

## **The Impact of the Announcement of the Saudi Government Budget on the Yield Performance of Saudi Public Company Shares**

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**Abstract.** The purpose of this research is to test the semi-strong form of informational efficiency of the Saudi stock market using event study methods, determine how long it takes for the Saudi stock market to react to budget announcement information and then fully adjust to and reflect such information, examine whether budget information is potentially usable to earn excess returns from the market by buying or selling company shares, and calculate the Beta coefficients for all traded Saudi stocks. In addition, the paper provides a brief description of the Saudi stock market and the event under study. The results of this research support the semi-strong form of efficiency of the Saudi stock market, and provide evidence on the speed of adjustment of stock prices to the government budget announcement.

### **Introduction**

Tests of the semi-strong form efficiency of public company share yield performance have been widely performed for the major industrial countries such as the USA, Great Britain, W. Germany, Canada, France and Japan among others. <sup>(1,2)</sup> There have been relatively few published reports of efficiency tests covering the yield performance of public company shares in nations with smaller and/or emerging equities

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<sup>(1)</sup> The theoretical basis for the conduct of semi-strong form tests of public company share yields is carefully developed in E.F.Fama [2].

<sup>(2)</sup> In a review of semi-strong form tests conducted on public company shares listed on various European

markets.<sup>(3)</sup> However, little research has been published concerning the informational efficiency of the yields of public company shares listed on the emerging Saudi Stock Market. Only Soufi [1] has analyzed the weak-form efficiency of the equity shares of Saudi banks. As will be described later, the structure and operation of the Saudi Stock Market is different from other stock markets. Thus, it is not clear at this time whether empirical research results from other stock markets can be directly applied to Saudi Arabia's market. Hence, if the Saudi Stock Market is to continue its development as a mechanism for efficient allocation of investment capital within the Kingdom and if this market is to continue to enjoy the confidence of individual (and especially small) private investors in Saudi Arabia, periodic examinations of the various forms of informational yield efficiency appears to be warranted. Finally, as Saudi Arabia continues to grow in significance in the International financial arena, studies of informational efficiency can be of assistance to Government Agencies responsible for the management of Saudi Arabia's financial institutions and public companies.

As described in the above referenced literature, a widely accepted method of conducting semi-strong form efficiency tests in the classic event study, an external shock is identified and then public company share yields are studied relative to some index for a period before and after the event in order to identify whether or not some anomalous yield history occurred after the event for the share yield in question which was different from that of the index.<sup>(4)</sup> In Saudi Arabia, the interaction between the Public Sector and the Private Sector of the economy is very significant.<sup>(5)</sup> The annual announcement of the details of the Saudi Government Budget is considered to provide important information to the full span of private sector activity regardless of whether the private sector enterprise is in a more subsidized segment (e.g. agriculture and some services segments) or in less directly subsidized segments which are still closely dependent upon the Government's stimulation of the overall economy. The Government's impact on the economy may be indirect or direct in those cases where the Government is a major employer, contractor, and/or producer of goods and service within the Kingdom and in the Kingdom's international commerce. Clearly, the Budget implications on expected Government Fiscal Policy should have a noticeable impact upon all aspects of real and financial investment within the Kingdom.

The information content associated with the announcement of the Saudi Government Budget is hypothesized to have a direct impact on the yields of public company shares traded on the Saudi Stock Market in terms of providing either good news, bad news, or neutral information to domestic investors in Saudi public com-

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Stock Exchanges, Hawawini lists 33 semi-strong form tests conducted using event study methods [3-9].

(3) This work is briefly surveyed and added to by the research reported in: B.L.Sudweeks [10]. A somewhat unique study which combines efficiency studies in industrial and developing country equity markets [11].

(4) An early and well documented event study is [12].

(5) See for instance [13].

pany shares. Here, good news is considered to be an announced increase in government spending and/or subsidies whereas bad news is considered to be an announced reduction in real government spending and/or subsidies, with any other condition being considered to be neutral information. The research reported in this paper was conducted to determine how efficiently the Saudi Stock Market share yields were in 1) predicting the above defined news content of the forthcoming Saudi Government Budget announcement, and 2) evaluating the benefit and the impact of the expected budget announcement. The following section provides an introduction to the Saudi Stock Market. This is followed by a section describing the objectives and research methods. Next, the results of the research will be described. The paper will end with a set of conclusions and recommendations for further research.

### **The Saudi Stock Market**

There are, as of 1989, 65 joint stock companies in Saudi Arabia.<sup>(6)</sup> Of these, only 52 firms have publicly traded equity shares (the others are either closely held or have shares held by government entities). Of the 52 firms with publicly traded equity shares, 40 are wholly owned by Saudi investors and 12 are predominately owned by Saudi investors with minority holdings by investors from other Gulf nations or foreign entities. These 52 firms consist of 11 financial institutions, 17 industrial companies, 17 service and utility companies, and 7 agricultural companies. Thirty-four of the currently traded joint stock companies went through initial issue procedures during the period from 1976 to 1986. Since 1986, the formation of joint stock companies for public trading has diminished considerably. In 1988, only four new joint stock companies went through formation and initial issue. These four firms were capitalized at SR 1,408 million. As of 1989, the total number of tradeable shares outstanding for these 52 publicly traded firms consisted of 433 million common shares (the only type of shares authorized) with a total paid in capital exceeding SR 45 billion (approximately US \$ 12 billion).

Table 1 shows the prices, P/E ratios, and dividend yields of representative shares of Saudi joint stock companies as of June 1990. Figure 1 shows the change in the Saudi Stock Market index over time (this index was developed by National Center for Financial and Economic Information which is an entity of the Ministry of Finance and National Economy of Saudi Arabia).

The existing size of the Saudi Stock Market is small (during the month of June in the year 1990, trading averaged 80,000 shares per day with an average total value of SR 22 million being traded per day) and lacks depth in a number of issues. Share trading is often very thin with only a small proportion (less than one-half of one per-

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<sup>(6)</sup> These companies are operating under the general provision of Saudi Stock Companies Law No. 192. For more details about the legal aspects of stock companies and share trading, see [14].

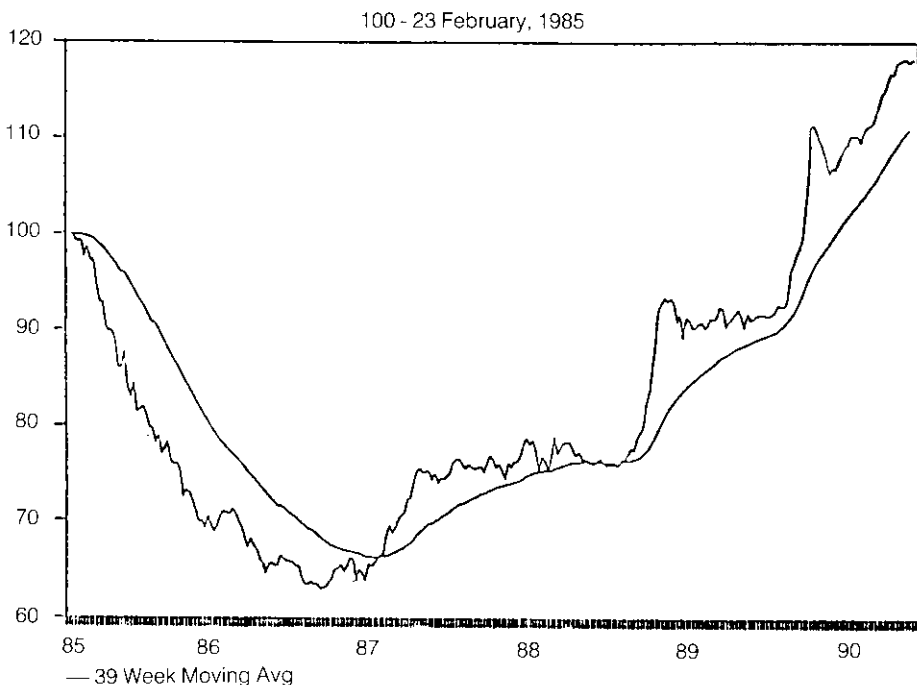
Table 1. Value indicators of Saudi joint stock companies on 30 June 1990

Name of Companies	Current price	price	Over 52 weeks % Ch.	Low	High	Q	Price/ latest earn	Price/ annual earn	Price/ book	Dividend yield
Riyadh Bank	2522	1800	40%	1750	2585	1	16	20	1.12	1.5%
Al-Jazira Bank	350	283	24%	230	398			NEG	1.49	0.0%
Saudi Investment Bank	400	190	111%	190	425	1	17	33	1.71	0.0%
Saudi Holland Bank	580	330	76%	330	597	1	14	15	1.83	0.0%
Saudi French Bank	562	354	59%	350	574	1	13	22	2.04	2.3%
Saudi British Bank	564	345	63%	345	593	1	12	18	3.15	2.0%
Saudi Cairo Bank	363	201	81%	193	405	3	NA	NEG	3.59	0.0%
Arab National Bank	1641	911	80%	897	1742	1	15	16	2.65	1.2%
Saudi American Bank	1104	630	75%	625	1164	1	14	16	3.43	1.8%
United Saudi Commercial Bank	556	265	110%	265	570	1	13	16	4.35	0.0%
Al-Rajhi Bank	1357	666	105%	660	1612	1	9	10	4.87	1.5%
<b>Banks' average</b>								<b>16</b>	<b>2.59</b>	<b>1.4%</b>
Saudi Basic Industrial Co (SABIC)	252	228	15%	219	266	1	13	7	1.93	1.9%
Saudi Fertilizers Co	898	551	63%	551	980	1	13	12	1.30	1.7%
Saudi Vegetable Oil Co	600	450	33%	425	600	2	12	13	2.97	3.3%
National Industries Co	86	75	15%	70	90			28	1.49	2.9%
National Pharmaceutical	379	168	126%	168	379		NA	NA	3.45	0.0%
National Gas & Industrial Co	151	146	3%	130	159	3	SUB	SUB	1.23	4.6%
Saudi Ceramic	350	175	100%	175	350	1	11	13	2.80	2.1%
<b>Industries' average</b>								<b>8</b>	<b>1.90</b>	<b>1.9%</b>
Arabian Cement Co	130	65	100%	65	143	2	22	14	2.04	3.9%
Saudi Cement Co	119	70	70%	65	119	2	24	22	1.78	5.0%
Al-Yamama Cement Co	235	129	82%	129	258	1	12	21	1.90	4.3%
Al-Qasim Cement Co	229	142	61%	139	229	1	10	18	1.32	5.6%
Southern Cement Co	295	199	48%	165	349	1	9	12	2.10	6.1%
Yanbu Cement Co	171	106	61%	106	185	3	13	12	1.70	6.6%
Saudi Bahrami Cement Co	111	89	25%	81	111	1	20	22	1.34	4.7%
Saudi Kuwaiti Cement Co	115	78	47%	75	115	3	NEG	NEG	1.26	0.0%
<b>Cements' average</b>								<b>17</b>	<b>1.72</b>	<b>4.7%</b>

Name of Companies	Current price	price	Over 52 weeks % Ch.	Low	High	Q	Price/ latest earn	Price/ annual earn	Price/ book	Dividend yield
Saudi Hotels Co	119	96	24%	92	120	1	13	12	0.88	4.2%
Saudi Real-Estate Co	122	125	-2%	112	135			16	0.80	0.0%
National Shipping Co (Old)	101	93	9%	85	101	1	ERR	18	0.95	5.0%
National Shipping Co (New)	52	49	6%	43	53	1	43	19	0.97	4.8%
Saudi Public Transport Co	88	93	-5%	85	99	3	SUB	SUB	0.82	8.0%
Saudi Automobile Service Co	33	35	-6%	30	39		NEG	NEG	0.52	0.0%
Saudi Livestock Company	54	59	-8%	50	64	2	24	NEG	0.65	4.6%
Taibah for Investment	41	27	52%	26	42			NA	NA	
<b>Services' average</b>								<b>31</b>	<b>0.83</b>	<b>3.5%</b>
Saudi Con Elect Co (Cent)	117	118	-1%	113	120	2	SUB	SUB	1.22	6.0%
Saudi Con Elect Co (West)	113	118	-4%	108	119	3	SUB	SUB	1.35	6.2%
Saudi Con Elect Co (East)	110	117	-6%	107	120	2	SUB	SUB	1.10	6.4%
Saudi Con Elect Co (South)	110	120	-8%	90	121	2	SUB	SUB	1.12	6.4%
<b>Utilities' average</b>								<b>NA</b>	<b>1.22</b>	<b>6.2%</b>
Nat Agric Dev Co (NADEC)	165	172	-4%	154	179	1	11	9	0.79	6.1%
Al-Qasim Agricultural Co	49	57	-14%	48	57	1	46	44	0.78	0.0%
Hail Agricultural Co	208	195	7%	186	219			55	1.07	9.6%
Tabuk Agricultural Co	163	151	8%	145	170	2	69	8	0.80	6.1%
Saudi Fisheries Co	458	493	-7%	425	500			14	1.90	3.3%
Eastern Agricultural Co	21	27	-22%	20	28	2	NEG	NEG	0.79	0.0%
<b>Agricultures' average</b>								<b>15</b>	<b>0.96</b>	<b>5.7%</b>
<b>Total average</b>			<b>29%</b>					<b>12</b>	<b>1.69</b>	<b>3.2%</b>

Average = Weighted average Sub = Subsidized NEG = Losses NA = Not Applicable \* = Hijra Year

\*\* Source: Riyadh Bank. "Saudi Stock Trends", Volume 19, July 1990.



\*Source: Riyadh Bank. "Saudi Stock Trends." Volume 19, July 1990.

**Fig. 1 Saudi stock market index**

cent of the total) of the total outstanding shares being traded every week. During the above cited month, the shares of 11 firms had at least one day when no shares were traded and some firms often go for days with no shares changing hands.

Among the items which perhaps contribute to the low turnover and trading rates are the following. First, shares are not traded on an established stock exchange and trade settlement procedures take longer than is the case in more fully developed stock markets (discussed in more detail below). Thus, the lack of short-term liquidity removes potentially significant speculative volume from the market (this is not entirely without merit as is discussed below). It is widely observed that long-term investors, less concerned with short-term liquidity requirements, tend to trade much less frequently than is the case for speculative equity investors. Second, the growth in the number of traded equity shares appears to have not kept pace with the growth of investible funds in Saudi Arabia. It further appears that Saudi investors have not yet followed the mistaken paths observed in some other equity share markets where the growth in the number of tradeable shares was less than the growth of investible funds (e.g. bidding the prices up beyond economically rational prices as has occurred

for instance in Taiwan during the late 1980s). One reason for this different response to a given economic situation is the fact that Saudi investors have been provided with other investment options (e.g. direct investments, foreign investments, real estate investments, etc) and because Saudi investors are perhaps more keenly aware of problems associated with a "runaway" stock market such as was experienced in nearby Kuwait in the early 1980s. Third, the small turnover rate in the Saudi Stock Market is further diminished because in many cases significant numbers of a given firm's shares are held by the Saudi Government which made a capital contribution to assist the formation of the firm. These government shares are held as long term government investments and do not contribute to trading volume.

While Saudi investors are allowed to invest in foreign securities and in countries with no restrictions on capital movement, ownership of shares traded on the Saudi Stock Market is closed to foreign investors except for a few companies, where the citizens from the member nations of the Gulf Cooperation Council (GCC) are allowed to invest in Saudi shares.<sup>(7)</sup> With economically negligible exceptions, foreign direct investments in Saudi Arabia are authorized only through the formation of a joint venture with Saudi interests. This procedure can result in publicly traded shares. For example, a bank may be a joint venture between a foreign bank and Saudi interests where some portion or all of the Saudi interest in the Bank may be traded on the Saudi Stock Market.

The Saudi Stock Market, similar to the system used by the W. German stock markets, utilizes a trading system which operates without the existence of specialists. To execute a trade, the buyer or seller must file a buy or sell order at a Saudi bank specifying any limits on prices to be paid or accepted.<sup>(8)</sup> The would-be buyer must provide expected purchasing funds to the bank with the placement of a confirmed buy order while the would-be seller is not paid for the sold shares until the below described transfer process is completed. A would-be seller must surrender the properly endorsed certificate to the bank when the sell order is placed. Buy and sell orders are often currently closed within the customer base of a given bank without exposure to trading activity in other banks.<sup>(9)</sup> Because of the low volume in a number of issues, it is not uncommon for seven to twenty-one days to elapse before a given buy or sell order is processed and the transaction finalized. At this time the bank arranges for issuance of new (or suitably endorsed) certificates to the new owner. Transaction

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(7) Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates are the member nations of the GCC.

(8) Any form of trading or exchanging shares outside of the specified bank "brokerage" system is strongly frowned upon by the authorities in Saudi Arabia [15, p. 132]. They are fully cognizant that flagrant violations of authorized security trading practices was an essential element of the crash in prices of publicly traded shares in neighboring Kuwait in the early 1980s.

(9) Market operational changes are being made which will ensure that all trading activity is closed at a central location to ensure transactions are more efficiently closed at "best-bid" and "best-asked" prices.

costs to the buyer of shares is approximately 1% of the transaction value, in addition, the seller of shares encounters transaction costs of approximately 1% of the transaction value. A would-be share purchaser who has entered a buy order with his bank is obliged to complete the purchase transaction and such buyer cannot enter a sell order for these same shares until the purchase operation is completed and the buyer has the necessary certificate in-hand.

It has been argued that this slower transaction process provides important time for the market participants to carefully re-evaluate new information in an environment of thin trading with less company related information than exists in some other stock market environments. This has probably contributed positively to the lack of extreme volatility which has been a characteristic of the Saudi Stock Market.

Information concerning stock market share performance in Saudi Arabia consists of a number of factors. First, joint stock companies in Saudi Arabia are required to publish audited Annual Reports (with balance sheet and income statement information) and quarterly unaudited financial statements; and they are required to make these reports available to investors and other interested parties. The standards for these public reports and statements are still evolving in Saudi Arabia. Second, prices and volumes at which publicly held shares are traded are listed daily and weekly in Saudi newspapers. Some firms (e.g. the large banks) publicize their quarterly income statement essential figures through the news media. Finally, the development of the investment analyst profession in Saudi Arabia and the associated reports of analysis of the valuation of publicly traded shares has only begun to emerge within the institutional structure of a few of the larger banks (who provide "brokerage" services as described above). At this time, these analysis reports are not widely distributed and the concept of a subscription service for these forms of investment advisory services has not yet grown to the stage observed in some other emerging equities markets. Hence, because there are certain time and effort requirements associated with gathering information upon which to make an assessment of value for a publicly traded equity share in Saudi Arabia, the slow transaction process is considered by at least some financial experts to be an appropriate mechanism to add responsible pricing stability to the Saudi equity market.

### **The Role of Saudi Government Subsidies on Share Performance**

Similar to the case in most other developing countries and industrial countries, some public companies in Saudi Arabia benefit from various forms of direct and/or indirect government spending and/or government subsidy programs. For purposes of brevity, all such government related benefits to a private sector company will be called "subsidies" in this paper although technically many do not fall under the internationally accepted definition of government subsidies. For example, to facilitate



standard of living improvements and to stimulate private sector commercial development, electrical utility companies in the Kingdom are subsidized by the government in order to provide lower cost electricity to both household consumers and commercial consumers (in this case the subsidy consists of a government payment to the utility which ensures a specified rate of return for the investors in the utility). While a full listing of all such government programs which potentially benefit private sector companies cannot be given in this research report, a few additional examples will demonstrate the scope of these government efforts.<sup>(10)</sup>

To facilitate economic diversification, rural development, and self-sufficiency in some food products, the Kingdom subsidizes some forms of agricultural and animal husbandry activities in the private sector. The forms of subsidies include low-cost loans to fund portions of such activities, some government procurement of produced foodstuffs at prices above prevailing world-market prices, government funded research to develop improved arid-region food production methods, and government supported low-cost provision of necessary energy and water supplies, among others.

To facilitate economic diversification, to minimize the foreign exchange costs of necessary imported goods and/or services, and to increase the economic quality and quantity of employment in the Kingdom, the government subsidizes almost all Saudi companies to some degree by supporting the provision of low-cost funding loans to firms entering various business areas, by supporting the provision of low-cost energy and water supplies to operating firms, by supporting a wide range of employee education and technical training programs, by providing certain forms of "infant industry" tariff protection to the products of some firms, by supporting high quality low-cost communications services, and by providing a very low-tax environment for company operations, among others.

To facilitate the development of large private sector firms with the capability to service large contract requirements, the government has developed a number of procurement policies and procedures which tend to favor Saudi companies as sole or joint-venture suppliers of the large amounts of goods and services procured by the government during each year. For example, government construction programs can benefit various equipment and materials manufacturing firms as well as construction firms in the Kingdom. As another example, the efficient operation of the large government service organizations (e.g. airports and ports administrations, universities, hospitals, etc) results in large procurement from a number of service, maintenance, and information systems firms within the Kingdom.

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<sup>(10)</sup> Additional description of various government programs which potentially benefit private sector firms and the rationale for such programs can be found in [16].

Since there are clearly some differences in the potential impact of these various government subsidy programs upon differing forms of business activity, this research will (inter alia) examine the differences in the budget announcement performance impact of not only the Saudi Market as a whole, but also of the stocks of companies in the utility sector, the agricultural sector, the industrial sector, and the banking sector.

### **Research Objectives**

The objectives of the research reported in this paper are:

- a) Test the semi-strong form informational efficiency of the Saudi Stock Market using event study methods.
- b) Determine how long it takes for the Saudi Stock Market to react to budget announcement information and then fully adjust to and reflect such information.
- c) Examine whether budget information is potentially usable to earn excess returns from the market by buying or selling company shares.
- d) Determination of the Beta coefficients for all traded Saudi stocks.

### **Importance of the Study**

This study is of significance to Saudi governmental authorities responsible for the maintenance of an orderly stock market which efficiently allocates capital within the economy and which enjoys the confidence of Saudi investors. This study is also important to Saudi investors who place their investible funds in the Saudi Stock Market with expectation of fair treatment in the search for reasonable risk-adjusted investment yield. Finally, this study is important to the international finance profession in that it provides some initial analysis results concerning the performance of an important emerging equity market.

If a stock market is shown to be inefficient (thus potentially subject to various forms of manipulation), the public tends to distrust it and the market may collapse due to eroding investor confidence. If a stock market is shown to be inefficient, it may not provide an important mechanism for valuing financial assets (and their underlying income streams), it may also not supply the important economic service of providing a liquid repository for investible funds within the economy, and it may not provide the important economic service of efficiently allocating investible funds among the possible investment projects within the economy.<sup>(1)</sup>

Since these stock market related services are important to the success of any nation's economy, and certainly to the success of Saudi Arabia's efforts to expand and diversify its economy, the results of this study should be of interest to all parties to the Saudi Arabian Stock Market.

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<sup>(1)</sup> Additional discussion of the classic functions of a market for financial assets is to be found in [17].

### Methodology

This section is divided into two subsections. First, a full description is given of the data set used in the analysis and of the period covered by the study. Finally, a description of the financial model and the econometric analysis is presented.

#### Data

The data set includes weekly prices of 44 Saudi stocks traded between May 1985 and January 1989 and corresponding weekly values of the National Center for Financial and Economic Information Index (NCFEI Index) obtained from the Saudi Arabian Monetary Agency (SAMA).<sup>(12)</sup> Those eight company shares which experienced no trading during this period were excluded from the study.

Weekly average stock prices and index values were used to reduce the potential bias in estimating the Beta coefficient due to the infrequent and/or thin trading of some of the Saudi stocks. This is consistent with the work of Solnik [18] which demonstrated the superiority of weekly data over daily data to obtain better parameter estimates in European markets which have less trading volume than the major equity markets such as those in the United States and London.

The May 1985 data set beginning date was selected for its correspondence with the availability of SAMA data and with the initiation of the trading mechanism described above. The January 1989 end of data date was set by adequate coverage of the events under study.

The "event time" (event week) will be the week the approved budget was made public, a time which is predetermined and known to all participants in the Saudi Stock Market. Any information concerned the budget which becomes available from the whatever source before this date is assumed to be mere speculation.

#### Methodology

The usual event study methodology [6; p.21] was utilized and is outlined below:

- 1) Beta coefficients for each stock were obtained using the following market model:

$$R_{it} = \text{Alpha } (i) + B_i \cdot R_{mt} + e_{it}$$

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<sup>(12)</sup> Dividend data were not used in this study due to the unavailability of such information. Development of an improved database is one of the recommendations made later in this paper.

Where:

- Rit = Return of stock i during week t.  
 Alpha (i) = Line intercept (return not related to risk).  
 Bi = The Beta coefficient for stock i.  
 Rmt = Return of the stock market during week t.  
 eit = The residual component of stock return during week t.

- 2) The estimated expected weekly return of each stock were obtained as follows:

$$E [Rit] = \text{Alpha (i)} + b_i \cdot r_{mt}$$

- 3) The residuals for stock i at week t were calculated as follows:

$$e_{it} = E [Rit] - Rit$$

- 4) The average residual for each event week (ARt) and the cumulative average residual up to event week t (CARt) were obtained for each analysis period as follows:

$$ARt = (1/n) \cdot \sum_{i=1}^n e_{it}$$

$$CARt = \sum_{t=1}^t ARt$$

Where:

n = number of securities in the sample

m = number of event period weeks

SUM = the summation operator

### The Event Under Study

The identification of the event of interest in this study, namely the public announcement of the next year's budget for the Kingdom of Saudi Arabia, is easily fixed for several reasons:

- A) The budget's public announcement date has been the 31st day of the last month of the Gregorian (AD) year since the year 1987 AD.
- B) The budget contents are dependent upon several macroeconomic variables (e.g. international prices of crude petroleum), upon several government policy

decisions (e.g. spending levels for public health programs, public education programs, etc), various income sources (crude oil sales, petrochemical sales, taxes, tariffs, investment income, etc), and various spending units (e.g. Ministries, Municipalities, other agencies, etc). The relatively high level of independence of decision making concerning the impact of these variables on the budget when combined with the relatively sparse data available in near real time would make the usual budget forecasting exercises relatively inaccurate in this environment. This factor makes the actual public announcement of the budget a potentially more important event than it might be in an industrial nation with fully developed data and forecasting systems.

- C) The government has exercised a high level of discipline in keeping budget developments out of the many channels of public information. Examples include the close official holding of information concerning the key 1987 budget expenditure reductions and the decision to limit overall 1988 budget spending at approximately the same level as occurred in 1987. The successful containment of these major decisions further contributed to inability to forecast the expected budget parameters and added to the informational importance of the public announcement of the government's budget.
- D) The period under study (1987 and 1988) were of special importance because it was a period when government revenues declined sharply due to reduced petroleum revenues and because it was the period during which the government first issued public debt in order to supplement other government revenue. These major changes in historic *modus operandi* required extreme management care on the part of the government.
- E) The publicly announced budgets in 1987 and 1988 contained some surprise information regarding the levels of custom tariffs and/or duties, the level of electricity rates, the level of telephone rates, and the level of certain agricultural subsidies, all of which had the potential for significantly impacting the equity share investment environment.

Hence, the research reported in this study covered the events associated with the public announcement of the 1987 and 1988 budgets for the Kingdom of Saudi Arabia. It was expected that the budget announcements in both years would have a negative impact upon the performance of equity shares of agricultural and public utility firms because of the announced declines of their level of government subsidization. It was further expected that the budget announcements in both years would have a positive impact upon the performance of bank stocks because the increase in customs duties and the implied increased potential for a relatively weak Saudi Riyal (e.g. not stronger than maintaining its value with respect to the US dollar while both diminish in value with respect to those currencies more highly correlated in value

with the Deutschemark and the Yen) would tend to stimulate expansion of the local economy which would provide a financial environment more favorable for the "working out" of certain weak assets carried in the asset portfolios of Saudi banks. These latter factors were also expected to enhance the performance of equity shares in the local tourism and health care sectors which are both thought to be highly correlated with current domestic economic performance.

### **Empirical Results**

With respect to the semi-strong form test of the informational efficiency of the Saudi stock market, Tables 2 and 3 presents the average residual that were observed during the 1987 and 1988 budget announcements respectively. The average residuals were computed for each week starting 10 weeks before the budget announcement. The excess returns generated are examined to determine the significance of event period excess returns. The test-statistic is distributed student-t under the null hypothesis of no abnormal returns and are presented in Tables 4 and 5 along with the associated probabilities. An examination of the t-statistics and the associated probabilities demonstrate that we cannot reject the null hypothesis of no abnormal returns at 5% level of significance. Figures 2 and 4 show the pattern of the excess returns (residuals) during 1987 and 1988 respectively, whereas Figures 3 and 5 show the pattern of the cumulative excess return that were observed the 1987 and 1988 budget announcements respectively. As can be seen, by examining the previously mentioned Tables and Figures, the cumulative excess return increases dramatically before the announcement of the budget.

With respect to the time it takes for the Saudi stock market to react to budget information, it is evident that the market anticipates the budget information before the announcement and fully adjusts to reflect such information instantaneously. The market seems to adjust to budget information rapidly with much of the impact taking place in anticipation of the government budget announcement.

With respect to whether or not budget information is potentially usable to earn excess returns from the stock market, it is evident that stocks on average perform as expected, and that the average excess return is just about zero. The lack of excess returns for Saudi shares, indicates that the market makes an unbiased estimate of future performance and that share prices are then adjusted, depending on subsequent budget announcement. Therefore, budget information cannot be used to earn excess returns.

The Beta coefficients for all traded Saudi stocks (determined using weekly data between May 1985 and January 1989) are shown in Table 6, along with the appropriate standard error of the estimate for each beta value. These beta coefficients can be very useful in the construction of Saudi equity investment portfolios, and are deemed worthy of reporting for future research regarding asset allocation decisions studies.

**Table 2. Test of the average residual for 1987**

Week	Average	STD	T	Prob	Normality	Prob
-10	-.0097	.0340	-1.42	.1648	Yes	.665
-9	-.0054	.0487	-.65	.5196	No	.028
-8	-.0089	.0507	1.02	.3161	No	.01
-7	.004	.0702	.33	.7438	No	.01
-6	-.0071	.03990	-1.04	.3058	Yes	.252
-5	.0053	.0667	.47	.6447	No	.01
-4	.0174	.057	1.78	.0848	No	.01
-3	-.0019	.0423	-.26	.7970	Yes	.5
-2	.0024	.0428	.33	.7444	Yes	.423
-1	.0094	.0436	1.26	.2155	No	.01
0	.0020	.0649	.18	.8606	No	.01
1	.0004	.0533	.04	.9694	No	.01
2	.0034	.0736	.27	.7904	No	.047
3	.0126	.0755	.98	.3357	Yes	.333
4	-.0075	.0480	-.91	.3692	Yes	.911
5	.0014	.0460	.18	.8590	Yes	.858
6	.0228	.0921	1.44	.1585	No	.01
7	-.0039	.0601	-.37	.7111	Yes	.053
8	.0044	.0526	.49	.6257	Yes	.765
9	.0003	.0512	.04	.9682	Yes	.685
10	-.01	.0525	-1.11	.2743	Yes	.232
Overall average residual:	.00233	.0088	1.22	.2374	Yes	.617

\* Critical value = 0.05%

**Table 3. Test of the average residual for 1988**

Week	Average	STD	T	Prob	Normality	Prob
-10	-.0032	.0753	0.25	.8072	No	.021
-9	-.0193	.0932	-1.21	.2365	No	.01
-8	-.0009	.0634	-.08	.9337	No	.01
-7	.0081	.054	.87	.3908	Yes	.059
-6	.0069	.0612	.66	.5163	No	.016
-5	-.0137	.0433	-1.84	.0742	Yes	.619
-4	-.0121	.0518	-1.37	.1814	Yes	.596
-3	.028	.0838	-1.95	.0602	No	.01
-2	-.0065	.0532	-.71	.4816	No	.01
-1	.0027	.0533	.29	.7718	No	.01
0	-.0019	.0501	-.22	.8305	No	.01
1	-.007	.0434	-.95	.3514	No	.01
2	-.0021	.0311	-.39	.7016	Yes	.397
3	.0012	.0341	-.20	.8419	Yes	.664
4	-.0096	.0381	-1.46	.1527	Yes	.095
5	.00438	.050	.51	.6126	No	.01
6	-.00262	.052	.29	.7715	No	.01
7	-.0371	.031	-.70	.4871	Yes	.392
8	.0071	.0463	.90	.3768	No	.01
9	.0074	.0402	1.07	.2904	Yes	.407
10	-.0119	.0500	-1.39	.1742	Yes	.423
Overall average residual:	.00065	.01022	.29	.7738	Yes	.16

\* Critical value = .05%



**Table 4. Cumulative average residual for 1987**

<b>Week</b>	<b>Average residual</b>	<b>Cumulative average residual</b>
-10	-0.009796	-0.009796
-9	-0.005385	-0.015181
-8	0.008914	-0.006267
-7	0.004015	-0.002252
-6	-0.007088	-0.009340
-5	0.005307	-0.004033
-4	0.017412	0.013379
-3	-0.001934	0.011445
-2	0.002394	0.013839
-1	0.009500	0.023339
0	0.001975	0.025314
1	0.000344	0.025658
2	0.003448	0.029106
3	0.013928	0.043034
4	-0.007473	0.035561
5	0.001438	0.036999
6	0.022743	0.059742
7	-0.003851	0.055891
8	0.004395	0.060286
9	0.000308	0.059978
10	-0.011593	0.048385

**Table 5. Cumulative average residual for 1988**

<b>Week</b>	<b>Average residual</b>	<b>Cumulative average residual</b>
-10	0.003256	0.003256
-9	0.019284	0.022540
-8	-0.000980	0.021560
-7	0.008081	0.029641
-6	0.006819	0.036460
-5	-0.013722	0.022738
-4	-0.012081	0.010657
-3	-0.027969	0.038626
-2	-0.006549	0.032077
-1	0.002645	0.034722
0	-0.006982	0.032858
1	0.006982	0.025876
2	-0.002028	0.023848
3	0.001171	0.022677
4	-0.009530	0.013147
5	0.004427	0.017574
6	0.002695	0.014879
7	-0.003791	0.011088
8	0.007048	0.-18136
9	0.007394	0.025530
10	-0.011908	0.001362

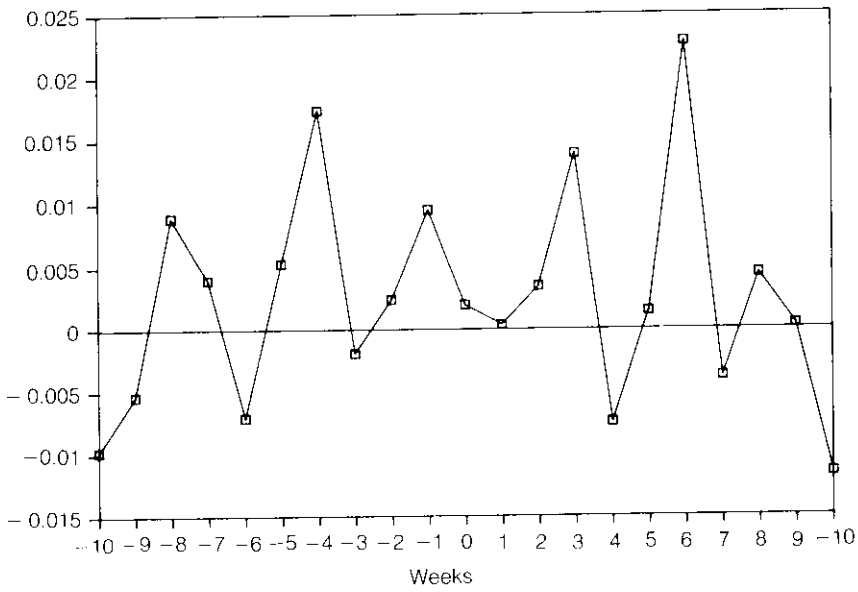


Fig. 2. Average residual for 1987

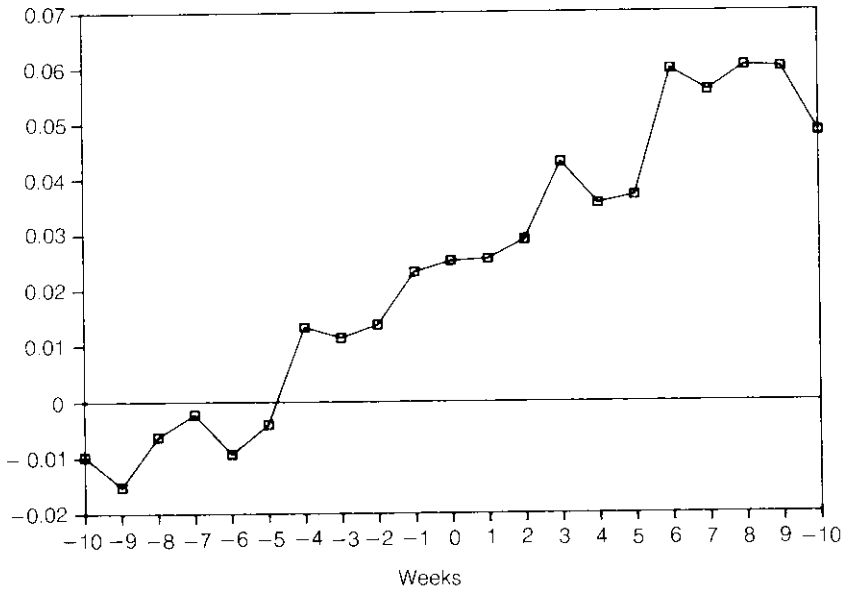


Fig. 3. Cumulative average residual for 1987

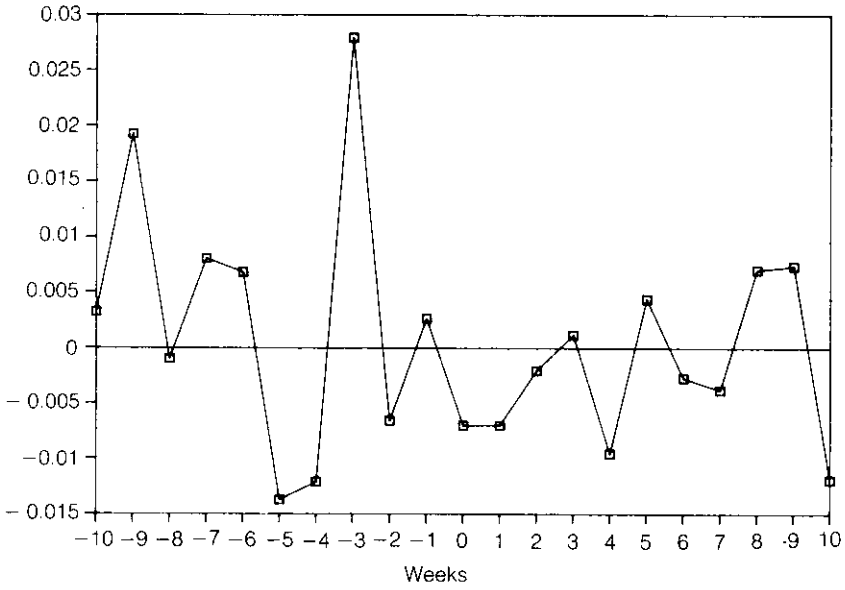


Fig. 4. Average residual for 1988

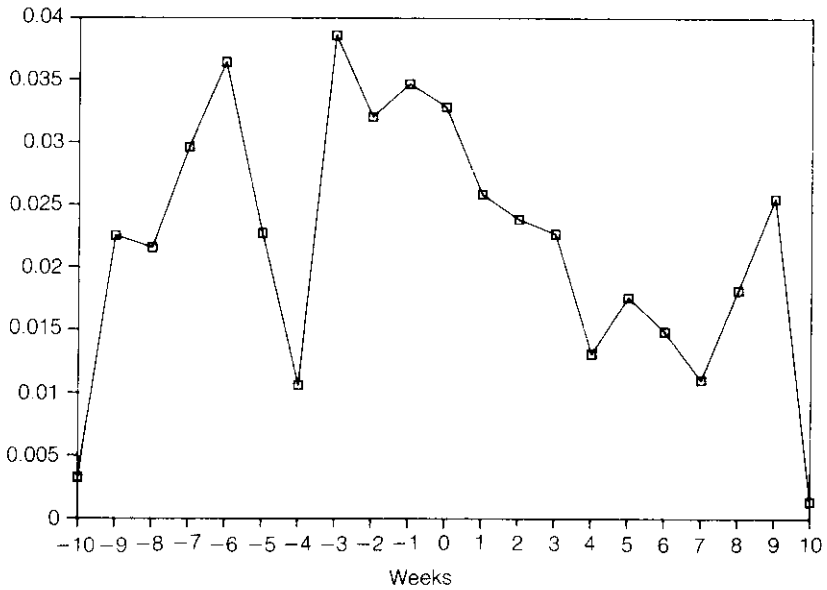


Fig. 5. Cumulative average residual for 1988

**Table 6. The Beta's and statistics of the sample**

Company's name	Beta's	T	Probability of T
Arab National Bank	0.1615	0.91	0.5638
Saudi American Bank	0.6479	2.125	0.0348
Saudi British Bank	0.6641	2.490	0.0136
Saudi Cairo Bank	0.7068	2.043	0.0423
Saudi Holland Bank	0.4408	1.481	0.14
Saudi Commercial Bank	0.6524	2.416	0.0165
Saudi Investment Bank	0.1185	0.503	0.6157
Saudi French Bank	0.1440	0.660	0.5098
Saudi Jazirah Bank	0.2913	0.718	0.4739
SABIC	1.2394	6.377	0.0001
SAFCO	0.5474	2.423	0.0163
SAVOLA	0.3595	0.907	0.3653
Saudi Ceramics	0.0563	0.281	0.779
Saudi Bahrain Cement	0.6349	2.083	0.0385
Saudi Kuwait Cement	0.5012	1.133	0.2587
Yanbu Cement	0.2095	0.636	0.5252
South Cement	0.501	1.212	0.227
Qaseem Cement	0.7528	2.130	0.0343
National Industries	0.4726	1.44	0.1515
Saudi Pharm. Indust.	0.3571	1.363	0.1746
Qaseem Agriculture	0.4883	0.931	0.3528
Central Electricity	0.5569	4.065	0.0001
NADEC	0.2129	1.098	0.2324
Western Electricity	1.3236	6.948	0.0001
Hail Agriculture	-0.0209	-0.065	0.9481
Southern Electricity	0.2648	1.809	0.0719
Tabouk Agriculture	0.6262	2.586	0.0104
Saudi Fisheries	0.0865	0.249	0.8038
Sea Transport (New)	1.224	1.303	0.1939
Sea Transport (Old)	0.2243	0.756	0.4503
Live Stock Trade & Trans.	0.0854	0.233	0.8157
SAASCO	0.2218	0.308	0.7581
Saudi Hotels	0.1491	0.669	0.4854

### **Conclusions**

The results of this research present some important evidence of the semi-strong form of efficiency of the Saudi stock market. The data provides evidence on the speed of adjustment of market prices to the budget information. The average residuals are randomly distributed about 0 during each budget announcement (1987 and 1988). Thus, there is no net movement either up or down in the cumulative average residuals. According to our hypothesis, this implies that on the average the market makes unbiased price forecasts for the stocks and these forecasts are fully reflected in share prices.

### **Suggestions for Future Research**

To facilitate further understanding of the operation and efficiency of the Saudi Stock Market as well as to assist in the determination of appropriate policies to be developed to support further orderly growth of this market, the following research activities are recommended:

- A) Continuing development and wide dissemination of high-quality and low cost databases covering historic Saudi Stock Market prices, dividends, splits, etc. along with NCFEI Index data and minimum variance asset data (this asset is currently the Riyal Certificate of Deposit) as well as databases containing historic annual report and quarterly statement financial data of publicly held Saudi firms.
- B) Continued study of the details associated with the transactions and settlement procedures and regulations used within the Saudi Stock Market (secondary market operations) along with appropriate comparative study of similar details and regulations in those markets which may provide useful information for the ongoing development of the Saudi Stock Market (such as the Singapore Market, the Malaysian Market, the various Scandinavian Markets, the Canadian Market, etc). Comparative studies of the methods of primary market operations in Saudi Arabia and these same countries may also provide useful information for continuing development of primary market operations (new issue and additional share issue operations) in the Saudi Stock Market.
- C) Periodic repetition of studies such as that reported here to monitor changes over time of the efficiency of the Saudi Stock Market. Such studies would be particularly appropriate every three to five years, and after significant changes in transaction methods, regulations, and/or the public information systems associated with the Saudi Stock Market.

- D) For those Saudi Stock Market firms having sufficiently small periods where no trading is observed, studies of the ability to forecast share prices (share yields) using modern statistical methods would add valuable information regarding the weak-form efficiency of the pricing of those stocks in the Saudi Stock Market.
- E) To widen the investment opportunities available in Saudi Arabia, studies on mobilizing financial resources at the regional and international levels would be important at this stage for the Saudi stock market. The allowance of citizens and institutions of other countries (or at least regional countries) may help to circumvent the limitations of the small domestic equity market.

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## أثر إعلان الميزانية الحكومية السعودية على عائد الأسهم للشركات المساهمة

ياسين الجفري و عدنان صوفي

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ملخص البحث . نهتم من خلال هذا البحث باختيار نظرية كفاءة السوق السعودي من النوع شبه القوي مستخدمين أسلوب دراسة الحدث . كذلك لمعرفة الفترة التي يأخذها السوق السعودي للتفاعل والاستجابة للمعلومات، والتحقيق عن إمكانية استخدام معلومات الميزانية من عدمها في تحقيق أرباح إضافية . كذلك تهدف إلى حساب وإيجاد معامل البيتا للأسهم السعودية . وبالإضافة إلى أنه من خلال هذا البحث تم استعراض بعض خصائص السوق السعودي .

يستخلص من نتائج البحث أن السوق السعودي لا ينقض نظرية كفاءة السوق من النوع شبه القوي وأن السوق تتفاعل بسرعة مع معلومات الميزانية .