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ESTIMATION OF THE VALUE OF UNQUOTED SHARES OF ENTERPRISES IN THE PUBLIC
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ESTIMATION OF THE VALUE OF UNQUOTED SHARES OF ENTERPRISES IN THE PUBLIC SECTOR

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Introduction

The paper presents an attempt to find a solution to an existing problem in the national accounts of evaluating shares of enterprises in the public sector in the framework of the national balance sheets of Israel.

The first balance sheets for Israel presenting the balances of non-financial assets, financial assets and liabilities by institutional sector were prepared for 1995 (9) and after that annual balance sheets for the years 2001 and onwards have been prepared.

In the first versions of the national balance sheets, the market value of unquoted shares for enterprises was estimated at aggregate levels using simple comparisons with traded shares, and ways of improving the methods were sought.

In the past decade the Israeli government initiated sales of a number of enterprises owned by government on the stock market – either all of the shares, the major part of the shares, or only part of the shares. Nevertheless, at the time of writing, the major parts of the enterprises in the public sector are owned fully by government. By the end of 2003 99 enterprises were owned by government, thereof 41 were for profit producers in various industries. The market value of these enterprises has to be estimated in the framework of the national balance sheets.

Determining the real value of the enterprise would require putting it on the "market" – a place where it could be sold and bought freely. Usually the owners of an enterprise can determine the authorized share capital, which is approved by the securities authority, and issued to the public as issued share capital. An enterprise issuing its shares enters the market – the stock exchange – and as a result of the commerce at the end of the day the "market value" is determined.

Most of the public sector enterprises have an authorized share capital, but they remain in the hands of government for many years without being traded, and consequently the value of their share capital does not change over time and loses its economic meaning. This means that evaluation of the market value of enterprises, which are not traded on the stock exchange, requires indirect estimation.

The purpose of this paper is to propose suitable methods for evaluating the "market value" of enterprises in the public sector in the framework of the national balance sheets by institutional sector

¹ The paper is a slightly abbreviated and modified version of a Hebrew paper prepared in 2005. The methods proposed in the paper have been used in the national balance sheets of Israel.

prepared by the Central Bureau of Statistics. On the basis of the proposed method improved estimates have been prepared. The estimates have been prepared according to the recommendations in System of National Accounts 1993 (SNA 1993) (7) and European System of National and Regional Accounts 1995 (ESA 1995) (8)². The choice of method is based on the recommendations of international task forces and on the most accepted approaches for evaluation of equity in the financial theory.

A necessary pre-condition for the evaluation is the existence of suitable data. For the purpose of the paper the annual publications of "Report of the government enterprises" from 2000 onwards were used. In the annual report on the activities of "government enterprises" detailed financial data are published. In order to evaluate the market value of the unquoted shares of the public sector enterprises using the recommended method a data base with data from the stock exchange was established. It should be mentioned that in the years investigated there was an economic recession in Israel, which affected the profitability of the public sector enterprises.

1. Methods of evaluation in the national accounts

1.1. Methods used in the national accounts of Israel the past

In the first publication of the national balance sheets for Israel the difficulties of evaluating unquoted shares were recognized, and among other things the lack of data on holdings of unquoted shares was mentioned. This led to the choice of a simple method of estimation, where the ratio between *market value/own funds at book value* in traded enterprises was used. As mentioned above the estimations were often made at an aggregate level, although for public sector enterprises (which are usually very large) attempts were made to use industry data.

The main deficiency in the methods used in the past was that the estimation of the value of the unquoted shares was not linked to the profitability of the enterprises or to their lack of liquidity, which is derived from the fact that they are not traded on a current basis.

Another problem was that the method for evaluation chosen from the SNA 1993 and ESA 1995 recommendations had been difficult to implement, mainly due to the difficulty of matching kinds of activity of public sector enterprises with the distribution by industry of enterprises traded on the stock exchange.

1.2. Recommendations in SNA 1993 and ESA 1995

The recommendations in SNA 1993 and ESA 1995 provide the methodological basis for the estimation of market value of the unquoted shares of enterprises. Below are a few excerpts from SNA 1993:

"Shares and other equity (AF.5)

13.73. Shares and other equities should be valued in the balance sheets at their

current prices when they are regularly traded on stock exchanges or other organized financial markets. The value of shares in corporations that not quoted on stock exchanges or otherwise traded regularly should be estimated using the prices of quoted shares that are comparable in earnings and dividend history and

² I should be mentioned that at the time of the translation of this paper (2009) more detailed international recommendations have been added in SNA 2008 paragraphs 13.69 to 13.75

prospects, adjusting downward, if necessary, to allow for the inferior marketability or liquidity of unquoted shares.“

“ 13.31. In addition to providing direct observations on the prices of assets actually traded there, information from such markets may also be used to price similar assets that are not traded. For example, information from the stock exchange also may be used to price unquoted securities by analogy with similar, quoted securities, making some allowance for the inferior marketability of the unquoted securities. Similarly, appraisals of tangible assets for insurance or other purposes generally are based on observed prices for items that are close substitutes, although not identical, and this approach can be used for balance sheet valuation.”

In ESA 1995 the recommendation are more specific:

“7.54. The values of unquoted shares, which are not regularly traded on organized markets, should be estimated with reference to the values of quoted shares. However, these estimates should take into account differences between the two types of shares, notably their liquidity, and they should consider the reserves accumulated over the life of the corporation and its branch of business.”

“7.55. The estimation method applied depends very much on the basic statistics available. It may take into account, for example, data on merger activities involving unquoted shares. Furthermore, in cases where the reserves of corporations, which issue unquoted shares, differ on average, and in proportion to their nominal capital, from that of corporations, which issue quoted shares, it would be appropriate to calculate the current price of unquoted shares in proportion to figures including reserves, such as net worth given by the corporation balance sheet, or as own funds compiled according to ESA principles:

A = current price of unquoted shares

B = current price of quoted share

$$C = \frac{\text{own funds (unquoted corporations)}}{\text{own funds (quoted corporations)}}$$

$$A = B * C$$

The ratio of current price to own funds may vary with the branch of business. Therefore, it is preferable to calculate the current price of unquoted shares branch by branch. There may be other differences between quoted and unquoted corporations, which may have effect on the estimation method.”

One should note that according to the rules of business accounting, there is a difference in the estimation of equity in enterprises with a different status. Furthermore, there is a difference between the estimation of the net worth of an enterprise in the balance sheets of the national accounts and the data published by the stock exchange. The balance sheets in national accounts do not include contingent assets, but those are included in the stock exchange data. Other differences affecting the net worth may also be present.

But even taking into account those differences, this method has been considered the most suitable in most countries for preparing the institutional balance sheets in national accounts.

In the recommendations of SNA1993 and ESA 1995 there is no specific recommendations as to the methods of accounting for the differences in liquidity of quoted shares and un-quoted shares, and how to

take into account differences between the enterprises with respect to their profitability, the dividends that were paid and future dividends.

It is worthwhile mentioning that for enterprises in the public sector in Israel there is an advantage: according to the regulations for public sector enterprises they have to follow the recommendations of business accounting and fully disclose the economic value of their assets in their financial reports.

2. Work on evaluation of unquoted shares in international task forces

As an illustration of the importance and difficulty of the subject, one may cite the number of meetings and task forces devoted by the international organizations to the subject. Thus, for example, Eurostat established a task force on unquoted shares in 2003, and OECD organized a similar task force in 2004. Among the participants were representatives from USA, Canada, Belgium, Denmark, France, Netherlands, Spain, Italy, Greece, Finland, and others. In the summaries of the meetings (14, 15, 16), the experts note the importance of the subject, raise methodological problems related to the subject, and discuss general concepts related to the subject. In the framework of the discussions the lack of details in the recommendations of the handbooks was criticized. Most of the conclusions and recommendations of the work of these groups of experts deal with questions on methods and techniques of estimation of unquoted shares – for example how to estimate the value of unquoted shares in a better way: by industry or by size of enterprise? Should one choose a list of industries on the basis of data from national stock exchanges or general European stock exchanges? Is it worthwhile to estimate the market value of unquoted shares on the basis of data on a standard multiplier that would be decided upon by the international institutions?

It is worth mentioning that the discussions did not concern public sector enterprises in specific.

The main conclusions and recommendations of the international work on estimation of market value of unquoted shares were:

- a. In the balance sheets of the national accounts the method of estimation of the market value of unquoted shares necessitates a comparison between shares traded on the stock exchange and unquoted shares.
- b. In principle one may arrive at a market value for all unquoted shares using the multiplier: a weighted average of the ratio between the market price of the shares and the own funds at book value in enterprises with traded shares.
- c. The main problems are related to the establishment of a suitable data base. The experts recommended the following approaches:
 - Small enterprises (the border decided upon in the European group was 10 million euros) and enterprises with a very large multiplier should be excluded.
 - Enterprises which are part of Stoxx600 (the 600 enterprises with the largest market value on the European stock exchanges) should be excluded.
 - The list of shares on the stock exchange should be divided into 10 industries according to the Statistical Classification of Economic Activities in the European Community (NACE).
 - As a basis for data on enterprises traded on the stock exchange, data the data from the domestic market or an international data bank (such as the Pan European) should be used.

At this stage a common resolution on a general method of estimation of the shares of enterprises that are not traded on the stock exchange has not been made. There are still differences of opinion on the subject and a number of alternatives have been suggested.

With regard to the differences in liquidity between quoted and unquoted shares and the differences in profitability, the importance of their estimation has been noted.

It should be noted that the methods, approaches and tools for estimation of market value that were chosen as suitable for the institutional balance sheets in the national accounts were applied on a global level. When seeking to improve the estimation one could look at the shares of public sector enterprises at the level of the individual enterprise, and use various economic tools to obtain a greater accuracy.

3. Customary methods of estimating the value of enterprises

It is possible to estimate the market value of enterprises that are not traded on the stock exchange, using the wealth of existing theory and practice on modern financial markets. A prominent example of this is the determination of the price of a share, when an enterprise is launched on the stock exchange. The choice of methods of evaluation of the value of an enterprise is dependent upon the purpose of the evaluation, the available data, resources, and time. The following methods of evaluation are often used:

The asset value method;

Comparison with similar enterprises;

The multiplier method;

The discounted cash flow method;

Their principles, advantages and disadvantages are described below.

Asset value method

This method is based on the cost of the assets of the enterprise after deducting the liabilities as they are reflected in the balance sheet. The computation takes into account the tangible assets, and does not take into account intangible assets such as goodwill, accumulated knowledge, management abilities, patents, etc. For evaluating the value of the asset or liability two alternatives exist:

- a. Using the net sales value, that is the value of the asset or the liability in a transaction between a willing seller and willing buyer.
- b. The value of the use – necessitates a forecast of future cash flows originating from the asset.

Instead of the value of use the re-exchange value is often used – that is the sum that should be invested at the time of the evaluation in order to create the asset that exists in the enterprise. The re-exchange value is suitable for the cases involving a unique asset that has not a price in a transaction between a willing seller and a willing buyer, such as for example in real estate enterprises. The approach is also suitable for evaluating the establishment of a similar enterprise, but not necessarily for evaluating the potential income expected from the assets of the enterprise.

The asset value approach has a certain advantage for evaluating real estate enterprises and similar enterprises, where the market value of the assets themselves is the major part of the value of the enterprise. This is not true for other enterprises: enterprises in the services, commerce, financial or manufacturing industries or similar. The asset value method is suitable for estimating the lower limit of the value of unquoted shares.

The method has one outstanding disadvantage, which is that it ignores the potential for future profits, except the assets recorded in the balance sheets of the enterprise.

Comparison of similar transactions

The method of comparison of similar transactions uses the actual price of similar transactions within a reasonable period before the time of the evaluation. In order to compare with transactions made by similar enterprises one has to find similar enterprises with respect to activity, operational characteristics, tradability and financial data.

The stages in the evaluation using the method of comparison with similar transactions are:

- a. Locating transactions that relate to enterprises of operational characteristics similar to the ones of the enterprise that is evaluated.
- b. Finding a suitable basis for comparing the relative size of similar transactions and the enterprise that is evaluated.
- c. Computing an average multiplier of the similar enterprises and comparing the value of the enterprise that is evaluated, using this multiplier.

The advantages of this method are that it reflects all the parameters that affect the value in a fair way through the prices of willing buyers and willing sellers, and that there is no need for forecasts that may be debatable. Also, since it is based on transactions that took place close to the time of evaluation, it ensures that the value that is obtained by this method is as near to the market price at the evaluation period as possible,

The disadvantage of this method is the difficulty of finding similar enterprises from which it is possible to derive the value the enterprise that is estimated.

The multiplier method

The multiplier method is similar to the method of comparison of similar transactions, but it is based on prices of shares of public sector enterprises in the relevant industry. With the multiplier method the enterprise is evaluated on the basis of the average ratio between the market value and a chosen accounting parameter in the industry, where the enterprise is active. Among the accounting parameters often used are the net profit, the operating surplus, sales and own funds at book value. Sometimes operational parameters, such as number of subscriptions, sales areas etc. are used. The average ratio in the industry between market value and the relevant parameter is called the "multiplier".

The method is good for obtaining a first general estimate of the value of an enterprise, but not for an exact evaluation. *The advantage of the method is its simplicity and that it may be prepared quickly* compared to other methods.

Its main disadvantage is that it does not take into account a number of factors affecting the specific value of the enterprise, and making it different from other enterprises in the same area, such as: rate of growth, structure of capital, political events.

The discounted cash flow method

The discounted cash flow method is based on the evaluation of the ability of the enterprise to generate cash. The future cash flows are discounted using the price of capital reflecting the risk of the enterprise's activity, expressing the revenue that an investor would expect to receive from an enterprise with a similar risk.

The discounted cash flow method perhaps the most commonly accepted, and the method having the soundest theoretical basis. To use this method, one has to construct a financial model, which forecasts of sales, cost of sales, overhead, taxes and capital formation in order to derive the expected cash flow. The forecasts are usually constructed taking into account the following factors:

- 1) The growth in the past in the industry, where the enterprise is active and its chances to grow in the future.
- 2) The share of the enterprise in the industry, taking into account the chances of the enterprise of increasing its market share.
- 3) Future plans and projects of the enterprise
- 4) Future investment in fixed capital and intangible assets
- 5) Future tax benefits

The main advantage of this method derives from its being matched to the specific enterprise and its relating to unique factors affecting the enterprise. This characteristic should lead to a high degree of accuracy.

The disadvantage of the method is the difficulty of forecasting the relevant future income, expenditure and investments, and determining the appropriate price of capital.

The preferable approach of estimating the market value of shares is viewing the enterprise as a "going concern".

It is worthwhile mentioning that the previous attempts to estimate the market value of unquoted shares in the national balance sheets of Israel did not take into account the link with the profit obtained by the enterprises (and also not the expected profits of the shares), or the dividends of the share holders.

This link is described in the following formula:

$$P = (e*d)/(k-g)$$

Where:

P is the price of the share that a "buyer" is willing to pay

e is the expected net profit of a share in a year

d is the dividend from net profit per share that a "buyer" is expected to obtain

k is the rate of revenue required on the investment (average for the economy or industry) in a share

g is the rate of growth of expected dividend on a share in a year.

Let us assume that the expected net profit of a share for the coming year is \$5.0 and the enterprise is expected to distribute 35% of the net profit as dividends. The rate of revenue required on the investment in the industry is 14%, and the expected rate of growth of dividends is 5%. This means that the price of the share is:

$$P = (\$5*0.35) / (0.14- 0.05) = \$19.4$$

The estimation of the value of public sector enterprises in such ways may improve the accuracy of the evaluation of the market value of unquoted shares. It should be mentioned that in recent years the Finance Ministry has made a wide-ranging reform in the financial reports of government (10). It may be assumed that in a few years the estimation of the value of public sector enterprises will be performed by the ministry. In the meantime indirect ways of evaluating have to be found.

4. Proposal for improving the evaluation of the market value of shares of enterprises in the public sector

4.1 Description of the characteristics of enterprises in the public sector

According to the regulations on government owned enterprises in Israel (11) a "government enterprise" is an enterprise, where more than half of the voting power in the general meetings or the power to appoint more than half of its directors are in the hands of the government, or in the hands of the government together with a "government enterprise" or an affiliate of a "government enterprise".

For our purpose the ways of operating a "government enterprise" in Israel are of interest. A "government enterprise" operates according to the same business principles that also govern non-governmental enterprises, except if the government has determined, after getting permission of the financial committee of the Knesset (parliament), that other considerations of operating should be used; this provision should not apply to a "government enterprise", where the founding documents prohibit the distribution of profits. Consequently, any "government enterprise", which purpose it is to supply goods and services to the public not for profit, will operate according to business considerations until a decision is made, whether it is a business enterprise or not. The situation of "government enterprises" is described in table 1 below:

Table 1. Distribution of enterprises according to activity*

	2000	2001	2002	2003
Total active enterprises	105	103	102	99
Total for-profit	47	45	44	41
Thereof by activity:				
Electricity and water	5	5	5	5
Manufacturing and commerce	5	5	5	5
Transportation and communication	8	9	9	6
Energy and mineral exploration	4	4	4	4
Defense	8	7	8	8
Agriculture	4	4	3	3
Building, construction and development	6	5	4	4
Tourism	4	4	4	4
Other services	3	2	2	2

* All "government enterprises", affiliates and linked companies

In the period analyzed the government almost did not change the structure of corporations in their ownership (only in 2003 a process of privatization started).

For the purpose of estimating the market value of government owned enterprises one should divide the group of enterprises in two: enterprises with a share capital, and enterprises which did not issue shares. Only units having a share capital is the subject of this paper. For the paper a list of enterprises in each group was prepared by industry: for-profit producers and non-profit market producers. Among the for-profit producers the enterprises, which obtained a positive net profit were separated from the enterprises, which had a loss. The following table 2. summarizes the data on own funds at book value and net profit/loss by group.

Table 2. "Government enterprises", which are market producers and publish financial reports

NIS million

	2000	2001	2002	2003
Total for-profit	30	29	28	25
Thereof:				
Obtained positive net profit				
Number of enterprises	21	15	13	18
Own funds at book value	18,220.4	12,140.5	4,552.3	23,660.6
Net Profit	1,141.0	659.2	383.9	961.1
Had a net loss				
Number of enterprises	9	14	15	7
Own funds at book value	7,010.5	13,432.9	21,943.0	9,574.3
Net Loss	-591.5	-207.3	-1,791.2	-646.0
Total non-profit market producers	37	36	34	29
Own funds at book value	1,097.9	1,482.5	1,324.9	1,308.5

* Not including enterprises with negative own funds at book value

4.2 *The method of estimating the market value of unquoted shares of public sector enterprises*

The estimation of the market value of unquoted shares of public sector corporations used in Israel is based on a combination of the evaluation methods mentioned above.

The basic principles are as follows:

- Adjustment of equity of the enterprise with unquoted shares (which is held by government, and according to the annual financial report published) using the multiplier of *market value/own funds at book value* of a "similar enterprise" traded on the Tel Aviv stock exchange. If there is no possibility of choosing a similar enterprise, a suitable group of enterprises is chosen and a weighted average of their multipliers is computed. The identification of a "similar enterprise" is based on 3 criteria: area of activity, size of own funds at book value, profitability
- The matching of the multiplier *own funds at book value/annual net profit* of the unquoted public sector enterprise with the same multiplier of a similar enterprise traded on the Tel Aviv stock exchange. If there is no possibility to choose a similar enterprise, a group of suitable enterprises is chosen, using a weighted average of their multipliers. The impact of future profits on the

market value of shares appears at an aggregate level through multipliers on the stock market, where the market value reflects the economic potential for the share owners.

- The estimation of differences in liquidity of a traded share and non-traded share is based on the use of the above-mentioned multipliers, but in stead of non-traded enterprises, public sector enterprises, which have already been launched on the stock market, are chosen.
- In the estimation of the market value of unquoted shares of a public sector market enterprise one may include dividends that the enterprise paid out of net profit in the year the estimation is made. A similar action in a traded enterprise diminishes the market value of the shares.
- The computations, which reflect the market value of shares belonging to a public sector enterprise according to "percent of holding", as published in the financial report.

The general formula used for estimating the market value of unquoted shares of the public sector market enterprise is:

$$P = R * K * E * N$$

where:

P – the market value of the share capital of a non-traded public sector market enterprise;

R – the own funds at book value of the non-traded public sector market enterprise (the part that is held by government);

K – The multiplier *market value/own funds at book value* of a similar enterprise traded on the Tel Aviv stock exchange;

E – the change in the multiplier *own funds at book value/annual net profit* between the enterprises compared;

N – the multiplier representing differences in liquidity in the sales of shares being compared;

The computations involve the following actions:

- Each of the unquoted public sector corporations should be handled as a single enterprise.
- Currently, only enterprises included in the "Tel Aviv 100" have been used for comparison.
- For the computation of a weighted average multiplier, the data are chosen by industry (areas of activity) within the group "Tel Aviv 100", relevant for the area of activity of the unquoted public sector corporations. The comparison is made according to two lists of areas of activity – see table 3 next page.

Table 3. Classifications used at the stock exchange and in financial reports on government enterprises

According to the guide on traded companies of the Tel Aviv Stock Exchange	According to the financial report of government owned companies
Commercial banks	
Mortgage banks	
Insurance	
Commerce and services	
Commerce	
Services	Other Services
Financial services	
Tourist services	Tourism
Computer services	
Realty, construction, agriculture	
Realty and building	Construction , building and development
Agriculture	Agriculture
Manufacturing	Manufacturing and commerce
Food and tobacco	
Textile and clothing	
Metal	
Electric and electronics	
Construction materials	
Chemicals, rubber, plastic	
Wood, paper, printing	
Investment in manufacturing and other	
	Transport and communication
	Defense
Investment and holding	
Oil and Gas exploration	Energy and oil exploration
Electricity and water	

Clearly in some cases there are no similar enterprises and there is no possibility to use the weighted average multiplier of a suitable industry according to the stock exchange. In such cases the following method has been recommended:

For the estimation of the market value of public sector corporations, when there is no similar corporations traded on the stock exchange (for example the electricity company, enterprises in the defense industry) it is recommended to use the weighted average multiplier of the whole group "Tel Aviv 25" within the "Tel Aviv 100".

In cases, where there are enterprises with areas of similar activity, but not enterprises that are similar with respect to size of own funds at book value, profitability, goodwill etc., it is recommended to use weighted average multipliers by the industries (the classification used by the stock exchange).

A significant variable for the estimation of market value of unquoted shares of corporations is the comparison of the profitability of the enterprises. For the purpose of creating an exact comparison all

multipliers of the government companies, the enterprises in "Tel Aviv 100" have been divided into 3 groups:

Enterprises that have obtained a positive net profit, enterprises that have made a net loss, and enterprises with mixed results.

The comparison should be made between enterprises in the same group of profitability in the same year. However a certain degree of discretion has to be used in the comparison – one should not use irregular or insignificant data.

- An important pre-condition for the computation of the multiplier is the right choice of period (date) in the data from the stock exchange. One should use the data from the stock exchange of the last trading day of the relevant period (for example December 29, 2001).

The use of the multiplier representing the differences in liquidity between shares traded on the stock exchange and non-traded shares is an important innovation. At the current stage one may recommend the following method of computation:

Comparison between the multiplier *market value/own funds at book value* for shares that the government launched on the stock exchange and the similar multiplier for a weighted average of enterprises traded on the stock exchange in the same period, by relevant industry (areas of activity). As is well known, during the years 2001-2003 there were very few shares launched on the Tel Aviv stock exchange, so that it is preferable to use data on shares launched in the years 2000-2004, and to prepare a general average "index of changes in the liquidity in sales of shares multiplier". The method of computation may be represented as:

$$N = \frac{N_1}{N_2}$$

Where

N – multiplier representing the difference in liquidity in sales of shares

N_1 – weighted average multiplier of *market value/own funds at book value* for shares of "government enterprises" launched on the stock exchange;

N_2 – weighted average multiplier of *market value/own funds at book value* for shares of relevant enterprises on the stock exchange at the same period, by industry (areas of activity);

One may also add multipliers of profitability of shares to the formula.

There is an additional point in the theory that needs to be dealt with, and that is the situation, where the own funds at book value of a "government enterprise" is less than zero. Government may for example hold shares of a bankrupt enterprise. Such enterprises may exist, if they have government guarantees to pay their debts. According to national accounts recommendations for balance sheets the market value of such shares is zero.

Two special cases also have to be dealt with:

- a. Enterprises, which according to the government decision mainly act as providers of goods and services not for profit, but where the activity is market production. For these cases it is proposed to use the multiplier method as done for other market producers - except the comparison of profitability between enterprises.

- b. Enterprises having characters of quasi-corporations. For these cases the proposal is to use the book value of own funds multiplied with the multiplier representing liquidity only.

4.3 *Techniques and examples of estimating of the market value of un-quoted shares of "government enterprises"*

In this part a few points related to the technique of computations are mentioned and some examples of computations of market values of "government enterprises" are presented.

The average multiplier method is well known, but there was a need to combine two ratios: market value and own funds at book value, own funds at book value and net profit - it was proposed to compute the product of the two multipliers obtaining one weight.

There were some difficulties of obtaining stock exchange data to compute the multiplier used for weighting the liquidity in the estimate directly, as recommended above. Consequently, data were taken from a published review on the subject of launches of "government enterprises" on the Tel Aviv stock exchange. Using these data, a multiplier of 0.95 was chosen as representing liquidity differences for enterprises having a positive net profit, and for enterprises having a net loss, and for un-incorporated units a multiplier of 0.90 was chosen.

Below in table 6 are some special examples of the computations of market value of "government enterprises" shares and a description of the individual decisions.

Table 4. Examples of estimation of market value for non-traded "government enterprises" 2001

	Holding of share capital by government in percent	NIS Million			Average weighted multiplier <i>Market value/own capital</i>			Ratio between net profit multipliers
		Equity	Annual net profit (loss)	Market value using recommended method	Total enterprises	Enterprises with positive net profit	Enterprises with net loss	
Enterprise A	99.8	10,931	-52.0	15,807.0	2.53	2.7	1.61	(loss)
Enterprise B	100.0	7	0.6	25.0	3.62	4.03	1.04	0.97
Enterprise C	54.6	7,181	121.0	7,589.0		2.04		1.00
Enterprise D	100.0	28	2.6	55.0	2.07	2.07	1.9	4.70
Enterprise E	60.0	285	4.0	203.0	1.66	1.67	1.32	

Enterprise A ended the year 2001 with a loss, so that the computation of its market value was made using the weighted multiplier of relevant enterprises suffering a loss in 2001.

Part of enterprise C has been privatized – the other part remains in the hands of government. It appears in the report (1) as non-traded, so that it is included in the list. The market value of the non-traded shares was estimated using the multiplier obtained from the part that was traded on the stock exchange.

Enterprise D obtained a net profit in 2001, and the ratio between the net profit and own funds at book value was almost 5 times as high as for the traded enterprises in the relevant service industry. After analyzing the fluctuations in the profitability of the enterprise and those of the enterprises in the relevant industry on the stock exchange, it was decided not to take this into account.

Enterprise E deals mainly with construction and maintenance of a certain kind of public buildings. No suitable similar enterprise was found in the lists of the stock exchange, and a wider group of enterprises was used. In 2001 the enterprise had a very small net profit, and it was decided to use the weighted average multiplier of the group of relevant enterprises suffering a loss.

In table 5 below is the summary of the results:

Table 5. Results for all "government enterprises"

NIS Million

	2001			2002		2003	
	Own funds at book value	Market Value using proposed method	Previous estimate of market value	Own funds at book value	Market Value using proposed method	Own funds at book value	Market Value using proposed method
Corporations	25,884	34,264	29,435	26,658	31,566	33,291	47,614
Quasi-corporations and non profit market producers	1,531	1,400	1,232	1,403	854	1,413	1,168
Total "government enterprises"	27,414	35,664	30,876	28,062	32,420	34,705	48,782

Details on all results of the computations are given in the appendix to the working paper published in Hebrew.

Summary of results and conclusions

The estimates of the market value of shares of the group of public sector enterprises may be improved using existing financial theory and taking into account information on the enterprises.

The proposed method for estimating the market value of unquoted shares of public sector enterprises has been developed making an analysis of international and domestic experiences, and combining the accepted methods in the theory on financial management for evaluation of enterprises.

The method compares between non-traded enterprises and similar enterprises traded on the stock exchange on a current basis. The choice of "similar enterprises" is made according to activity, size of own funds at book value, and profitability.

An integral part of the proposal is the construction of a data base with data from the stock exchange, including computations of special multipliers for different groups of enterprises (by level of profitability).

The method was implemented on the group of non-traded enterprises that had a share capital in 2001-2003. Each year 54 to 65 enterprises, having a market value of 32 to 49 billion NIS, were evaluated.

It seems possible to implement similar methods for other sectors as well.

References:

1. "Report on Government Enterprises for the year 2000", report no. 40, The Finance Ministry, Jerusalem June 2001
2. "Report on Government Enterprises for the year 2001", report no. 41, The Finance Ministry, Jerusalem January 2003
3. "Report on Government Enterprises for the year 2002", report no. 42, The Finance Ministry, Jerusalem June 2004
4. "Report on Government Enterprises for the year 2003", report no. 40, The Finance Ministry, Jerusalem December 2004
5. "Information on Assets and Liabilities of the Government of Israel on December 31, 2003" , The Finance Ministry, Jerusalem September 2004
6. "The Law on Government Enterprises" Government Enterprises Authority, Jerusalem 2004
7. System of System of National Accounts 1993, Eurostat, IMF, OECD, UN, World Bank, 1993
8. European system of Accounts, Eurostat 1995
9. National Balance Sheet Accounts 1995, Central Bureau of Statistics Publication No. 1168, Jerusalem 2002
10. National Balance Sheet Accounts 2001, Central Bureau of Statistics, Internet only, Jerusalem 2005
11. "Haaretz" daily newspaper, Tel Aviv Stock Exchange data 31.12.2001, 30.04.2002
12. "Haaretz" daily newspaper, Tel Aviv Stock Exchange data 31.12.2002, 30.04.2003
13. "Haaretz" daily newspaper, Tel Aviv Stock Exchange data 31.12.2003, 30.04.2004
14. Documents of Working Group on Unquoted Shares, Eurostat Luxembourg, 2-3 December 2002
15. Documents of Working Group on Unquoted Shares, Eurostat Luxembourg, 21 March 2003
16. Draft minutes of the workshop on shares, OECD, Paris, 13 October 2004
17. Yair Lapidot (Lippel) "Estimation of the value of enterprises", 2001 (Hebrew)
18. Moshe Ben Hurin "The capital market and securities" 1996 (Hebrew)
19. Guide to traded shares, Tel Aviv Stock Exchange, December 2001