. Scholes also found that the information discount varied with the vendor of secondary: Corporate and officier sales carried the largest discount (most negative price impact); sales by professional investors at banks and insurance companies were at a distant second. The market at least, differentiates between the quality of information being held by corporate insiders; by professional investors and by all investors.

Recent improvements on earlier tests of the semi-strong form EMH have included several attempts to measure market reaction to surprise information.

Charest (1978) examined cases in which dividends departed from a naive expectation by more than 10 cents a share and reported an apparent inefficiency in the semi-strong form EMH. Surprise dividend increases were associated with an abnormal return of roughly 4 per cent and dividend diasppointments with a

negative 7 per cent return over the following two years.

Further evidence of semi-strong form inefficiency was provided by Latane and Jones (1980), who examined the impact of earnings surprises on three-month holding period returns. They reported that they compared a trend projection for the past 20 quarters with the actual reported result and standardized the resulting message of surprise by dividing by the standard deviation of earnings result, formed portfolios based on these rankings and calculated the performance spread between the lowest and highest ranking portfolios. Eleven of the 13 highest ranking portfolios outperformed the sample average portfolio by 7.4 per cent; the 13 lowest ranking portfolios underperformed the standard by 9.1 per cent. Latane and Jones concluded that excess holding period returns are very significantly related to unexpected earnings and adjustment to unexpected earnings is relatively slow.

Brown (1978)[2] examined share price response to changes

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[2]To counter arguments that significant earnings announcements might be accompanied by changes in the risk character of the announcing firm and that the way in which the results were accumulated could affect the statistical significance of the results, Brown used different betas for calculating adjusted return in the days prior to an earning announcement versus days subsequent to the announcement and used three distinct measures of performance.

that could not have been anticipated merely by extrapolating year-to-year earnings changes over the prior three quarters. He concluded: "Cumulative average returns appear to trend strongly from about day 15 following the earnings announcement to about day 45."

C. Empirical Tests Of Market Efficiency -The Case For Turkey

1. Istanbul Securities Exchange

The Istanbul Securities Exchange (IMKB) has started its operations on January 1986 and has a First Market where 50 most active shares are traded and a Second Market where shares with relatively lower trading frequency are listed.

2. Empirical Studies On Weak-Form Efficiency

In the study carried out by Alparslan (1989), the weak form efficiency tests were applied to the IMKB first common stock market's adjusted price data. Statistical tests of independence (autocorrelation and run tests) and tests of trading rules (filter rules) have been used in these tests.

Although the runs and autocorrelation tests could not refute the weak form efficiency , the results of the filter tests revealed that an investor could have beaten the market for some stocks. Due to the large discrepancies between the buy and hold filter returns, Alparslan supports the views which are

against the efficiency of IMKB.

In the study carried out by Basci(1989), distributional and time series behaviour of common stock returns in IMKB for the period 1986-1988 are investigated. The study shows that published past price information can not be used to obtain better forecasts of future prices. Although, this observation is in line with the random walk behaviour (that is weak form efficiency) the test of variance-time function indicate significant long term dependence for most stocks which is against the weak form efficiency.

III. DATA AND METHODOLOGY

A. The Data

The data for this study covers common stocks listed on Istanbul Securities Exchange(IMKB) First Market. To analyze effect of stock dividend/rights offering before and after the event date, it is decided to have at least 8 successive months of weekly price-dividend data around the event date. It is also required that a stock dividend/rights offering security must be listed on the First Market for at least 8 months before and 8 months after the event-date. From January 1, 1986 to December 31,1989 46 stock dividend/rights offerings meeting such criteria occured on the IMKB.

Through the examination of **weekly stock market bulletins** and **Capital Markets Board (SPK) records,** the earliest time that a stock dividend/rigths offering information reached the market was established. Event date, and price-dividend information were found by the examination of weekly bulletins. **Friday closing prices** listed on weekly bulletins, together with cash dividend, rights offering/stock dividend information are used in calculating expected returns on each security.

For some announcements, it was not possible to find event date data in weekly bulletins, therefore sample size became smaller.

B. Methodology

1. Adjusting Security Returns For General Market Conditions

Stock dividend/rights offerings are firm specific events. If the model that determines the security returns has only market related factors in it, then the firm specific effects should be looked for in residual components of this model. Therefore, effects of general stock market conditions on the stocks undergoing stock dividend/rights offerings can be isolated.

Let

$R_{j,t}$ = return on the j^{th} security for week t,

$D_{j,t}$ = cash dividends on the j^{th} security during week t.

(where the dividend is taken as of the payment date)

I_t = return on the IMKB index listed on weekly bulletins.

The following model has been suggested as a way of expressing the relationship between the weekly rates of return provided by an individual security and general market conditions.

$$R_{j,t} = \alpha_j + \beta_j * I_t + u_{j,t} \qquad (1)$$

where α_j and β_j are security specific parameters and $u_{j,t}$ is the random disturbance term. It's assumed that $u_{j,t}$ satisfies the usual assumptions of the linear regression model. That is, random disturbance terms are serially independent, and the

distribution of u_j is independent of the I_t, $u_{j,t}$'s have zero expectation and variance independent of t.

Therefore, equation (1) represents the weekly rate of return on an individual security as a linear function of the corresponding return for the market.

The IMKB index is used as a proxy for the realized rate of return on the market . This index is a measure of value for an equally weighted portfolio of 50 stocks formed at the base period [3].

$$R_t = \frac{N_{e,t}*(P_{e,t}-P_{e,t-1}) + (N_{r,t}*P_{r,t}) + D_t-N_{r,t}*1000 + N_s*P_{s,t}}{N_{e,t}*P_{e,t}}$$

where,

R_t = return at period t,

$P_{e,t}$ = price of the old issue at the end of period t,

D_t = dividend distributed during period t,

$N_{e,t}$ = number of shares at the beginning of period t,

$N_{r,t}$ = number of additional shares received (thru rights offering) during the period,

$P_{r,t}$ = price of the newly issued shares (thru rights offering) at the end of period t,

$P_{s,t}$ = price of the newly issued shares (thru stock dividend) at the end of period t,

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[3]The index has changed to a value weighted one since January 1990.

$N_{s,t}$ = number of additional shares received (thru stock dividend) during the period,

$P_{e,t-1}$ = price at the beginning of period t,

1000 = subscription price per share,

($N_{e,t}$ is usually taken to be equal to 1)

In this study, $P_{r,t}$, $P_{s,t}$ and $P_{e,t}$ are taken to be equal. The expression then reduces to:

$$R_t = \frac{(N_{e,t} + N_{r,t} + N_s) * P_{e,t} - P_{e,t-1} + D_t - 1000 * N_{r,t}}{N_{e,t} * P_{e,t}}$$

2. Tests Of Model Specification

In order to estimate α_j and β_j for each of the securities in the sample available time series on $R_{j,t}$ and I_t are used.

Fama (1969) noted that there is strong evidence that the expected values of the residuals from (1) are non-zero in weeks close to the event date. For those weeks the assumptions of the regression model concerning the disturbance term in (1) are not valid. Thus, if these weeks were included in the samples, α and β estimates would be subject to specification error. Those weeks for which expected values of residuals are non-zero, are excluded from the sample. The parameters of the model were at first calculated using all available data. When the number of positive residuals in any period differed substantially from the number of negative residuals, the period is excluded from

subsequent calculations.

3. Calculation Of Average Residuals

For a given stock dividend/rights offering week 0 is defined as the week in which the effective date of stock dividend/ rights offerings occured. Thus, week 0 is not the same chronological date for all securities, some securities in the sample have more than one week 0. Week 1 is then defined as the week immediately following the effective date. Similarly, week -1 is defined as the week preceding the effective date. Average residuals for week m (where m is measured relative to the event date), is then defined as follows:

$$u_m = \sum_{j=1}^{N_m} \frac{u_{j,m}}{N_m}$$

where

$u_{j,m}$ = sample regression residual for security j in week m,

N_m = number of stock dividends/rights offerings for which data are available in week m.

Examination of the behavior of u_m for the weeks surrounding the effective date is the principal part of this study. Cumulative average residual U_m is defined as:

$$CumU_m = \sum_{k=-40}^{m} U_k$$

The average residual, u_m, can be interpreted as the average deviation of the returns of stocks undergoing stock dividend/ rights offering from their normal relationship with the market.

The cumulative average residual, $CumU_m$, can be interpreted as the cumulative deviation (from week -40 to week m) of the returns of stocks in the sample from their normal relationship with the market.

If the securities market is efficient in semi-strong form, then investors should not be able to earn abnormal profits by buying the stock at the announcement or event date.

An illustration of the FFJR's methodology is as follows:[4]

In Figure 1, the event (stock dividend/rights offerings) is favorable but unanticipated. Market adjustment is only at the event date. There is no possibility of abnormal profits by buying the security at the event date.

In Figure 2, the market anticipates the favorable impacts of the event and adjusts gradually as more information becomes public. As in Figure 1, the market is efficient.

In Figure 3, the event is favorable but unanticipated. There is no adjustment prior to the event date. An increase in CAAR is seen after the event date. One can earn abnormal profits by buying the security at the event date and selling it later on. Security prices do not reflect all publicly available stock dividend/rights offerings information. This indicates semi strong form market inefficiency.

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[4]The figures are from Fuller J. R. and J. L. Farell (1987).

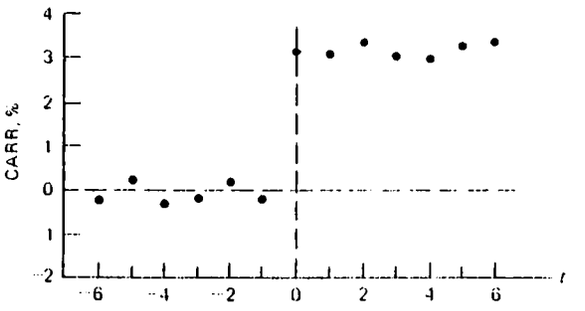

FIGURE I

UNANTICIPATED EVENT IN AN EFFICIENT MARKET

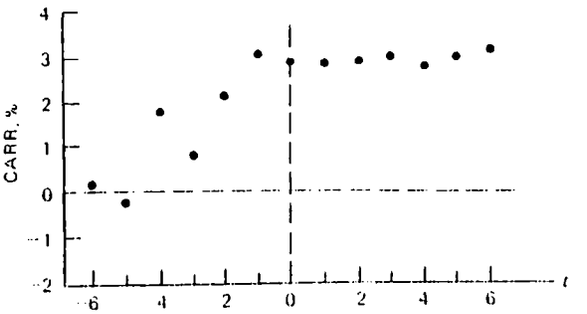

FIGURE II

ANTICIPATED EVENT IN AN EFFICIENT MARKET

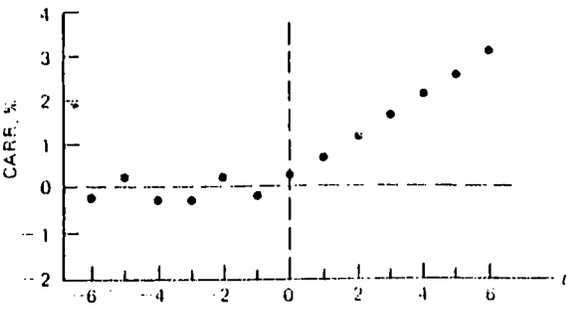

FIGURE III

UNANTICIPATED EVENT IN AN EFFICIENT MARKET

IV. FINDINGS AND CONCLUSIONS

A. Findings

1. Statistical Properties Of Data

For each security in the sample, descriptive statistics are listed on Table 1. They include sample size, mean, median, standard deviation, standard error, minimum, maximum, standardized skewness, standardized kurtosis, and Kolmogrov-Smirnov statistic for normality.

Maximum number of observations is 207, however due to the criteria of being listed on the first market and missing observations this number fluctuated between 95 and 199. Return for some weeks are treated as missing observations. At 5% significance level, for 30 stock return series, normality hypothesis is rejected. At 1% significance level, for 23 series normality hypothesis is rejected. Number of observations, α and β values for each security are listed on Table 2.

2. Goodness of Fit

t statistics, F values and adjusted R squared values are given in Table 2.

All the t ratios for β coefficients are significant except Aymar, which later is excluded from the sample. t ratios for α coefficients are insignificant indicating that securities are

TABLE 1
DESCRIPTIVE STATISTICS

	Sample Size	Average	Median	Standard Deviation	Standard Error	Minimum	Maximum	Standardized Skewness	Standardized Kurtosis	Kolmogorov statistic	Significance Level
Good Year	145	1.77257	0	13.12211	1.08973	-26.1394	58.6207	6.04466	8.149	0.125672	0.0202101
Gubre Fab.	188	0.682485	0	11.63180	0.848338	-35.2941	64	8.04964	23.8024	0.124084	0.0061206
Kepez	127	2.01947	0	15.53235	1.37827	-17.7778	130.769	22.581	87.0327	0.196277	0.0001125
Koc H.	188	2.08646	0.964912	9.450380	0.68924	-21.84	34.5029	3.34473	2.70685	0.0940859	0.0716968
Koc Y.	198	2.39568	1.14289	10.40072	0.739146	-27.7778	62.5	10.6931	24.7076	0.163461	0.0000507
Kordsa	202	2.25681	0.951326	11.14634	0.784253	-34.3284	52.381	7.04444	13.2451	0.134853	0.0012892
Koruma Tarim	204	2.48952	0.396471	12.57779	0.880621	-23.8938	76.4706	14.6554	34.4357	0.175266	0.0000072
Metas	152	2.26819	0	18.88938	1.53213	-35	173.913	25.6138	112.94	0.196157	0.0000166
Nasas	192	1.87751	0	17.16001	1.23842	-35.5556	162.5	28.297	119.28	0.196211	0.0000007
Olmuksa	182	2.37987	0.108696	14.45866	1.07175	-50	80	8.96809	18.5416	0.142483	0.0012351
Otosan	194	2.36393	0	13.55477	0.973177	-31.9149	88.5714	15.1814	40.1074	0.192807	0.0000010
Rabak	203	2.45433	0.72	12.20835	0.856859	-37.7778	61.6071	10.7866	20.5343	0.167661	0.0000221
Sarkuysan	203	2.58676	1.33333	10.79365	0.757566	-23.3333	75.5814	12.4757	34.3195	0.138425	0.0008363
Sifas	103	1.73546	0	13.89874	1.36948	-21.5	66.15	7.00768	11.422	0.14192	0.035563
T Demir	204	2.07864	0.738822	10.29883	0.721062	-24.2424	46.9697	5.42468	6.58586	0.0961331	0.0460777
T Sise	193	2.26402	0.436681	12.81596	0.922514	-42.9775	65	5.6672	13.7246	0.134017	0.0019506
T Siemens	179	1.71606	0.061576	9.983100	0.746172	-25	67.76	10.8778	29.5071	0.146084	0.0009617
Yasas	119	1.38924	0	9.056953	0.83025	-22.45	41.6667	4.45156	8.38383	0.109322	0.116315
Cimsa	191	3.06282	0	19.07894	1.3805	-66.2712	191.457	27.5073	142.041	0.144752	0.0006682
Arcelik	195	2.45153	1.06383	9.926389	0.710843	-22.2222	42.8571	4.84231	7.22494	0.118201	0.0086023
Kartonsan	204	1.86369	0.785053	9.853699	0.689897	-34.4203	44.186	5.37329	10.9929	0.110426	0.013816
I. Demir	174	2.2796	0	20.47640	1.55231	-29.7872	228.571	42.9607	233.535	0.208764	0.0000005
Cukurova	203	3.13085	1.36986	11.65662	0.818136	-23.6641	57	6.35502	8.76519	0.122259	0.0046291
Doktas	191	2.26234	0.961538	11.24953	0.813989	-26.0163	59.3407	7.51089	14.5138	0.105343	0.0288441
Izocam	190	2.24479	0.25641	10.64095	0.771975	-21.1765	42.4779	5.5843	4.58847	0.11465	0.0135437
Ak Cimento	188	2.54565	0	13.63631	0.994529	-23.8462	95.3	13.7575	34.5564	0.146232	0.0006444
Aymar	96	3.8877	1.80093	16.91712	1.7266	-25.2941	102	15.8739	42.7223	0.220192	0.0001812
Bagfas	201	2.41575	0	12.65665	0.892732	-26.3889	70.1031	9.12826	18.1268	0.11304	0.0117532
Brisa	199	2.75617	0	13.35724	0.94687	-31.1628	68.1034	9.89417	17.4148	0.12385	0.0044640
Eczacibasi Y.	192	2.55447	0.387092	11.49612	0.829662	-18.1818	89	17.5093	51.0884	0.165768	0.0000522
Ege Gubre	174	2.2957	0	14.46602	1.09667	-25	82.74	10.7501	18.7449	0.160192	0.0002646
Celik Halat	204	1.96407	0.876536	9.878567	0.691638	-26.4151	54.9296	8.60896	18.961	0.144002	0.0004233

TABLE II

REGRESSION RESULTS

Security	Alpha	t ratio	Beta	t ratio	F value	ADJ R-SQ	DW	SSR	# of ob
Ak Cimento	0.79432831	0.916	0.86404053	9.13	83.362	0.3115	1.674	23738.73	183
Arcelik	1.09401083	2.021	0.73943853	12.322	151.833	0.4438	2.201	9996.313	190
Aymar	3.32588668	1.761	0.29502915	1.616	2.611	0.0168	1.95	28885.26	95
Bagfas	0.40673059	0.621	1.03004725	13.973	195.254	0.499	2.195	15603.14	196
Brisa	0.59400511	0.916	1.15595123	15.97	255.049	0.5683	1.785	14497.07	194
Celik Halat	0.30640316	0.669	0.86549688	16.799	282.204	0.5868	2.347	7831.143	199
Cimsa	0.64474507	0.686	0.92944503	9.074	82.33	0.3054	2.426	28784.33	186
Cukurova	1.44322185	2.362	0.8751034	12.696	161.188	0.4497	1.994	13713.3	197
Doktas	0.12397645	0.221	0.92598422	15.146	229.396	0.5525	1.761	10275.12	186
Eczacibasi Yatirim	1.61765248	2.018	0.50627013	5.72	32.714	0.1457	1.547	21245.46	187
Ege Gubre	0.53822808	0.588	0.90202834	9.144	83.608	0.327	2.119	23160.19	171
Good Year	0.06268883	0.075	0.88515673	10.64	113.203	0.4414	1.642	13702.06	143
Gubre Fabrikalari	-1.0628	-1.657	0.85129443	12.184	148.459	0.4449	1.807	13273.59	185
Izmir Demir	1.27496589	0.794	0.47532885	2.883	8.024	0.0464	1.985	68044.5	168
Izocam	0.55425618	0.951	0.82673557	13.041	170.579	0.481	1.941	10791.01	184
Kartonsan	0.80623187	1.304	0.58484084	8.422	70.933	0.262	2.218	14141.4	198
Kepez Elektrik	-0.166327	-0.183	0.58155818	4.507	20.316	0.1367	2.276	11521.16	123
Koc Holding	1.76592029	2.25	0.42124672	4.96	24.602	0.1197	2.187	19461.98	183
Koc Yatirim	0.77820047	1.525	0.89156489	15.741	247.776	0.5624	2.131	9149.495	193
Kordsa	0.35766934	0.63	0.91699001	14.473	209.458	0.5167	2.237	11658.48	196
Koruma Tarim	1.10842592	1.446	0.7942312	9.214	84890	0.2976	2.17	21927.09	199
Metas	0.97416581	0.662	0.69372314	4.654	21.663	0.1232	2.059	45213.09	148
Nasas	0.61048118	0.512	0.73320052	5.59	31.249	0.1399	1.787	46796.98	187
Olmuksa	0.33788691	0.401	1.05717333	11.526	132.859	0.4255	2.366	21401.5	179
Otosan	1.31733296	1.445	0.65362651	6.473	41.894	0.1787	1.942	27954.16	189
Rabak	0.90402813	1.284	1.06885363	11.119	123.634	0.3849	1.941	18192.52	197
Sarkuysan	0.87525985	1.64	1.11242009	15.255	232.723	0.5418	2.15	10390.32	197
Sifas	0.61752937	0.53	0.95391396	6.661	44.363	0.3025	2.336	13202.93	101
T. Demir	0.9743462	1.551	0.64706807	9.178	84.234	0.297	2.292	14589.7	198
T. Siemens	0.64627999	0.954	0.63910906	7.133	50.885	0.2199	2.098	13543.62	178
T. Sise	0.69051604	0.902	1.06096535	10.264	105.352	0.3582	1.848	19518.25	188
Yasas	0.93812407	1.268	0.53269693	5.763	33.213	0.2145	1.985	7539.681	119

neither over nor under priced.

Since calculated F values are greater than the critical F values, the reduction in the error sum of squares are not due to chance, that is the regression is significant.

Adjusted R square values are as low as .0404 (for Izmir Demir) and as high as .5868 (for Celik Halat). The regression line, therefore explains at most 58.68% of the variation in security returns.

DW statistics show that 2 securities suffer from positive autocorrelation (namely Ak Cimento and Eczacibasi Yatirim), and 2 from negative autocorrelation (namely Olmuksa and Turk Demir Dokum) contradicting the basic assumptions of a linear regression model. The error term u_t is no longer white noise for those securities. For other 2 securities, calculated DW statistics fall within the inconclusive region.

3. Statistical Properties of Residuals

Table 3 includes descriptive statistics (mean, median, standard deviation, standard error, minimum, maximum, standardized skewness, standardized kurtosis and kolmogrov statistics) for the residuals of each security. Residual plots are given in Appendix 1.

Average residuals (AR) are calculated as explained in the "calculation of average residuals" section. AR plot is shown in Figure 4. Since the number of negative residuals are higher than the number of positive residuals, one can conclude that price

TABLE III

DESCRIPTIVE STATISTICS

	Sample Size	Average	Median	Standard Deviation	Standard Error	Minimum	Maximum	Standardized Skewness	Standardized Kurtosis	Kolmogorov statistics	Significance Level
Good Year	143	-0.00005	-1.29118	9.825197	0.821457	-31.3083	38.8322	3.91127	6.65797	0.113239	0.0510853
Gubre Fab.	185	0.000067	-0.55133	8.49363	0.624464	-24.5157	43.3115	5.85667	23.8024	0.0882886	0.11179
Kepez	123	0.000110	-0.41895	9.717545	0.876202	-24.6697	49.5036	5.50504	12.9563	0.130353	0.0305369
Koc H.	183	-0.00008	-1.27767	10.34064	0.764401	-41.0972	84.5432	16.3041	68.6001	0.141194	0.0013558
Koc Y.	193	0.000031	-0.10154	6.903441	0.496921	-16.5663	38.9416	7.26208	17.2787	0.0881782	0.0994324
Kordsa	196	0.000079	-0.54841	7.732037	0.552288	-25.7502	42.0614	1.82705	21.4017	0.124155	0.0047514
Koruma Tarim	199	0.000288	-1.44543	10.52311	-28.7402	73.4367	102.177	16.0711	34.4357	0.198254	0.0000003
Netas	148	0.000503	-1.74336	17.53767	1.44159	-51.7963	155.214	23.3812	103.682	0.183925	0.0000896
Nasas	187	0.000294	-1.74315	15.86184	1.15993	-30.6882	153.373	30.6412	134.901	0.210337	0.0000001
Olmuksa	179	0.000198	-1.42911	10.96535	0.819588	-36.1211	48.3776	7.0959	14.3793	0.172827	0.0000454
Otosan	189	0.000052	-1.8752	12.15397	0.888698	-46.5127	70.5774	12.6171	37.7844	0.187175	0.0000035
Rabak	197	-0.00012	-0.52791	9.633997	0.686394	-46.2235	38.571	4.94488	18.3106	0.173679	0.0000137
Sarkuysan	197	0.000116	-0.61421	7.281284	0.51877	-21.9386	46.2829	8.37545	24.4168	0.0899749	0.0823693
Sifas	101	0.000067	-1.56487	11.49077	1.14338	-24.6871	50.8942	7.18831	12.3578	0.0967665	0.300661
T Demir	198	0.000504	-0.78733	8.605486	0.611565	-43.4626	30.2524	0.644773	0.00153178	0.121007	0.0060641
T Sise	188	0.000211	-0.57009	10.21650	0.745117	-48.2594	37.5377	0.19106	10.819	0.0639585	0.425322
T Siemens	178	0.000605	-1.46933	8.747531	0.655655	-25.487	52.7174	7.76613	29.5071	0.125869	0.0071048
Yasas	119	0.000334	-0.60304	7.993134	0.73273	-19.7822	39.9707	4.9327	11.1694	0.0840982	0.369154
Cimsa	186	0.000109	-1.02427	12.47341	0.914594	-87.3549	51.4744	-10.7323	45.3316	0.147601	0.0006044
Arcelik	189	-0.01135	-0.38776	7.290541	0.530309	-20.5342	25.0523	2.3116	4.71139	0.0829521	0.148333
Kartonsan	198	0.000329	-0.59059	8.472337	0.602103	-25.2489	49.6001	8.2081	24.4633	0.118164	0.0079377
I. Demir	168	0.000046	-3.24011	20.18541	1.55734	-38.9556	215.151	39.1816	205.511	0.203497	0.0000018
Cukurova	197	-0.00003	-1.37367	8.364454	0.595943	-32.1076	32.8836	3.39835	11.0193	0.126506	0.0035449
Doktas	186	0.000402	0.121575	7.452905	0.546474	-24.2106	31.3573	1.11176	6.31581	0.0715747	0.29645
Izocam	184	0.000212	-1.16595	7.678339	0.566055	-16.7204	36.5741	6.89617	9.87296	0.113397	0.017617
Ak Cimento	183	0.000385	-1.23018	11.42094	0.844261	-25.6545	94.7084	19.1216	72.5523	0.147625	0.0006670
Aymar	93	-0.09602	-2.50739	16.67117	1.72872	-26.4064	98.5004	17.0068	46.1863	0.239479	0.0000465
Bagfas	196	0.000370	-0.92726	8.945104	0.638936	-27.6374	41.2791	8.0301	17.6438	0.131008	0.0022940
Brisa	194	0.000327	-1.05761	8.800374	0.63183	-18.6221	42.0022	6.87582	10.3824	0.0972074	0.05114
Eczacibasi Y.	167	0.000306	-1.86741	10.68704	0.781514	-39.3089	74.4467	13.7033	41.1729	0.132953	0.0001574
Ege Gubre	171	0.000151	-1.01512	11.67236	0.892608	-20.9243	83.1595	15.4809	42.3696	0.156089	0.0004812
Celik Halat	199	0.000493	-0.24041	6.28882	0.445803	-31.4459	24.5858	1.7569	15.0256	0.100233	0.0366844

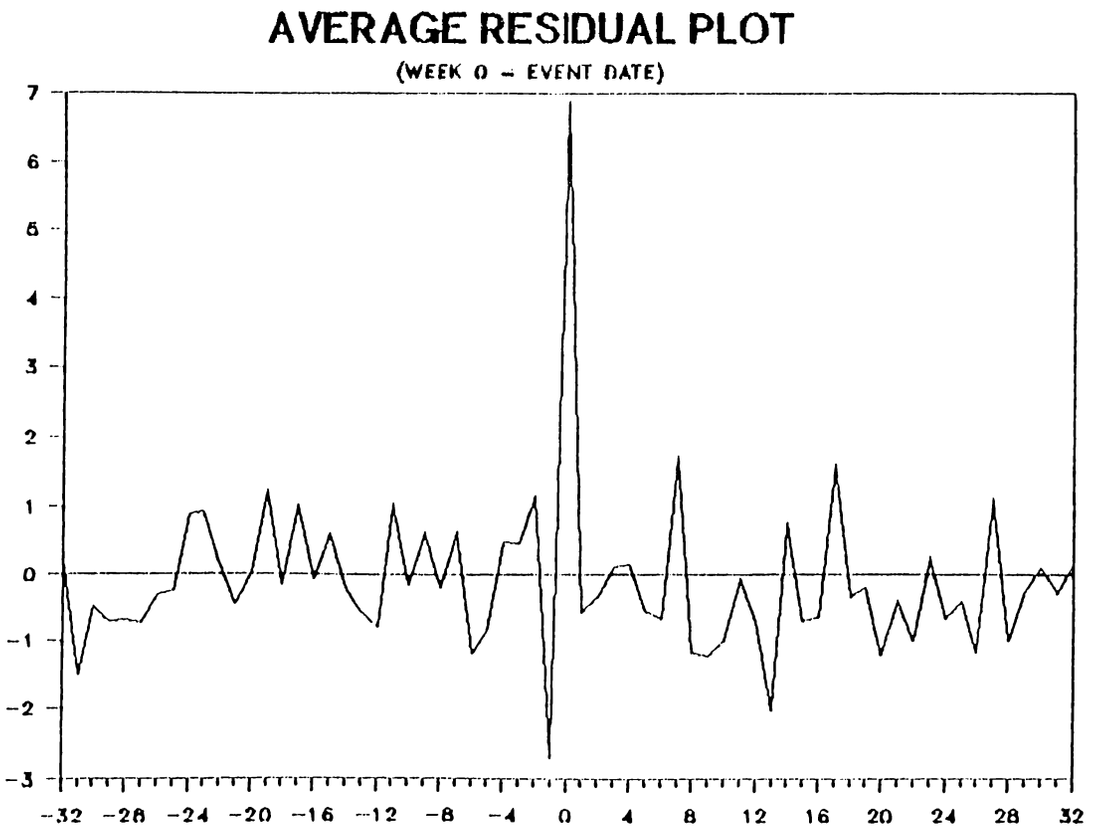

FIGURE IV

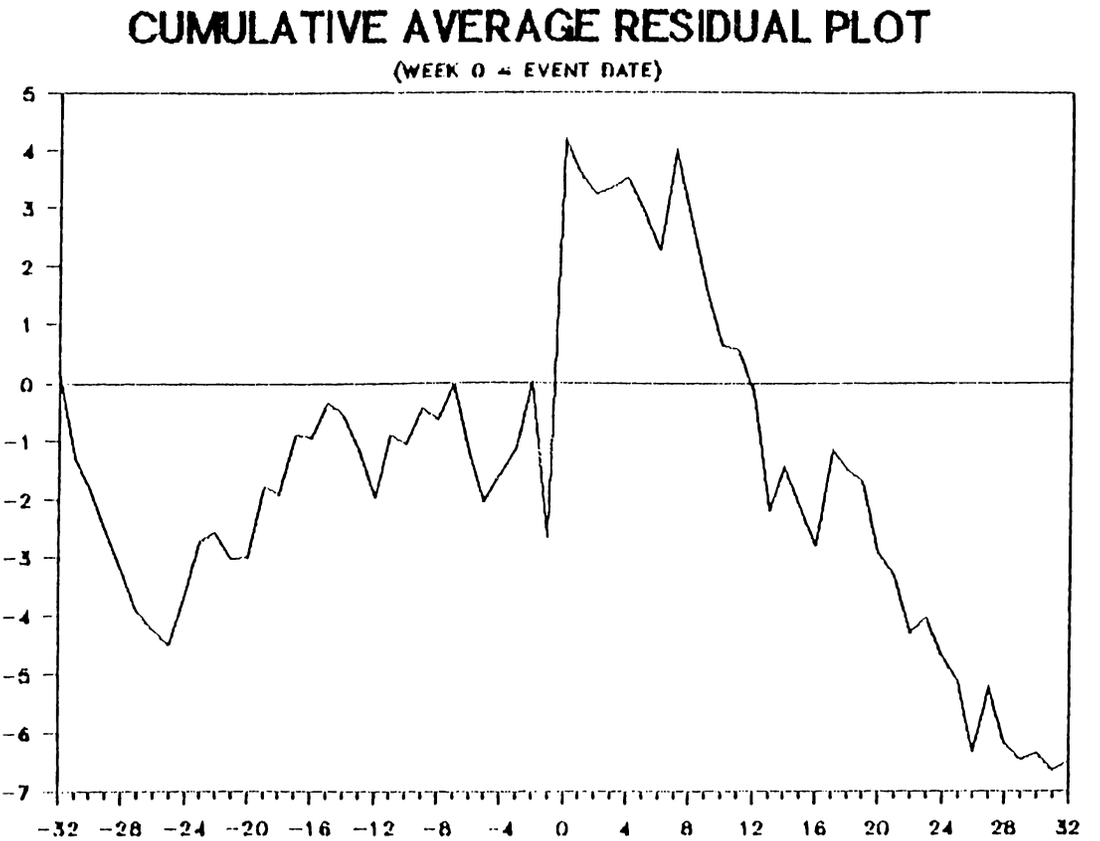

FIGURE V

increases are fast, and decreases are slow. Cumulative average residual plot is shown in Figure 5. Market reacts very slowly to a stock dividend/rights offering announcement and during the week following the event date a significant increase in the cumulative residuals becomes apparent. A decrease in residuals is observed following week 2. At week 12, cumulative residuals start to become negative.

Average and cumulative average residual plot around the announcement date are shown in Figure 6 and Figure 7 respectively. An analysis of cumulative average residuals indicate that the behavioral pattern of cumulative average residuals upto the announcement date tends to persist after the announcement date. It is also observable that this pattern does not change before the event date (on the average 9 weeks after the announcement date). Apparently, it is three or more weeks after the event date that an abnormal behavior in cumulative average residuals is observed.

As FFJR (1969) noted, there is strong evidence that the expected values of residuals from the regression model (equation (1)) are non-zero for the weeks close to the split. For these weeks, the assumptions of the regression model concerning the disturbance term are not valid. Thus if these weeks were included in the sample, estimates of α and β would be subject to specification error. Therefore, some weeks were excluded from the sample to avoid this source of specification error. However, FFJR's exclusion criteria- looking at the differences between negative and positive residuals during the

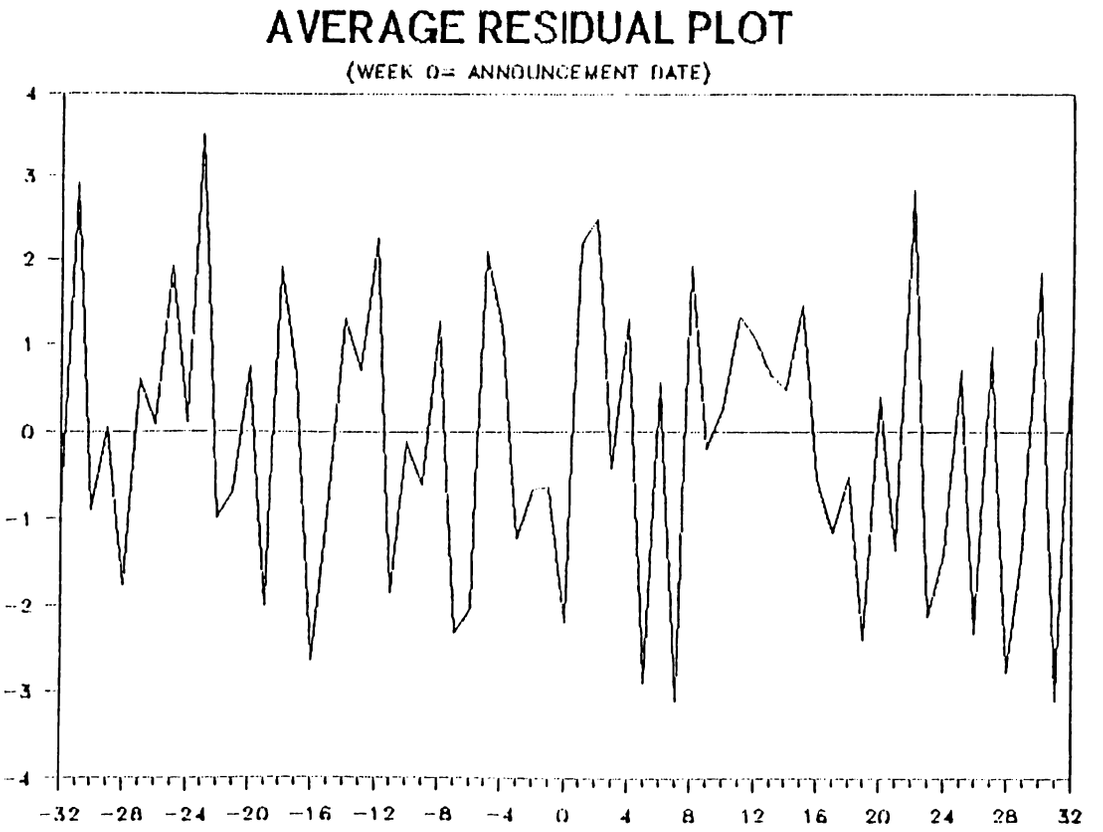

FIGURE VI

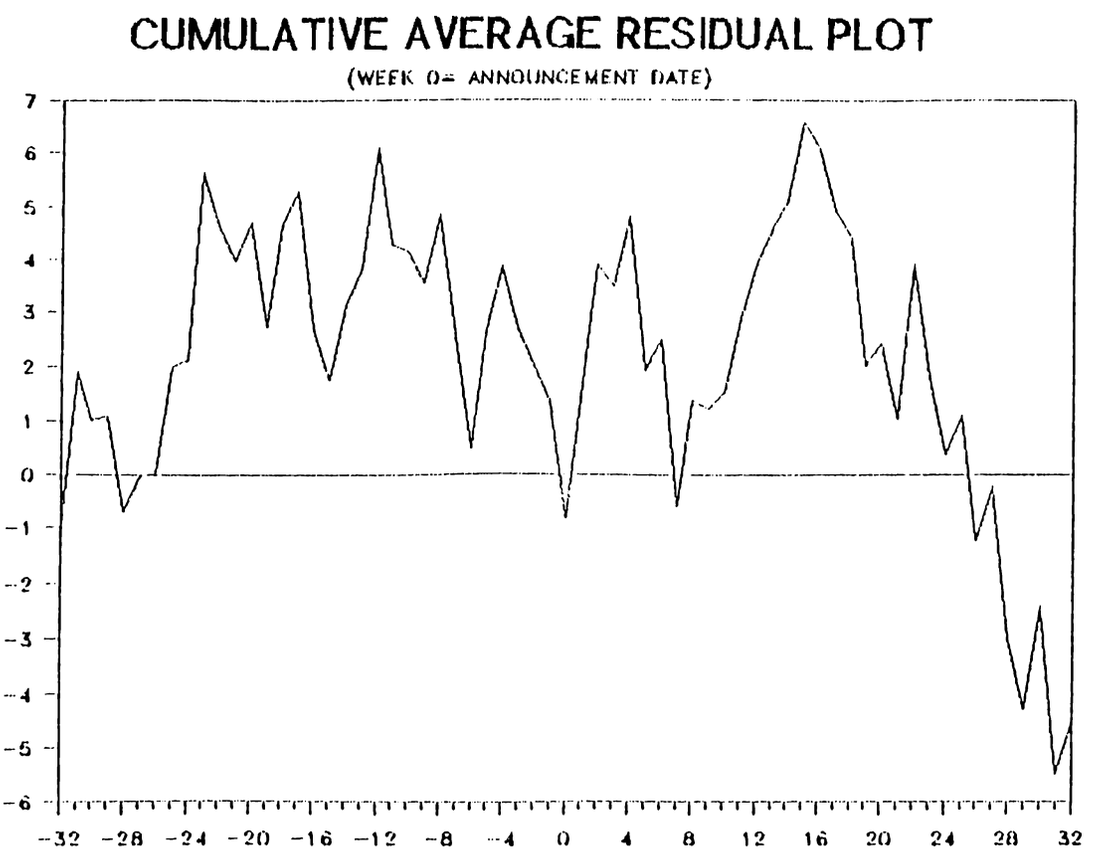

FIGURE VII

weeks surrounding the split- was not very helpful. Appendix 2 shows that number of negative residuals are usually higher than the number of positive residuals. Therefore, this exclusion procedure was modified as follows: When the absolute change in the number of positive residuals minus negative residuals showed a substantial difference, this week was excluded from subsequent calculation. This criteria caused exclusion of 12 weeks (3 months) before and after the event date for all securities. The result of the analysis of regression residuals, carried out for the sample that is subject to exclusion procedure, were much the same as the results obtained with no data exclusion. Therefore, these results are not reported here.

B. Conclusions

Following inferences can be made by analysis of results:

* adjustment occurs not on the anouncement date but on or after the event date.
* market reaction to a stock dividend/rights offering announcement is slow.
* there exists abnormal returns in the stock market after the event date, indicating lack of market efficiency.
* It is not until the second week that a decrease occurs in cumulative average abnormal returns.
* That declining trend starting after week 2 lasts for about six months.

A possible explanation for the observed inefficiency is the

difficulty of access to "publicly available" information. If however, market access to publicly available information is adequate, the individuals in the market must be misinterpreting the information. This inefficiency can be utilized to gain abnormal profits in the market.

However, since that behavior was observed for the aggregate market, it may or may not hold for individual securities. In any event, it is very likely that this inefficiency will show itself in mutual funds which include common stocks.

Hence, implications for stock market practitioners is to buy the security before the event date (preferably 6 months after the previous event date) and sell it on the event date.

C. Suggestions For Further Research

One refinement to the methodology adopted in this study could be to utilize a moving βeta approach instead of assuming constant βeta as Fama(1969) did. The rational for this could be the fact that the variability of the returns close to the event date tend to increase. Therefore, this methodology may overstate the benefits accruing to investors.

Another approach could be working with daily returns instead of weekly. In a method that utilizes weekly returns, the week that embeddes the event date appears as the "event week". During the week, returns may fluctuate, go up or down, which could only be observable by a study with daily data.

Unfortunately, the disadvantage of daily sample is the

difficulty to work with whole market. Analysis would be limited to a few stocks as well as a shorter sampling period.

Besides stock dividend/rights offerings announcement, management changes, dividend and earning information and announcement of macroeconomic indicators can also be used in analyzing existence of semi strong form efficiency.

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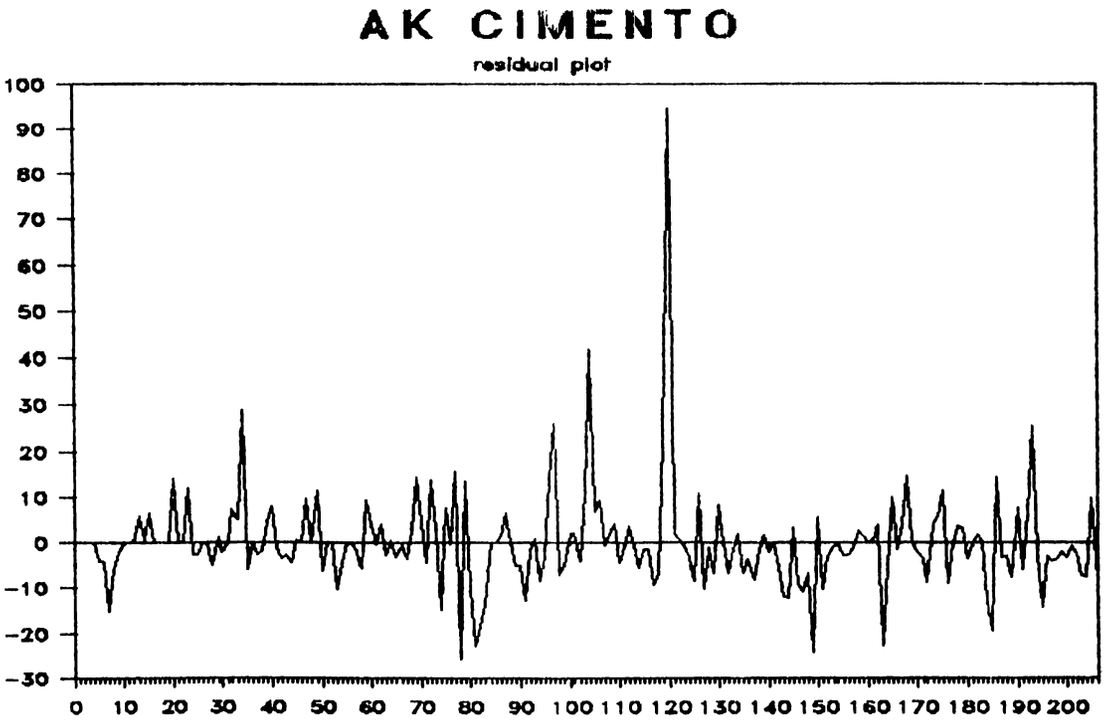
APPENDIX A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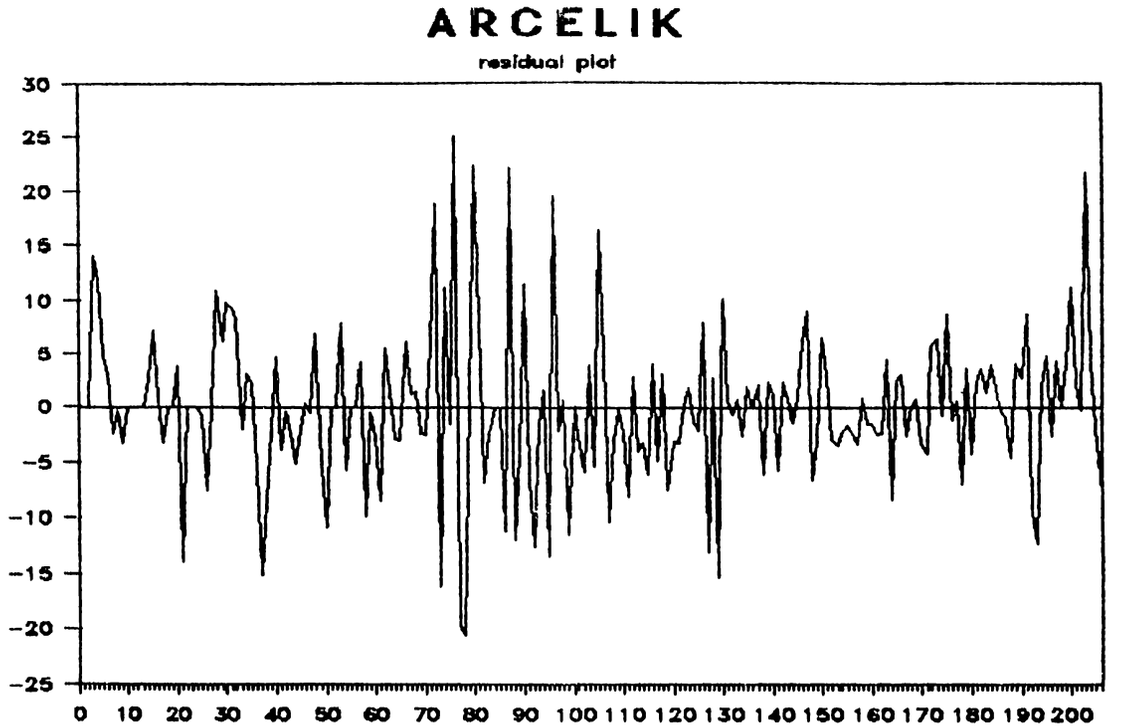
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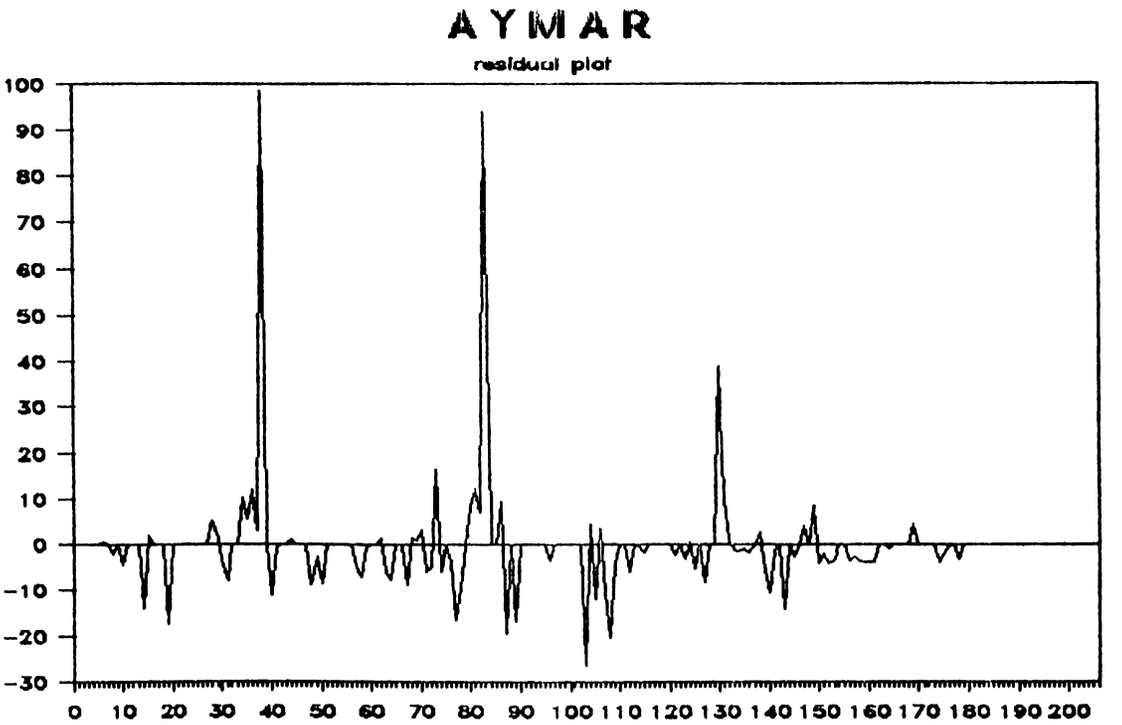
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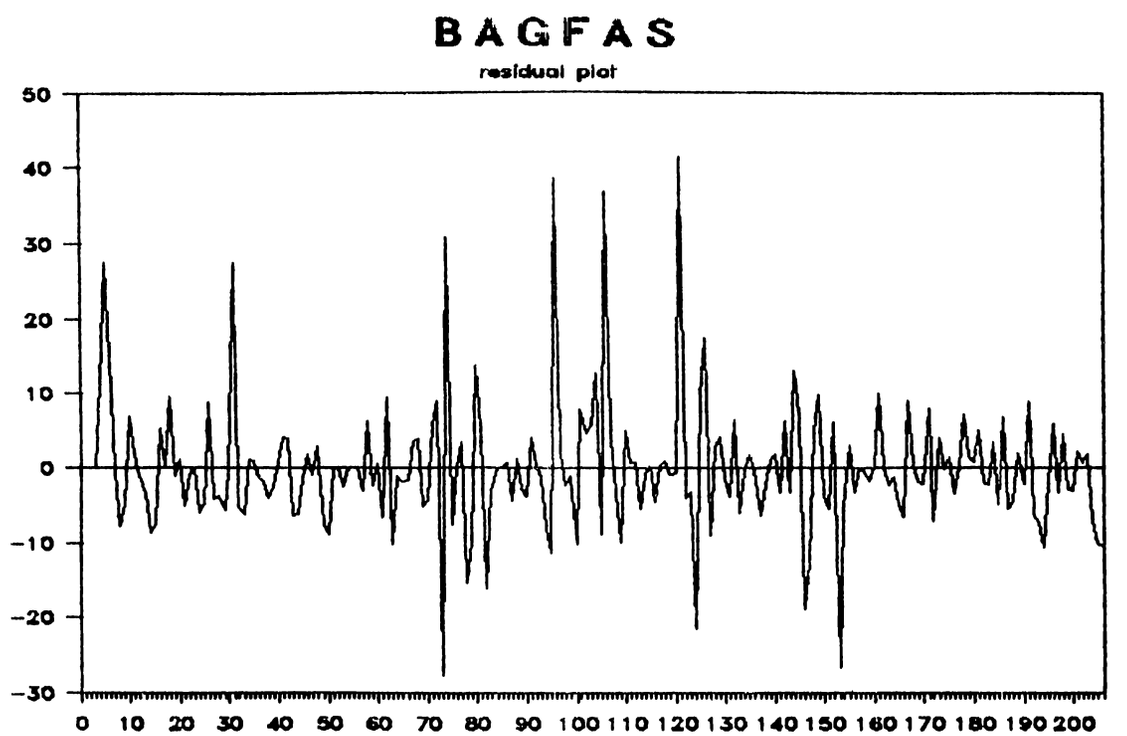
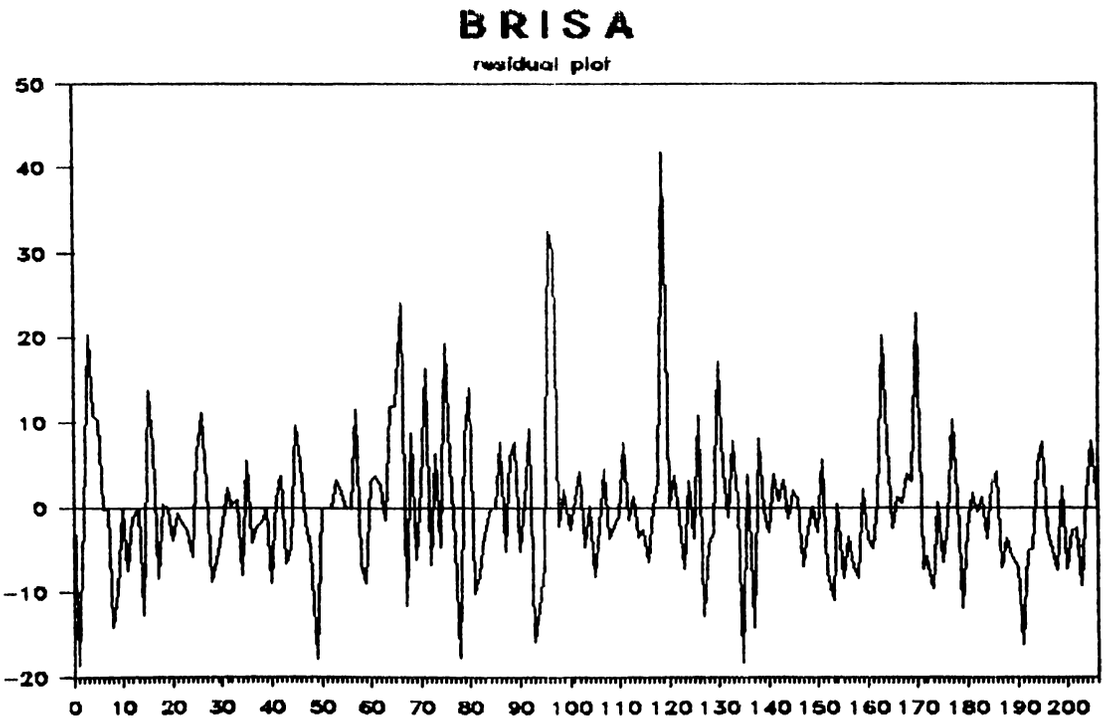
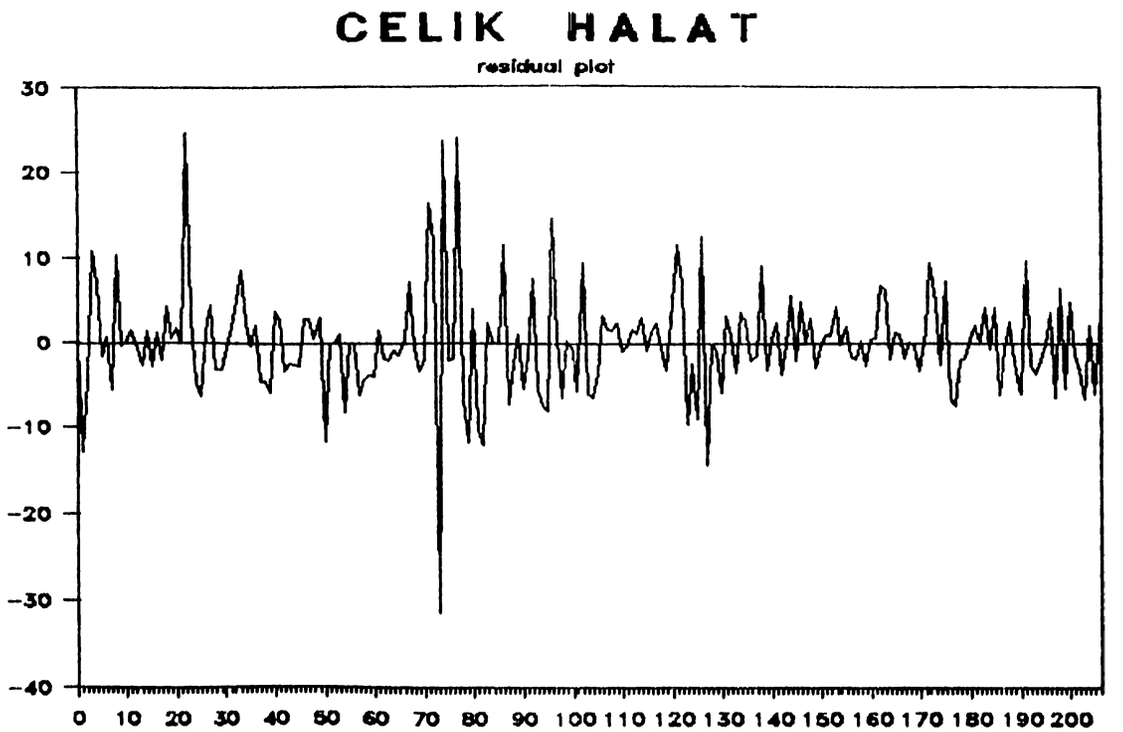
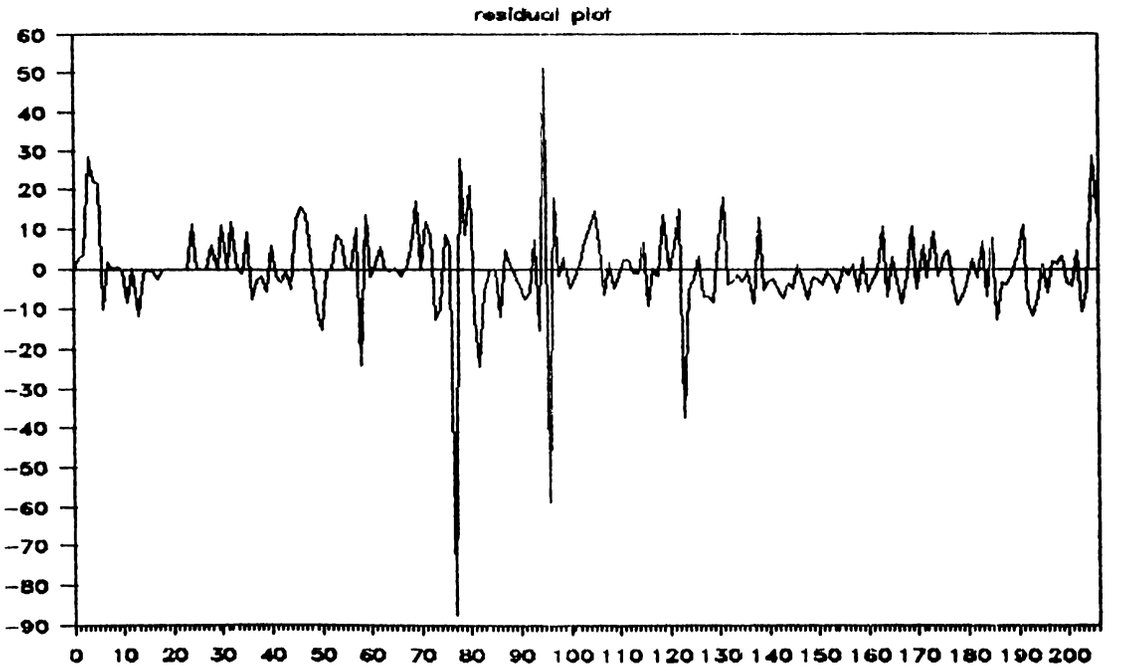
-10
-20
-30
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200


BAGFAS
residual plot
50
40
30
20
10
0
-10
-20
-30
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200


BRISA
residual plot
50
40
30
20
10
0
-10
-20
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200


CELIK HALAT
residual plot
30
20
10
0
-10
-20
-30
-40
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200


CIMSA
residual plot
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
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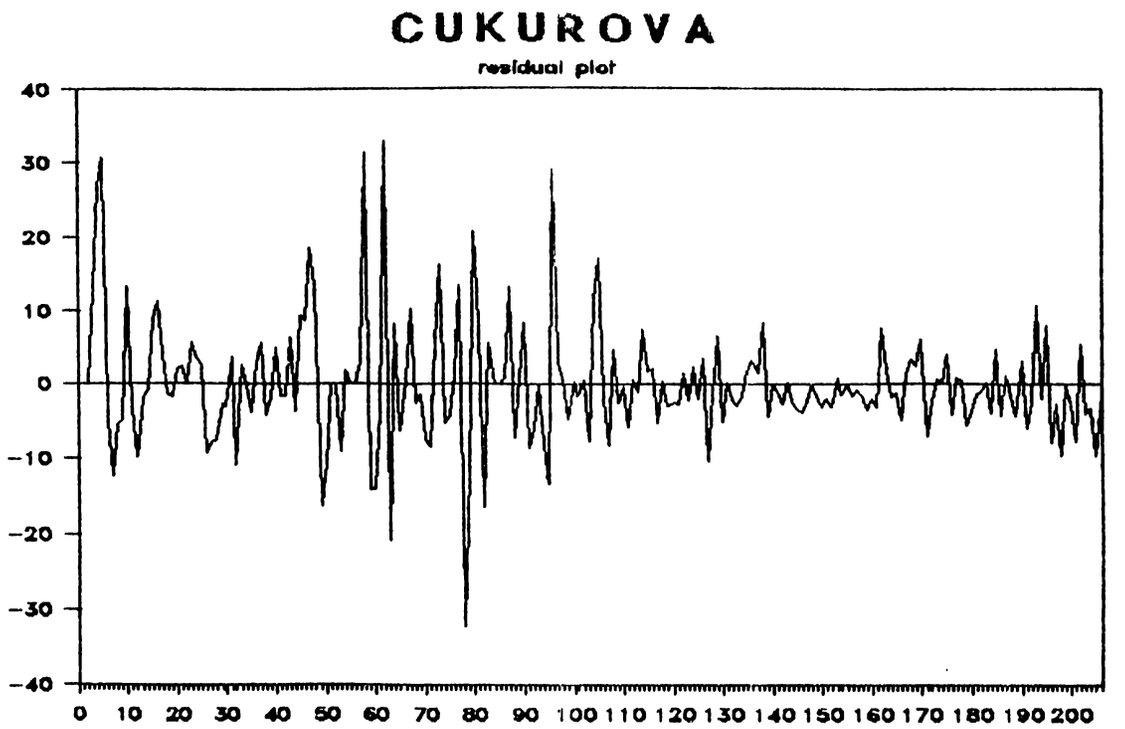
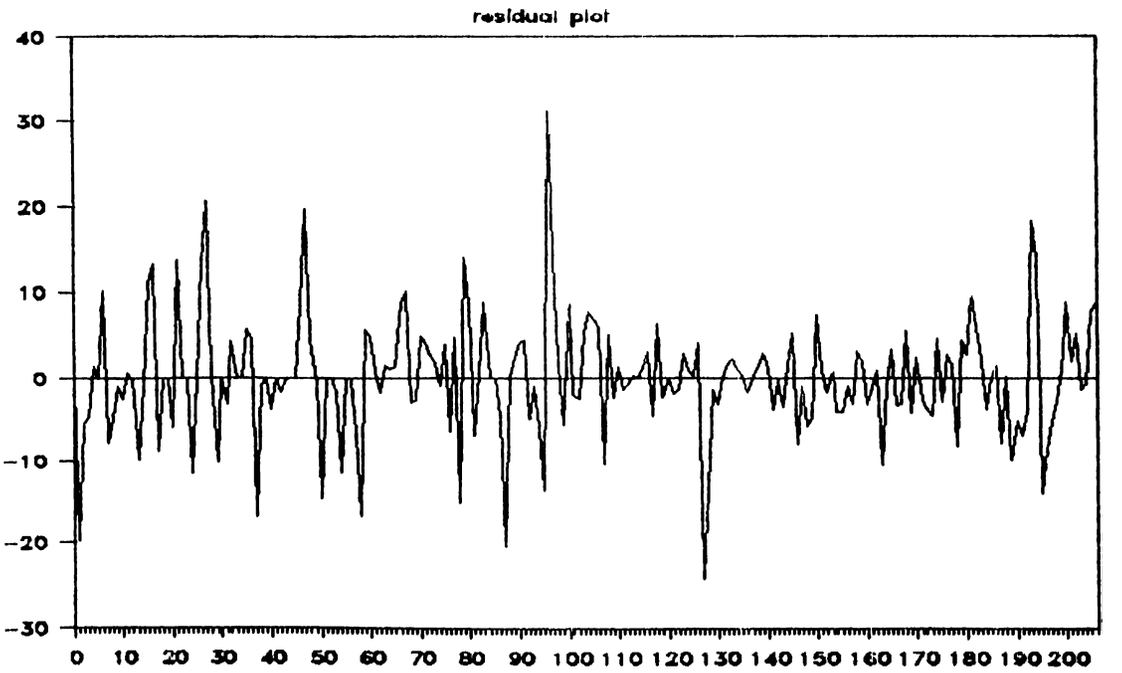
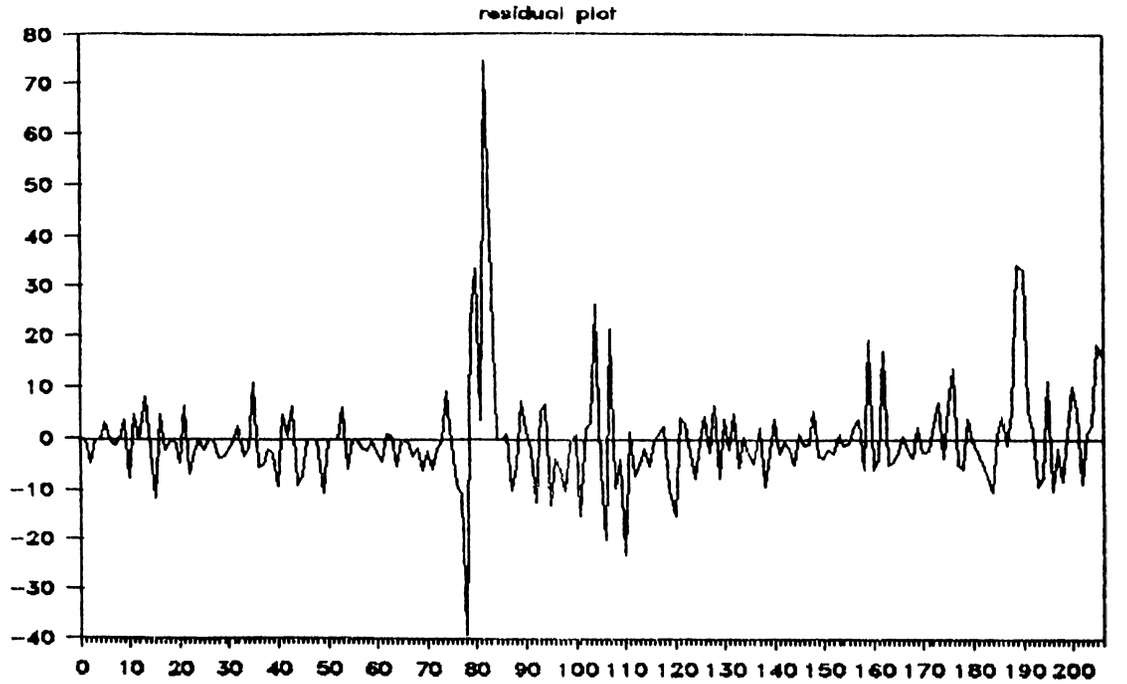

CUKUROVA
residual plot
40
30
20
10
0
-10
-20
-30
-40
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

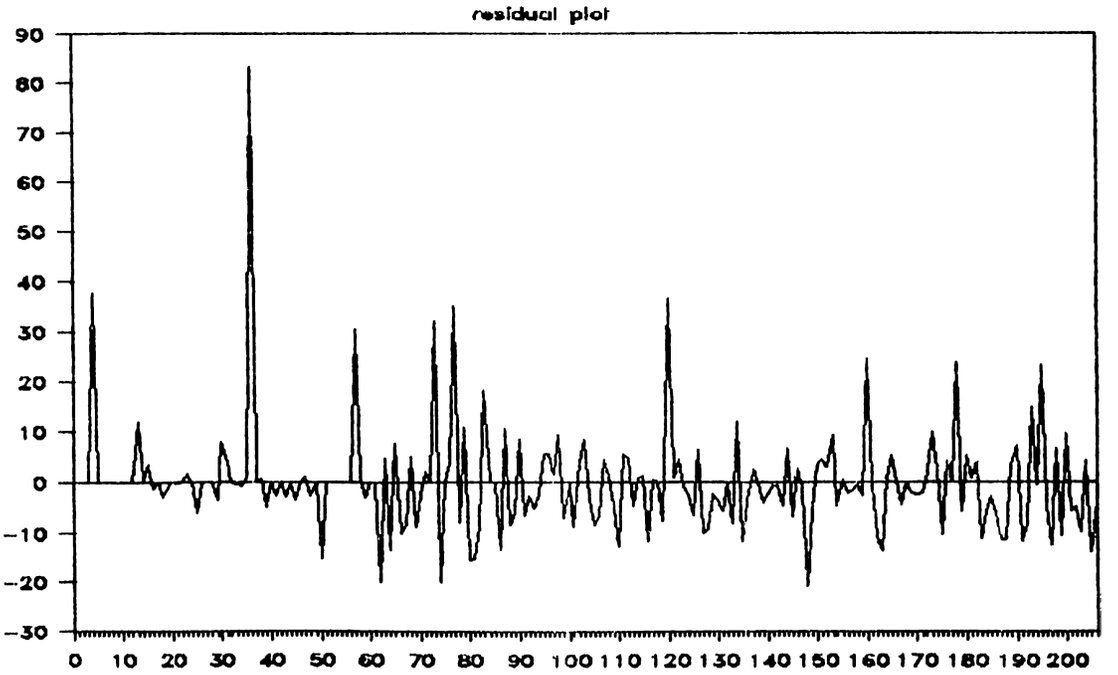
DOKTAS



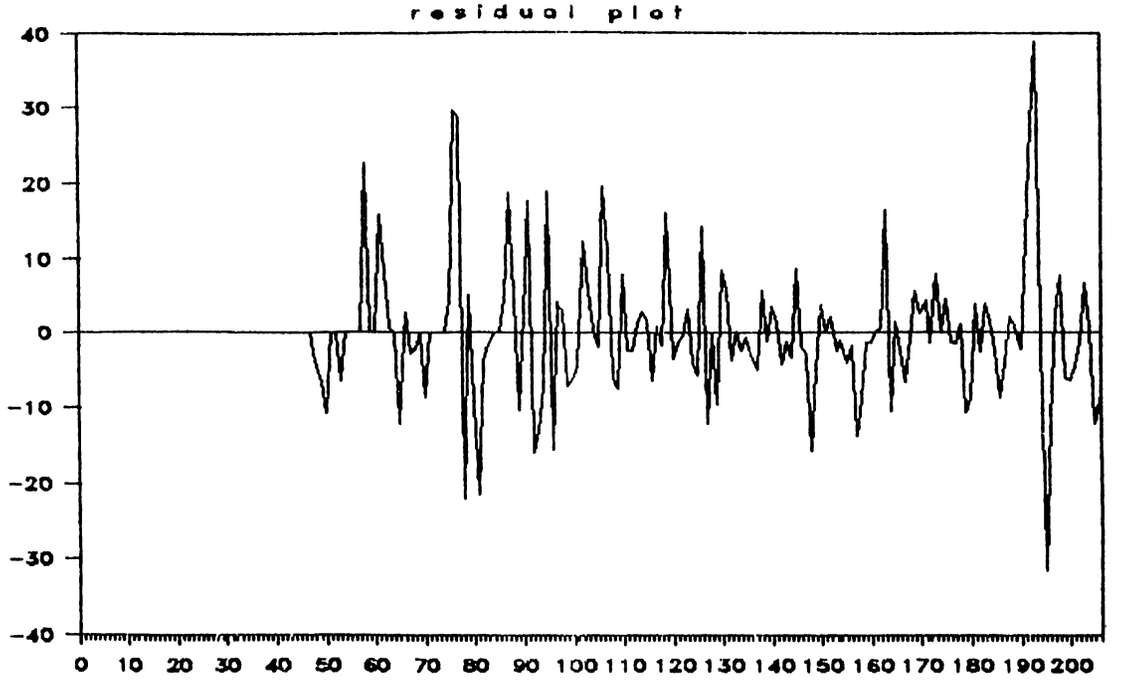
ECZACIBASI YATIRIM



EGE GUBRE

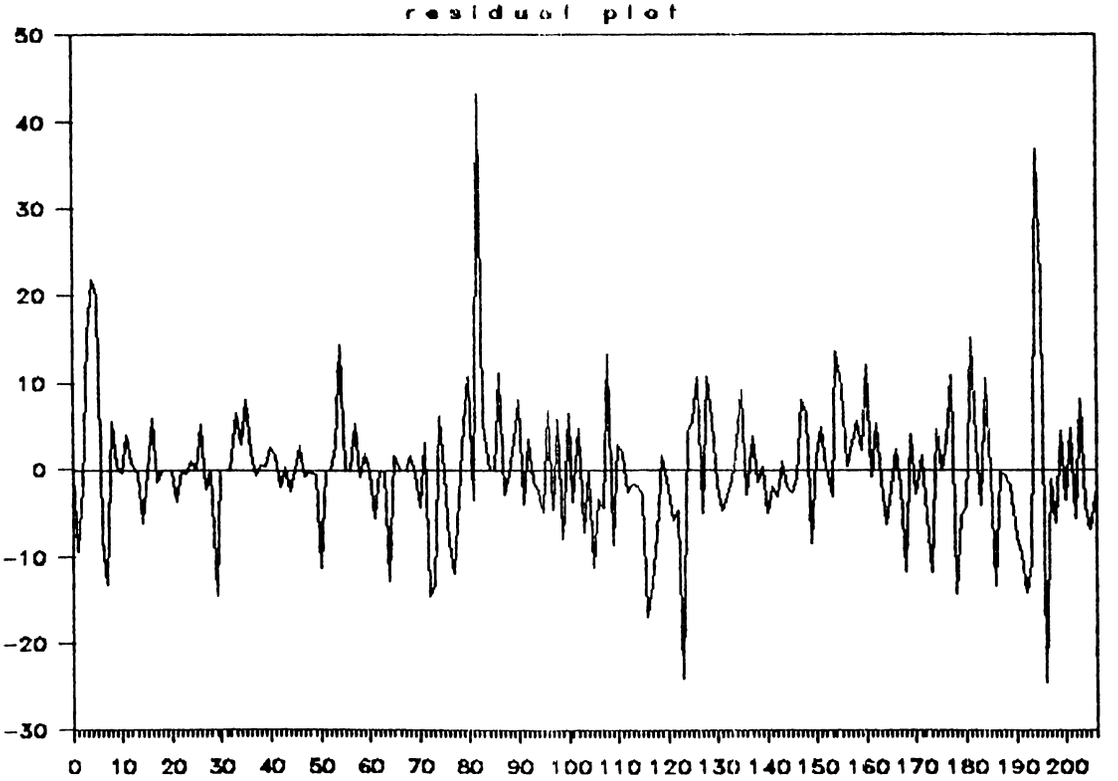


GOOD YEAR



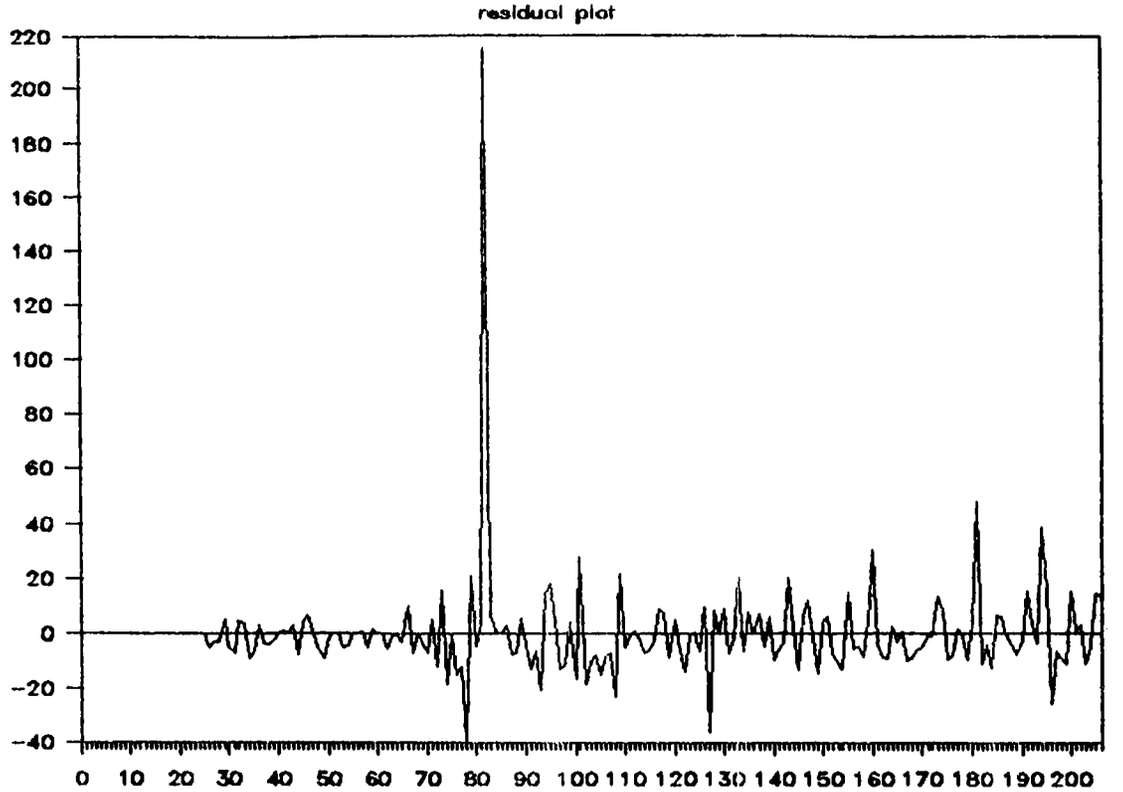
GUBRE FABRIKALARI

residual plot

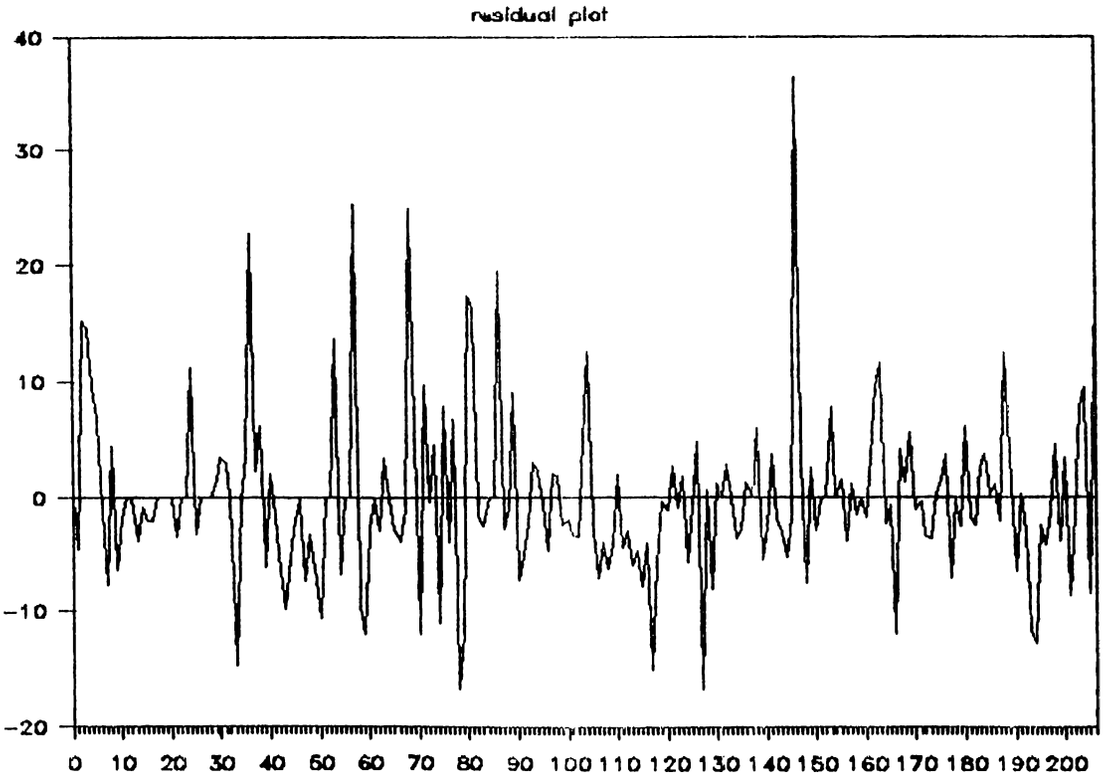


IZMIR DEMIR

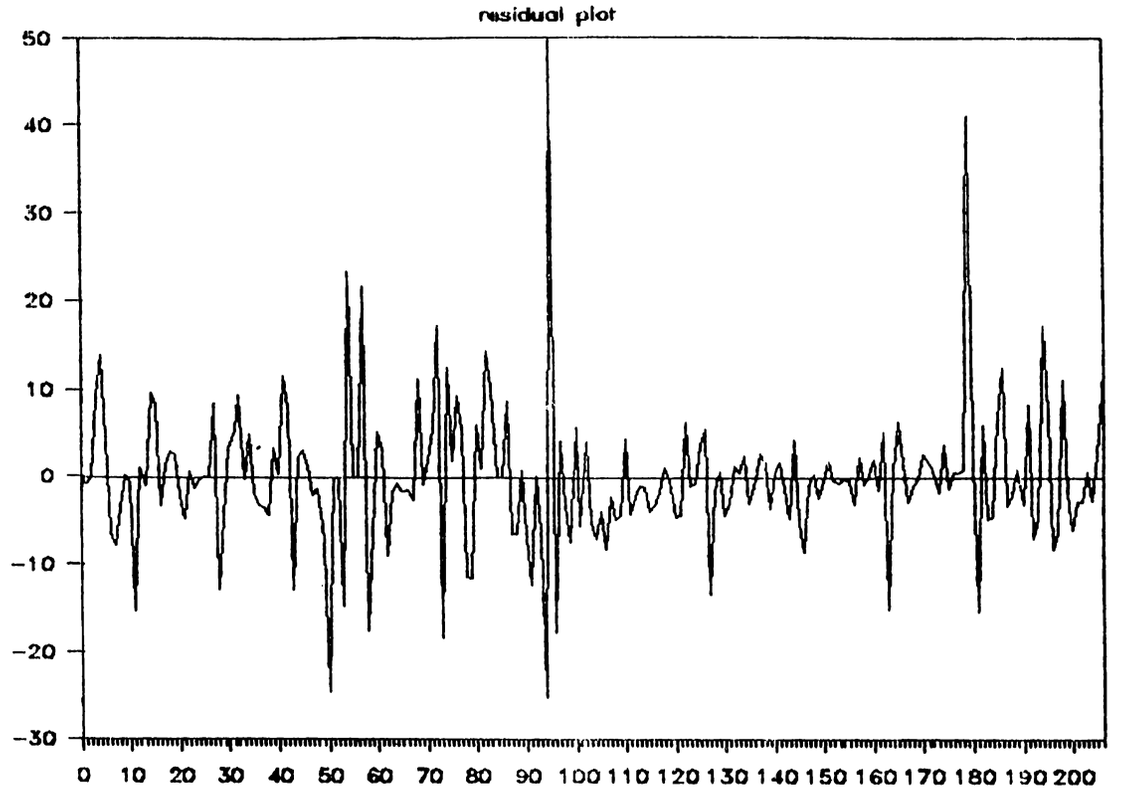
residual plot



IZOCAM

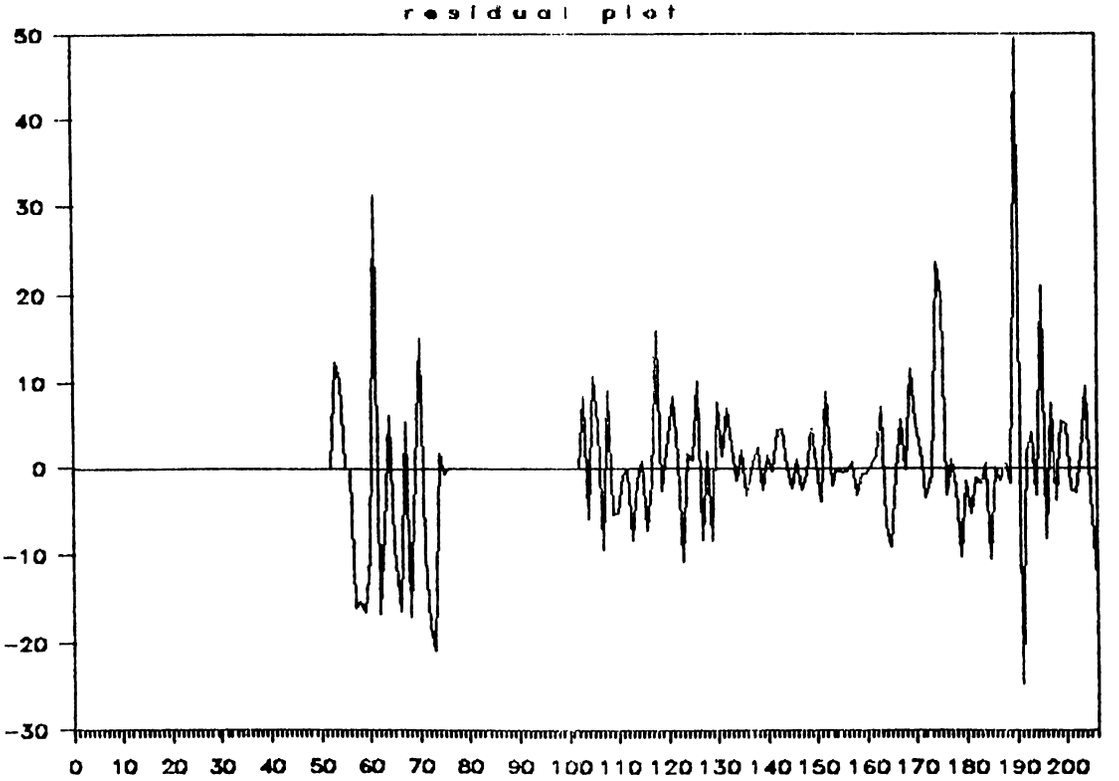


KARTONSAN



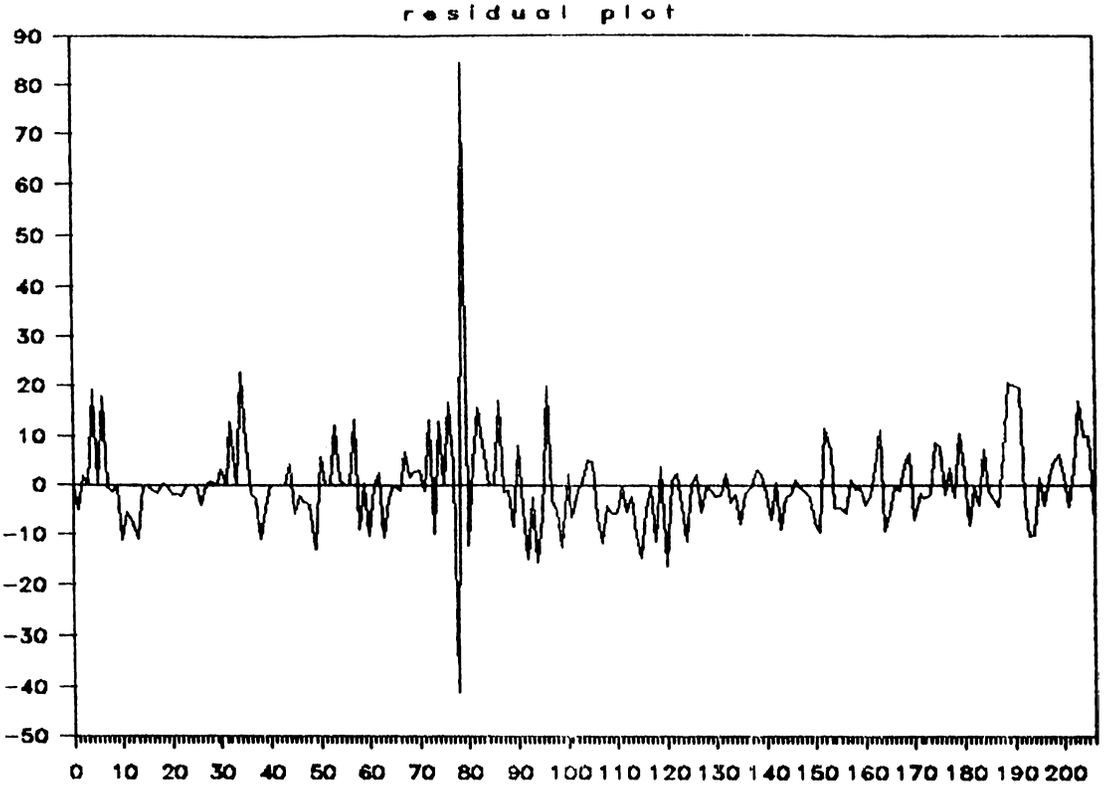
KEPEZ ELEKTRIK

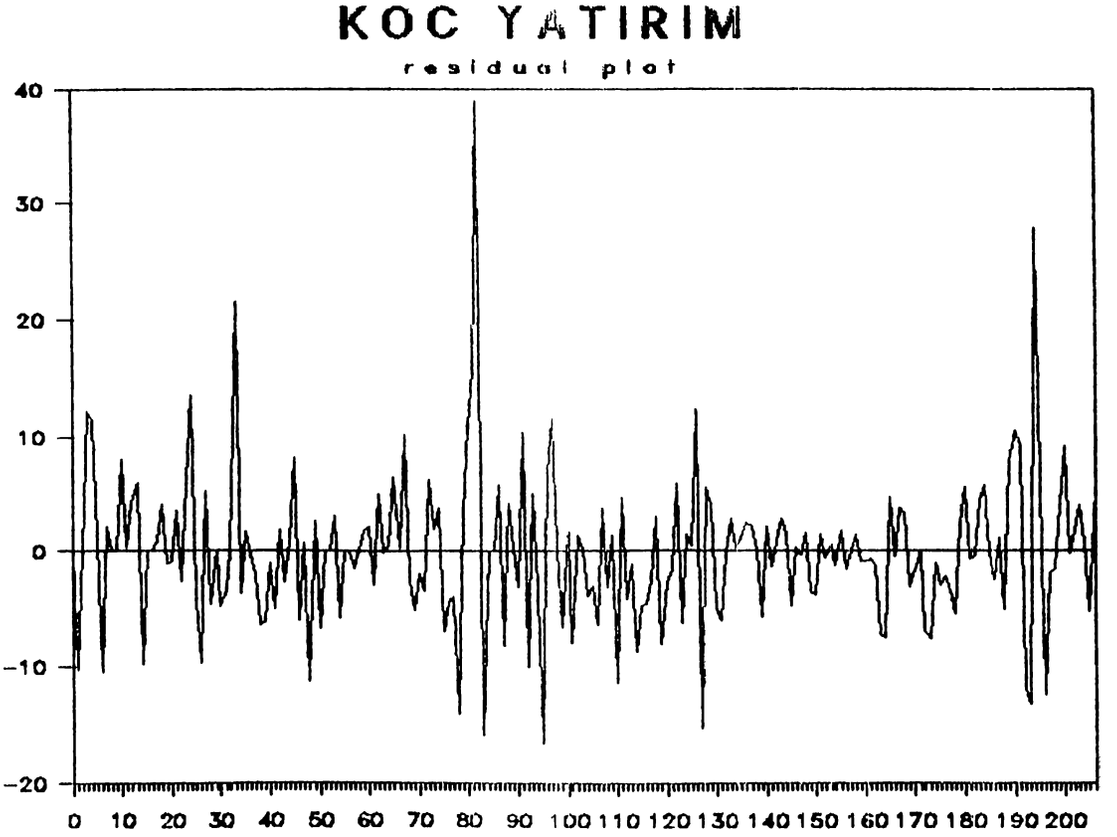
residual plot

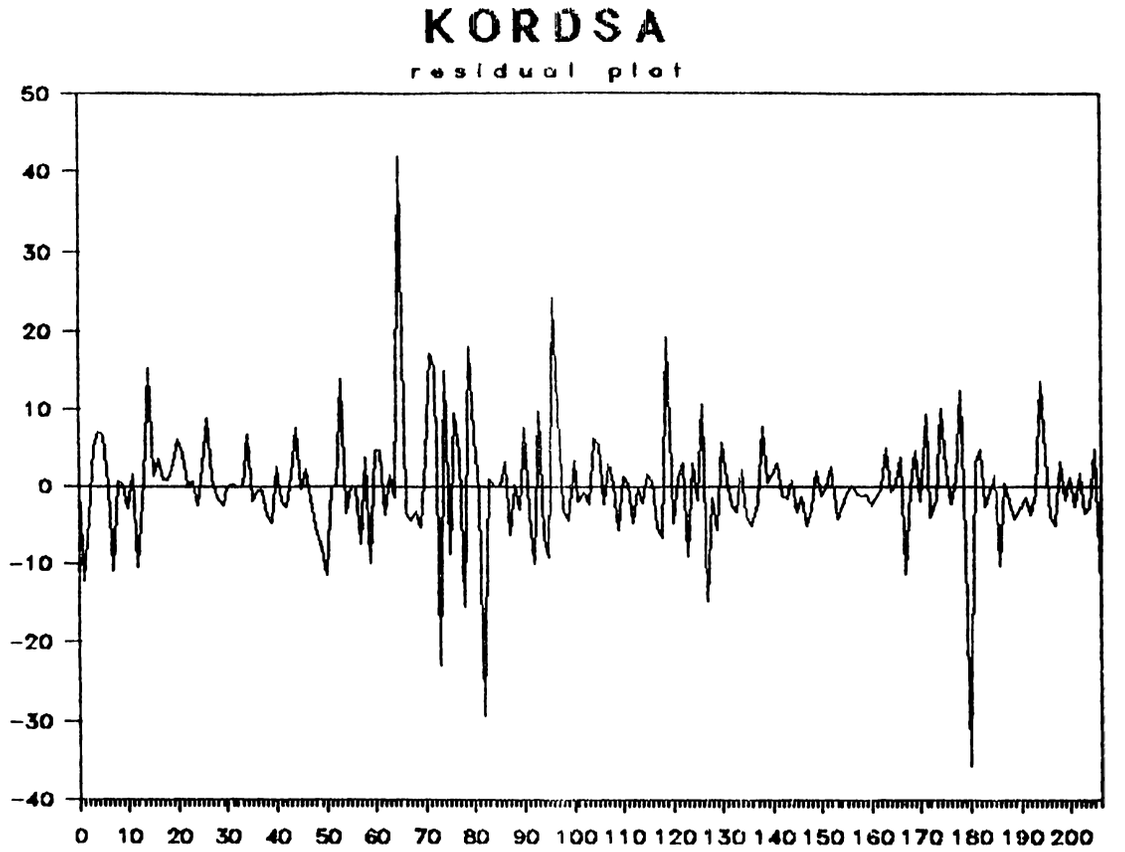


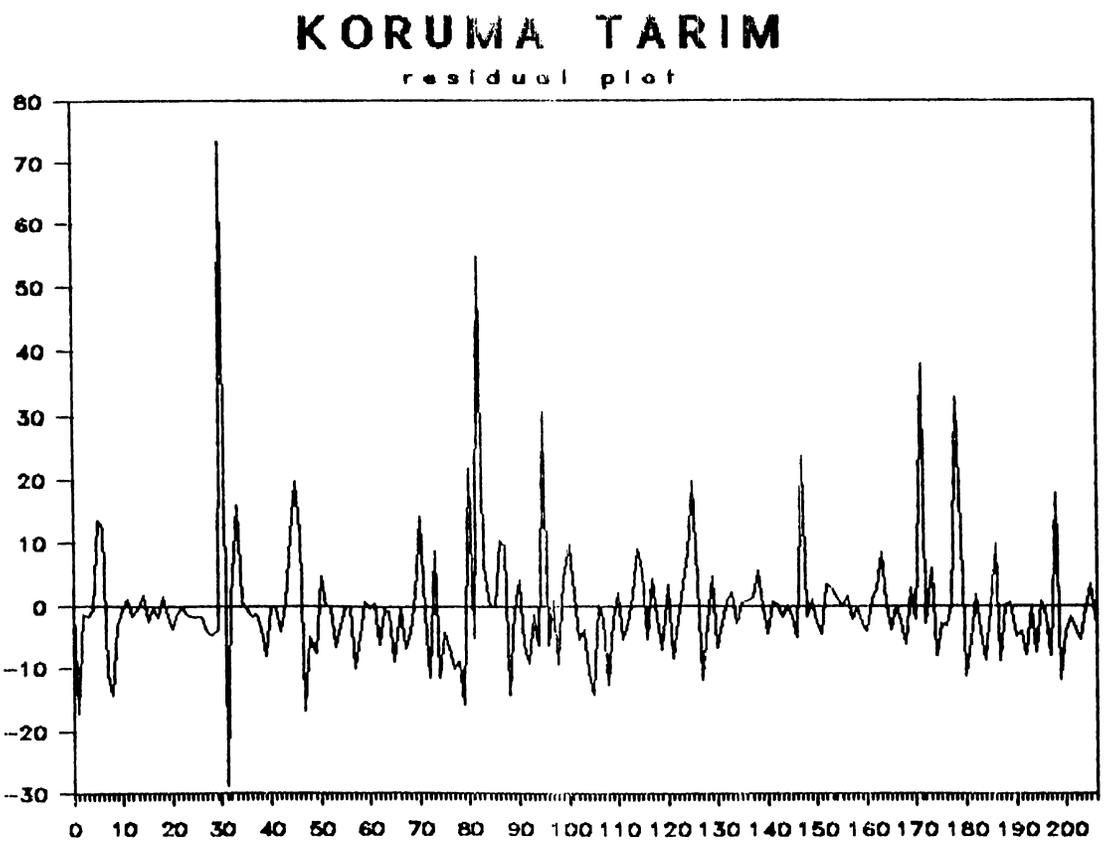
KOC HOLDING

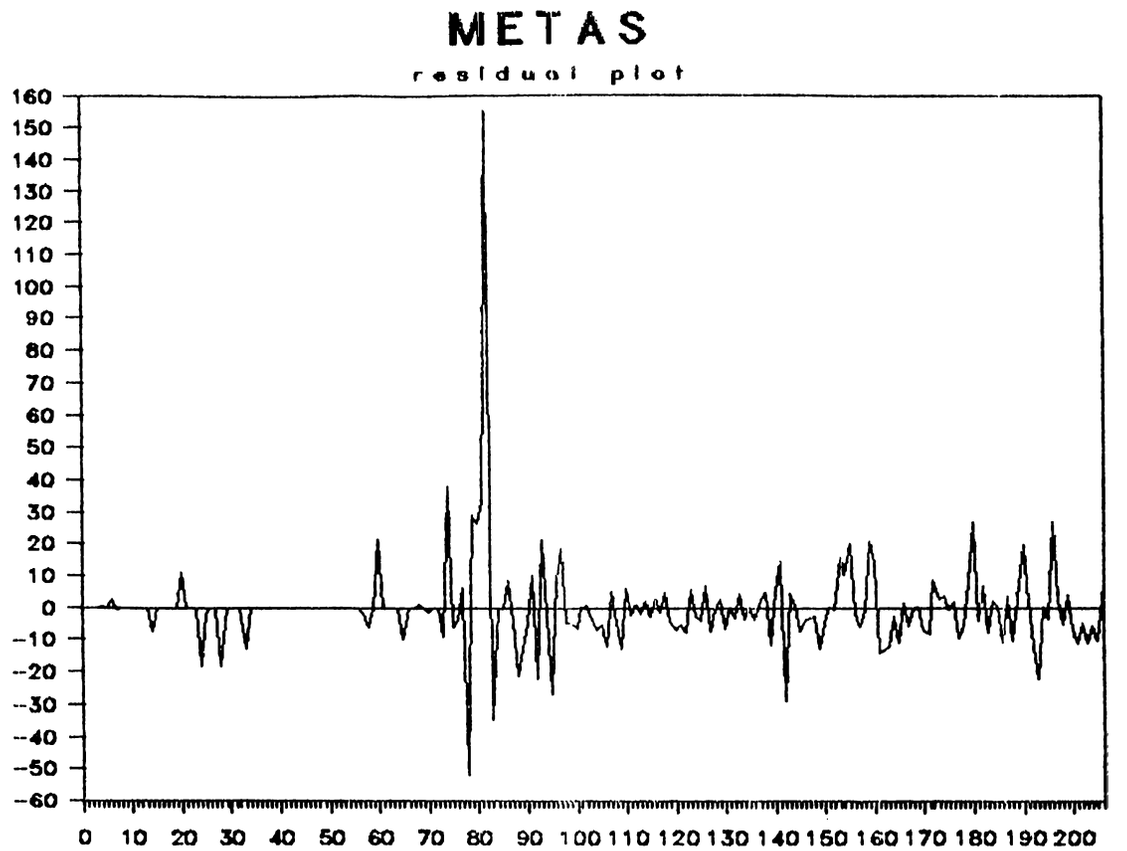
residual plot

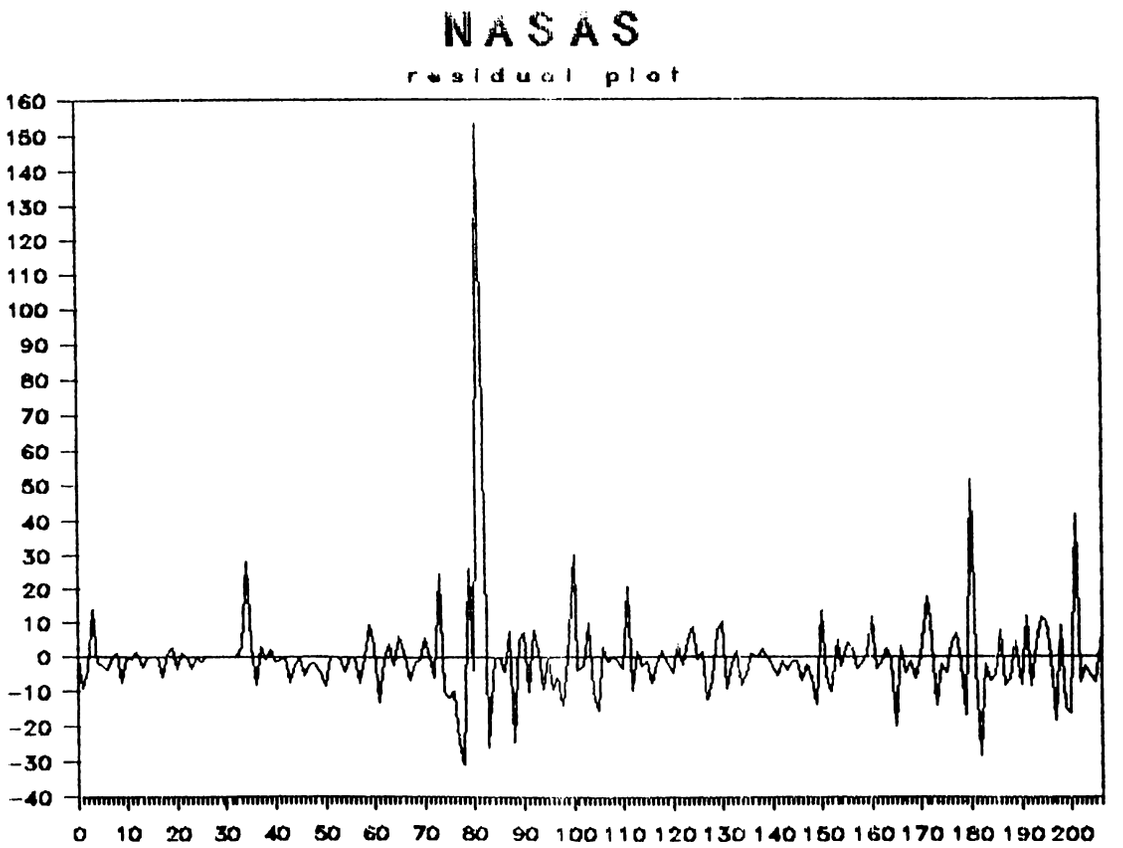


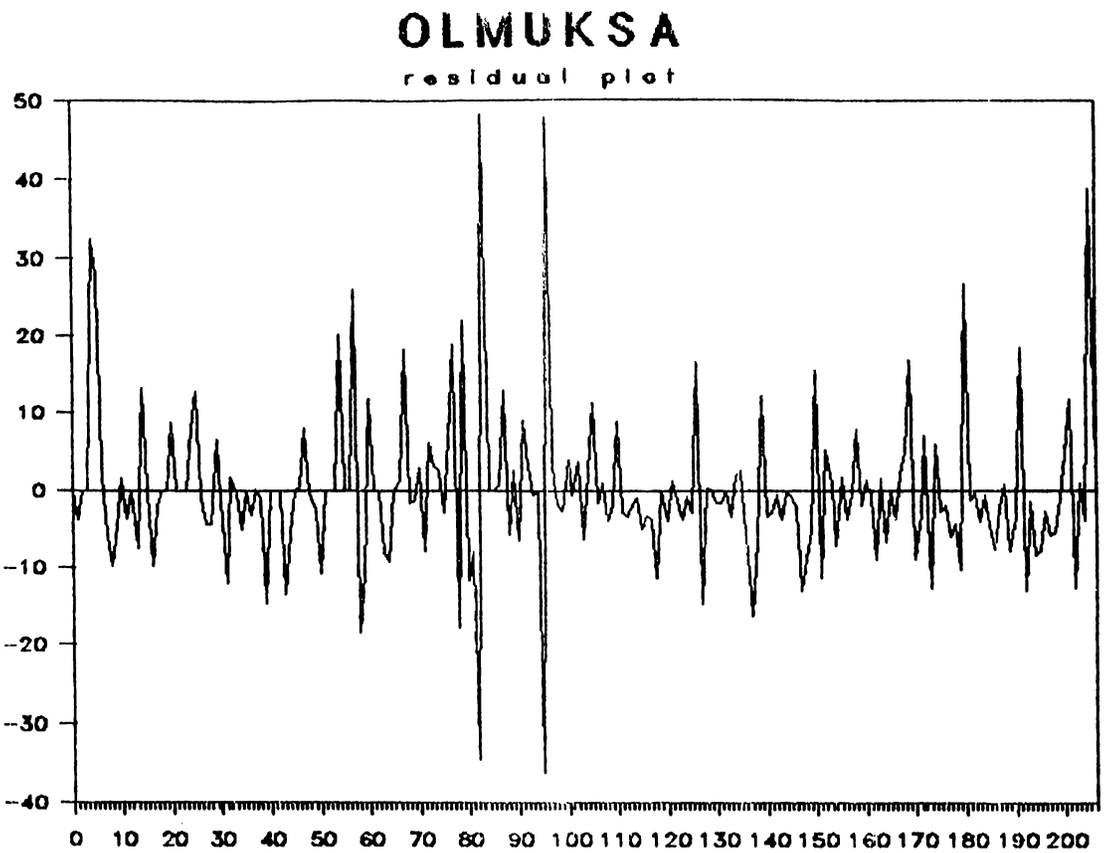

KOC YATIRIM
residual plot
40
30
20
10
0
-10
-20
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

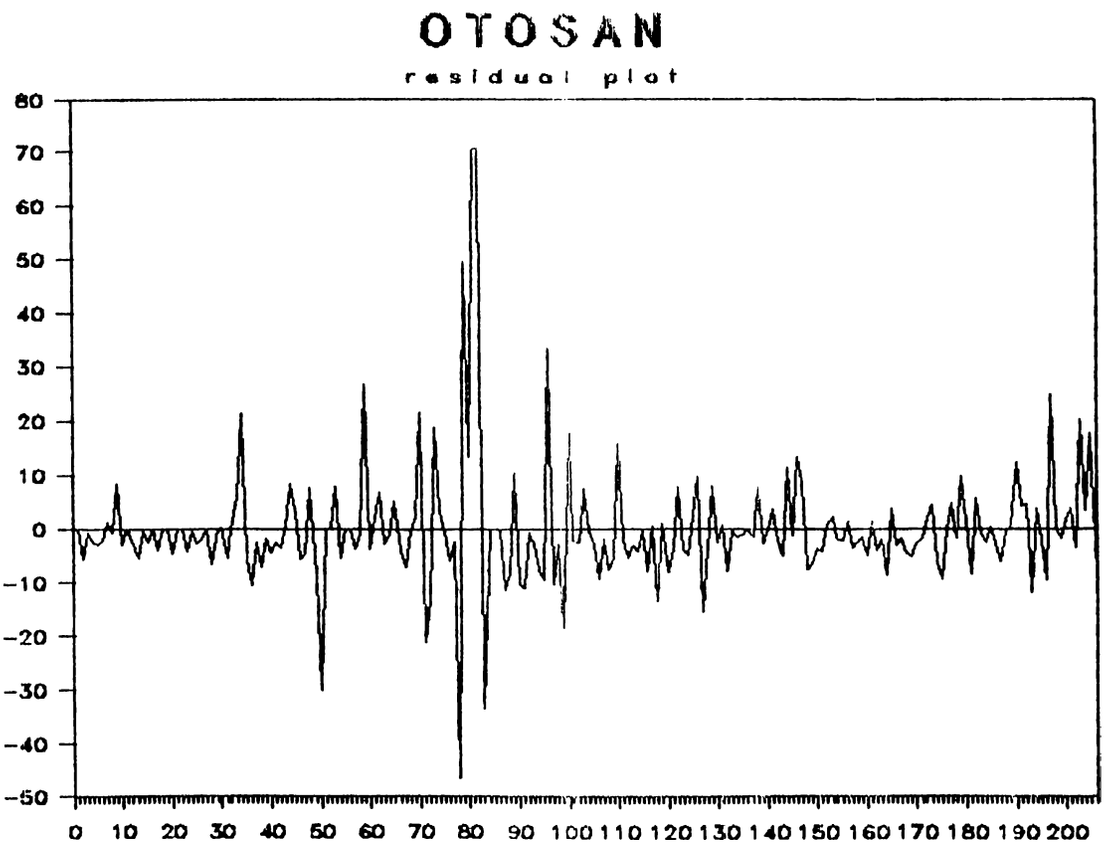

KORDSA
residual plot
50
40
30
20
10
0
-10
-20
-30
-40
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

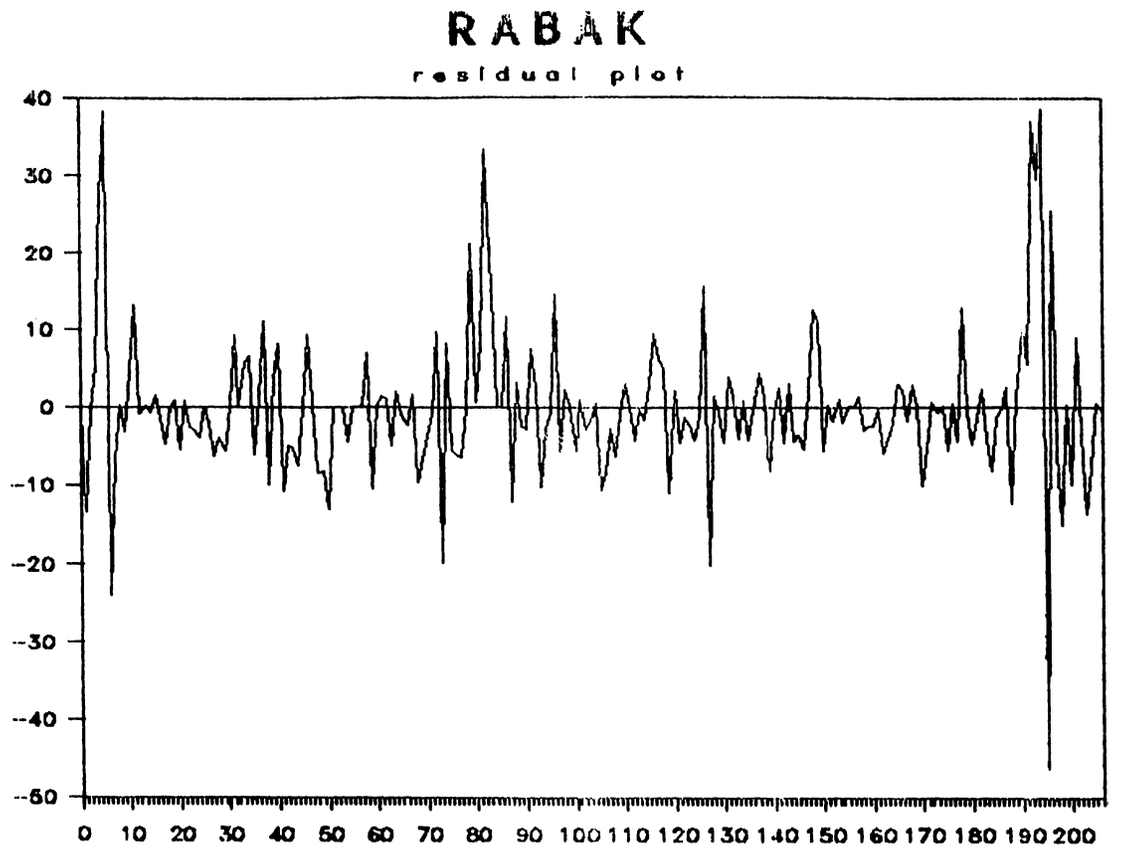

KORUMA TARIM
residual plot
80
70
60
50
40
30
20
10
0
-10
-20
-30
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

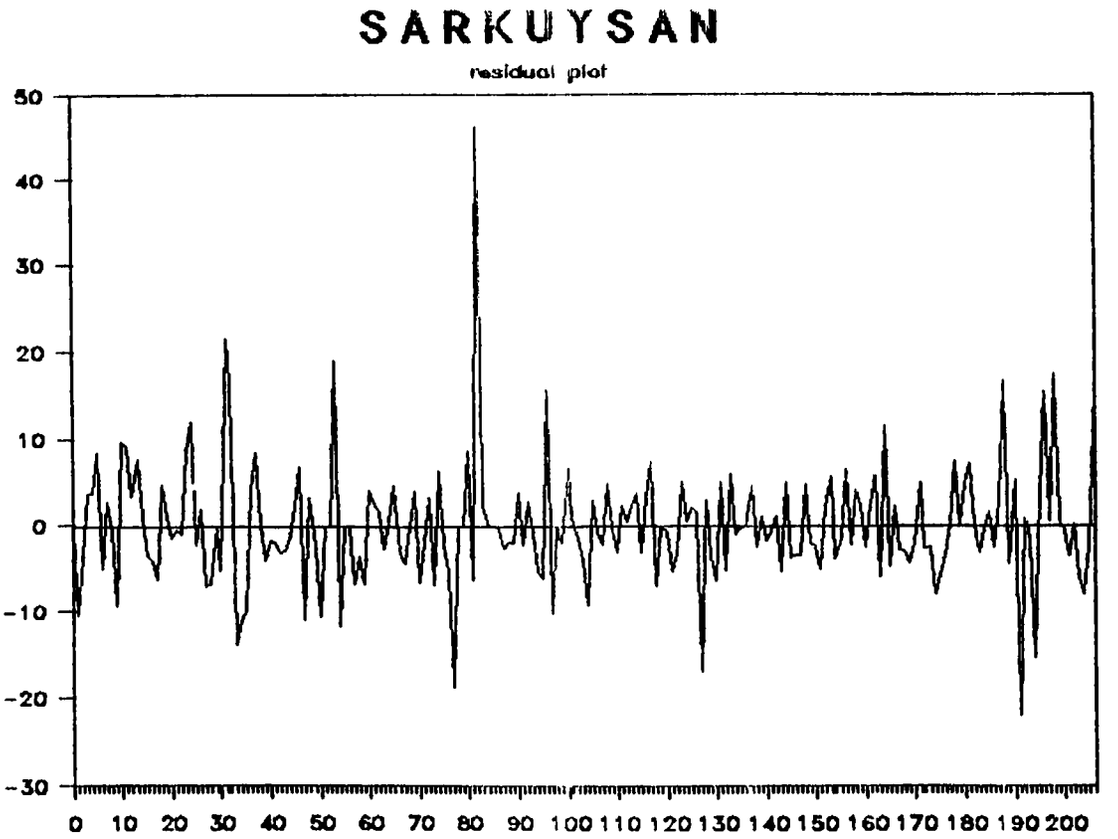

METAS
residual plot
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

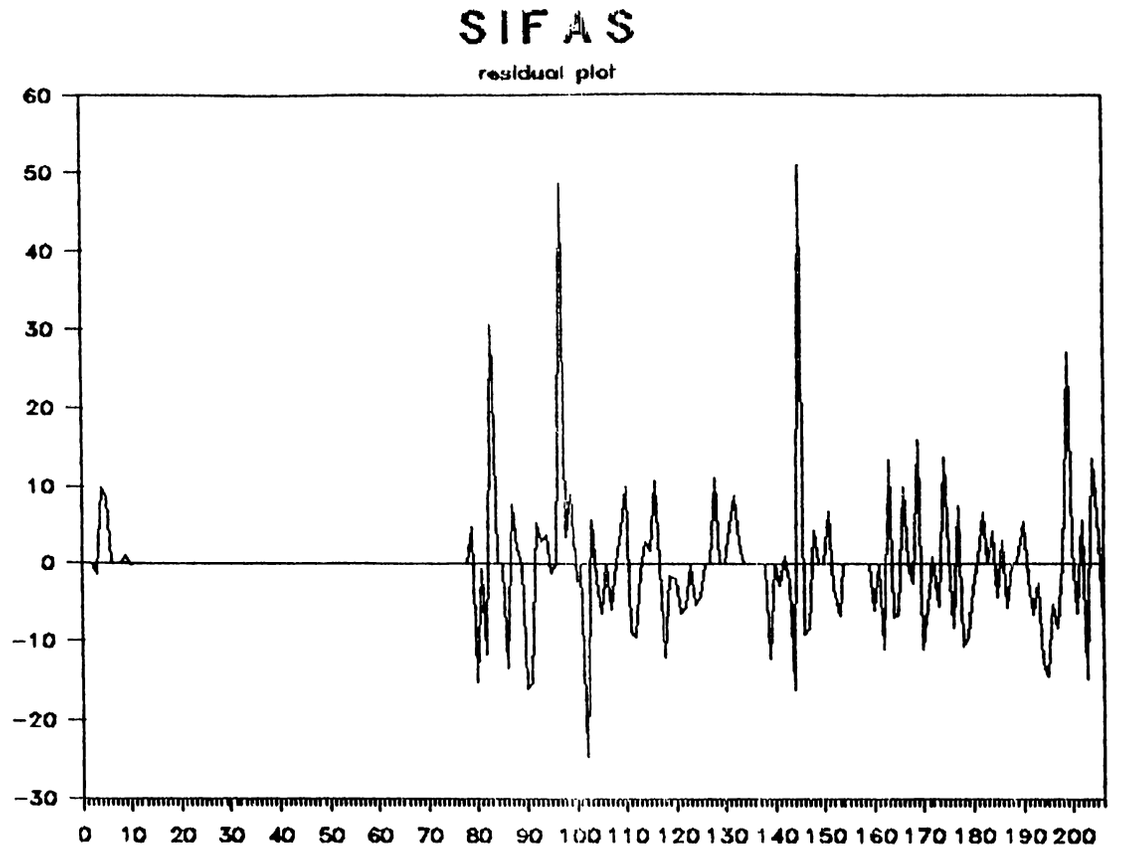

NASAS
residual plot
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200


OLMUKSA
residual plot
50
40
30
20
10
0
-10
-20
-30
-40
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

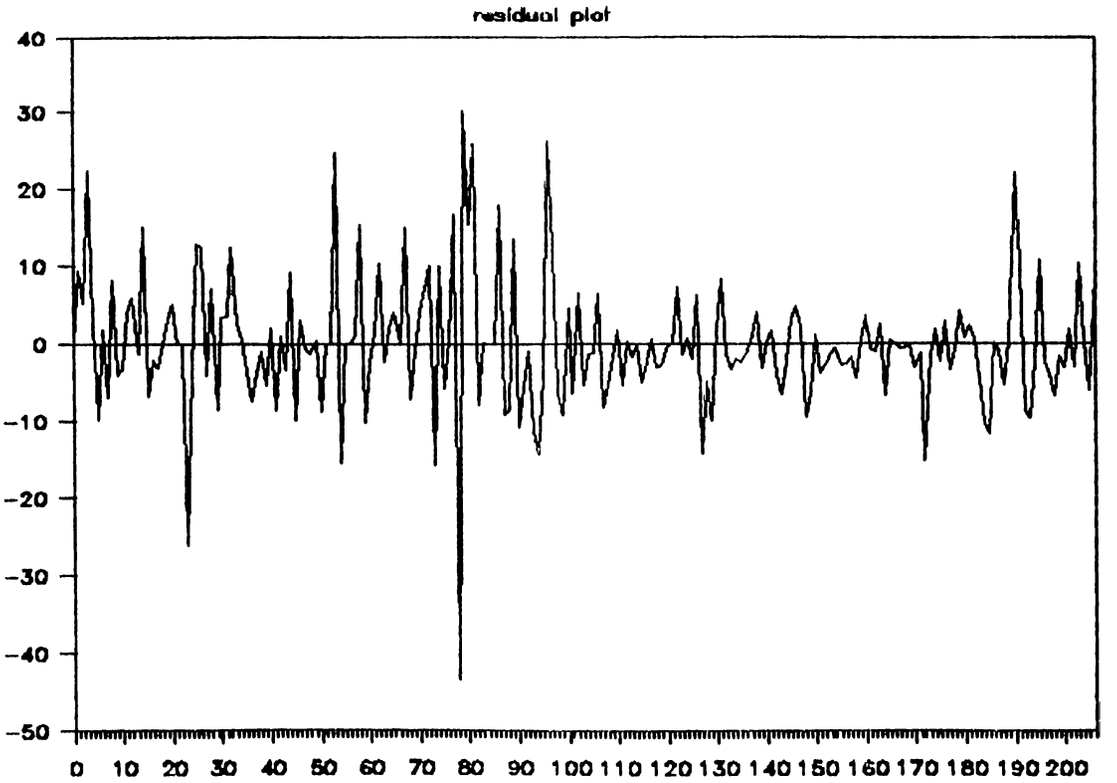

OTOSAN
residual plot
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200


RABAK
residual plot
40
30
20
10
0
-10
-20
-30
-40
-50
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

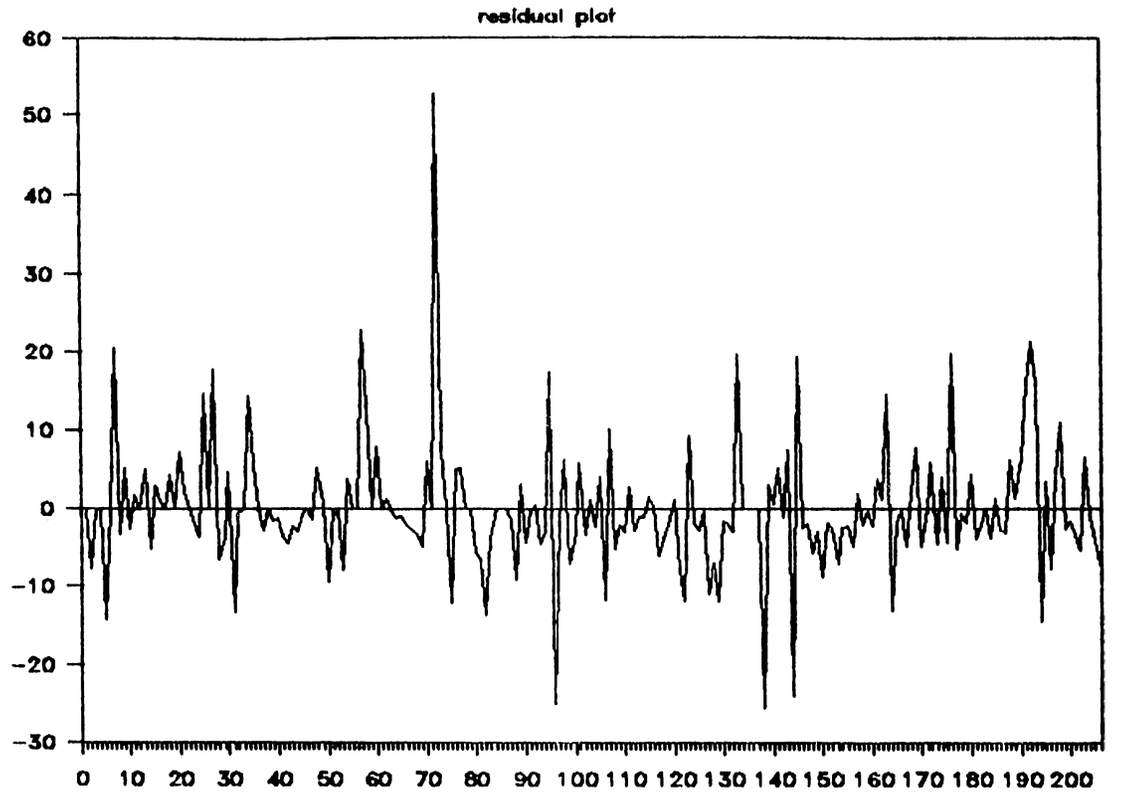

SARKUYSAN
residual plot
50
40
30
20
10
0
-10
-20
-30
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

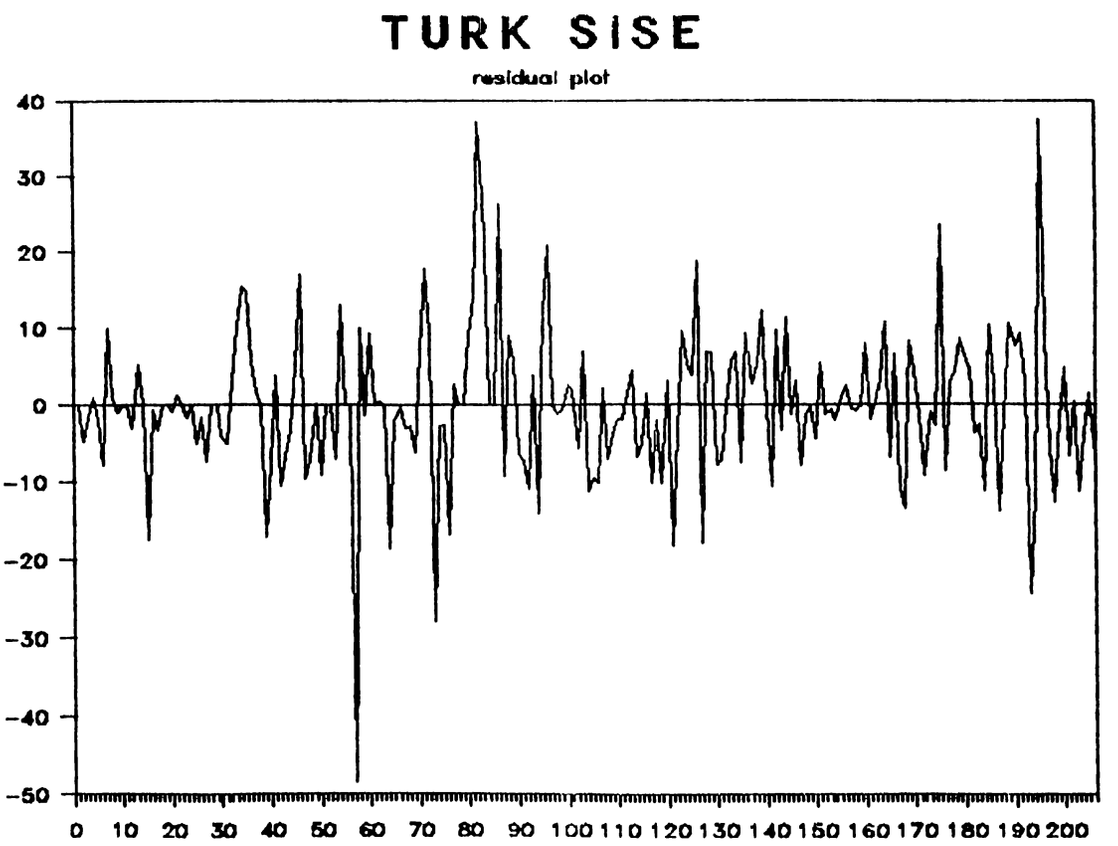

SIFAS
residual plot
60
50
40
30
20
10
0
-10
-20
-30
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

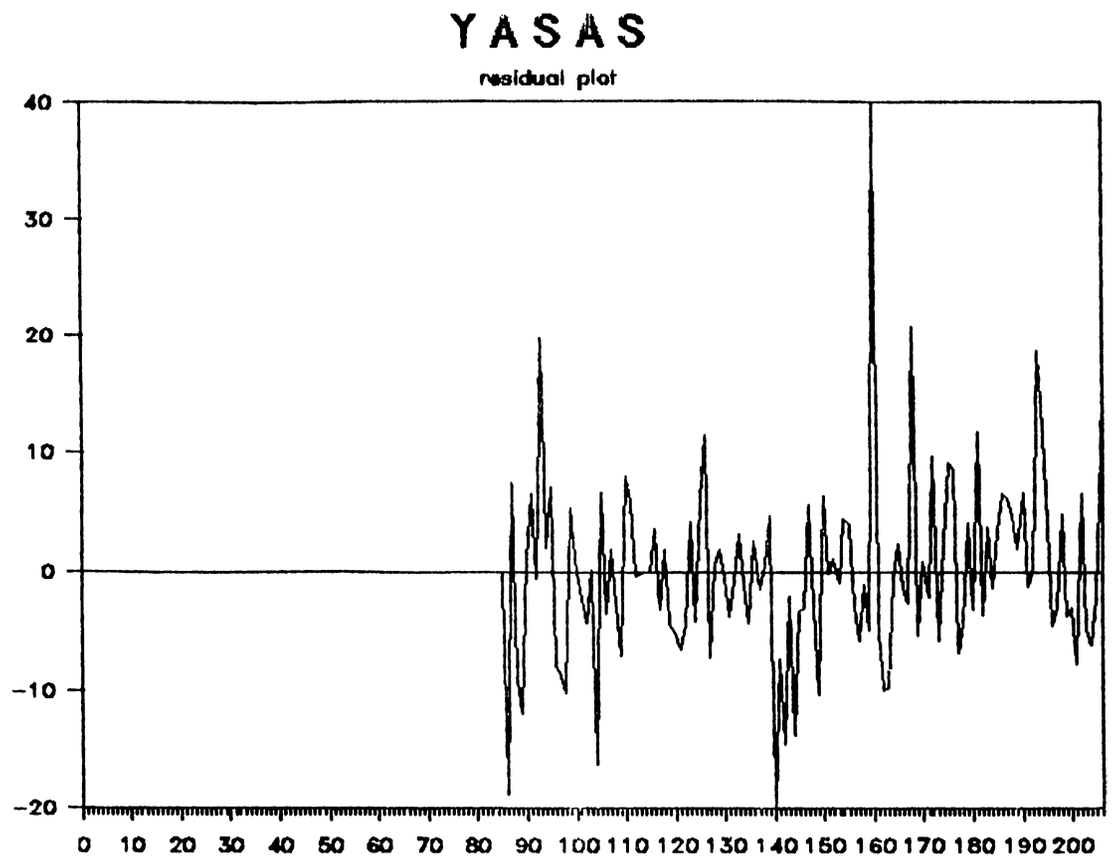
TURK DEMIR



TURK SIEMENS




TURK SISE
residual plot
40
30
20
10
0
-10
-20
-30
-40
-50
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200


YASAS
residual plot
40
30
20
10
0
-10
-20
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

APPENDIX B

EVENT DAY (the difference between counts of positive residuals and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the announcement date.)

t	Good Year	Gubre Fb.	Kepez	Koc Holding	Koc Yatirim
-5	-2	-16	-3	-5	-13	-1	0	-6	-11	-12	-36		-1	3	5
-4	-4	-14	-1	-7	-9	-6	-2	-9	-10	-12	-40	*	-1	3	3
-3	-4	-16	-3	-8	-9	-6	-4	-9	-12	-12	-40	1	-2	4	3
-2	-6	-15	0	-12	-11	-6	-2	-8	-10	-16	-43	3	0	6	3
-1	-6	-16	2	-14	-11	-6	-4	-6	-8	-20	-44	6	1	3	-1
1	-8	-16	1	-12	-12	-10	-2	-9	-4	-22	-42	6	1	3	-1
2	-10	-17	1	-14	-12	-8	-6	-10	-4	-22	-45	6	3	-3	-5
3	-12	-15	1	-14	-14	-6	-8	-12	-6	-26	-44	5	-1	-3	-5
4	-13	*	-1	-16	-18	-6	-8	-10	-10	-28	-44	5	3	-1	-5
5	-16		-3	-18	-18	-2	-6	-10	-12	-28	-44	2	3	-3	-7
6	-16		-3	-16	-20	-2	-6	-9	-12	-30	-42	-2	3	1	-5
7	-16		-3	-14	-20	-1	-6	-13	-12	-32	-38	0	-1	3	-5
8	-16		-1	-10	-23	-1	-6	-9	-16	-36	*	-1	3	4	-5

* end /beginning of data

EVENT DAY (the difference between counts of positive residuals and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the announcement date.)

t	Kordsa				Koruma T	Metas			Nasas		Olmuksa		
-5	8	3	2	1	-7	-27	-36	-6	-15	-21	-27	-49	0	-8	-14
-4	5	5	1	-1	-9	-27	-34	-7	-17	-21	-29	-51	-2	-8	-15
-3	5	3	3	-3	-12	-29	-36	-5	-17	-19	-31	-53	-4	-6	-19
-2	3	3	5	-5	-12	-33	-34	-5	-17	-17	-33	-55	-5	-8	-17
-1	5	3	3	-7	-13	-33	-34	-7	-17	-19	-31	-53	-8	-12	-20
1	1	5	3	-7	*	-31	-36	-7	-15	-21	-33	-55	-8	-17	-22
2	3	5	3	-6		-35	-34	-9	-19	-21	-33	-57	-10	-19	-26
3	5	5	3	-7		-36	-36	-11	-19	*	-35	-59	-9	-19	-30
4	5	3	1	-7		-33	-36	-13	-19		-37	*	-9	-17	-28
5	5	3	1	-7		-35	-38	-13	-19		-43		-11	-20	-30
6	5	1	1	-11		-37	-38	-13	-23		-45		-11	-24	-30
7	5	3	1	-11		-37	-40	-15	-21		-43		-10	-28	-30
8	5	5	-1	-13		-37	-44	-17	-21		-43		-8	-30	-28

* end /beginning of data

EVENT DAY (the difference between counts of positive residuals and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the announcement date.)

t	Cukurova				Doktas				Izocam				Ak Cimento			
-5	-3	-4	-4	-21	-8	-6	1	1	0	-14	-31	-5	-11	-7	-20	-29
-4	-4	-2	-2	-19	-6	-6	1	0	-3	-14	-33	-6	-9	-7	-22	-27
-3	-4	-6	-4	-19	-7	-4	1	0	-4	-14	-31	-6	-7	-11	-24	-27
-2	-9	-6	-4	-23	-5	-4	1	-2	-5	-14	-33	-6	-7	-13	-28	-25
-1	-2	-6	-4	-23	-6	-2	1	-2	-3	-14	-33	-8	-11	-13	-28	-27
1	-3	-2	-4	-25	-7	0	1	3	0	-16	-35	-6	-11	-19	-27	-25
2	-4	-2	-6	-27	-8	-2	5	3	-2	-16	-36	-6	-13	-21	-26	-25
3	-4	-4	-8	-29	-10	0	7	1	-6	-16	-33	-9	-13	-23	-24	-27
4	-4	-2	-12	-33	-11	-3	5	-1	-10	-20	-31	-7	-15	-27	-24	-28
5	-4	-2	-14	*	-9	2	5	1	-10	-29	-35	-10	-17	-29	-24	-29
6	-4	-2	-18		-5	2	5	1	-10	-25	-37	-12	-21	-25	-26	-33
7	-4	-4	-22		-5	0	4	*	-12	-29	-37	-12	-23	-27	-28	-37
8	-2	-2	-22		-3	2	3		-14	-31	*	-10	-25	-26	-28	*

* end /beginning of data

EVENT DAY (the difference between counts of positive residuals and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the announcement date.)

t	Bagfas	Brisa				Ecz Y.	Ege Gubre			Celik Halat				Arcelik		
-5	-17	-1	-7	-6	-23	3	-11	-19		-10	-6	2	-1	-9	-16	
-4	-15	-3	-7	-6	-23	1	-9	-21	*	-10	-8	2	-4	-11	-18	
-3	-15	-3	-6	-10	-24	1	-9	-23	0	-10	-4	1	-4	-13	-16	
-2	-13	-5	-7	-10	-28	-3	-11	-20	0	-8	-4	4	-2	-15	-16	
-1	-13	-6	-7	-8	-26	-1	-14	-21	0	-8	-8	3	-2	-15	-16	
1	-15	-6	-7	-6	-32	-1	-11	-25	3	-8	-6	2	-2	-13	-12	
2	-13	-7	-7	-6	-32	-4	-13	-27	1	-10	-2	6	-3	-13	-14	
3	-15	-7	-5	-8	-33	-5	-15	-31	5	-8	-4	6	-4	-13	-12	
4	-17	-7	-5	-6	-33	-6	-17	-29	3	-10	-4	4	-6	-11	-12	
5	-17	-7	-7	-10	-33	-5	-19	-27	3	-10	-8	0	-6	-11	-10	
6	-15	-7	-9	-12	-33	-5	-21	-27	1	-8	-8	0	-6	-11	-8	
7	-15	-7	*	-14	-35	-6	-23	-31	3	-8	-10	-2	-6	-15	*	
8	-17	-5		-16	-35	-6	-21	-31	3	-6	-9	-2	-8	-17		

* end /beginning of data

EVENT DAY (the difference between counts of positive residuals and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the announcement date.)

t	Otosan	Rabak						Sarkuysan	Sifas	T. Demir				
-5	-24	-60		1	-4		-6	-5	-15	-1	-8	*	3	-2	-8	-13
-4	-22	-62	*	-1	-2		-6	-8	-17	1	-9	3	5	0	-12	-17
-3	-24	-60	0	-3	-2		-8	-6	-13	-2	-10	3	5	-2	-12	-19
-2	-24	-60	1	-5	-6		-7	-6	-13	-5	-9	3	7	-2	-14	-19
-1	-24	-58	-1	-7	-6		-7	-8	-17	-5	-11	3	9	-2	-13	-17
1	-24	*	0	-7	-7		-10	-10	-16	-2	-9	3	11	-6	-18	-17
2	-25		-1	-6	-5		-12	-8	-15	-3	-9	3	11	-6	-17	-19
3	-27		-3	-7	-5		-10	-10	-17	-4	-13	5	7	-6	-18	-23
4	-31		-5	-7	-7		-12	-12	-17	-6	-12	7	7	-6	-20	-23
5	-33		-6	-7	-9		-14	-14	-19	-4	-12	3	5	-6	-18	*
6	-35		-3	-11	-11		-14	-14	-21	-6	*	3	3	-10	-20	
7	-37		-1	-11	-8		-14	-14	-21	-7		3	1	-14	-24	
8	-37		-5	-13	-6		-14	-16	-21	-9		2	1	-14	-22	

* end /beginning of data

EVENT DAY (the difference between counts of positive residuals and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the announcement date.)

t	T.Sise				T. Siemens		Yasas			Cimsa				
-5	-11	-12	-11	-14	-2	-17		1	-18	-18	2	9	8	9	-11
-4	-11	-14	-13	-16	-2	-17	*	-1	-18	-16	4	11	10	7	-13
-3	-12	-14	-13	-14	-1	-19	-1	-1	-16	-16	4	9	10	5	-15
-2	-9	-12	-15	-14	2	-21	-1	-2	-16	-15	8	9	8	5	-15
-1	-7	-12	-13	-15	3	-23	1	-2	-16	-11	8	7	8	1	-15
1	-9	-8	-15	-11	2	-23	-1	-2	-12	-9	10	7	6	5	-17
2	-7	-10	-17	-13	3	-25	-1	-2	-8	-11	8	7	6	7	-19
3	-7	-10	-13	-15	1	-27	-1	-4	-10	-13	8	9	2	11	-19
4	-9	-12	-15	*	-3	-29	-2	-4	-12	*	6	9	0	11	-21
5	-11	-14	-15		-6	-33	-2	-2	*		6	9	-4	13	-19
6	-11	-16	-11		-5	-33	-4	-10			6	9	-6	13	-21
7	-13	-14	-11		-5	-34	-4	-6			10	9	-10	15	-20
8	-15	-14	-13		-3	-37	-4	-10			8	7	-8	15	*

* end /beginning of data

EVENT DAY (the difference between counts of positive residuals and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the announcement date.)

t	Kartonsan			I. Demir		
-5	*	0	-3	-3	-24	-29
-4	-1	0	-7	-6	-26	-29
-3	1	1	-9	-6	-26	-31
-2	-1	-3	-13	-7	-24	-32
-1	-1	-3	-15	-11	-23	-35
1	1	1	-15	-11	-25	-35
2	0	1	-16	-14	-25	-37
3	0	3	-14	-14	-25	-38
4	2	3	-16	-12	-25	-37
5	-2	1	-14	-16	-25	-37
6	2	1	-16	-14	-27	*
7	4	-1	-18	-14	-27	
8	0	-3	-21	-18	-29	

* end /beginning of data

EVENT DAY (absolute value of the difference between counts of positive and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the event date.)

t	Good Year		Gubre Fb.		Kepez		Koc Holding			Koc Yatirim				
-5														
-4	2	2	2	2	4	0	2	3	1	0	4		0	0	2
-3	0	2	2	1	0	0	2	0	2	0	0	*	1	1	0
-2	2	1	3	4	2	0	2	1	2	4	3	2	2	2	0
-1	0	1	2	2	0	0	2	2	2	4	1	3	1	3	4
1	2	0	1	2	1	4	2	3	4	2	2	0	0	0	0
2	2	1	0	2	0	2	4	1	0	0	3	0	2	6	4
3	2	2	0	0	2	2	2	2	2	4	1	1	4	0	0
4	1	*	2	2	4	0	0	2	4	2	0	0	4	2	0
5	3		2	2	0	4	2	0	2	0	0	3	0	2	2
6	0		0	2	2	0	0	1	0	2	2	4	0	4	2
7	0		0	2	0	1	0	4	0	2	4	2	4	2	0
8	0		2	4	2		0	4	4	4	*	1	4	1	0

* end /beginning of data

EVENT DAY (absolute value of the difference between counts of positive and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the event date.)

t	Kordsa				Koruma T		Metas			Nasas		Dimuksa		
-5														
-4	3	2	1	2	2	0	2	1	2	0	2	2	2	0	1
-3	0	2	2	2	2	2	2	2	0	2	2	2	2	2	4
-2	2	0	2	2	0	4	2	0	0	2	2	2	1	2	2
-1	2	0	2	2	1	3	0	2	0	2	2	2	3	4	3
1	4	2	0	0	*	2	2	0	2	2	2	2	0	5	2
2	2	0	0	1		4	2	2	4	0	0	2	2	2	4
3	2	0	0	1		1	2	2	0	*	2	2	1	0	4
4	0	2	2	0			2	2	0		2	*	0	2	2
5	0	0	0	0		2	0	0	0		6		2	3	2
6	0	2	0	4		2	0	0	4		2		0	4	0
7	0	2	0	0		0	2	2	2		2		1	4	0
8	0	2	2	2		0	4	2	0		0		2	2	2

* end /beginning of data

EVENT DAY (absolute value of the difference between counts of positive and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the event date.)

t	Otosan		Rabak					Sarkuysan		Sifas		T. Demir					
-5																	
-4	2	2		2	2	2	0	3	2	2	1	*	2	2	4	4	
-3	2	2	*	2	0	2	2	2	4	3	1	0	0	2	0	2	
-2	0	0	1	2	4	2	1	0	0	3	1	0	2	0	2	0	
-1	0	2	2	2	0	0	0	2	4	0	2	0	2	0	1	2	
1	0	*	1	0	1	1	3	2	1	3	2	0	2	4	5	0	
2	1		1	1	2	2	2	2	1	1	0	0	0	0	1	2	
3	2		2	1	0	2	2	2	2	1	4	2	4	0	1	4	
4	4		2	0	2	0	2	2	0	2	1	2	0	0	2	0	
5	2		1	0	2	0	2	2	2	2	0	4	2	0	2	*	
6	2		3	4	2	0	0	0	2	2	*	0	2	4	2		
7	2		2	0	3	2	0	0	0	1		0	2	4	4		
8	0		4	2	2	2	0	2	0	2		1	0	0	2		

* end /beginning of data

EVENT DAY (absolute value of the difference between counts of positive and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the event date.)

t	T.Sise					T. Siemens		Yasas				Cimsa					
-5																	
-4	0	2	2	2	0	0		2	0	2	2	2	2	2	2		
-3	1	0	0	2	1	2	*	0	2	0	0	2	0	2	2		
-2	3	2	2	0	3	2	0	1	0	1	4	0	2	0	0		
-1	2	0	2	1	1	4	2	0	0	4	0	2	0	4	0		
1	2	4	2	4	1	0	2	0	4	2	2	0	2	4	2		
2	2	2	2	2	1	0	0	0	4	2	2	0	0	2	2		
3	0	0	4	2	2	0	0	2	2	2	0	2	4	4	0		
4	2	2	2	*	4	4	1	0	2	*	2	0	2	0	2		
5	2	2	0		3	4	0	2	*		0	0	4	2	2		
6	0	2	4		1	2	2	8			0	0	2	0	2		
7	2	2	0		0	2	0	4			4	0	4	2	1		
8	2	0	2		2	0	0	4			2	2	2	0	*		

* end /beginning of data

EVENT DAY (absolute value of the difference between counts of positive and negative residuals observed upto time t, where t refers to period lag or lead with respect to the event date.)

t	Cukurova					Soktas					Izocam					Ak Cimento				
-5																				
-4	1	2	2	2		2	0		1		0	2	1	2	0	2	2			
-3	0	4	2	0		1	2	0	0		0	2	0	2	4	2	0			
-2	5	0	0	4		2		0	2		0	2	0	0	2	4	2			
-1	7	0	0	0		1		0	0		0	2	4	0	0	2				
1	1	4	0	2		1	2		5		2	2	2	0	6	1	2			
2	1	0	2	2		1	2	4	0		0	1	0	2	2	1	0			
3	0	2	2	2		2	2		2		0	3	3	0	2	2	2			
4	0	2	4	4		1	2		2		4	4	2	2	2	4	0			
5	0	0	2			2	4		2		0	9	4	3	2	2	0			
6	0	0	4			4	0		0		0	0	4	2	2	4	4			
7	0	2	4			0	2		1			2	4	0	0	2	2			
8	2	2	0			2	2		1				2	2		2	2			

end /beginning of data

EVENT DAY (absolute value of the difference between counts of positive and negative residuals observed upto time t, where t refers to period lag or lead with respect to the event date.)

t	Bagfas	Brisa				Ecz Y.	Ege Subre				Celik Halat					Arcelik				
-5																				
-4	2	2	0	0		0	2	2	2			0	2	0	3	2	2			
-3	0	0	1	4		2	0	0	2			0	4	1	0	2	2			
-2	2	2	1	0		4	2	2	2		0	2	0	3	2	2	0			
-1	0	1	0	2		2	1	2	1		0	0	4	1	0	0	0			
1	2	0	0	2		6	0	3	4		2	0	2	1	0	2	4			
2	2	1	0	0		0	3	2	2		2	2	4	4	1	0	2			
3	2	0	2	2		1	1	2	4		4	2	2	0	1	0	2			
4	2	0	0	2		0	1	2	2		2	2	0	2	2	2	0			
5	0	0	2	4		0	0	2	2		0	0	4	4	0	0	2			
6	2	0	2	2		0	1	2	0		2	2	0	0	0	0	2			
7	0	0		2		2	2	2	4		2	0	2	2	0	4				
8	2	2		2		0	0	2	0		0	2	1	0	2	2				

end /beginning of data

EVENT DAY (absolute value of the difference between counts of positive and negative residuals observed upto time t, where t refers to k period lag or lead with respect to the event date.)

t	Kartonsan		I. Demir			
-5						
-4	1	0	4	3	2	
-3	2	1	2	0	0	4
-2	2	4	4	1	1	
-1	0	0	2	4	.	
1	2	4	0	0	3	
2	1	0	1	3	0	2
3	0	2	2	0	1	
4	2	0	2	2	0	
5	4	2	2	4	.	
6	4	0	2	2	2	
7	2	2	2	0	0	
8	4	2	3	4	2	

; end /beginning of data

ANNOUNCEMENT (the difference between counts of positive residuals and negative
DAY residuals observed upto time t, where t refers to k period lag or
lead with respect to the announcement date.)

t	Good Year	Gubre Fb.	Kepez	Koc Holding		Koc Yatirim		
-5	-3	-3		0	-10	-10	0	4
-4	-3	-3		2	-9	-12	0	2
-3	-3	-3		-2	-11	-12	0	4
-2	-1	-7	*	-4	-12	1	-2	6
-1	-3	-6	-7	-1	-10	3	1	4
1	-1	-11	-8	-10	-6	-22	6	4	0
2	-3	-15	-8	-8	-6	-22	5	0	-2
3	-5	-13	-10	-6	-4	-21	7	2	-4
4	-5	-13	-8	-8	-6	-26	5	0	-2
5	-8	-13	-6	-9	-8	-28	2	2	-2
6	-8	-13	-5	-10	-10	-28	3	2	0
7	-10	-13	-3	-12	-10	-31	-1	4	3
8	-12	-17	-1	-12	-10	-32	-1	2	2

* end /beginning of data

ANNOUNCEMENT (the difference between counts of positive residuals and negative
DAY residuals observed upto time t, where t refers to k period lag or
lead with respect to the announcement date.)

t	Kordsa	Koruma Tarim	Metas		Yasar	Olmuksa	
-5	7	5	-21	4	-9	-27	-6
-4	7	3	-22	-5	-9	-29	-7
-3	7	3	-24	-5	-10	-31	-7
-2	4	1	-27	-4	-11	-33	-7
-1	4	3	-29	-5	-13	-31	-7
1	5	3	-30	-7	-13	-33	-13
2	3	3	-34	-7	-15	-33	-16
3	3	3	-32	-5	-17	-35	-18
4	3	3	-32	-5	-17	-37	-18
5	5	3	-34	-7	-17	-43	-19
6	5	1	-34	-7	-17	-45	-19
7	5	-1	-34	-7	-15	-42	-21
8	4	3	-36	-9	-17	-43	-25

* end /beginning of data

ANNOUNCEMENT (the difference between counts of positive residuals and negative
DAY residuals observed upto time t, where t refers to k period lag or
lead with respect to the announcement date.)

t	Otosan	Rabak	Sarkuysan		Sifas	T. Demir		
-5	-22	-1	-6	-3	-12	1		7	6
-4	-24	-3	-6	-5	-14	2	*	3	6
-3	-24	-7	-8	-5	-16	1	2	3	4
-2	-26	-3	-7	-7	-14	0	4	3	2
-1	-26	-3	-7	-5	-12	-1	2	3	0
1	-26	-5	-10	-7	-14	-2	2	5	-2
2	-25	-7	-12	-7	-14	-5	4	7	-2
3	-27	-8	-10	-10	-14	-4	4	9	-4
4	-29	-6	-12	-11	-16	-2	4	11	-6
5	-31	-4	-14	-9	-18	-2	8	11	-6
6	-33	-6	-14	-11	-18	-3	4	11	-6
7	-35	-8	-14	-13	-20	-5	4	7	-6
8	-39	-8	-14	-13	-20	-5	4	7	-6

* end /beginning of data

ANNOUNCEMENT (the difference between counts of positive residuals and negative
DAY residuals observed upto time t, where t refers to k period lag or
lead with respect to the announcement date.)

t	T.Sise	T. Siemens		Yasas		I. Demir		
-5	-8	-9	0	-15		-5	-12	-14
-4	-10	-11	-3	-17	*	-5	-12	-18
-3	-11	-11	-2	-17	-1	-3	-14	-20
-2	-11	-13	-1	-19	-1	-6	-14	-22
-1	-11	-13	-1	-21	1	-6	-14	-24
1	-7	-13	3	-25	-1	-8	-20	-26
2	-7	-11	2	-25	-1	-9	-22	-24
3	-9	-9	1	-25	-1	-11	-24	-24
4	-7	-9	2	-25	-2	-12	-24	-23
5	-7	-11	-1	-29	-2	-14	-26	-25
6	-9	-13	-5	-33	-4	-12	-26	-25
7	-11	-13	-4	-35	-4	-12	-24	-25
8	-11	-15	-5	-37	-4	-14	-24	-25

* end /beginning of data

ANNOUNCEMENT (the difference between counts of positive residuals and negative
DAY residuals observed upto time t, where t refers to k period lag or
lead with respect to the announcement date.)

t	Ecz. V	Ege G	Celik Halat	Arcelik	Kartonsan
-5	-25		-11		4	-3
-4	-23		-11		1	-1
-3	-23		-11	0	0	-9	-1	0	-9
-2	-24		-11	0	4	-1	-11	1	0	-13
-1	-28	2	-9	0	1	-1	-13	-1	1	-15
1	-36	0	-11	0	-6	2	-5	-15	1	-5	-15
2	-32	0	-12	2	-4	2	-3	-15	1	-3	-16
3	-32	-3	-15	3	-6	1	-3	-13	0	1	-14
4	-33	-2	-17	3	-10	4	-3	-13	0	1	-16
5	-33	-1	-19	3	-8	6	-1	-13	2	3	-14
6	-33	-2	-21	5	-10	4	-3	-11	-2	3	-16
7	-35	-5	-23	3	-10	2	-5	-11	2	1	-18
8	-35	-5	-21	1	-6	0	-7	-11	4	1	-21

* end /beginning of data

ANNOUNCEMENT (the difference between counts of positive residuals and negative
DAY residuals observed upto time t, where t refers to k period lag or
lead with respect to the announcement date.)

t	Cukurova	Doktas	Izocam	Ak Cimento	Bagfas	Brisa
-5	-3	-4	-8	-3	-10	-2	-11	-14	-3
-4	-3	-2	-6	-1	-9	-3	-11	-14	-1
-3	-3	-2	-4	-1	0	-12	-5	-11	-16	-3
-2	-3	-2	-4	1	2	-13	-4	-7	-18	-3
-1	-3	-4	-2	1	0	-13	-4	-7	-14	-5
1	-5	-2	-2	1	-4	-13	-7	-13	-12	-7
2	-5	-4	0	1	-5	-13	-7	-11	-14	-7
3	-4	-4	-2	3	-5	-15	-9	-11	-14	-7
4	-3	-4	0	1	-4	-15	-7	-12	-16	-7
5	-3	-6	0	5	-4	-17	-5	-13	-14	-7
6	-3	-4	-2	7	-1	-17	-5	-17	-14	-7
7	-1	-6	0	5	-3	-21	-8	-19	-16	-5
8	-1	-10	-2	5	-5	-19	-7	-21	-16	-5

* end /beginning of data

ANNOUNCEMENT (absolute value of the difference between counts of positive and negative
DAY residuals observed upto time t, where t refers to k period lag or lead
with respect to the event date.)

t	Good Year	Gubre Fb.	Kepez	Koc Holding		Koc Yatirim		
-5								
-4	0	0		2	2	2	0	2
-3	0	0		4	2	0	0	2
-2	2	4		4	1	0	*	2	2
-1	2	1	*	5	2	4	2	3	2
1	2	5	1	9	4	6	3	3	4
2	2	4	0	2	0	0	1	4	2
3	2	2	2	2	2	0	2	2	2
4	0	0	2	2	2	4	2	2	2
5	3	0	2	1	2	2	2	2	0
6	0	0	1	1	2	0	0	0	2
7	2	0	2	2	2	2	4	2	3
8	2	4	2	0	2	2	0	2	1

* end /beginning of data

ANNOUNCEMENT (absolute value of the difference between counts of positive and negative
DAY residuals observed upto time t, where t refers to k period lag or lead
with respect to the event date.)

t	Kordsa	Koruma Tarim	Metas		Nasas	Olmuksa
-5						
-4	0	2	1	*	0	2	1
-3	0	0	2	0	3	2	0
-2	3	2	3	1	1	2	0
-1	0	2	2	1	2	2	0
1	1	0	1	2	0	2	6
2	2	0	4	0	1	0	3
3	0	0	2	2	2	2	2
4	0	0	0	0	0	2	0
5	2	0	2	2	0	6	1
6	0	2	0	0	0	2	0
7	0	2	0	0	2	2	2
8	1	4	2	2	2	0	4

* end /beginning of data

ANNOUNCEMENT (absolute value of the difference between counts of positive and negative
DAY residuals observed upto time t, where t refers to k period lag or lead
with respect to the event date..

t	Otosan	Rabak	Sarkuysan	Sise	T. Demir
-5					
-4	2	2	0	2	2	1		0	0
-3	0	4	2	0	2	1	*	0	2
-2	2	4	1	2	2	1	2	0	2
-1	0	0	0	2	2	1	2	0	2
1	0	2	3	2	2	1	0	2	2
2	1	2	2	0		2	2	2	0
3	2	1	2	3	0	1	0	2	2
4	2	2	2	1	2	2	0	2	2
5	2	2	2	2	2	0	4	0	0
6	2	2	0	2	0	1	4	0	0
7	2	2	0	2	2	2	0	4	0
8	4	0	0	0	0	0	0	0	0

* end /beginning of data

ANNOUNCEMENT (absolute value of the difference between counts of positive and negative
DAY residuals observed upto time where t refers to k period lag or lead
with respect to the event date.)

t	T.Sise	T. Siemens	Yasas	Demir
-5					
-4	2	2	3	2		0	0	4
-3	1	0	1	0	*	2	2	2
-2	0	2	1	2	0	3	0	2
-1	0	0	0	2	2	0	0	2
1	4	0	4	4	2	2	5	2
2	0	2	1	0	1	1	2	2
3	2	2	1	0	0	2	2	0
4	2	0	1	0	1	1	0	1
5	0	2	3	4	0	2	2	2
6	2	2	4	4	2	2	0	0
7	2	0	1	2	0	0	2	0
8	0	2	1	2	0	2	0	0

* end /beginning of data

ANNOUNCEMENT (absolute value of the difference between counts of positive and negative
DAY residuals observed upto time t, where t refers to k period lag or lead
with respect to the event date.

t	Ecz. Y	Ege E	Celik Halat	Erdemir	Kartonsan
-5					
-4	2	0		3	1
-3	0	0		1	2
-2	1	0		1	2
-1	4	2		0	2
1	8	2		4	0
2	4	0		2	0
3	0	3		2	0
4	1	2		2	0
5	0	2		3	0
6	0	2		2	0
7	2	2		2	0
8	0	2		2	0

* end /beginning of data

ANNOUNCEMENT (absolute value of the difference between counts of positive and negative
DAY residuals observed upto time t, where t refers to k period lag or lead
with respect to the event date.

t	Cukurova	Boktas	Izocam	Ak Cimento	Bagfas	Sniaa
-5						
-4	0	2	2	1	0	2	0
-3	0	0	2	2	0	4	2
-2	0	0	0	2	1	2	2
-1	0	2	2	0	0	2	0
1	2	2	0	3	5	0	0
2	0	2	2	0	2	2	0
3	1	0	2	2	0	2	0
4	1	0	2	2	1	0	0
5	0	2	0	2	1	2	2
6	0	2	2	0	4	0	0
7	2	2	2	3	2	*	*
8	0	4	2	1	2		

* end /beginning of data