MARKET EFFICIENCY, QUALITY OF INFORMATION, AND INVESTOR'S SOPHISTICATION: THE CASE OF THE ISRAELI CAPITAL MARKET

Dan GIVOLY * and Josef LAKONISHOK **

1. Introduction

Much of the empirical research in finance over the last decade has concerned the subject of market efficiency. The findings, which are usually based on investigations of the two major exchanges in the United States, indicate that, by and large, these securities markets are efficient: every price in these markets reflects all the available information so that any new relevant information is rapidly impounded in prices and cannot be used to generate returns in excess of those commensurate with the risk. This property, informational efficiency, is necessary for the functioning of a capital market as a conduit to optimal allocation of resources [1].

It has been recognized in the financial literature that the existence of informational efficiency does not necessarily imply the existence of allocational efficiency [2]. However, reliance on the existence of informational efficiency as an indication of allocational efficiency might still be appropriate if certain market elements exist. These elements include the uninterrupted flow of financial information, the capability of investors to digest and properly evaluate the information, and the existence of a technically and legally developed exchange mechanism. These conditions are present in the major securities markets in the United States, where there are an abundance of financial information (both regulated and voluntary), numerous information disseminators, a diversity of financial advisory services, and a very smooth and long-standing mechanism of trading. It is not surprising, therefore, to find that the results of the standard informational efficiency tests were generally interpreted as indicating optimal allocation of resources (with, perhaps, one reservation concerning the relatively high transaction costs). Nonetheless, in many other

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securities markets the quality of information, the sophistication of investors, and the trading mechanism impede optimal resource allocation.

There are also good reasons to believe that at least some of the securities markets in the United States are less developed than the major markets in terms of information availability and quality, sophistication of investors and trading mechanism, and therefore, produce non-optimal resource allocation. First, many of the disclosure regulations apply only to companies above a certain size. The Securities and Exchange Commission (SEC) requires periodic reporting only from companies with total assets over $1,000,000 and a single class of equity securities with more than 500 holders. Moreover, specific disclosure requirements are limited to large firms (e.g. the disclosure of current information required by the rescinded ASR 190 and by FASB 33).

Secondly, financial disseminators and analysts give only sparse coverage to small and lightly traded securities. More than 10,000 companies have securities registered with the SEC. Of these about 3,500 are listed on registered stock exchanges and only a few hundred are followed by financial analysts and brokerage houses [3]. Only about 1,500 companies are referenced by the Wall Street Journal Index. These circumstances indicate that the investing public lacks easy access to detailed financial information on many firms and cannot obtain regular and thorough analysis of their operations.

Finally, recent studies cast some doubt on the propriety of inferring from the traditional tests of informational efficiency the existence of optimal resource allocation, even in very developed stock exchanges. The studies point to a persistent under-pricing or over-pricing of securities or groups of securities over long periods [4]. It appears, therefore, that analysis of the conditions (aside from “fair-game”) that ensure correct determination of securities prices might also be of great importance for the understanding and improvement of the most developed securities markets.

This study closely examines the structure, characteristics, and operation of the Tel-Aviv Stock Exchange (TASE), a market which proved to be “efficient” by the standard tests for informational efficiency, yet apparently fails to reflect properly the correct value of shares and, therefore, fails to perform its function of optimal allocation of resources. The underlying factors that contribute to this failure are studied and the implications for more developed stock markets are drawn.

The examination of the Israeli situation raises the issue of regulation of information disclosure, i.e. what disclosure should be required and the degree to which market forces should be relied upon for the supply of information. This issue arises because the concept of informational efficiency is not very useful in assessing the economic contribution of a stock market unless it is related to the underlying information set. Informationally correct prices that are based on wrong or grossly inadequate information are hardly satisfactory. The amount, quality, and availability of financial information are thus im-
portant ingredients of a properly functioning stock market.

Examination of the Israeli capital market indicates that the contention that free market forces will produce the optimal amount of information and that therefore less or even no regulation of financial disclosure is required, though perhaps valid for very developed capital markets, is unwarranted for less developed markets, characterized by the presence of institutional, social, and legal constraints which impede the work of free market forces.

The organization of this article is as follows. Section 2 provides a description of the TASE. Section 3 reviews briefly the empirical evidence which indicates that the TASE is efficient according to the standard tests that are usually employed for this purpose. The following section presents and analyzes several examples which demonstrate that despite its technical efficiency, stocks on the TASE are incorrectly priced and that as a result this market fails to yield optimal resource allocation. Section 5 offers some explanations of this coexistence of what we define as informational efficiency and allocational inefficiency. Section 6 focuses on the comparison between the extent, quality, and dissemination of financial information in Israel and the United States and discusses these attributes as determinants of market efficiency, evaluating the desirability of relying on market forces rather than on regulation for the supply of corporate disclosure. The final section presents a summary and implications for disclosure regulation.

2. The Israeli stock market – some background

The TASE is the only organized securities exchange in Israel. Securities of 101 companies are listed on the exchange. Each security is traded once a day. Orders are submitted to the officials of the exchange before the beginning of each trading day. When there is an excess demand (supply) the price is raised (lowered) until the new sell (buy) orders from the presenting members of the exchange close the gap. All orders are executed at the new equilibrium price. Investors in the TASE can assume only long positions; short sale transactions are not performed on the exchange. There are no official market-makers on the TASE. The absence of these intermediaries contributes to the volatility and therefore to the speculative nature of narrowly traded stocks. For example, an excess demand of only $5,000 could increase the price of about a third of the stocks on the TASE by 3% or more [5]. It is not surprising therefore that speculators find the TASE a very attractive ground for their activity. The board of the TASE is quite concerned about this situation and is currently considering the introduction of market-makers to the trading of stocks with low marketability.

Table I provides some facts about developments in the Israeli securities market. These facts show that the importance of the stock market as an object
### Table 1

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<td><strong>A. Shares</strong></td>
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<tr>
<td>1. Volume of issues at 1978 prices (IL mil.)</td>
<td>372</td>
<td>1,236</td>
<td>3,241</td>
<td>1,605</td>
<td>2,164</td>
<td>1,529</td>
<td>6,009</td>
<td>5,393</td>
</tr>
<tr>
<td>2. Real rate of return (%)</td>
<td>19</td>
<td>87</td>
<td>-34</td>
<td>-27</td>
<td>6</td>
<td>9</td>
<td>35</td>
<td>3</td>
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<td>3. Volume of trade at 1978 prices (IL mil.)</td>
<td>744</td>
<td>4,744</td>
<td>3,280</td>
<td>1,925</td>
<td>2,077</td>
<td>2,904</td>
<td>17,089</td>
<td>14,296</td>
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<td><strong>B. Bonds</strong></td>
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<tr>
<td>1. Volume of issues at 1978 prices (IL mil.)</td>
<td>5,620</td>
<td>11,569</td>
<td>15,775</td>
<td>13,208</td>
<td>11,173</td>
<td>5,016</td>
<td>8,378</td>
<td>8,042</td>
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<tr>
<td>2. Real rate of return (%)</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>-4</td>
<td>8</td>
<td>11</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. Volume of trade at 1978 prices (IL mil.)</td>
<td>2,566</td>
<td>4,218</td>
<td>5,486</td>
<td>11,047</td>
<td>9,375</td>
<td>7,815</td>
<td>7,976</td>
<td>6,850</td>
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of investment to individuals and a source of new capital to corporations has been increasing in recent years to the point that during 1978, the volume of trade was IL 14,296 million and IL 5,393 million worth of new stocks were issued. (The average exchange rate during 1978 was IL 17.5 = $1.)

3. Empirical evidence on the efficiency of the TASE

The efficiency of the TASE has been extensively tested in recent years. The tests were similar to those performed for the American securities markets and covered all three forms of market efficiency: the weak form of market efficiency which states that current prices reflect all the information about past prices and trading volume, the semi-strong form of market efficiency which states that current prices reflect all the publicly available information, and the strong form of market efficiency which states that the market is efficient to all (not just public) information [6].

3.1. Weak-form efficiency tests

The tests of weak-form efficiency usually involve a search for systematic patterns in the series of past prices. If such patterns are detected, the hypothesis of weak-form efficiency is rejected. Virtually all studies conducted on the U.S. stock exchanges failed to detect such patterns. This does not mean that there are no sequences of price changes in the same direction over several days, weeks, or months, but rather that the frequency of these events does not exceed the frequency that would be observed under a truly random process. The findings therefore led to the conclusion that the tested markets were efficient in the weak form.

The results of the weak-form tests performed on TASE are very similar to those found for the exchanges in the United States [7], and appear to support the weak form of market efficiency hypothesis [8].

3.2. Semi-strong form efficiency tests

Unlike the weak form of the efficiency hypothesis, which asserts only that security prices do not tend to follow established patterns, the semi-strong efficient market hypothesis asserts that all available, relevant, public information is fully reflected in security prices.

The TASE was tested for the semi-strong form of market efficiency by examining the change in stock prices during ex-cash dividend and ex-stock dividend days [9]. In an efficient stock market a strategy of buying a stock on the day preceding the ex-day and selling it on the ex-day should not generate abnormal returns. On the TASE such a strategy yielded abnormal returns of
1.3% and 0.4% per transaction for cash and stock dividends, respectively [10]. Those results indicate some inefficiency which, because of transaction costs, is nevertheless insufficient to provide a profitable strategy to investors.

The reaction of the TASE to stock dividend announcements was also examined [11]. The results showed that on the day following the announcement (trading on TASE is suspended on the day of the announcement) the companies that declared stock dividends yielded an abnormal return of 4.6%. However, after the first day no significant abnormal returns could be detected (−1.0% and 0.0% were observed during the second and third days following the announcement) [12]. Therefore, public information on stock dividends could not be utilized to gain an abnormal return, but an insider could benefit from stock dividend announcements. These results, showing a short reaction period of less than a week following dividend announcements, are very similar to the results of an examination of the reaction of New York Stock Exchange companies to stock splits [13].

3.3. Strong-form efficiency tests

The strong-form market efficiency hypothesis states that all information is reflected in stock prices. Common sense suggests that such an extreme hypothesis should be refutable. Indeed, one study pointed out that specialists on the New York Stock Exchange apparently use their monopolistic access to information concerning unfilled limit orders to generate monopolistic profits [14], and another study found evidence indicating that officers of corporations sometimes have monopolistic access to valuable information about their firms [15]. Similar results were found in the TASE. One study examined the movement of stock prices in the TASE before the release of "good news" such as high cash or stock dividends [16]. That evidence showed that stock prices started to adjust at least twenty days before the announcement, thus giving an insider the opportunity to generate an abnormal return of about 3% by buying stock twenty days before the announcement and holding it until one day before the announcement.

That specialists and some insiders can earn trading profits from their information refutes the strong form of market efficiency and raises an important question: How far down through the investment community do deviations from the model permeate? To answer this question the performance of various groups of market "professionals" should be examined. Because there are limited data, only one group has been studied in depth: managers of open-end mutual funds. A 1969 study found that mutual fund managers do not seem to possess knowledge that is not already impounded in the securities prices [17]. Similar results were reported in 1977 [18] and in 1978 [19] for the TASE. These studies revealed that mutual funds could not generate abnormal returns for their investors.
3.4. Summary

All of the traditional efficiency tests performed on the TASE yielded results similar to those obtained for securities markets in the United States and indicated a high degree of informational efficiency. The following analysis of the Israeli stock market indicates that the results of these tests are of limited importance in assessing the degree of allocational efficiency.

4. Evidence inconsistent with allocational efficiency

This section provides evidence of clear and unambiguous instances of incorrect pricing of securities in the TASE, indicating allocational inefficiency. While we do not pretend to fully explain each one of these apparent anomalies, the next section discusses institutional and information-related explanations of the phenomena.

4.1. Improper pricing of individual stocks

A 1978 study by Barnea evaluated the share prices of major Israeli banks [20]. The results showed that after correcting for inflationary effects, their real EPS had been steadily decreasing over the last six years at an average annual rate of about 10%. By employing different valuation techniques and by considering return and risk on alternative investments, Barnea reached the conclusion that these bank stocks were over-priced by at least 100%. He traced the over-pricing to the inability of investors to properly analyze the financial statements, to the widely held yet unsubstantiated beliefs about the immunity of the banking system in Israel to political upheaval, and to the immense trading power of the banks which enables them to artificially maintain high prices for their shares over long periods. This last phenomenon is explored in the next section.

Our 1981 study examined the accounting issues raised by the financial reporting of a large Israeli construction company [21]. The company reported poor results for the last few years and its stock price declined, particularly after a loss was reported for 1978. The loss prompted the resignation of the company’s chairman of the board and its general manager. Careful examination of the financial reports, including comprehensive adjustment of the accounts for the effects of inflation, showed that the company was quite profitable and the reported loss of $2 million obscured a real net income of about $10 million. One year later the company was sold, causing a jump of 1,000% in the price of its shares. Our analysis indicates that investors and analysts, as well as members of the board, were all unable to evaluate properly financial information, thus causing the stock to be grossly under-priced.
In 1979, Sadan examined the reaction of the Israeli stock market to a weekly column in the financial section of *Ha’aretz*, a leading Israeli daily newspaper [22]. The column analyzes the recent financial statements of a TASE company and is based totally on publicly available information. The column is published about one month after the release of the financial statements. Contributors to the column include academicians in the fields of accounting and finance, as well as leading business analysts. Sadan analyzed the effect of the column over a period of time by characterizing the content of specific columns as favorable or unfavorable. Although the column is based only on publicly available information, the analysis revealed a significant market reaction in the expected direction, indicating the prevalence of prolonged over- or under-pricing of stocks in the TASE, which does not disappear automatically through the operation of market forces. It should be noted, however, that the adjustment was very fast. For columns with favorable content, virtually all the adjustment was made during the first trading day following the publication of the column. For columns with unfavorable content, the adjustment lasted for three days [23].

4.2. Pricing of warrants

The terms of warrants in Israel, coupled with the high rate of inflation and the relatively low dividend yield, make their eventual conversion a certainty [24]. With very few exceptions all warrants issued have indeed been converted into common stocks. The purchase of an Israeli warrant can thus be regarded as the equivalent of purchasing the stock through a loan in an amount equal to the exercise price. The cost of this loan to the borrower should be at least the nominal risk-free rate. However, computation of the implicit interest rate of each of the warrants shows that for less than a third of the warrants the interest cost was below 20%, for two-thirds of the warrants the rate was below 30%, and it was greater than 40% for only 10% of the warrants [25]. In an inflation-ridden economy (100% annual inflation in 1979), characterized by very high nominal interest rates, these very low rates indicate that warrants on the TASE are grossly and consistently under-priced, sometimes by more than 20%.

4.3. Pricing of registered versus bearer shares

Israeli corporations typically have more than one class of common stock outstanding. Two common classes are registered shares and bearer shares. The two classes have exactly the same voting and distribution rights and the same residual claim on assets. They differ in only one respect: the registered shares are listed by owners’ names in the corporation’s books, whereas the identities of owners of the bearer shares are kept anonymous. Presumably, anonymity is
important to investors involved in some form of tax evasion. However, the anonymity of most holders of bearer shares is not maintained since their shares are held in trust by the trust departments of banks which prepare their own lists of holders by name. Furthermore, the Income Tax Commission (the Israeli IRS) has other means of identifying holders of securities. For instance, it can gain access to the records of the banks or other members of the exchange through which the transaction was processed. In short, the two types of shares are identical for all practical purposes. One would expect them to have the same market price and to yield the same return.

We examined the fifteen stocks found among the industrial, land, and construction companies listed on the TASE for which there are registered and bearer classes. Surprisingly, shares of stock in the same company were found to have a different price and a different systematic risk, depending on whether they were bearer or registered shares. In thirteen of the fifteen cases it was the share with the lower marketability (as measured by the volume of transactions) that, contrary to our expectations, enjoyed the higher price. The price differential was persistent over the years and quite significant: in five cases it exceeded 5% and in two cases it was greater than 50%. Interviews with investors and members of the exchange revealed that for reasons that could be described at best as psychological, they assigned value to the relative rarity of the stocks. In addition, we found that there was a difference between the systematic risk of the two classes of shares, as measured by the co-movement of the security's rate-of-return and the market rate-of-return (referred to as the security \( \beta \)). The correlation between the \( \beta \)'s of the two classes (based on two years of weekly observations) was only 0.56. The difference between the \( \beta \)'s of the two classes was considerable. For instance, for one pair of classes the \( \beta \)'s for the shares were 1.58 and 0.94. In another pair the \( \beta \)'s were 0.43 and 0.80. Thus, at least half of the shares included in the examination were under-priced or over-priced and no market force worked to eliminate the anomaly.

4.4. Valuation of bonds

Another striking example of market inefficiency existed in the pricing of a new type of bond issued by the Israeli government in February 1978. This bond, the option bond as it was called by the government, provided its holders with the option of selecting retroactively, at maturity, between two modes of indexation of the principal: 80% linkage to the cost-of-living index, or 100% linkage to the U.S. dollar. The issuance of the option bonds was accompanied by an intensive and successful advertising campaign. During the first six months the government sold about $100 million of the bonds, making it the most successful issue ever made by the government. The option bonds were bought not only by individuals but also by institutional investors, who purchased 50% of the bonds issued during the first six months.
A careful analysis should have revealed that the option bonds were inferior to other financial assets. A portfolio composed of bonds linked to the cost-of-living index and bonds linked to the dollar could provide investors with a higher return than the option bond for any plausible changes in the cost-of-living index and in the exchange rate. This straightforward analysis was brought to the attention of financial analysts in a seminar organized by the Faculty of Management at Tel-Aviv University, which was held six months after the option bonds were first issued. Following the seminar, sales of option bonds stopped almost completely. Nevertheless, the fact stands that for six months the investing public erred in evaluating a major financial asset.

5. Causes of inefficiency

This section reviews and discusses the institutional, legal, and economic factors that may account for some of the incidents of allocational inefficiency in the TASE described in the previous section.

We begin by reviewing the institutional barriers to efficient allocation of resources and conclude with the important factor of investor sophistication. The degree of investor sophistication is also related to the basic issues of regulation: production and disclosure of financial (accounting and other) information. Because of their prominence these issues are discussed in a separate section.

5.1. Dominance of the big three banks

Banks function in the TASE as issuers (accounting for 58% of the market value of new issues in 1978), brokers (who provide advisory and trading services for 80% of the transactions in shares), and investors (who are major stockholders in several companies and investors in almost all traded securities). In addition, banks in Israel manage most of the mutual funds; the investment of the three major banks in mutual funds represents 88% of the total mutual fund investment in Israel. There is a strong concentration in Israeli banking: the three largest banks have 89% of all public deposits and 91% of the combined assets of the industry. The enormous financial resources of the banks relative to the size of the TASE might explain how banks maintain an economically unjustified high price for their own shares [26]. The banks affect not only the price of their own shares but that of many other shares as well. It is a common phenomenon in the TASE that banks boost stock prices; in particular, they artificially generate an atmosphere of a bullish market in periods preceding their own issuance of new shares.

Because of their size and extensive involvement in the stock market as shareholders and brokers, as well as bankers, the banks often act to stabilize
price fluctuations of stocks in which they have some interest. A 1980 study found that stocks in which banks had a direct interest were much less volatile than other stocks with the same marketability characteristics [27]. This stabilization action tends to moderate, at least temporarily, the effect of waves of sales or purchases by small investors. In a way, the banks operate as unofficial specialists or market-makers for most of the traded stocks.

The influence which banks have on prices and stock market trends might also be the result of the particular trading mechanism of the TASE, under which each stock is traded once a day. Before the trade begins, each bank, acting in its capacity as a member of the exchange, collects and summarizes all the orders received from its branches, which operate as brokers. The member bank computes the excess demand or supply of its clients. The bank places its own order when the excess demand or supply of the clients, as well as the structure of the limit orders, are known to it. The resulting excess demand or supply is then submitted to the floor. The trade manager considers the orders from all members and announces the net excess demand or supply. The gap is closed by the trade manager gradually changing the price and by the members (and the members only) placing additional orders. This trading mechanism gives the banks an obvious edge over regular investors.

As lenders and shareholders of many corporations listed on the TASE, the banks have access to valuable financial information which is not publicly available. This information could be used to generate abnormal profits for its holder. In response to a question in our 1979 study of financial analysts, all analysts surveyed expressed their view that information is not equitably distributed to market participants [28]. Whether inside information is actually being used by banks to enhance their profits is unknown. Yet, the widespread feeling that banks exploit their superior knowledge tends to discourage independent analysis of securities and cultivates speculative behavior.

Many of the banks’ activities would be considered clear violations of the federal securities laws in the United States. In Israel, the pertinent regulations are quite vague and not strictly enforced. Nonetheless, it appears that price manipulation is inherent in the TASE trading system and in the structure of the capital market in Israel. Unless these basic conditions change, no regulation, no matter how tight, will eliminate this imperfection in the market.

5.2. Dominance of indexed bonds

The chronic inflation in Israel, which recently reached an annual rate of 100%, created a new financial instrument — the indexed bond. The bonds, which are issued by the government, are linked to the cost-of-living index, guarantee a real rate of return net of tax of about 2% and are traded on the TASE. Other government-sponsored saving plans which are less liquid offer a net real interest of up to 5%. Such high, after-tax, risk-free real rates of return
are not available to U.S. or European investors. The availability of this instrument is the main reason for the unusually high rate of savings in Israel's inflation-ridden economy – over 20% of disposable income.

Indexed bonds and indexed savings dominate the stock market for most risk-averse investors. Only investors with low or no risk aversion find the TASE an attractive channel of investment. The result is a narrow market characterized by the prevalence of either institutional investors that can easily diversify their holdings (within or outside the TASE) or speculators with low risk aversion. We found that 41% of investors in stocks in Israel made more than twenty transactions per year [29]. The comparable figure for the United States is only 20% [30]. Our study also revealed that the objective of 58% of the investors was short-term capital gain; the objective of another 38% was long-term capital gain and only 4% regarded dividend income as their prime investment objective. These results reflect the speculative motives of investors in Israel. In comparison, the main objective of U.S. investors, according to an investor survey conducted in 1977, was long-term capital gain [31]. The second objective in importance was found to be dividend income, while short-term capital gain was considered the least important of the three [32].

5.3. Disparity between voting rights and ownership rights

For most securities in the United States the voting rights of a common share are proportional to its par or stated value. The ratio of voting rights to $1 of par value is identical for all issues of common shares made by the same corporation. This is not so in Israel: subsequent issues of common shares of Israeli corporations do not always carry the same voting rights as the original issue. Typically, the first (founding) issue is senior to subsequent issues with respect to its voting rights per $1 of par value. By issuing inferior common shares, original or major shareholders are able to raise new capital from the public without relinquishing their firm control of the business. Furthermore, their business decisions are unaffected by the prospect of take-over bids, since even a large-scale purchase of the inferior shares held by the public is unlikely to change the control.

As a result, major shareholders and the management of Israeli corporations are often indifferent to the fate of the stock and to the welfare of the small shareholders. Some of the actions which are often taken by U.S. corporations to reduce their investors' risk (e.g. a steady dividend policy or the maintenance of a voluntary flow of information to the public) are taken by only a few Israeli corporations. At the same time, the corrective mechanism that take-over bids might have on stock prices does not exist in the TASE. The disparity between voting rights and ownership rights thus precludes the existence of factors which might enhance optimal allocation of resources.
5.4. Unavailability of short transactions

As pointed out in section 2, short sales are not available to investors in the TASE. It seems plausible that the absence of short transactions contributes to allocational inefficiency since investors are unable to act upon incorrect valuation of securities. The availability of short sales, presumably, might have eliminated the phenomenon of under-pricing of warrants on the TASE described in subsection 4.2: investors could take a short position in the stock and a long position in the warrant and combine these holdings with a risk-free asset to form a portfolio which would then be held until the expiration date of the option. Such a strategy would guarantee an investor an abnormal return. In addition, a similar strategy based on short transactions might have eliminated the general under-pricing of other convertible securities in the TASE and the persistent price differentials found between the economically identical bearer and the registered shares.

5.5. Degree of market sophistication

The ability of a capital market to operate efficiently so as to bring about optimal allocation of resources hinges not only upon the amount and quality of information or on the market organization, but also on the ability of the market to read the information signals and to interpret them correctly. The general view is that although most small investors are not knowledgeable enough to analyze financial data, there is a small group of competent investors and professional advisors who make the market operate efficiently. The existence of skilled and competent disseminators of financial information in the form of financial analysts is widely recognized as a distinct complementary and essential ingredient of the corporate disclosure system [33]. In fact, it is the research and analysis by thousands of brokers and financial analysts which make the market respond rapidly and correctly to new information.

The roles of both the financial analyst and the firm representative are filled in Israel by securities advisors, most of whom are located at bank branches. The advisors, who are bank employees, advise the public on a wide range of investment opportunities, including savings and pension plans, foreign currency, bonds, and stocks. They are regularly furnished with raw and digested information by the securities departments of their banks. The latter also provide their original and continuing training.

Our 1979 questionnaire-type study on Israeli securities advisors reveals that public reliance on the financial advisor for investment in the stock market is quite heavy and is similar to that found for registered representatives in the United States [34]. The following shows the distribution of the answers to the question: “In what percentage of transactions do you actually make a recommendation to the account?” [35].
Table 2
Degree of understanding of various items in the financial statements by financial advisors.

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<th>Item</th>
<th>Degree of understanding</th>
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<td>Seniors (%)</td>
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<td>Seniors (%)</td>
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<td></td>
<td>Juniors (%)</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>9</td>
<td>5</td>
<td>43</td>
<td>86</td>
<td>100</td>
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<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>65</td>
<td>86</td>
<td>100</td>
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<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>65</td>
<td>72</td>
<td>100</td>
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<tr>
<td></td>
<td>14</td>
<td></td>
<td>65</td>
<td>56</td>
<td>100</td>
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<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>23</td>
<td>32</td>
<td>100</td>
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<tr>
<td></td>
<td>9</td>
<td>9</td>
<td>87</td>
<td>91</td>
<td>100</td>
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<td></td>
<td>11</td>
<td></td>
<td>35</td>
<td>80</td>
<td>100</td>
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</table>
Yet, the quality of the advice given by these advisors in Israel, at least that relating to investment in stocks, leaves much to be desired. The study on Israeli advisors found, through a series of indirect questions, that most advisors were incapable of properly interpreting financial statements. Table 2 summarizes the results, which are based on responses from sixty-eight advisors. About half of the respondents did not appear to understand the meaning of funds statements and about 70% were not familiar with accounting for R&D (research and development), goodwill, or deferred taxes. About 90% of the advisors were unaware of the exact impact of inflation on historical accounting reports. This last point represents, in a market characterized by a three-digit inflation (50% at the time of the survey), an important deficiency in the advisors’ performance.

Furthermore, unlike his American colleagues, the Israeli financial advisor does not enjoy the abundant flow of digested information provided by financial disseminators (such as Standard and Poor’s, and Moody’s) and must therefore rely more on his own skills to gather and analyze information. The ability of the advisors to select and request the right information seems, nonetheless, doubtful: when asked about the importance of additional information, such as a breakdown by segments of business (which is currently unavailable in Israel), only 20% of the advisors replied that it was “vital” (the other adjectives offered were “confirmatory” and “interesting”). Quarterly income statements (also currently unavailable in Israel) were described as “vital information” by only 55% of the respondents. In the survey of registered representatives conducted in the United States, segment reporting and quarterly income statements were defined as “vital” by 80% and 100% of the respondents, respectively [36].

What makes the situation even worse is that many Israeli investors have little or no knowledge about the securities market. In the survey of registered representatives conducted in the United States, some 500 representatives were asked to assess the extent of their clients’ knowledge. The same question was asked in our study on Israeli securities advisors. The following is a comparative summary of the replies [37].

<table>
<thead>
<tr>
<th></th>
<th>Israel</th>
<th>U.S.A.</th>
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<tbody>
<tr>
<td>Under 25%</td>
<td>17%</td>
<td>8%</td>
</tr>
<tr>
<td>25–50%</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>51–75%</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>Over 75%</td>
<td>34</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Approximately what percentage of your clients:  

<table>
<thead>
<tr>
<th></th>
<th>Israel</th>
<th>U.S.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>have a great amount of knowledge about securities?</td>
<td>12%</td>
<td>35%</td>
</tr>
<tr>
<td>have some knowledge about securities?</td>
<td>26</td>
<td>48</td>
</tr>
<tr>
<td>have little or no knowledge about securities?</td>
<td>62</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The evidence for Israel suggests that as far as investment in the stock market is concerned, largely unknowledgeable investors rely heavily on the advice of unsophisticated financial advisors. As a result, available relevant financial information is mis-interpreted or completely ignored, thus causing wrong investment decisions, incorrect pricing of securities, and non-optimal allocation of resources.

6. Regulation of financial disclosure

The financial disclosure system in Israel is similar to that of the United States in terms of the minimum standards of disclosure, the accounting principles on which financial statements are based, and the conceptual approach of relying on public (rather than private) regulation. There are, however, two main differences. One relates to the extent of disclosure required: much less disclosure is required from Israeli companies; the other difference is with respect to the degree of active regulatory intervention: the SEC is much more active in setting disclosure rules and in monitoring compliance than its Israeli counterpart.

The law governing corporate disclosure in Israel is the Securities Law of 1968, which established the Israeli Securities Authority (ISA) and delegated to it the power to introduce new reporting requirements (subject to formal approval of the Parliament's Finance Committee). The ISA reviews and approves prospectuses and supervises the operation of the TASE. Unlike the SEC, the ISA does not have investigative authority nor has it prosecutory power. These functions are filled by the Office of the General Attorney. About 120 corporations file prospectuses with the ISA and, with few exceptions, all of them are listed on the TASE. The ISA employs thirty workers, half of whom are accountants and lawyers.

6.1. Disclosure requirements

The disclosure requirements for prospectuses filed with the ISA are quite similar to those for U.S. companies. The differences between U.S. and Israeli regulations are found in the disclosure required in periodic reports. Certain requirements under U.S. law do not exist in the Israeli Securities Law and have
not been made by the ISA. These requirements and the implications of their absence are discussed below.

6.1.1. Interim reports

In Israel, no interim reports were required prior to 1979. Currently only semi-annual reports are mandated. The importance of frequent financial reporting by companies operating in Israel can hardly be exaggerated. Rapid changes in the structure of the economy and industries, a remarkable population growth (an average annual rate of 5% over the last thirty years), and a high rate of inflation (an average annual price increase of 40% over the last five years) make the supply of updated information crucial for sound investment decisions.

6.1.2. Timeliness of the annual financial statements

The ISA requires submission of annual reports within 180 days from the end of the fiscal year. The SEC permits a delay of ninety days. Furthermore, most U.S. companies announce their results well before the ninety-day deadline, whereas most companies in Israel release their annual statements towards the end of the filing period. The following gives the mean delay (in days) in the publication of the annual reports of the TASE's companies and of a random sample of 300 New York Stock Exchange and American Stock Exchange companies in recent years:

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>TASE</td>
<td>153</td>
<td>155</td>
<td>168</td>
<td>145</td>
</tr>
<tr>
<td>NYSE and AMEX</td>
<td>48</td>
<td>42</td>
<td>43</td>
<td>41</td>
</tr>
</tbody>
</table>

6.1.3. Inflation accounting

The extremely high rate of inflation in Israel reduces considerably the relevance of historically based accounting reports. So far, no disclosure of inflation-adjusted information is required by the ISA and no recommendations on inflation accounting were made by the Israeli Institute of Certified Public Accountants.

The very extensive subsidization of capital by the Israeli government (particularly of capital investment in industry), produces sizeable net monetary gains for many companies, which are not reflected in their financial reports.

6.1.4. Business line reporting

Although conglomerates are not so widespread in Israel as they are in the United States, a considerable number of Israeli companies operate in several lines of business. Proper analysis of these companies requires separate financial
information for each segment of the operation. No disclosure of this sort is required of Israeli companies.

6.2. The accounting profession

The accounting profession plays an important role in shaping the disclosure system and determining its success. Although the same framework of accounting standards is used in both the United States and Israel, the accounting profession in Israel is much slower to adapt reporting procedures to developments in the economy and changes in the operation of individual industries. The 3,600 certified public accountants in Israel are organized in a voluntary association – the Israeli Institute of Certified Public Accountants (IICPA). The Professional Committee of this body is the counterpart of what used to be the Accounting Principles Board (APB), and suffers from the same weaknesses that led to the abolition of the latter – low quality of research and preparatory work, staffing on a part-time basis by very busy practitioners, and inadequate representation of legitimate views and interests of wide segments of the financial community. The quantity and quality of the IICPA members are adversely affected by these shortcomings because important issues such as the accounting for earnings per share, the definition of extraordinary items, methods of consolidations, and accounting for leases are not dealt with by any of the pronouncements handed down by the IICPA. As a result, the Israeli CPA has to rely heavily for this daily work on accounting principles and measurement procedures formulated abroad and is often faced with conflicting pronouncements originating in different countries.

This situation can be traced, in part, to the absence of public pressure on the profession to be more responsive to the needs of information consumers. Unfortunately, this indifference among users is due, in turn, to the quality and timing of financial reports. The accounting profession in Israel does not serve as a driving force to increase the amount and relevance of financial information so as to break out of this vicious circle.

The apparent conclusion from the above description is that regulated financial information in Israel is lacking in important areas. In a situation like this, market forces might be expected to stimulate the voluntary production of information by firms. In fact, ample information was voluntarily supplied by many U.S. corporations long before its disclosure became mandatory (e.g. quarterly reports and line of business reporting). This information was supplied, in part, because firms were interested in enhancing the attractiveness of their stock by reducing the uncertainty and the cost (research, analysis) involved in investing in it. Israeli corporations, on the other hand, lack any incentive to provide the public with information beyond the minimum required by law. This is primarily due to two factors: (a) Israeli firms do not rely on the stock market for raising new capital, and (b) the TASE regulations permit the
issuance of common shares with inferior voting rights, thus virtually eliminating the possibility of a take-over. These factors are discussed below.

Scarce natural resources, insufficient accumulation of wealth, a small domestic market, and economic limitations imposed by the tense political situation in the area have made many enterprises in Israel dependent upon government aid in one form or another, rather than on equity financing. The massive assistance to these businesses usually takes the form of subsidized capital. Low interest loans are channeled to many (mostly industrial) firms based on criteria of location, employment, and export potential. The availability of cheap governmental capital reduces private firms' need to become public and public corporations' need to return to the public for new capital.

Another factor which makes equity financing unattractive to Israeli corporations is the tax consideration. Most companies in Israel pay company income tax of about 60% of their income. The tax deductibility of the nominal interest expense, coupled with a high inflation rate, results in a negative real interest rate. These borrowing opportunities exist due to the low tax brackets of many savers.

In addition to the unattractiveness of equity financing, the insensitivity of Israeli corporations to the interests and needs of small investors can be explained by the disparity between voting rights and ownership rights (resulting from the issuance of inferior shares to the public), which makes shareholders and managements almost immune to take-over bids.

The conditions outlined above lead to a situation in which most companies (particularly those in the non-financial sector) are under no pressure to cultivate and nourish their own shareholders or to cater to the needs of potential investors. This lack of responsiveness is manifested in various ways, among them the often poor and erratic dividend record of many companies and the scarce and untimely financial information provided by them. Press releases, public conferences, and close contacts with financial analysts are not considered very important by most managements. The inevitable result is that, except for the bare minimum required by law, very little information on the firm reaches the market and, even that, only after considerable delay.

7. Concluding remarks

The evidence provided for the Israeli stock market shows that the results of the conventional tests for market efficiency are not indicative of efficient resource allocation. The existence of the weak form or the semi-strong form of informational efficiency might be a necessary condition, but certainly not a sufficient condition, for optimal resource allocation. Application of the standard tests to the TASE reveals that it is informationally efficient: in particular, consecutive price changes are independent and certain types of new informa-
tion are incorporated into security prices fairly rapidly. In this respect the TASE is as efficient as major American stock exchanges. In fact, it appears that despite the apparent differences in the quality of resource allocation, all securities markets that were investigated exhibit small or negligible serial dependence (usually negative) between consecutive price changes [40]. Thus, the standard empirical tests of market efficiency might be useful for the understanding of the trading mechanism and perhaps for the determination of the "fairness" of the market, but they fail to provide a meaningful measure of the optimality of resource allocation.

This article presents evidence which indicates that security prices in the TASE are often determined by non-economic factors. The causes of this situation can be traced mainly to the dominance in the capital market of large banks and the government, to scarcity of corporate information, and to the investors' lack of sophistication. These conditions are typical of stock markets in less developed countries. The scarcity of financial information and the investors' lack of sophistication, though, are elements that are present even in some security markets of developed countries and apparently inhibit the role of these markets as efficient resource allocators.

The results indicate that investors and advisors in Israel have difficulties in understanding accounting numbers. Of particular significance is their failure to interpret correctly the economic signals produced by these numbers. This state of affairs imposes added responsibilities on accountants to be educators and stimulators of information production; whether these roles can be best fulfilled by enhancing disclosure through professional pressure on outsiders (companies, regulatory bodies) or by more efforts in resolving measurement issues is a question that should be at the top of the agenda of accountants functioning in less developed markets.
Notes

[1] There are not yet uniform definitions for the various forms of market efficiency. Recently, one economist used a somewhat broader definition of informational efficiency, which required the availability of the optimal amount of information as well as the achievement of optimal dissemination of information. Stiglitz, *Pareto Optimality and Competition*, 36 J. Fin. 235 (1981).


[4] For example, one study provides evidence of the under-pricing of shares of real estate companies, Palmon and Seidler, *Current Value Reporting of Real Estate Companies and a Possible Example of Market Inefficiency*, 53 Acct. Rev. 776 (1978), and another recent article suggests that the entire U.S. Stock market might be valued well below its "correct" price because of investors' lack of understanding concerning the effect of inflation on reported earnings and on the capitalization rate of future earnings, Modigliani and Cohn, *Inflation, Rational Valuation and the Market*, Fin. Analysts J., Mar./Apr. 1979, at 24.


[10] Id.


[12] Id.


[23] The slower speed of adjustment to bad news may be the result of the unavailability of short sale transactions on the TASE.
Consider the following typical example. A warrant with a conversion rate of 1:1 and an expiration period of three years has an exercise price of $4. The current price of the common share is $3. The expected annual rate of inflation during the next three years is 50%. Conversion will take place unless the price of the share, in real terms, declines by 60% or more—an unlikely occurrence. The dividend yield, which is very low in Israel, three percent on average, can be ignored.

In computing the implicit interest rate, the present value of expected future dividends during the warrant's period was subtracted from the share price.

See supra text accompanying note 20.

Lakonishok, supra note 5.


Id.

Sec. & Exchange Comm'n, supra note 3, at A-123.


Id.

See, e.g., Sec. & Exchange Comm'n, supra note 3.

D. Givoly and J. Lakonishok, supra note 28.

Based on a survey of registered representatives by the Securities Industry Association, reported in Sec. & Exchange Comm'n, supra note 3, at A-123.

Id.

See id.; D. Givoly and J. Lakonishok, supra note 28.


Small or negligible serial dependence between consecutive price changes has been reported for the New York Stock Exchange (see, e.g., Solnik, Note on the Validity of Random Walk for European Stock Prices, 28 J. Fin. 1151 (1973)), the Over-the-Counter market (see Hagerman and Richmond, Random Walks, Martingales and the OTC, 28 J. Fin. 897 (1973)), West Germany (see Guy, The Behavior of Equity Securities on the German Stock Exchange, 1 J. Banking & Fin. 71 (1977), Canada (see Rorke, Wills, Hagerman and Richmond, The Random Walk Hypothesis in the Canadian Equity Market, J. Bus. Ad., Fall 1976, at 23), India (see Sharma and Kennedy, A Comparative Analysis of Stock Price Behavior on the Bombay, London and New York Stock Exchanges, 12 J. Fin. & Quantitative Analysis 391 (1977)), and Brazil (see Errunza, Efficiency and the Programs to Develop Capital Markets – The Brazilian Experience, 3 J. Banking & Fin. 355 (1979)).

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