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Asher A. Blass

Richard S. Grossman

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Asher A. Blass* and Richard S. Grossman**

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* Research Department, Bank of Israel.
** Department of Economics, Wesleyan University, Middietown,CT 06459

Research Department, Bank of Israel, POB 780, 91007 Jerusalem, Israel

Abstract[1]

In a recent verdict (subsequently overturned in part by the Israel Supreme Court), an Israeli Court found that in the early 1980's Israeli banks, representing 95 percent of commercial banking, were guilty of providing shareholders with fraudulent guarantees that share prices would rise indefinitely, that they harmed banking stability and caused the government to take-over the banks. We use high frequency price data to identify whether a guarantee was, indeed, provided.

We also compare 1993 bank share prices after the banks were partially re-listed with 1983 pre-crisis prices. The figures indicate that 1993 time-adjusted market values were $10 billion lower than in 1983, a decline borne by two groups of shareholders: pre-crisis shareholders ($4 billion) and the government which became the sole shareholder in 1983 ($6 billion).

Key words: banking crisis, shareholder fraud, Glass-Steagall, privatization, manipulation.

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1. Introduction

On October 6, 1983, the Tel Aviv Stock Exchange (TASE) was shut down for eighteen days. The closure followed several weeks of heavy selling by shareholders of six banks and one bank holding company representing virtually all commercial banking in Israel and more than 60 percent of total market capitalization (equivalent to 40 percent of GNP). The banks reacted, as they had done during previous episodes of excess supply, by making large-scale purchases of their own shares. In the fall of 1983, however, the sell-off was much greater than in the past so that share purchases strained bank liquidity, raising concerns about overall banking stability. These concerns threatened to cause a run on deposits and a decline in foreign exchange reserves which, together with other political considerations, led the government to close the Exchange. During the closure the government devalued the Shekel and took control of five of the banks, converting their shares into government guaranteed zero coupon bonds maturing within 5 to 6 years at face values of 85 to 117 percent of pre-closure dollar market values. Bank share prices declined by 40 percent after the TASE reopened.

In a recent verdict (District Court of Jerusalem, Taf-Hay 524/90, State of Israel vs. Bank Leumi LeIsrael, Ltd. et al.), Judge Miriam Naor found that the banks were responsible for the crisis and were guilty of providing fraudulent guarantees that share prices would continue to rise. She sentenced prominent bank officials to prison and both the officials and the banks to pay fines.[2]

The verdict was the culmination of an extended period of investigation which began almost immediately after the collapse. The government-appointed

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[2] Parts of the verdict were reversed on appeal in 1996 so that the bankers were not required to serve time in prison.

Bejsky Commission concluded in its 1986 report that the banks had manipulated stock prices "through a series of actions...designed to affect share prices and returns," and that these actions caused the subsequent collapse. After the Report's publication, several government regulators resigned. The State Attorney ultimately indicted the banks and many key bank executives (collectively the "defendants") in 1990 on three criminal counts:

(1) the defendants impaired the banks' ability to meet their commitments, a violation of Section 14 b (a) of the Banking Order (and for the bank holding company defendant I.D.B. Section 424 (1) of the Penal Code), by fraudulently guaranteeing to shareholders that share prices would not fall even though they knew or should have known that the guarantees might not be fulfilled;

(2) they knowingly gave false investment advice, a violation of the Securities Law (Section 54 (a) (1)), the Banking Law (Sections 3, 10 and 11) and Section 415 of the Penal Code;

(3) they committed accounting violations (Penal Code, Section 423).

Because the banks were exempt from insider trader legislation (Securities Law 52 g (a) (8), 1981), they were not, with the exception of the false investment advice charge, indicted for violating Securities Law. Indeed the prosecution and defense were in broad agreement that the banks had employed a smorgasbord of trading practices which would have been illegal had they been implemented by parties other than the banks. Instead, the dispute (especially in regard to Count 1 of the indictment) centered on whether or not agreed-upon trading practices and other actions implied that the banks guaranteed that share prices would not fall and whether or not the guarantees harmed bank stability.

In order to properly determine whether there was an economic guarantee, it is necessary to use high frequency stock price data. Indeed, in the U.S., stock return data used to determine financial fraud have generally been of a daily or intra-day frequency (Easterbrook and Fischel, 1991). In this paper we assemble and analyze daily price data to determine whether a reasonable investor might have believed that there was a guarantee.[3]

In addition, we compare time-adjusted share prices in 1993 after two banks were partially sold back to the public to 1983 pre-crash prices and estimate that the value for all defendant banks declined by $10 billion during the crash and through the period of government ownership brought about by the banks' actions (1983 GNP in Israel was $30 billion). Part of the decline was immediately apparent when the market value of the defendant banks fell in October 1983 by $4 billion after the government stepped in and provided a guarantee worth much less than pre-crash prices. That amount represents the decline in wealth of pre-crash shareholders. As we discuss later on, the figure generally does not represent a reduction in allocative efficiency to the economy.

The rest of the decline in market value--$6 billion ($10 billion less the $4 billion shareholder hit)--is the difference between 1983 post crash prices and properly discounted 1993 prices and can only now be calculated after the government began to sell off the banks in 1993. This amount can be viewed as added government expenditures brought on by the crisis since the decline equals the difference between the values of banking assets that the government realized in 1993 and those of the liability that it assumed in 1983

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[3] Although in the early 1980's Barnea (1981, 1982 and 1983) gathered part of the data analyzed here, it was neccesary, however, to assemble the dataset from scratch.

by effectively converting shares into government debt. We further show that the $6 billion gap can be attributed to two factors:

1) The liability was $4 billion greater than the fundamental value of the banks in 1983. Indeed, by committing to pay shareholders $4 billion more than the banks were worth, the government effected a transfer payment of $4 billion from taxpayers to shareholders;

(2) The fundamental values of the banks owned by the government declined by $2 billion from 1983 to 1993, relative to normal rates of return. We suggest that the decline might represent an efficiency loss resulting from government ownership of the banks for ten years following the crisis.

We estimate the two components with counterfactual analyses of what prices would have been in the absence of manipulation, using a methodology employed in estimating financial fraud damages in the United States (Easterbrook and Fischel, 1991). Our calculation is derived from a forward projection of bank share prices from 1977 to estimate fundamental values in 1983 as well as a backward projection of actual market values from 1993 after the relisting of the two largest banks.

The outline of the paper is as follows. Section 2 provides background information, including a description of the events and legal proceedings. Section 3 considers whether or not the banks provided a guarantee. In Section 4, we calculate the time-adjusted decline in market value and its breakdown by its three components: the decline in shareholder wealth in 1983, the hit to the government by guaranteeing prices above 1983 fundamental value, and the decline in share values that accompanied ten years government operation of the banks. We also discuss the relation between the calculations and the economic costs of the crisis. Conclusions are in Section 5.

2. Background

2.1. The Crisis and Banking Structure

The collapse of the bank stocks occurred after a period of several years during which the banks intervened in the market for their shares, smoothing price fluctuations and providing support for upwards movement in price and for frequent and substantial new issues. Share prices quadrupled in real terms (Figures 1, 1A and 1B), while stock offering proceeds from 1977 through 1983 were larger than 1977 market values for every defendant bank. Share appreciation together with share offerings contributed to a 700 percent increase in market value during the same period (Figure 2). The banks' intervention successfully prevented bank shares from falling even when the Industrial Index declined in real terms by 70 percent in 1978 and 1979 and by 50 percent in the first half of 1983.

Normally, it might be difficult to successfully sustain price levels not in accordance with fundamental values for extended periods of time. Capital markets in Israel, however, were then and to an extent are today, characterized by unique features which allowed the intervention to succeed for many years:

A. Commercial banking is (and was in 1983) highly concentrated--the top three banks account for 80 percent of commercial banking activity, and the Herfindahl-Hirschman index calculated from lending activity or total assets is approximately 3000 (Ruthenberg, 1993). Moreover, it has been alleged that substantial barriers to entry into Israeli commercial banking have further dampened competition. Such barriers have probably been fortified by the political nature of ownership structure at several of the banks.

B. Commercial banks in Israel have traditionally dominated investment banking, mutual and provident fund industries, and the brokerage business, which may lead to conflicts of interest within banks among their different fiduciary roles. Indeed, such conflicts were key factors behind the passage of laws in various countries limiting the securities' activities of commercial banks.

C. Commercial banks in Israel are also merchant banks and hold large equity stakes in a variety of non-financial corporations, which may have allowed them to exert market power in several non-financial sectors.

D. The capital market has been relatively constrained--many Israeli investors are not allowed to purchase foreign securities while foreign financial firms have been effectively barred from the Israeli market.

2.2. Motivation and the Regulators

Why did the banks manipulate stock prices? The Bejsky Committee and the Indictment describe two key motives. First, if market prices were above the shares' economic value, the offering of additional shares at prevailing market prices benefitted existing shareholders at the expense of new shareholders. Indeed, even though bank shares lost half of their value in October 1983 shareholders who purchased bank shares before 1980 fared much better than investors in non-bank shares, realizing annualized real returns of at least 10 percent. Second, the high inflation that prevailed in the late 1970's and early 1980's forced banks to repeatedly raise equity to maintain required capital ratios: until the mid 1980's, equity was generally stated at historical values while other balance sheet items were stated at current

values which, beginning in 1979, more than doubled every year. Unless new shares were issued frequently, equity to asset ratios would have fallen below regulatory requirements.

The banks were not hindered in their actions by government regulators who focused on short term benefits, rather than on the long-term costs of these actions. The Supervisor of Banks was reportedly concerned that it would become increasingly difficult for the banks to raise capital and meet reserve requirements unless they manipulated share prices. Other officials were pleased that equity offering proceeds were invested in newly-issued government bonds that funded annual budget deficits totalling 6-8 percent of GDP.

Not only did regulators and legislators fail to stop the banks, they actively facilitated manipulation in at least three ways. First, they granted the banks an exemption from insider trader legislation so that they could buy and sell their own shares without breaking the law (Securities Law 52 g (a) (8), 1981). Second, they exempted the banks from a turnover tax imposed following the 1982 Lebanon War so that the banks could manipulate their shares without being hindered by transactions costs. Third, monetary restrictions which normally prevented the banks from converting foreign to local currency did not apply to conversions for manipulating bank stocks.

2.3. Mode of Operation

The banks employed a variety of techniques to support share prices.[4] First, each bank maintained inventories of its own shares for the stated purpose of causing share prices to rise smoothly and consistently over time. Indeed, the rise in inventories to more than $1 billion by September 1983 and

[4]Although we focus on events and data beginning in 1977, the Bejsky Report found that many techniques were actually introduced several years earlier.

resulting liquidity problems ultimately led to the government guarantee.

Second, bank-employed stockbrokers bolstered demand by recommending that their clients purchase bank shares. Special incentives were offered to bank branches that attained certain bank share sales quotas. In addition, public issues were often floated in the form of rights offerings that allowed existing shareholders to purchase shares at a discount from market value, thereby ensuring that new stock would be fully subscribed.

Third, the banks extended credit to purchasers of bank shares and called in lines of credit from sellers. Since credit was tight and regulated in Israel during the 1970's and 1980's, it was difficult for many businesses and individuals to obtain credit at any interest rate. By tying access to credit to bank share holdings, the banks were able to pump up demand. The banks in their roles as stockbrokers, also relaxed collateral requirements for purchasers of bank shares: they allowed bank shares to be margined at 90% of market value, compared to 50% for other securities. Banks provided large amounts of credit when new shares were offered to the purchasers of these shares. In addition, the banks engaged in reverse repurchases of bank shares, simultaneously selling shares while committing themselves to repurchase them at a higher price.

Fourth, bank controlled mutual and provident funds (whose assets represented more than 90 percent of all funds' assets) purchased bank shares when demand was slack, thereby ensuring that prices would not decrease. The funds also made loans to parent banks providing additional resources to the latter to buy stock.

Fifth, the banks instructed subsidiaries and bank-controlled companies to purchase shares when demand was relatively low. This technique allowed the banks to circumvent reserve requirements because while stock inventories held

by the banks would reduce equity and reserve ratios, shares held by certain subsidiaries and affiliates did not. Another way in which equity requirements were circumvented was through a "parking" arrangement between Bank Leumi and Discount--two of the larger defendant banks: Leumi temporarily took on some of Discount's inventory of Discount stock, while Discount took some of Leumi's inventory. Each bank thereby provided support to the other's stock price, while the balance sheets of both banks were "window-dressed" to meet reserve requirements.

2.4. Indictment, the Bankers' Defense and the Judge's Decision

The banks were indicted, as noted above, on three counts. We focus on the first which charged bank executives with violating banking laws by harming the banks' ability to meet commitments by fraudulently guaranteeing to shareholders that real share prices would not fall. According to the Indictment, the guarantee could be presumed to impair the ability to meet commitments since share prices would ultimately fall, subsequent to which shareholders would sue the banks and win substantial judgements which would result in a decline in bank net worth. Similarly, shares held in inventory would eventually decline in price and further reduce bank net worth. Third, the collapse would cause a run on the banks and fourth, the value of bank loans collateralized by bank shares would substantially decline in value.

The defendants offered three key lines of defense. First, they argued that since the banks in fact did not become insolvent they could not--as a matter of law--be found guilty of having harmed banking stability. Second, they claimed that the banks' activities did not amount to a guarantee. Third, the defense argued that even if a guarantee had been provided it would not have affected banking stability because share prices at the time of the crash

were no higher than their fundamental values. As a result, shareholders would not sue the banks because the prices that they paid were fundamentally sound. Similarly, bank net worth was not reduced by purchasing shares for inventory because the purchase prices were not above fundamental values.

The judge did not accept any of these claims. First, she found that as a matter of law it was unnecessary for the banks to actually become insolvent in order for them to be found guilty of harming stability and that it was enough to show that their actions were likely to have lead to that eventuality. Second, although the prosecution did not formulate a quantitative standard of proof to show that the banks provided a guarantee, she accepted its view that upwards stock movement, combined with qualitative evidence were sufficient to prove that they had provided a guarantee. Third, she concluded that the guarantee harmed banking stability because the guaranteed prices were above fundamental values.

3. Did the Banks Provide a Guarantee?

3.1 Data Sources

Much of the price data that was analyzed at the bankers' trial consisted of monthly and yearly total returns. It is virtually impossible to use such low frequency data to prove or disprove financial wrongdoing and attempts to do so during the trial led to erroneous claims.

The defense argued that the existence of months in which real returns were negative proves that a guarantee could not have existed. That conclusion is incorrect because real stock returns were calculated using inflation figures published two weeks after the end of each month, so that even if the banks had intended that real share prices would not decline, they might have misjudged inflation in certain months so that real returns turned out negative.[5]

While the prosecution highlighted the banks' daily activities designed to prevent bank shares from falling on any day, it too relied on monthly data, suggesting that the persistence of positive nominal monthly returns indicated that the banks provided a guarantee against loss. That argument, however, sidesteps the fact that in a high inflation environment, monthly nominal stock returns will tend to increase across the board. The prosecution also argued that since real bank stock prices rose substantially during three consecutive

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[5] The defendant's claim also presumes that the guarantee implied that prices would not decline in real rather than in U.S. dollar terms.

Using monthly data to estimate the covariances between bank shares and overall market returns might also lead to upwardly biased estimates: the correlations between nominal returns will contain a large inflationary component common to bank and overall market returns. Similarly, covariances calculated after deflating returns by actual inflation (as published after the fact - See for example, Yitzhaki and Shalit, 1984) might also tend to overstate the covariance, because both market and bank real returns will contain an error term equal to the difference between actual and expected inflation.

years and that inflation-adjusted stock prices rose in a majority of months - that suggests that a guarantee existed. The claim ignores the fact that the behavior of monthly real returns was not extremely unusual: in other countries, many share prices rise rapidly (in real terms) every year, and in most months over a three year period. For example, from 1992 through 1994 the total real return for many U.S. banks exceeded bank share returns in Israel from 1980 through 1982.

In this paper, we construct a new high-frequency data set covering the period 1977-1983. The data consist of daily observations of price, stock splits, rights issues, dividend payments, demand and volume for the largest component stock class for the seven defendant banks: Bank Leumi ("Leumi"), Bank HaPoalim ("Hapoalim"), Israel Discount Bank ("Discount"), IDB Holdings ("IDB"--Discount's parent, technically not a bank), Bank HaMizrahi ("Mizrahi"), Bank Igud ("Igud"--a Bank Leumi subsidiary bank), and Bank Clali ("Clali") as well as the First International Bank of Israel ("FIBI") a small bank not alleged to have manipulated shares. Together the data represent about 85 percent of bank share value, while almost all the rest is comprised of other classes of stock for the seven banks. The data come from the daily publications Shaar and Mabat as well as the weekly Eruim BaBorsa. We also collected data on the general share price index, the industrial share price index, and the bank share price index.

3.2. A CAPM Framework

The expected daily nominal return on a risky security consists of two components: the riskless return--the return that would have been earned had the security been a riskless security like short-term government securities--plus a risk premium to compensate for risk. In the Capital Asset Price Model

(CAPM), a security's expected risk premium is related to the correlation of the security's returns with that of the overall stock market. More specifically, the risk premium equals the product of (a) the covariance of the security's return with that of the market return divided by the market variance (the "Beta"); and (b) the market premium or its expected return above the riskless rate. Securities with zero betas such as Treasury Bills are riskless and their expected return is low because the risk premium is zero. Conversely, securities with high betas are more risky and offer higher risk premia. Securities with betas equal to one are as risky as the market as a whole (in terms of systematic or non-diversified risk) so that their expected market returns equal the expected return on the entire stock market.

A firm's Beta also affects the valuation of its securities because share value equals future cash flow discounted by the firm's cost of capital. Since firms can raise funds from investors who need to be compensated at the expected rate of return, a firm's cost of capital equals its expected rate of return, which in turn rises with Beta. As a result, firm valuation rises as Beta declines.

The estimated betas of banks stocks since they were relisted in 1993 have been approximately 0.8, a figure similar to U.S. banks stocks. The 0.8 figure means that the expected return in these securities is somewhat lower than the market's. For example, if the riskless rate of return is 3 percent and the expected stock market return is 13 percent, the expected return on banks stocks is 11 percent.

It would be unusual for bank stock betas--as for most equity--to equal zero, because while it wouldn't necessarily imply that returns were constant, it would mean that there was no market or systematic risk; i.e. that similar to government short-term securities, their returns were unrelated to other

assets' returns. That would be implausible since banks' future earnings are related to profit streams in the overall economy.

By contrast, if the banks gave a guarantee that price shares would neither decline nor be affected by overall market developments, we would expect beta to be zero. Moreover, zero betas would tend to artificially increase share values because share values would then be calculated by discounting future cash flow by the riskless rate of return.

Table 1 presents the estimated betas for each bank and for each year from 1977 through 1983. We calculate the betas by regressing daily stock return on the Industrial Total Return Index, which proxies for an overall market return index untainted by bank share returns. The Industrial Total Return Index was not available for most days from 1979 through 1981, so we used a weighted least squares technique to estimate Betas for those years. The results indicate that Hapoalim and IDB's returns were barely correlated with the market in 1977 and were uncorrelated after 1978. Leumi's returns were weakly correlated through 1981 but afterwards were no longer correlated with the market. Mizrahi and Discount's betas were significantly different from zero until 1979. By contrast, the estimated Betas for non-defendant FIBI were significantly higher.

Table 2 shows that over hundreds of days bank stocks rarely declined. Indeed from the fourth quarter of 1981 through the third quarter of 1983, Leumi shares fell just once, Hapoalim and Discount twice, Mizrahi fell on fourteen days, while IDB never fell. These results are also in stark contrast to the behavior of other banks such as FIBI whose share prices fell on 127 days out of approximately 500 trading days from 1981 through 1983--as well as to that of the overall market. The results are also unusual because during those years, the average daily return and the standard deviation for most bank

shares were approximately one half percent: the Normal distribution probability that Leumi shares would fall just once over a 250 day trading period is less than one in a trillion!

Since daily returns appear to be truncated at zero, we ran Tobit regressions to see whether or not the beta estimates in Table 1 are biased downwards. If the Tobit regressions were to produce new beta estimates significantly higher, that would indicate that while the banks' actions prevented bank shares from falling on any given day, they did not immunize the shares from market risk. If that were the case, that could mean that their actions did not artificially increase bank share prices. By contrast, if the Tobit regressions produced zero betas estimates, that would mean that bank share returns were devoid of market risk. Table 3 shows that even after correcting for truncation, the betas are still not significantly greater than zero.

We conclude that an investor might have inferred that a guarantee existed--that the shares provided high returns but were devoid of market risk.

3.3 The Defense's Claim that No Guarantee Existed

The banks argued that a rational investor could not have believed that a guarantee existed because in several months investors in bank shares incurred real losses. The claim is wrong because inflationary surprises could have caused ex post monthly real returns to be negative even if there was a concerted attempt to attain monthly real returns.

The defendants argued further that it was not credible for a rational investor to believe that the banks offered a guarantee without receiving anything in return. The banks are mistaken, however, because they did receive consideration since the guarantee enabled the banks to lower their cost of

capital, as evidenced by zero betas.

The banks also claimed that since a guarantee could be expected to ultimately harm shareholders when it became clear that it couldn't be met, a rational shareholder could not possibly believe that a guarantee existed because he wouldn't want to hold shares that would later decline. That argument is also wrong because it is premised on the mistaken notion that shareholders do not hold shares when market prices are above fundamentals and that bubbles or fads never exist.

3.4. The Defense's Claims that Pre-Crash Share Prices Were Reasonable

IDB, Discount and Leumi argued that share prices prevailing prior to the crash were reasonable and were unaffected by the banks' actions which were designed to smooth price fluctuations. Specifically, the banks argued that share prices prevailing prior to the crash could be justified ex-ante, employing reasonable assumptions about profit growth and discount rates, so even if the banks did provide a guarantee it was neither costly nor harmed banking stability. The argument is inherently inconsistent, however, because by smoothing stock prices so that fluctuations would be unaffected by overall market volatility, the bankers brought about a decrease in beta, hence raising market value.

4. Share Values

4.1 Total Decline in Share Value

We begin by calculating the overall decline in share values from 1983 before the crash until 1993 when the government began to divest its bank holdings. The pre-crash 1983 prices are readily available, while the 1993 partial sale of Leumi and HaPoalim permit us to construct a market model to estimate the discounted value of bank stocks in 1983 conditional on their actual 1993 valuations. We then break down the decline by three components: the decline in shareholder wealth in 1983, the hit to the government by guaranteeing prices above 1983 fundamentals, and the decline in share values that accompanied ten years government operation of the banks.

We define four quantities. V_m represents the market value of bank shares prior to the Exchange's closure, V_g the value of bank shares implied by the government guarantee, V_{f83} the fundamental ("true") value of bank shares in 1983, and V_{b93} the fundamental value of bank shares in 1993, projected back to 1983. V_m less V_{b93} represents the total decline in market value.

To calculate V_{b93}, we project 1993 share values (after the banks were partially sold to the public) back to 1983, assuming that bank market values increased by the riskless rate plus 70 percent of market return in excess of the riskless. The model's best estimate is that Leumi's market value, which equalled NIS 5.8 billion in December 1993 after its relisting, increased by approximately 9 percent during 1993 in real terms (net of dividends) so that estimated market value at year-end 1992 before Leumi was re-listed, was 5.3 billion. Similarly, Leumi's value is estimated to have increased by 56 percent during 1992 so that its estimated value at year end 1991 was 3.4 billion. Working backwards, we estimate Leumi's market value at the end of 1983 (V_{b93}) as 1.7 billion NIS, compared to a pre-crash 10.5 billion. We

similarly calculate these values for Hapoalim and assume that the ratio of V_{b93} to V_{f83} (calculated in Section 4.4) for the other defendants is the same as the weighted average of Leumi and Hapoalim. Figure 4 shows that V_{b93} for all banks was NIS 5 billion while pre-crash market value was NIS 34 billion, so that the total decline in value incurred during the crash and the period of government ownership (V_m - V_{b93}) was 29 billion ($10 billion).

4.2 The Breakdown

In order to identify the classes that were harmed by the decline in market value, we distinguish between three components that account for the overall decline in market value (V_m - V_{b93}): the decline in shareholder wealth upon impact in 1983, the hit to the government by guaranteeing prices above 1983 fundamental value, and the decline in share values that accompanied ten years of government ownership. The components are calculated as follows:

1) First, we evaluate the decline in shareholder wealth after the Exchange was reopened. This is a straightforward calculation of V_m - V_g, or the difference between the market value of the shares before the crisis and the amount received by shareholders under the government guarantee.

2) Second, we evaluate the net increase in government liabilities equal to the value of the government guarantee less the 1983 value of the banks that it received in return (V_g - V_{f83}). V_{f83} can be viewed as the level to which prices would have declined, if there had been no government guarantee.[6]

3) Finally, we estimate the decline in bank value from 1983

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[6] If $V_{f83} > V_g$, then the guarantee arrangement results in a transfer of wealth from shareholders and a windfall to the government.

through 1993 (V_{f83}-V_{b93}) which reflects the loss absorbed by the government by holding on to the banks for such an extended period of time, instead of selling them to private investors in 1983. The decline could be viewed as an estimate of consequential damages, namely the cost of the banks having been inefficiently run by the government. To the extent that bank values declined from 1983 on because of increased competition and/or reduced margins, the government's loss by not selling early might be partially offset by gains by investors who avoided purchasing banks shares which would have underperformed relative to the risk.

4.3. Gross Damages to Pre-crash Shareholders

The market value of the defendant banks increased by 700 percent (NIS 4 billion to NIS 34 billion) from 1977 through June 1983 rising from the equivalent of 6 percent of GNP to 40 percent (Figure 2). The increase is attributable to three factors (Figures 3A-3E). First, real prices nearly quadrupled contributing NIS 11.6 billion, or 40 percent of the increase. Second, public offerings, including rights offerings raised 7.5 billion (26 percent). Third, the market value of public offerings increased by 10.5 billion between the time of issue and June 1983 (35 percent).

From its peak, the market value of the defendant banks fell by NIS 11 billion, from NIS 34 billion (V_m) to 23 billion in October 1983 after the government stepped in and provided a guarantee, by effectively converting the bank shares into government debt. Assuming that the government-backed shares were correctly priced, the value of the guarantee (V_g) was therefore NIS 23 billion, while shareholders' gross damages were NIS 11 billion (1993 prices).

4.4. The Net Increase in Government Liabilities

We estimate the net increase in government liabilities by looking at the difference between the government liability incurred in 1983, i.e. the amount that the government guaranteed to shareholders (V_g)--and the fundamental value of the banks in 1983 (V_{f83}) that the government received in return. In order to estimate V_{f83}, we construct a counter-factual estimate of what bank stock prices would have been after 1977 had there been no manipulation. In constructing this estimate, we assume that monthly bank returns would have been equal to the riskless rate of return, plus 50 percent of the industrial shares' excess monthly return. The 50 percent figure, while lower than the 80 percent figure estimated from post-1992 data, is consistent with Discount's and Mizrahi's betas in 1977 and 1978. Moreover, the Industrial Index was narrower 15 years ago and presumably more risky so that the banks' betas with respect to this index are probably lower than the 1990's estimates.

To arrive at counterfactual market values, we subtract dividend payments and add public offerings and their counterfactual returns.[7] Figure 4 plots actual market values and counterfactual or "projected forward" values. The figure indicates that the value of the defendant banks (V_{f83}) would have been NIS 11 billion, instead of NIS 23 billion as guaranteed by the government (V_g), so that the government incurred a net liability of 12 billion.[8]

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[7] The calculation assumes that 1977-1983 share offerings would not have adversely affected bank share returns. That assumption probably causes our estimates to overstate V_{f83} because, as evidenced by the US finance literature, the market value of a firm can be expected to decline upon issuing additional shares (Asquith and Mullins, 1986).

[8] We also estimate an alternative counterfactual. We assume that prices were guaranteed - that is the banks convinced the shareholders that shares were riskless. As a result, shareholders discounted the future flow of profits at the riskless rate and not at a rate commensurate with market risk. We assume that the promised real yield on long term government indexed bonds was 4 percent. We also assume that the risk premium was 8 percent and that the banks shares' "true"

4.5. The Decline in Value During the Period of Government Ownership

The fundamental value of the banks in 1983 (V_{f83}) was NIS 6 billion greater than 1993 bank values projected back to 1983 (V_{b93}) estimated in Section 4.1 at NIS 5 billion (Figure 4). We postulate that the NIS 6 billion decline could be construed as an estimate of efficiency losses spread over ten years of government ownership relative to a counterfactual scenario in which banks were sold to private investors in 1983. That assumption is consistent with government statements indicating that government owned companies in general and banks in particular have been inefficiently run.

An alternative explanation could be that bank value declined because of increased competition and/or reduced margins. A third explanation is that bank value was eroded as a result of government policies that provided off-budget subsidies, such as debt moratoria to farmers, at the expense of banks.

4.6 Sensitivity Analysis

The estimates of the different components are sensitive to V_{f83} and V_{b93}, so we begin by calculating V_{b93} under alternative sets of assumptions:

a. Betas ranging from 0.5 to 1, instead of a fixed Beta of 0.7.

b. Instead of using a market model, we project 1993 market values backwards to 1983 at fixed annual real rates from 5 to 15 percent.

c. The other banks are sold at premia ranging from -50 to +100 percent relative to the prices received for Hapoalim and Leumi.

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beta was 0.5. If the banks had not provided a guarantee, shareholders would have discounted profits at 8 percent, but instead were discounting profits at 4 percent. If profits (p) were rising over time at a growth rate of a, that means that share prices should have been equal to p/(0.08-a) but instead were equal to p/(0.04-a). If a were equal to 0.02, that means that manipulation caused share prices to rise 200 percent above their true values, an estimate consistent with our calculation that the pre-crash market value (V_m) of 34 billion NIS was approximately triple fundamental value (V_{f83}).

Because 1993 market value was so much smaller than 1983's, V_{b93} is relatively small under all the assumptions, so that our overall NIS 29 billion damage estimate is robust. Changing betas results in gross damage estimates ranging from NIS 27.5 to 30 billion. Projecting backwards at fixed discount rates results in estimates ranging from NIS 24 to 30 billion. Assuming that the other banks are different from Leumi and Hapoalim results in estimates ranging from NIS 27 to 30 billion.

The relative shares of the components, however, are sensitive to the assumptions. If we were to calculate V_{b93} by projecting 1993 market values to 1983 at fixed annual real rates of 5 percent instead of using the market model, the consequential damages component would be as low as NIS 1 billion.

We next calculate V_{f83} under different assumptions. Changes in V_{f83} - the fundamental value of the banks - do not affect the total NIS 29 billion gross damage estimate which is only sensitive to V_{b93}. Moreover, changes in V_{f83} do not affect the total NIS 18 billion hit absorbed by the government, which is equal to the difference between the observable value of the government guarantee (V_g) and V_{b93}. Changes in V_{f83} affect, however, the two components of the government hit: if the 1983 fundamental value of the banks shares was lower than our estimate that means that the value of the transfer payment to the shareholders (V_g-V_{f83}) was greater, while the decline in post crash bank value (V_{f83}-V_{b93}) was lower. Conversely, if the 1983 fundamental value of the banks shares was higher than our estimate, the value of the transfer payment to the shareholders would be smaller and the decline in post crash bank value higher.

We calculate alternative V_{f83}'s by assigning fixed annual real rates from 5 to 15 percent to market value at the beginning of the period and to public offering proceeds, instead of using the market model. The alternative

calculations indicate that our earlier estimate of V_{f83} might be too low. The reason is that at the market's peak, 62 percent of share values could be explained by the real rise in prices, while 38 percent reflect the real values of shares and funds raised in public offerings assuming a zero real rate of return (Figure 2). If we were to calculate 1983 fundamental values by assigning positive real rates of return to initial market values in 1977 and to proceeds raised in public offerings, the fundamental values would be larger than 38 percent of pre-crash prices, ranging instead between 45 to 60 percent of pre-crash prices (or NIS 15 billion to NIS 20 billion). By contrast, our earlier market-model calculation suggested that V_{f83} was approximately 32 percent of pre-crash values (NIS 11 billion out of NIS 34 billion). The size of the government transfer to shareholders by guaranteeing share prices might therefore be lower than our estimates, ranging from $1 billion to $3 billion (instead of $4 billion as we calculated). By contrast, the decline in value under the government's stewardship, however, would be larger than our $2 billion calculation, ranging from $3 billion to $5 billion.

4.7 Discussion

The sum of the three components (V_m-V_{b93}) represent an estimate of gross damages, or the harm suffered by certain classes without offsetting benefits accruing to other classes. To arrive at a better estimate of actual costs to the economy, it would be preferable to calculate net damages, subtracting from the gross harm gains realized by other classes of investors. In particular, the hit absorbed by pre-crash shareholders is to a large degree offset by gains made by old shareholders. Similarly, the second component which reflects the fact that the government guaranteed the shares at prices above their fundamental values represents a transfer from non-shareholders to

shareholders. As a result, it would be wrong to view these components as estimates of macro-economic costs. By contrast, the third component might reflect efficiency losses.

To arrive at an appropriate measure of macroeconomic costs, it would be necessary, on the one hand, to offset the three components with the benefits accruing to certain classes, but to factor in additional costs. These include the substantial costs of carrying out the offenses, unmasking them, taking precautions against similar offenses and litigation. Perhaps more importantly, it would also be necessary to add costs that reduced allocative efficiency. These include costs incurred during the run-up: the fact that misleading information about bank shares and the large amounts of funds raised through public offerings may have led investors to invest in the wrong projects. Similarly, share manipulation led investors to misinterpret the amount of risk associated with the bank shares, thereby distorting choices between investment and consumption from 1977 through 1983. In response to the new information generated in the aftermath of the crash about the nature of capital markets in general and the behavior of the intermediaries (i.e. banks) in particular, investors may have adjusted their attitudes to investing in risky assets and generally avoided investing in risky assets throughout the rest of the 1980's (Sarnat and Szapiro, 1991). Similarly the disruptions in asset markets in the crash's aftermath may have harmed investors' ability to efficiently allocate capital among various investment projects (Bernanke, 1983).[9] Additional possible macroeconomic costs may stem from the transfer of wealth from entities with different marginal propensities to consume (King

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[9] Because a large section of the credit-allocation process in Israel was government directed, however, it is difficult to estimate credit-allocation costs in the wake of the Bank Shares Crisis.

1994).

The magnitude of the swings in market values before and after the crash, relative to variables such as GDP, savings and investment suggest that the macroeconomic consequences were indeed serious. Moreover, since V_{b93} is similar to actual January 1977 market value (Figure 4), that means that bank value remained unchanged in real terms from 1977 through 1983 even though the banks raised NIS 7.5 billion of proceeds from public offerings. That suggests that the funds that were raised may not have been allocated in an efficient manner.

5. Conclusions

In this paper we have revisited the 1983 Crisis with two questions in mind. First, does the judge's finding that banks provided shareholders with a guarantee stand up to a high-frequency time series data and a market model analysis? Second, whatever the reasons for the crisis, who was harmed and by how much?

Our answer to the first question is affirmative. Using never-before-assembled daily price data we find that share prices rarely fell in six years preceding the crisis. Even in a highly inflationary economy, such a record is difficult to explain in the absence of an implicit guarantee, as is the fact that nominal daily bank shares returns were uncorrelated with the market.

We formulate three gross damage estimates: the hit taken by shareholders at the time of the crash, the increase in the government's net liabilities that resulted from its guarantee of shares at prices above fundamentals and the decline in bank values from 1983 through 1993 which we suggest resulted from inefficiencies caused by government's operation of the banks. The first two are mostly transfer payments and are estimated at NIS 23 billion while the third is probably an efficiency loss estimated at 6 billion. To arrive at an appropriate measure of macroeconomic costs, it would be necessary to add in additional costs related to disruptions in capital markets. The magnitude of the swings in market values before and after the crash, relative to variables such as GDP, savings and investment suggest that these costs were substantial so that the banking crisis had serious macroeconomic consequences.

An alternative hypothesis is that these costs as well as the banking crisis itself were mere manifestations of the macroeconomic policies of Israeli governments from 1977 through 1983. Accordingly, it would be

incorrect to suggest that the costs are attributable to the banks and they should instead be blamed solely on the government, the politicians and the regulators. The hypothesis, which was rejected by both the Bejsky Committee and the Court, ignores the prevalence of many of the banks' trading practices for many years before 1977, the persistence of which may have led to a crisis even under a different set of economic conditions. A more limited hypothesis would be that economic conditions such as the large government deficit may have fostered an environment in which regulators might have been reluctant to act, thereby facilitating the banks' activities.

The results have several implications. First, the standard of proof in financial fraud cases should be more rigorous. Second, the results suggest that continued government ownership of State owned companies is costly. Third, the results suggest that--despite the fact that they may be low-probability events--the cost of such crises and bailouts are substantial, so that policy makers should take steps to try to avoid their recurrence. In the United States, a vaguely similar crisis in the 1930's led to the enactment of sweeping banking legislation that prevented banks from engaging in securities activities. The Bejsky Commission recommended a number of steps affecting banking structure which have not been implemented. Our results suggest that policy makers should reconsider those recommendations.

References

Asquith P. and D. Mullins, 1986. "Equity Issues and Offering Dilution," *Journal of Financial Economics*, 61-89.

Bank of Israel Annual Reports.

Barnea, A. 1981. "Banks' Profitability in 1980 from the Perspective of an Investor in Bank Stocks," Quarterly Banking Review, Vol. XX.

Barnea, A. 1982. "Banks' Profitability in 1981 and Valuation of Banks' Shares," Quarterly Banking Review, Vol. XXI.

Barnea, A. 1983. "Profitability of the Commercial Banks in 1982 and their Activity in the Capital Market," Quarterly Banking Review, Vol. XXII.

Commission of Inquiry (Bejsky Commission) Report, April 1986.

Bernanke B.S. 1983. "Nonmonetary Effects of the Financial Crisis in Propagation of the Great Depression," *American Economic Review*, 257-76.

Blass, A. 1996. "Are Israel Stock Prices Too High?" *Bank of Israel Review*, (forthcoming).

Brenner, M. and Ruthenberg, D. 1989. "The Banks Intervention in the Capital Market," *Bank of Israel Banking Review*, 2, 52-63.

Easterbrook, F.H. and Fischel, D.R. 1991. *The Economic Structure of Corporate Law*. Cambridge. Harvard University Press, pp. 315-52.

Examiner of Banks, Annual Review of Banking Israel System, Various Issues.

Examiner of Banks, Annual Statistics of Israel's Banking System, Various Issues.

Eruim BaBorsa, monthly publications 1977-1983.

Grossman, R. 1993. "The Macroeconomic Consequences of Bank Failures under the National Banking System," *Explorations in Economic History* 30(3), 294-320.

King, M. 1994. "Debt-Deflation: Theory and Evidence," *European Economic Review*, 58 419-46.

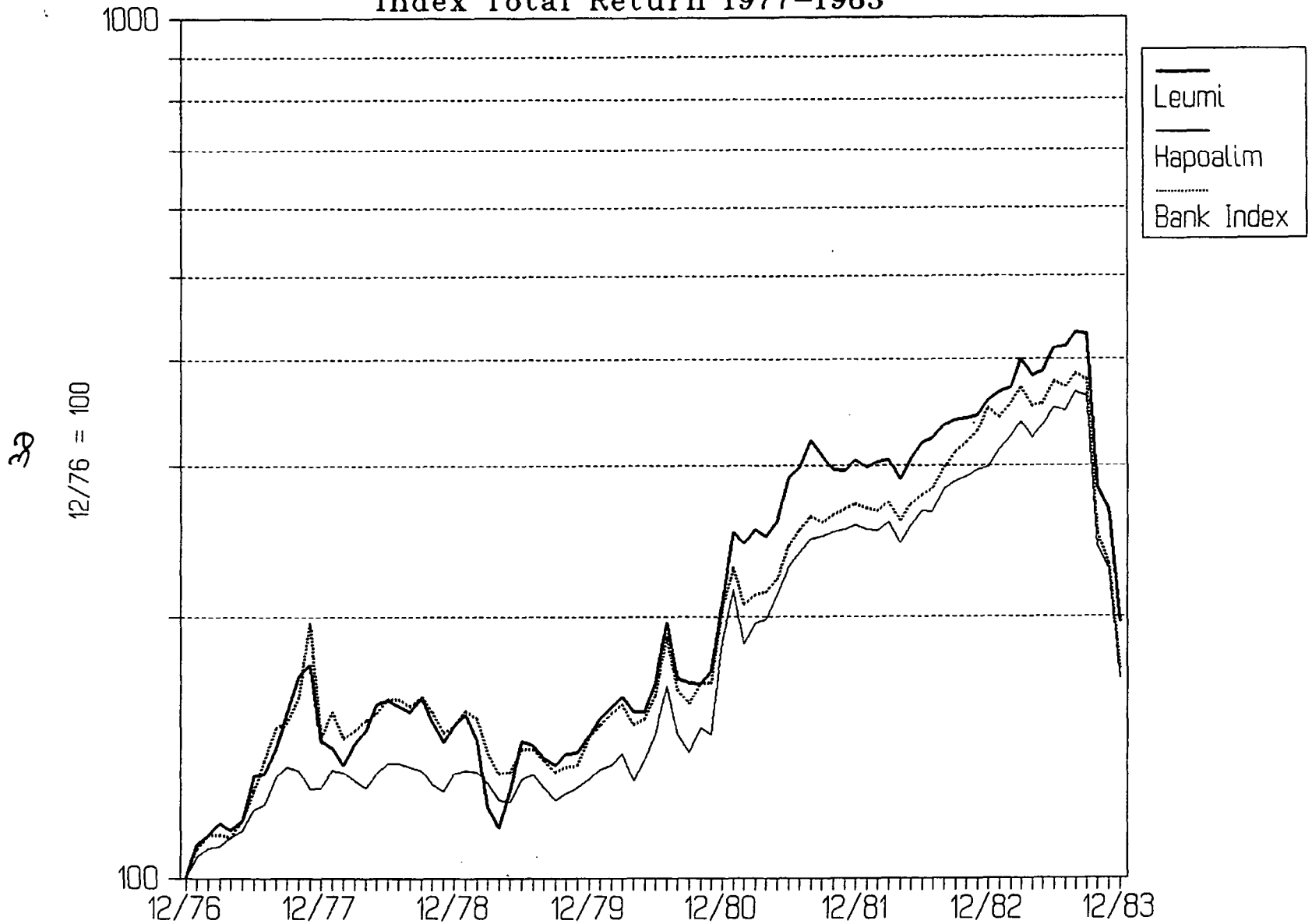
Mabat daily papers

Ruthenberg, D. 1993. "Optimal Banking Structure, Theory and Facts," Banking Supervision Department Research Unit working paper 93.01.

Figure 1 – Industrial and Bank Share
Total Return Index 1977–1983

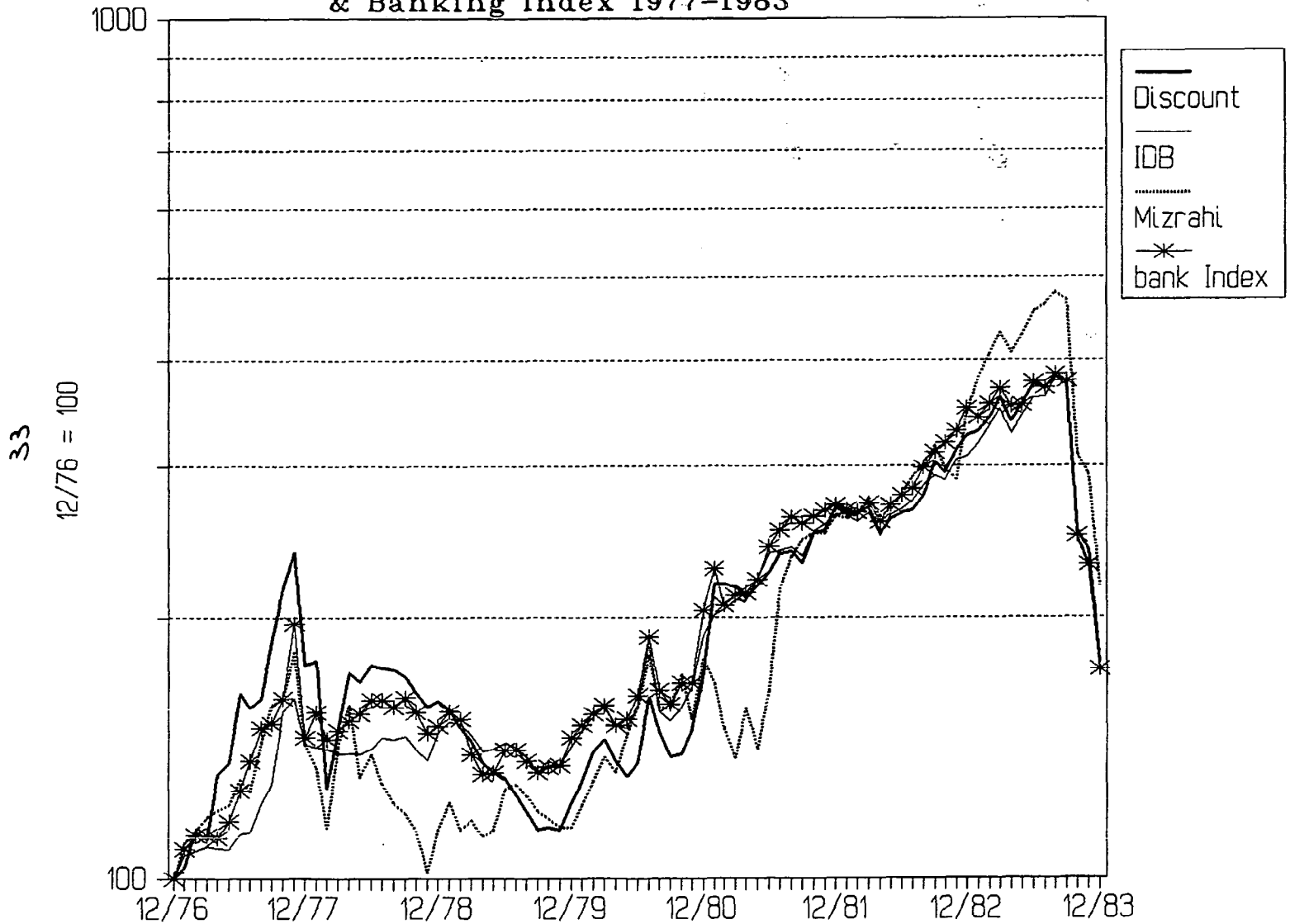
Source: Central Bureau of Statistics and Bank of Israel

Figure 1A – Leumi, Hapoalim & Banking Index Total Return 1977–1983



Source: Daily Returns for Bank Stocks; Bank Index as reported by the CBS

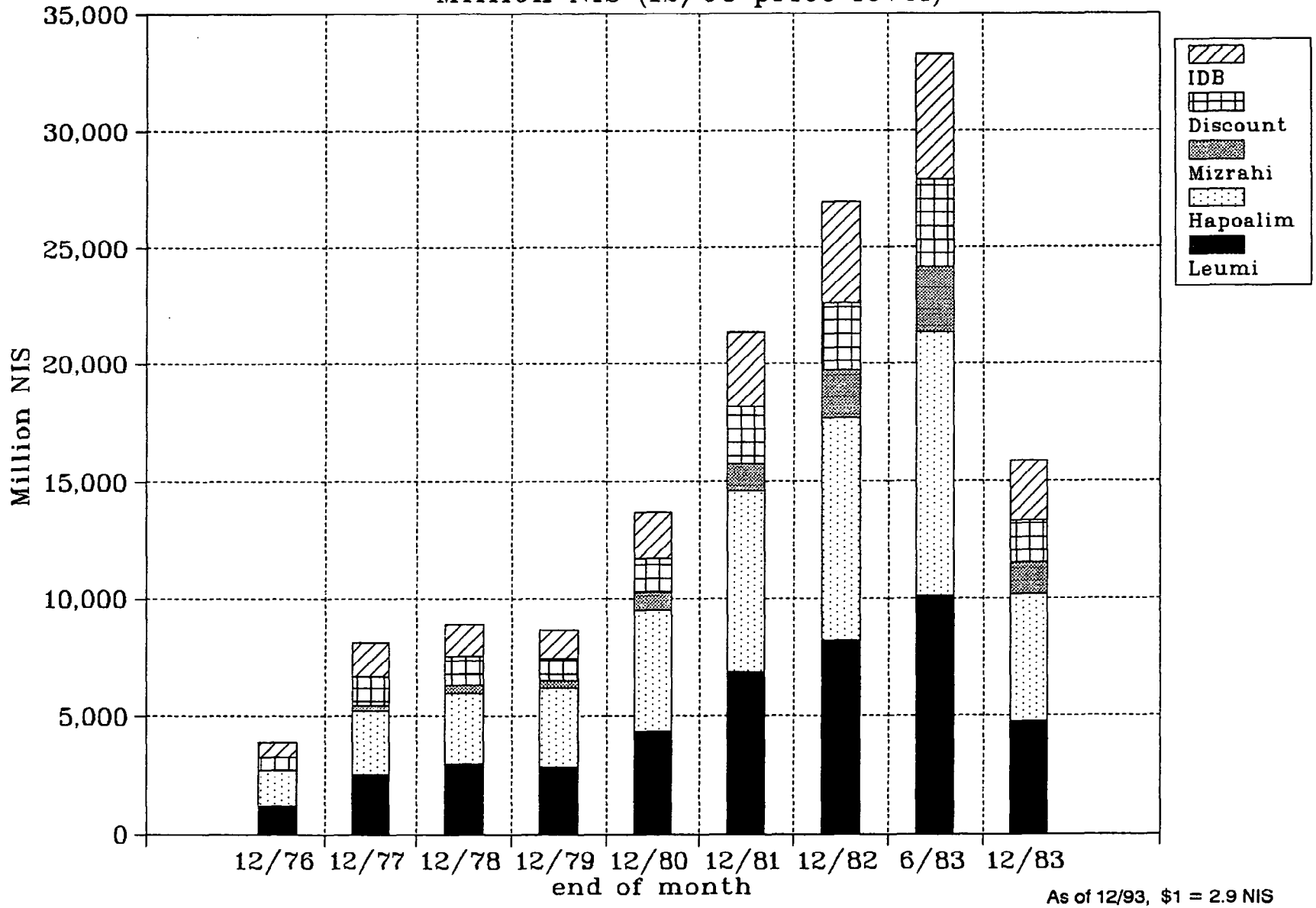
Figure 1B – Discount, IDB, Mizrahi & Banking Index 1977–1983



Source: Daily Returns for bank Stocks: Index as exported by the CBS.

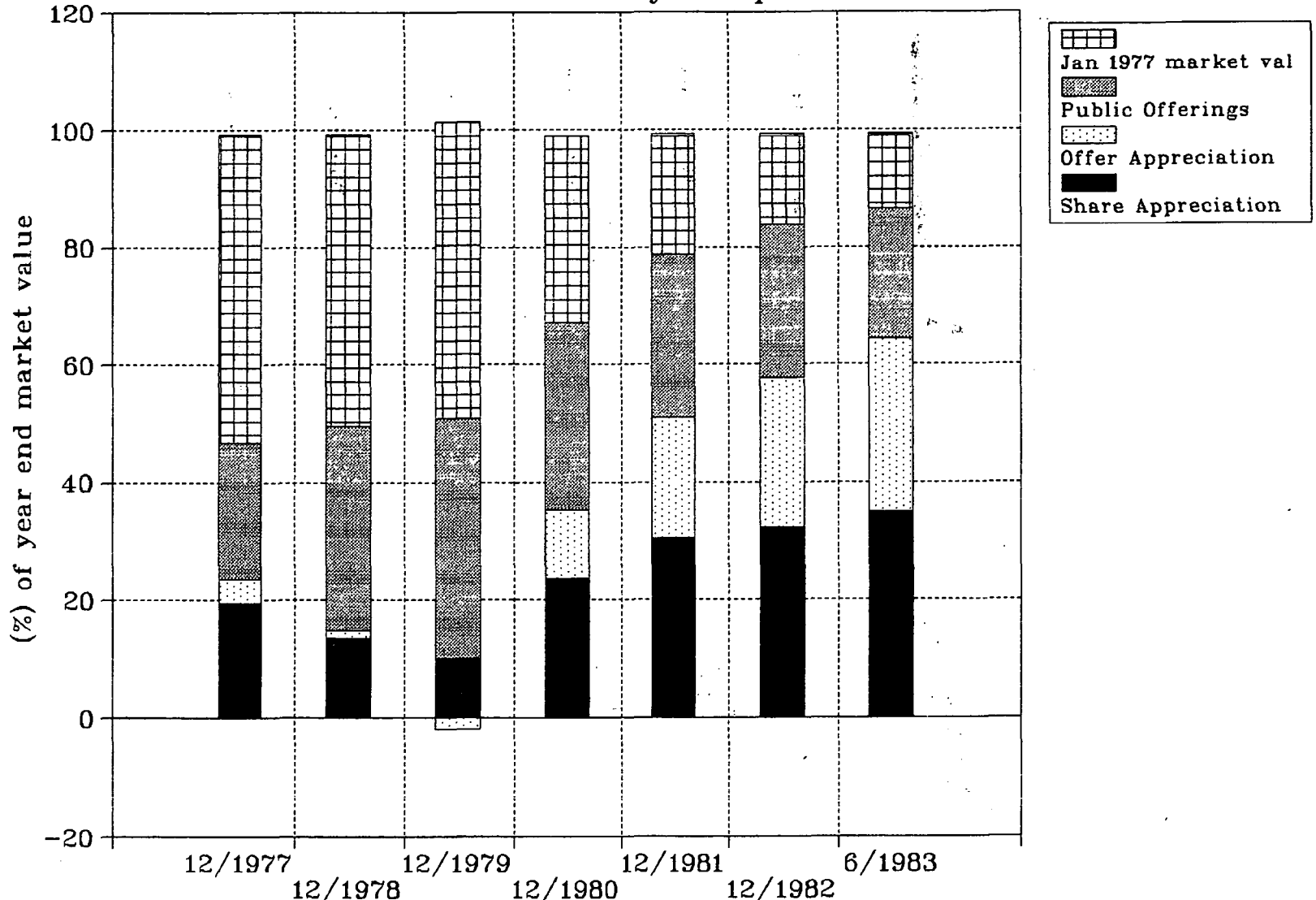
Fig. 2 – Market Value of 5 Major Banks

Million NIS (12/93 price level)



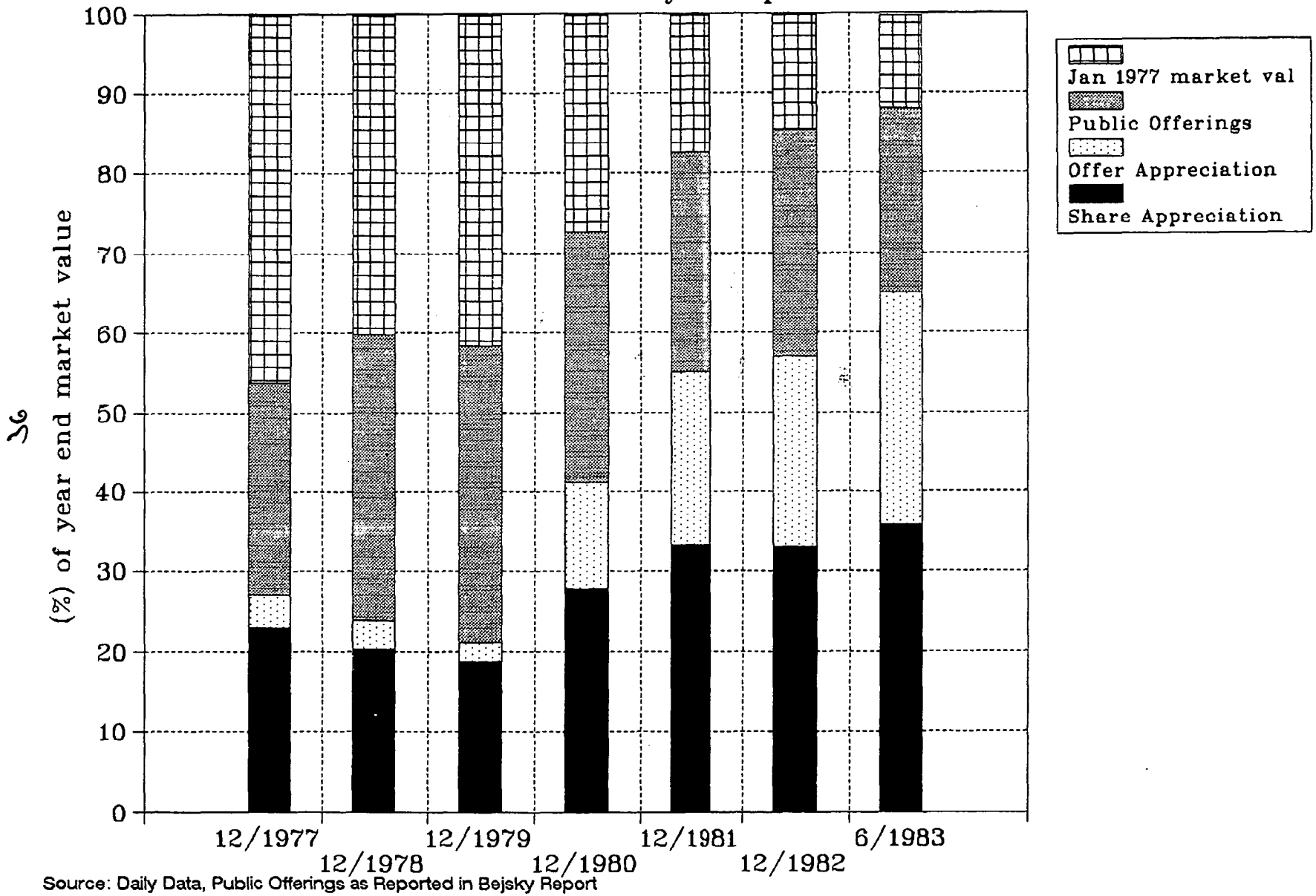
As of 12/93, $1 = 2.9 NIS

Figure 3 – 5 Banks Market Value
by Components 1977–1983



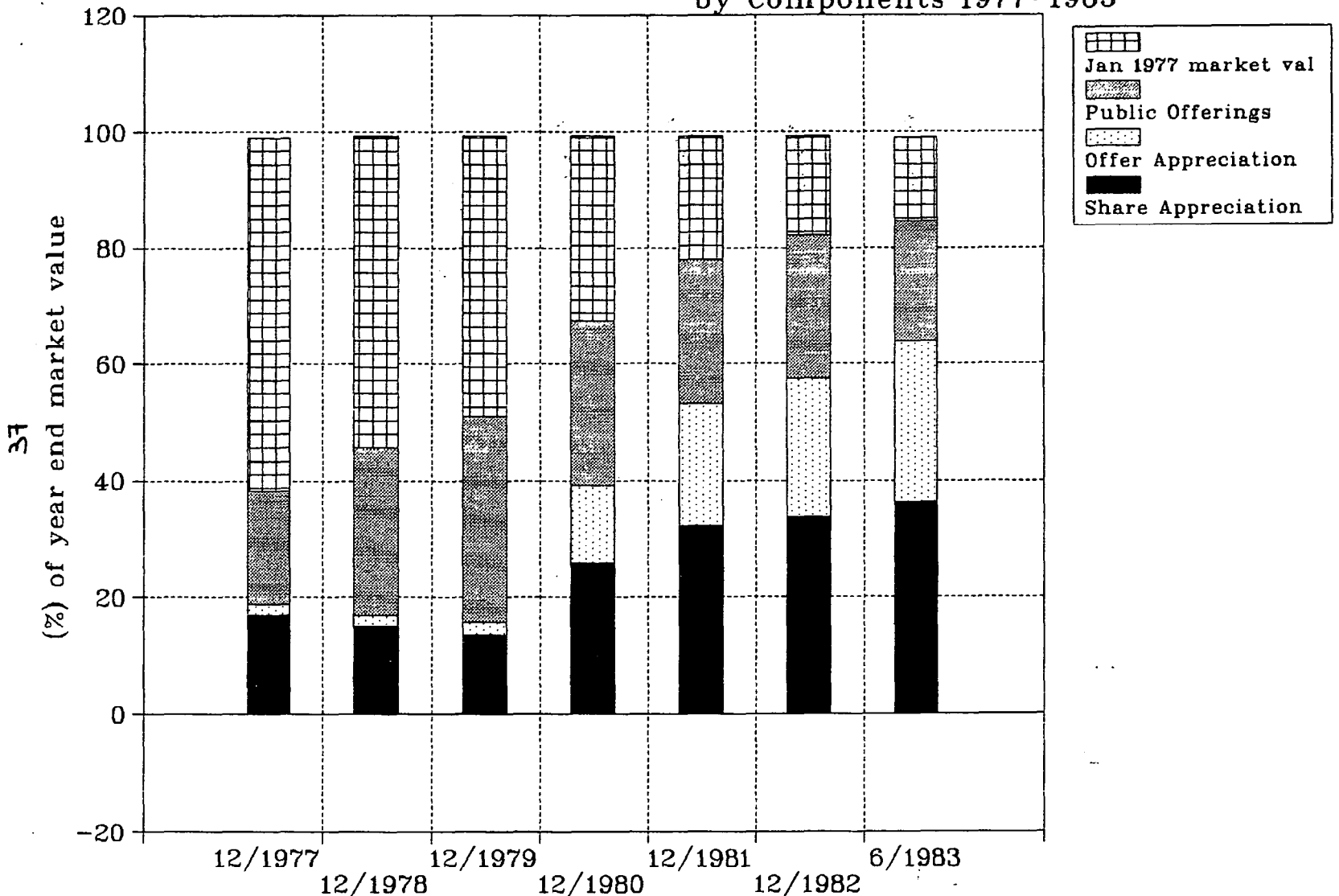
Source: Daily Data, Public Offerings as Reported in Bejsky Report

Figure 3A – Leumi Market Value
by Components 1977–1983



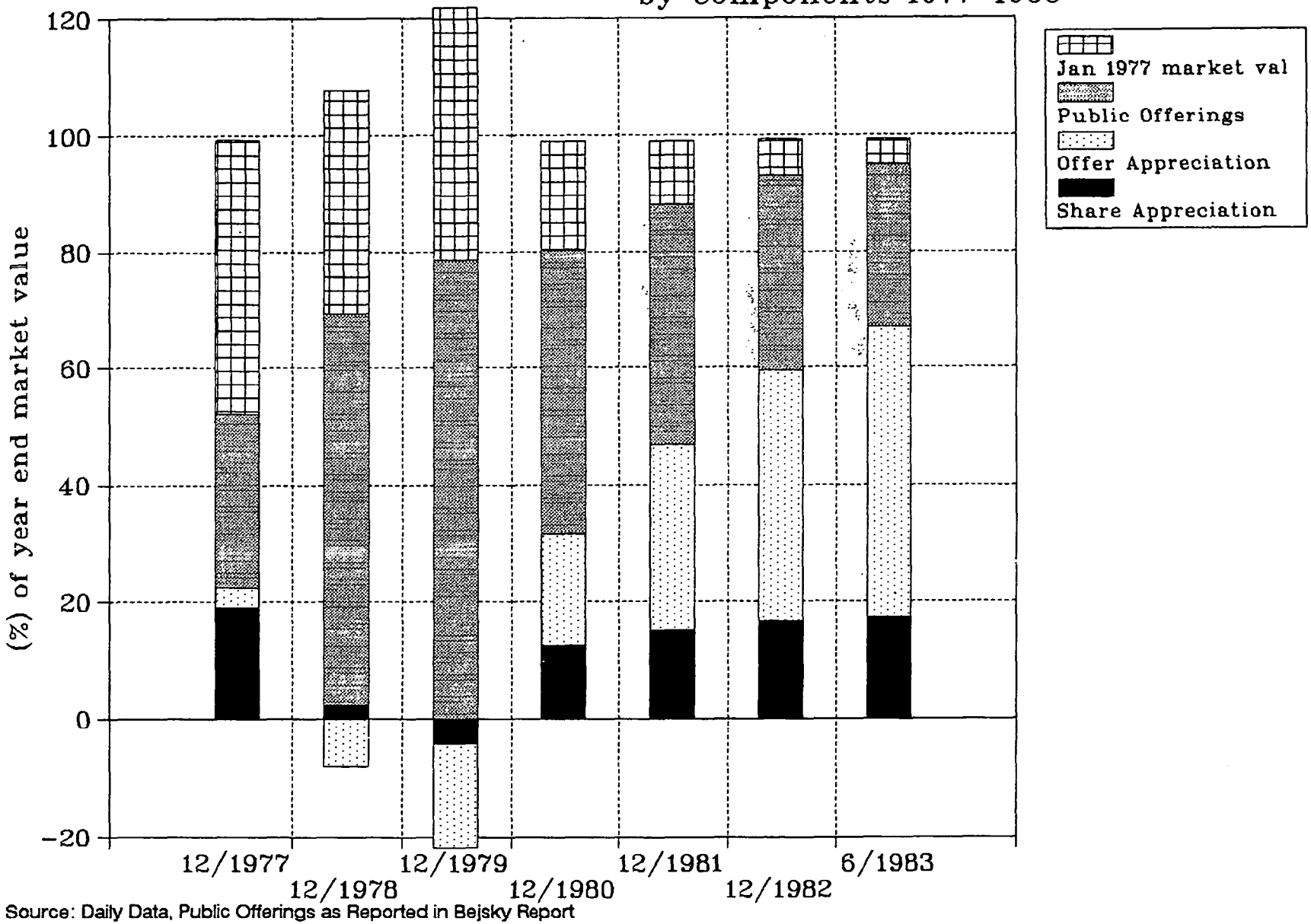
Source: Daily Data, Public Offerings as Reported in Bejsky Report

Figure 3B - HaPoalim Market VAlue
by Components 1977-1983



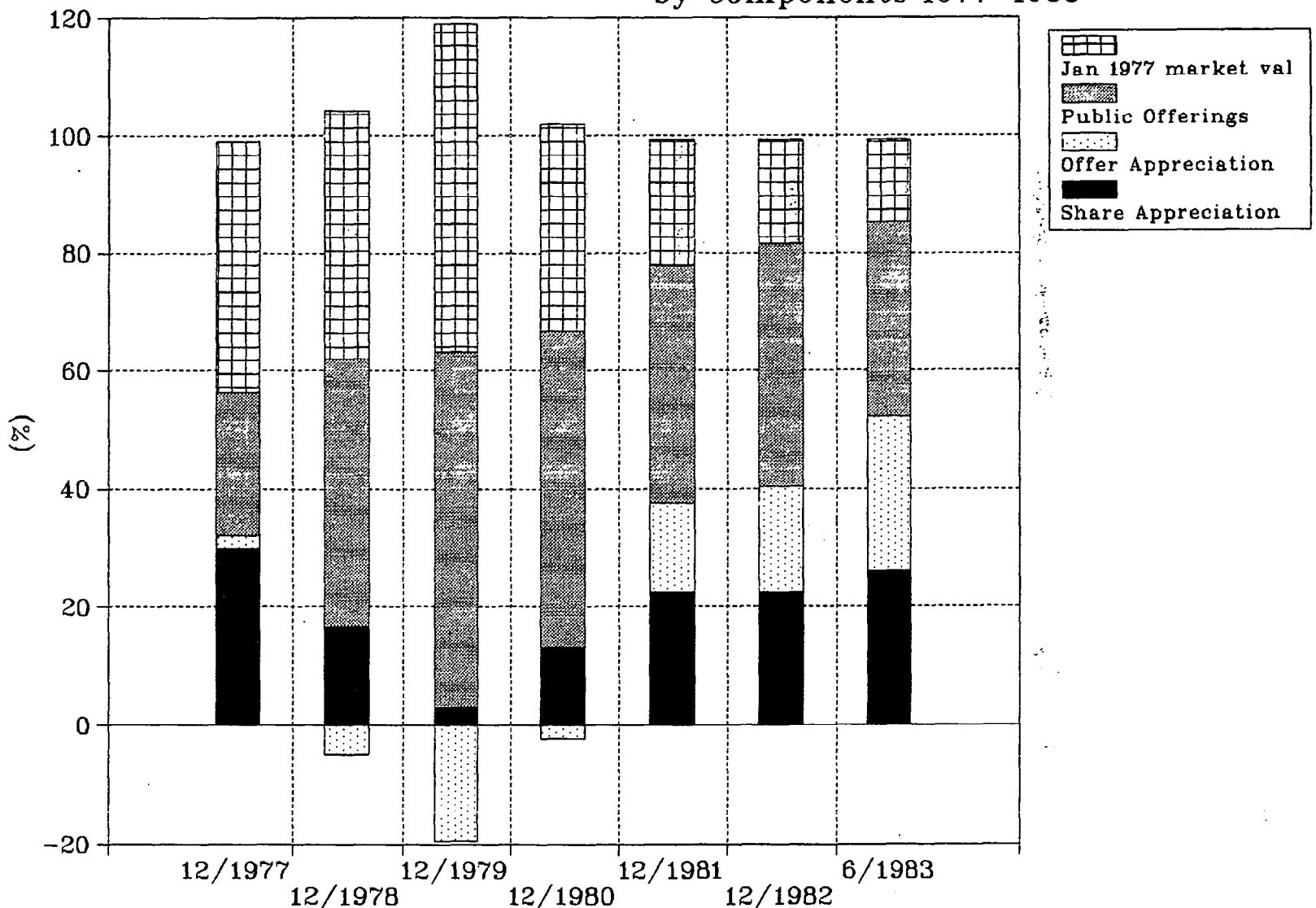
Source: Daily Data, Public Offerings as Reported in Bejsky Report

Figure 3C – Mizrahi Market Value
by Components 1977–1983



Source: Daily Data, Public Offerings as Reported in Bejsky Report

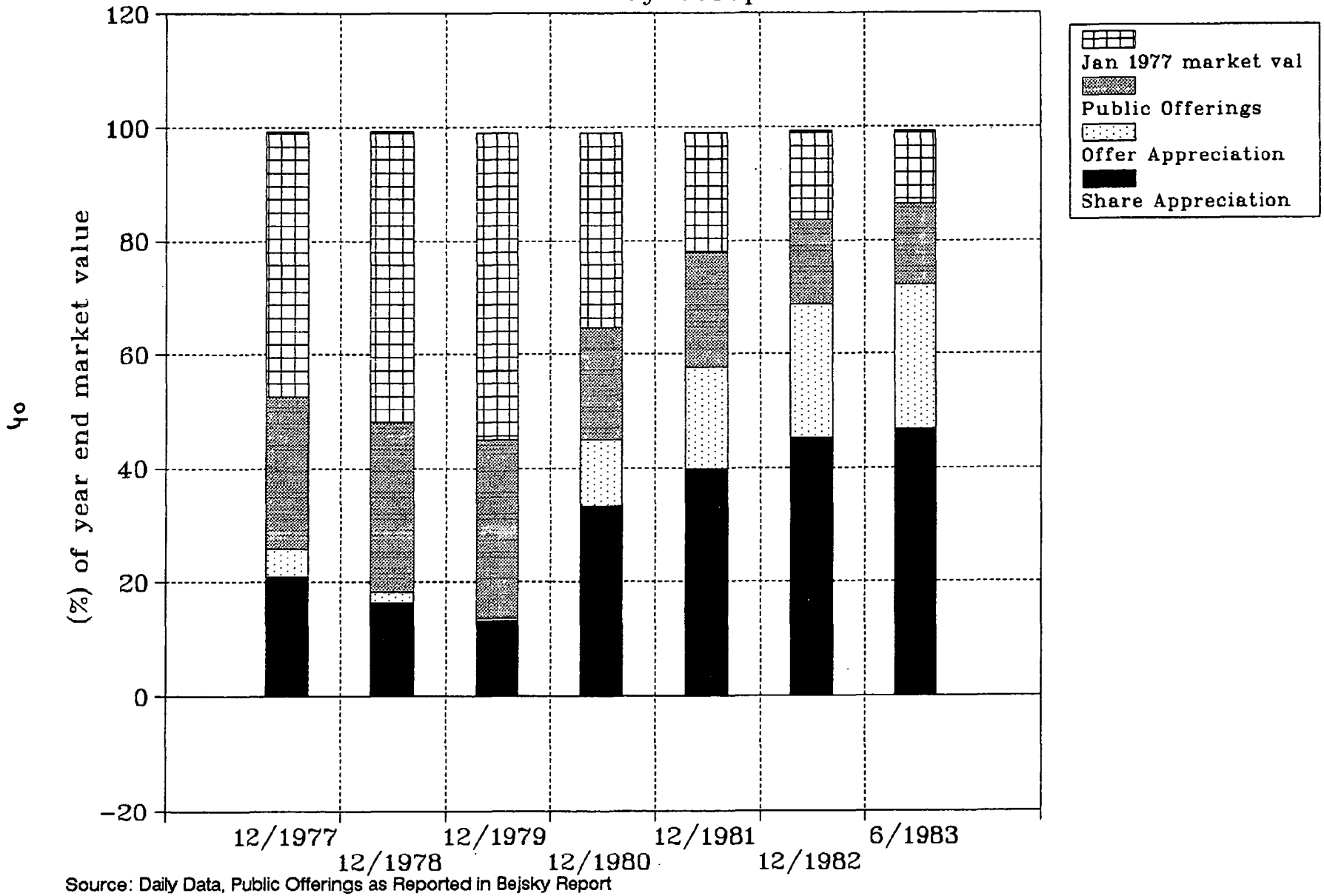
Figure 3D – Discount Market Value
by Components 1977–1983



Source: Daily Data, Public Offerings as Reported in Bejsky Report

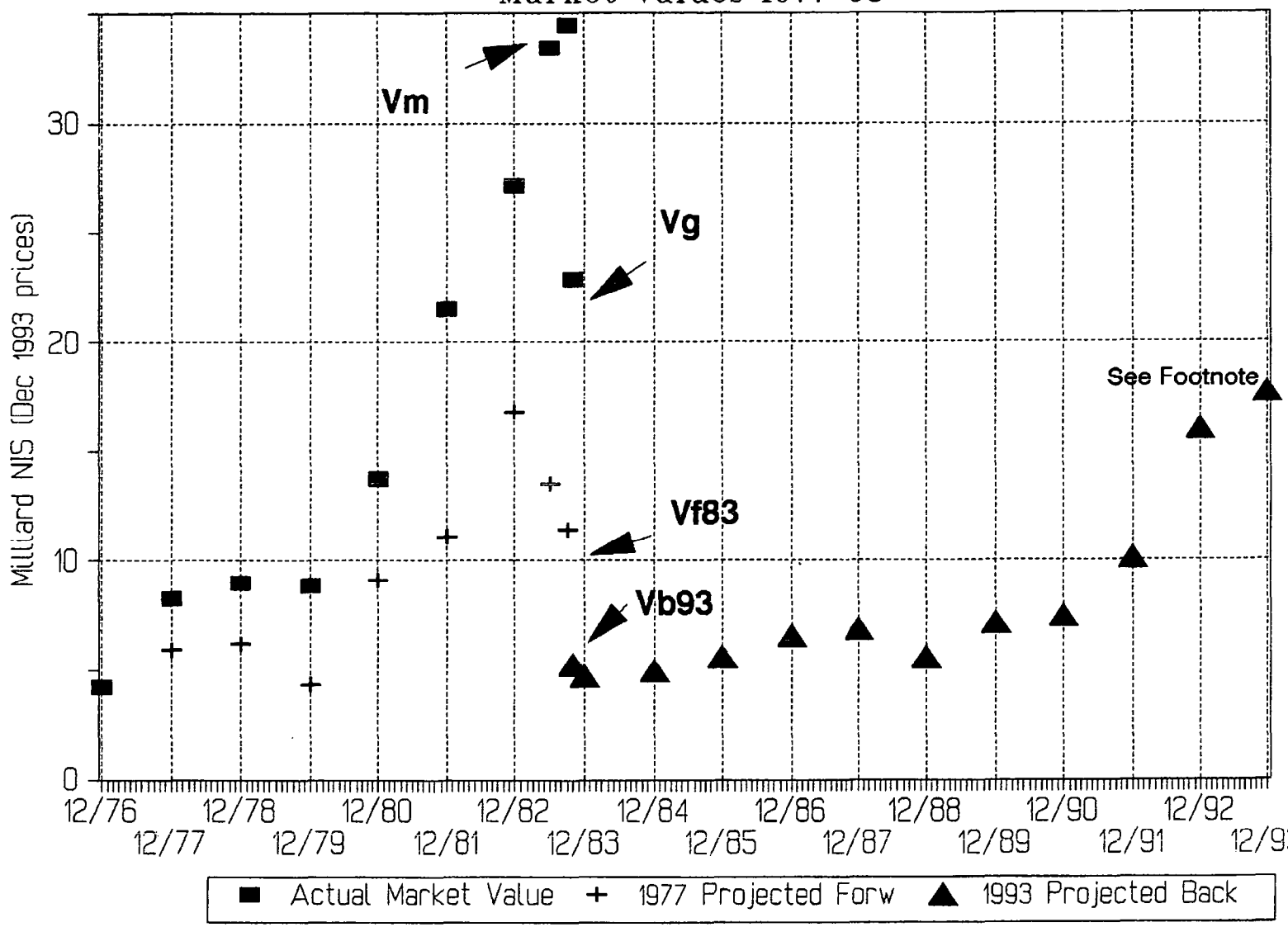
Figure 3E – IDB Market Value

by Components 1977–1983



Source: Daily Data, Public Offerings as Reported in Bejsky Report

Figure 4 – 5 Banks Actual & Projected Market Values 1977–93



The 12/93 figure is an estimate of 5 bank market value based on actual Leumi and HaPoalim values in Dec. 1993.

Table 1 – Bank Share Betas 1977–1983

	IDB		Igud		Discount		Mizrahi		Hapoalim		Leumi		FIBI		Clali	
	β	σ	β	σ	β	σ	β	σ	β	σ	β	σ	β	σ	β	σ
1977	0.18	0.05	0.91	0.08	0.53	0.09	0.79	0.08	0.10	0.04	0.27	0.05				
1978	0.00	0.01	0.78	0.08	0.44	0.06	0.73	0.07	0.03	0.01	0.09	0.03			0.39	0.35
1979	0.03	0.03	0.56	0.14	0.04	0.05	0.24	0.09	0.01	0.02	0.22	0.10			0.18	0.08
1980	0.02	0.05	0.18	0.07	0.03	0.07	0.13	0.06	-0.01	0.06	0.21	0.11	0.59	0.10	0.02	0.05
1981	-0.06	0.04	0.10	0.09	-0.07	0.05	-0.05	0.06	-0.01	0.05	0.19	0.11	0.74	0.28	0.00	0.01
1982	-0.01	0.01	0.04	0.03	-0.03	0.01	-0.02	0.03	0.00	0.01	0.02	0.01	0.53	0.08	0.06	0.05
1983	0.01	0.01	0.23	0.06	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01	1.38	0.18	0.02	0.01

Table 2 – Number of Days that Price Declined

	IDB	Igud	Discount	Mizrahi	Hapoalim	Leumi	FIBI	Indexed Bond 364	Industrial Index
1977									
1Q	0	34	22	0	0	2			25
2Q	0	15	16	1	0	3			21
3Q	5	20	22	18	1	6			20
4Q	16	26	19	25	15	16			27
1978									
1Q	2	25	27	26	5	10			29
2Q	3	16	7	22	0	3			21
3Q	0	26	4	24	0	0			27
4Q	0	23	0	8	0	5			20
1979									
1Q	0	27	1	8	0	15			*
2Q	0	14	0	0	0	0			*
3Q	0	3	0	0	0	0			*
4Q	0	0	0	0	0	0			*
1980									
1Q	0	7	0	3	0	0	10	14	*
2Q	5	12	1	3	2	2	8	14	*
3Q	5	7	4	7	3	4	14	12	*
4Q	6	12	4	10	8	4	18	10	*
1981									
1Q	3	16	3	18	11	6	29	19	*
2Q	2	8	2	7	1	1	16	15	*
3Q	6	10	4	0	0	0	16	14	*
4Q	0	8	1	2	1	0	16	4	20
1982									
1Q	0	3	0	0	0	0	19	0	23
2Q	0	1	0	1	1	0	20	0	19
3Q	0	0	0	0	0	0	12	0	11
4Q	0	10	0	10	0	1	2	1	19
1983									
1Q	0	4	0	1	0	0	16	11	24
2Q	0	7	1	0	0	0	20	3	26
3Q	0	0	0	0	0	0	23	8	30
4Q									
1Q									

* – Industrial Index Daily Data Missing Many Values

Approximately 60 trading days per quarter

Table 3 – Bank Share (Tobit) Betas 1977–1983

	IDB		Igud		Discount		Mizrahi		Hapoalim		Leumi		FIBI		Clali	
	β	σ	β	σ	β	σ	β	σ	β	σ	β	σ	β	σ	β	σ
1977	0.29	0.09	1.44	0.17	0.88	0.17	1.11	0.14	0.19	0.08	0.41	0.09				
1978	0.01	0.01	1.59	0.20	0.94	0.17	1.63	0.20	0.05	0.02	0.16	0.05				
1979	0.04	0.03	0.83	0.21	0.04	0.06	0.29	0.12	0.01	0.03	0.25	0.12			0.27	0.12
1980	0.02	0.05	0.20	0.10	0.07	0.08	0.15	0.07	0.00	0.08	0.23	0.15	0.71	0.14	0.03	0.05
1981	-0.08	0.05	0.19	0.13	-0.10	0.06	-0.01	0.09	-0.01	0.06	0.27	0.14	1.13	0.45	0.00	0.01
1982	-0.00	0.01	0.09	0.04	-0.03	0.02	-0.01	0.04	0.00	0.01	0.02	0.01	0.87	0.17	0.03	0.03
1983	0.01	0.01	0.30	0.08	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01	1.89	0.19	0.02	0.01

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