

Is it Worthwhile to Augment the Legal Protection of Public Debt Placed by Privately Held Companies?

by

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Abstract

We examine the effects of a law amendment in Israel in 2011 that imposes a set of minimum corporate governance standards on privately held firms that issue publicly traded bonds. Two main results emerge. First, consistent with US evidence, the improved bondholder protection boosts the immediate market valuation of private firms' bonds. Second, the amendment suppresses the private bonds' IPO market. The number of privately held firms issuing public debt for the first time decreases sharply after the amendment enactment. This unintended result of the amendment illustrates the pitfall of legal intervention.

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1. Introduction

A considerable proportion of publicly traded corporate bonds comprises bonds of privately held firms (private firms henceforth, i.e., firms whose equity is non-listed and does not even trade over the counter). Kovner and Wei (2014), in a comprehensive study of US corporate bonds issued by industrial firms during 1993-2009, report that about 20% of their sample bonds are issued by private firms. These private firms' bonds (private bonds henceforth) serve as a non-bank debt-financing instrument for private companies, and are particularly popular in financing leveraged buyouts and large acquisitions (see, for example, Dell's 20 billion \$ notes and bonds issue in 2016).

A general problem of private bonds is that in private firms corporate governance standards are typically weaker than in companies whose common stocks are publicly traded (public firms). Private firms have more concentrated ownership and a less transparent information environment (given their stocks do not trade, the information about them is more opaque). Such an environment and setting facilitate wealth transfers from bondholders to firm owners (equity holders), and raise the issue of bondholders' protection.

Standard bond covenants can be tightened to protect investors in private bonds more adequately. However, this does not resolve the corporate governance and information problems. Consequently, in reality, private bonds' yields are significantly higher than public firms' bond yields. Kovner and Wei (2014) estimate the average yield premium of private debt in the US at about 30-56 basis points, and Saunders and Steffen (2011) document that UK syndicated-bank loans to private firms charge higher interest than comparable loans to public firms.

Private firms may seek to improve their corporate governance and information transparency in order to decrease their cost of debt. Indeed, there is evidence that improved corporate governance lowers the cost of debt financing (see Ashbaugh-Skaife et al., 2006, for example). The question is whether some regulation is necessary and socially optimal in this context.

The answer to the regulation question is as usual complex. On one hand, a regulation lowering the cost of debt might spur real investment and economic activity and should be welcome. On the other hand, if private firms do not further improve corporate governance on their own, it is probably suboptimal for them. Proponents of regulation would then argue that private firms are reluctant to improve corporate governance because of personal and perhaps egocentric reasons of firm controlling shareholders, causing a market failure. In response, opponents would state that regulation would achieve the opposite result, i.e., suppress business activity, as some studies (e.g. Acharya, Amihud and Litov, 2011) find that excess creditor rights decrease debt financing.

We examine an amendment to Israeli corporate law, Amendment 17, enacted in 2011 following the Great Recession of 2007-2009 during which many corporate bonds defaulted or needed some restructuring imposing "haircuts" and heavy losses on their investors. The amendment establishes a set of minimum corporate governance standards that private firms that issue publicly traded debt should abide to. According to Amendment 17, a private firm issuing public debt must appoint two outside

independent directors on the board, must establish an audit committee that will, along with its regular duties,¹ consider and approve (or disapprove) related-party transactions.

Most of the members of the audit committee must be independent directors, and an independent director must chair it. Essentially, the corporate governance requirements from private firms issuing public bonds were elevated to the level of the corporate governance requirements from public firms.

The purpose of the study is twofold. First, to study the valuation effects of the amendment. If a more public-investor-friendly corporate governance is important for protecting bondholders, existing private bonds should appreciate in value upon the first announcement (=proposal) of Amendment 17 (and perhaps along its approval process). Previous studies such as Anderson Mansi and Reeb (2004) support the hypothesis that improved corporate governance decreases bond yields and increases their valuations.² We seek to examine further this hypothesis in a different economy and by a sharper regulatory event-type test.

Our second purpose is to examine whether the regulation spurred or suppressed the private bonds issuing activity. We examine the number and volume of private bonds issues, prior to and following the regulatory change, paying special attention to private firms issuing bonds for the first time. We also examine exit from the private bonds market (private bonds that were redeemed early), before and after Amendment 17 enactment.

¹ Regular duties include discussing firm's financial reports with the external auditors and preparing them for board approval; appointing an internal auditor and supervising her work, and more.

² Note, however, the findings of Klock Mansi and Maxwell (2005) that strong antitakeover defense, typically associated with worse governance, is beneficial to bondholders (lowers debt yields). Our sample comprises an economy with concentrated ownership firms where antitakeover amendments are rare. Thus, the evidence and conclusions of Anderson et al. (2004) appear more relevant in our setting.

We find that existing private bonds appreciated considerably on two stages of the amendment proposal, manifesting a cumulative abnormal return of more than 5% on average. Evidently, improving private firms' corporate governance, essentially making it more stakeholder-friendly, reduces private firms' cost of debt. This event-type finding is consistent with and reinforces previous cross-sectional tests' evidence from US markets.

However, the overall economic impact of the legislation's appears much less positive, if not negative, as we find that new private bonds' IPO activity has decreased sharply in the years following Amendment 17 proposal. Consistent with Acharya et al. (2011), fortifying the legal defense of private bonds appears to stifle private bonds' financing.

Section 2 depicts Amendment 17, reviews existing literature, and develops our hypotheses. Section 3 describes the sample and data. Sections 4 and 5 report our results, and Section 6 concludes.

2. Background and Hypotheses

2.1. Amendment 17 to the Israeli Corporate Law

The purpose of Amendment 17, as stated in the explanation of the Law,³ is to grant adequate protection to public bondholders against possible expropriation by the controlling shareholders of private firms. Essentially, Amendment 17 imposes on private companies that issue public debt the corporate governance standards of publicly traded firms in Israel with some small necessary adjustments. Amendment 17 was

³ Explanation of the Companies Law Bill (Amendment No. 15, Corporate Governance in Bond Companies), 2011 (later Amendment 17).

originally proposed by the Israeli Securities Authority (Israeli SEC) on April 5, 2009, was ratified by the Israeli Knesset (Israeli Parliament) on August 3, 2011, and came into effect on February 3, 2012.

According to Amendment 17, controlling shareholders are obliged to disclose personal interests to the board of directors before any related-party transaction. The controlling shareholder has a duty of fairness, and the transaction needs to be approved financially and materially by the audit committee and the Board of Directors. The audit committee and Board must examine whether executing the related-party transaction will impair company's ability to settle its debt. Should they decide that it raises reasonable doubts about company's solvency, the board of directors is prohibited from approving the transaction.⁴ Even after the Board approves a related-party transaction, bondholders have the right to "appeal" by filing a derivate lawsuit to the court.

Amendment 17 also imposes the following structural changes upon the private firms' structure and organs: 1) firm directors must have some minimal qualifications; 2) the firm must appoint at least two outside independent directors; 3) an audit committee must be established, and most of its members and its Chairman must be outside directors; 4) every firm should employ an internal comptroller reporting to the Audit committee; and 5) firm's CEO or her relative cannot serve also as Board of Directors' Chairman.

We are unaware of any legislation similar to Amendment 17 in other countries. Hence, we have a unique opportunity to examine the effects and efficacy of such legislation.

⁴ This specific provision is unprecedented and unique to private bonds. It does not apply to public firm bonds.

2.2. Corporate Governance Improvement and Corporate Bond Yields

It is well established that weak (strong) corporate governance increases (decreases) corporate bond yields. Bhojraj and Sengupta (2003) find lower bond yields for firms with higher institutional holdings and a larger proportion of outside directors. Anderson et al. (2004) suggest that an effective independent board and an excellent audit committee reduce firm's cost of debt. Ashbaugh-Skaife et al. (2006) show that low scores on several corporate governance indicators that are particularly important to bondholders decrease bond's credit rating. Lin et al. (2011) present evidence that in firms with a higher wedge between controlling shareholders' equity and vote percentage, a signal of worse corporate governance, bond yields are higher. Last, Boubakri and Ghouma (2010) report that family firms, an ownership structure that is generally associated with weaker corporate governance, incur a higher cost of debt.

Some evidence in the opposite direction is also available. However, it only appears as a caution to the general finding that poor corporate governance decrease bond values and increases bond yields. Cremers et al. (2007) document that takeover deterrents, commonly perceived as weakening corporate governance, increase existing bond value. This is probably because takeovers typically require raising debt, and the new debt tends to destabilize the current debt ranking. Another reservation is offered in Ellul et al. (2007). They show that in good corporate governance economies, family firms have a lower cost of debt than non-family firms, a result that contradicts Boubakri and Ghouma (2010). According to Ellul et al. (2007), this can be explained by the fact that families care for the reputation and survival of their firms, which contributes to their firms' bond values.

Amendment 17 definitely made private bond firms' corporate governance more public-friendly. Thus, we suggest

Hypothesis 1: the market values of existing private bonds increases upon the amendment proposal and possibly also along its legislation process.

Further, a cross-sectional sub-hypothesis is in order. When the bond's yield spread is relatively high, agency-type behavior by private firm owners is probably more dangerous because it may topple the relatively weak firm. Thus, bondholders of higher yield bonds would fill greater relief upon the adoption of Amendment 17. This suggests

Hypothesis 1a: Private bond's price response to the amendment is more positive the higher is the private bond's yield spread.

2.3. The Effect of Creditor Protection on Bond Issuance

Amendment 17 can also be perceived as increasing creditors' rights for a specific type of debt (public debt of private firms). Djankov et al. (2007) define creditor rights as a combination of: 1) lenders' ability to force repayment (for example, grab collateral, seize control of the firm, etc..), and 2) credit-worthiness transparency (the existence of personal credit registrars and information-sharing institutions). In a study of creditor rights in 129 countries during a 25 years period (1978-2003), they (Djankov et al., 2007) find that increased creditors' rights is associated with increased private debt to GDP ratio.

Haselmann et al. (2010) reinforce Djankov et al. (2007) evidence. Using legal reforms in twelve eastern European economies, they show that strengthening creditors' rights and especially toughening the collateral rights promotes banks' lending to the private sector.

However, Acharya et al. (2011), in an international cross-country analysis, find that increased creditor rights upon bankruptcy has negative economic repercussions for corporations. It encourages companies to engage in risk-reducing investments such as diversifying acquisitions that are value reducing, and it suppresses firm's leverage. The seemingly contradictory results of Djankov et al. (2007) and Acharya et al. (2011) may emanate from the different responses of debtors (borrowers) and creditors (lenders). Increased creditor rights has dual effects. On one hand, it encourages lending activity (credit supply side), yet on the other it discourages borrowing (credit demand side). If the effect on lending is larger, we will observe increased debt ratios, and if borrowing is most affected by increased creditors' rights, we will observe a decrease in debt ratios.

In our case, the regulation (Amendment 17) treats only private firm bonds. To circumvent the "difficulties" that it creates, private firms might increase bank debt financing or other forms of private credit. Given the alternatives of bank and private debt, the demand side effects of Amendment 17 appears more relevant for our case. We expect that since Amendment 17 strengthens bondholders' rights, private firms would be more reluctant to issue corporate bonds, and propose

Hypothesis 2: Amendment 17 depresses the private bonds' market.

More explicitly, we suggest

Hypothesis 2a: New private bonds' issues decrease in number and volume after the Amendment proposal,

And,

Hypothesis 2b: Dropping out of the private bonds market via early redemption intensified following the Amendment proposal.

Amendment 17 should be particularly deterrent for private firms that did not issue bonds to the public prior to the amendment. This implies:

Hypothesis 2c: New debt IPOs decrease in number and volume after the amendment proposal.

2.4. Potential Contributions

Before proceeding to the empirical analysis, it is important to highlight the several contributions of the study. First, we provide new evidence on the relation between creditor rights and debt financing. If creditors' rights are enhanced in a particular segment of the debt market, will it diminish or encourage the borrowing activity in that channel? Previous work such as Djankov et al. (2007) and Acharya et al. (2011) look at creditors' rights and relate them to the cross-country variation in private and corporate debt ratios. We examine a different type of creditor rights (corporate governance related rights), and examine how a change in these rights affects bond issuance activity. It can be argued that we extend previous studies, as we examine a change in creditor rights in a specific segment of the debt market and its effect on this segment share in corporate debt.

Second, previous literature offers cross-sectional tests of the hypothesis that improving corporate governance reduces firm's cost of debt (see our Hypothesis 1). By studying the legislation of Amendment 17, we provide an independent event-type time-series test of the same hypothesis. It is also noteworthy that we employ relatively accurate bond price data. This is because in Israel corporate bonds are not traded by dealers or Over The Counter. Rather, bonds are traded on the Tel Aviv Stock Exchange (TASE) using a continuous electronic limit order book system and the same platform

as stocks. Abudy and Wohl (2016) find similar liquidity and transaction costs attributes for corporate bonds and stocks traded on the limit order book of TASE.⁵

Third and last, we offer an observation on a potential legislation. The recorded effects of Amendment 17 may be instructive for lawmakers and regulators contemplating whether to protect private bond investors. In this context, it is noteworthy that the accounting reporting and transparency requirements of private bond firms in Israel are similar to those in the U.S. Hence, we offer a relatively controlled test of the efficacy of a possible legislation.

3. Sample and Data

Unless otherwise stated, data are collected from the Tel-Aviv Stock Exchange (TASE, hereafter) web site. First, we compile a list of all private bonds traded on TASE during 2005-2015. Our window starts four calendar years before the amendment initial proposal, and ends four calendar years after its legislation. (The Amendment was proposed on April 2009, and was finally legislated on August 2011.) After excluding banks and other financial institutions, and government-controlled firms, we are left with 71 private bond firms. Appendix A lists these firms and reports: 1) their first calendar year as a private bond company; 2) the way they became a private bond company (IPO or stock delisting); 3) the number of bond offerings by the firm during the sample period; 4) the total notional value of the bond issues; and 5) the reason it ceased to be a bond company (if the firm is no longer a bond company on 2015 end).

For tests of Hypothesis 1, referring to private bonds' price response to the amendment proposal, we restrict ourselves to the subsample of 46 private bond firms

⁵ Biasis and Green (2007) and Harris, Kyle and Sirri (2015) criticize the U.S. OTC bond market, arguing that it makes bonds expensive to trade. They recommend shifting bond trading to an electronic limit order book system, which is essentially the trading mechanism used for bonds by TASE.

whose bonds traded on the market on the eve of the Amendment proposal (2008 end). We further omit two firms that did not meet our minimum tradability requirements,⁶ and eight firms that had confounding events, i.e. major other news, in the "event window" - the period from ten trading days before the announcement to ten trading days after it. We select such a wide event window because of two reasons. First, we want to be able to observe when the response started and when it ended. Second, the amendment proposal by ISA states that in the past few weeks the ISA had internal discussions on the amendment. Hence, leaks about the impending amendment might have started a few weeks before the amendment.⁷ After all exclusions, our final Hypothesis 1 test subsample comprises 36 firms. At this point, it is noteworthy that there was a second step in the proposal of Amendment 17. On January 26, 2010, the Ministry of Justice announced that together with the ISA it has formulated a first draft or memorandum of Amendment 17. We will monitor the response to this announcement as well.

For each firm in the Hypothesis 1 subsample we compute the daily return of its portfolio of private bonds, value weighting each issue return. This procedure is recommended by Bessembinder et al (2009), on page 4230, as having superior statistical properties and as better reflecting the overall effect of any event on firm's public debt. In addition, we collect daily data on the return of the General Corporate Bonds Index, a value-weighted index of all corporate bonds traded on TASE. This index, compiled by TASE, serves as the market index in our empirical analysis.

⁶ We require that the bond traded in at least 120 of the 200 trading days preceding the event.

⁷ In practice, we have monitored the period before the amendment proposal and noticed that the response started about ten trading days before the announcement.

For the second part of our study, tests of Hypothesis 2, we rely on two statistical tables published yearly by TASE in the period 2005-2015: "Changes in the number of exchange-listed firms", and "Non-government bond issues this year". These tables detail each new bond issue and each bond delisting, and afford distinguishing between public and private bonds. These tables also disclose the size of each issue, whether it is an IPO (first-time issue), and, in the case of delisting, what the reason for the bond delisting is. Finally, one of these yearly tables also lists bonds of firms that became private during the year due to a "freeze out" of firm's stocks. The publicly trades bonds of such firms, if they continues to trade, are added to our private bonds sample.

4. The Effect of Amendment 17 on Private Bond Prices

4.1. Sample Descriptive Statistics

Table 1 presents some descriptive statistics for the private firms and private bonds that serve us to test Hypothesis 1, the hypothesis on the price effect of Amendment 17. (We could not find financial reports for two firms hence Table 1 provides descriptive statistics for 34 firms only.) The statistics describe the private bond firms and their traded bonds on the eve of the first amendment proposal by the ISA.

(Insert Table 1 about here)

On the eve of the amendment proposal the average total assets of a private bond firm is 1218 million New Israeli Shekel (NIS hereafter) which is about 320 million US Dollars, yet the median is only 420 million NIS (about 110 million US Dollars). The sample firms are, in general, profitable and financially healthy. The mean (median) ROA is 8.70% (5.95% respectively), and the mean (median) financial leverage, defined as firm's short- and long-term debt divided by total assets, is 59% (57%). Finally, 65%

of the sample firms are family-controlled, and on average there are 1.2 private bond issues per firm (median is 1).

Table 1 also provides some statistics on the private bonds of these firms. The mean YTM (Yield To Maturity) of these bonds on the eve of the amendment proposal is 32% and their mean yield spread is 31% (medians are 25% and 24%, respectively). These mean YTM's and yield spreads appear relatively high. However, given that they are measured in the midst of the Great Global Recession, they are not exceptional. We sample 308 ordinary public firms bonds, essentially all comparable public corporate bonds, and find a contemporaneous mean (median) YTM of 34% (18%).⁸

The mean duration of the private bonds is 2.5 years (median is 2.2 years). This duration compares well with the mean (median) duration of 3.0 years (2.5 years respectively) of the 308 public bonds we sampled. Table 1 further reports that the mean market value of our private bonds at 2008's end is 89 million NIS, and their mean monthly volume of trade in 2008 is 5.9 million NIS.

4.2. The Response to the Amendment

Hypothesis 1 predicts that Amendment 17, imposing minimum corporate governance standards on private firms issuing public bonds, adds protection to public bondholders of private bonds, and thus decreases their required yields and increases their market prices.

⁸ The 308 public bonds we sample comprise all non-bank inflation-protected public corporate bonds that traded contemporaneously on TASE. We restrict ourselves to inflation-protected public corporate bonds because all our private bonds are inflation protected as well (with face value and coupons fully indexed to the Israeli CPI).

To evaluate the price response we find the announcement day (day A), and for each day of the window A-10 through A+10 we compute the abnormal return of bond i , as:

$$(1) \quad AR_{iT} = R_{i,T} - R_{M,T},$$

where AR_{iT} is the abnormal return of bond i on day T of the event window, $R_{i,T}$ is the bond return on day T of the event window, and $R_{M,T}$ is Israeli corporate bond market return on day T of the event window. In addition, we compute the Cumulative Abnormal Return (CAR) of each bond as:

$$(2) \quad CAR_i(T_b, T_e) = \sum_{T=T_b}^{T=T_e} AR_{iT} ,$$

where $CAR_i(T_b, T_e)$ is the cumulative abnormal return of bond i from day T_b through day T_e of the event window, and AR_{iT} is as above. Our abnormal return methodology is essentially a net of market methodology.

Tables 2 and 3 describe the private bonds' price reaction to the two-stage proposal of Amendment 17. Table 2 documents the reaction to the original amendment proposal by the ISA on April 5 2009, while Table 3 reports the reaction to the formal proposal of the amendment, jointly by the Ministry of Justice (MOJ) and Israeli Securities Authority (ISA) on January 26, 2010.

In Table 2 the reaction event window extends from day A-10 to day A+10 to allow us to observe information leaks before and delayed response after the ISA proposal. For each day T of the event window, we present the mean abnormal return on that day (column AR) of the 36 sample bonds and the mean cumulative abnormal return (column CAR), from day A-10 to day T .

(Insert Table 2 about here)

In Table 2 we see that the mean ARs from ten days before to two days after the ISA amendment proposal are predominantly positive, indicating a positive response to the amendment. After day A+2 the mean ARs are about random and the mean CAR appears flat (i.e., fluctuates within a narrow range).

At the bottom of the table we provide some summary and test statistics. The mean $CAR(-10,10)$, and $CAR(-10,2)$ are about 4.8% and significantly different from zero – see the p-value column. In these windows the proportion of bonds with positive CARs exceeds 63% and is significantly higher than 50%. Both these parametric and non-parametric tests reject the null hypothesis that private bond prices did not react to Amendment 17 proposal by the ISA on April 5, 2009. Private bonds prices appreciated on average by almost 5% in response to ISA's Amendment 17 proposal. This finding supports Hypothesis 1 of the study.

ISA's proposal, essentially a table outlining the principles of the amendment, was transferred to the Ministry of Justice, and it (MOJ) formulated it into a specific legal amendment to the Corporate Law. On January 26, 2010, it was announced that ISA and MOJ propose Amendment 17 to the Corporate Law. Table 3 examines the response to this formal MOJ proposal.

(Insert Table 3 about here)

In Table 3 we observe predominantly positive mean ARs from day A-10 up to day A+2. The cumulative response, $CAR(-10,2)$ is 2.88% and statistically significant – see the bottom of the table. Evidently, private bonds appreciated by almost 3% around the formal MOJ proposal of Amendment 17.

If we add the ISA and the MOJ proposals' estimated responses (CARs), 4.83% and 2.88% respectively, we can conclude that private bonds prices appreciated considerably, by about 7.7% following the amendment. This appreciation may appear at first glance a bit high because given the mean duration of the sample bonds (2.5 years) it implies about a 3% drop in bond yields. However, given that at the beginning of the sample period the mean yield spreads of our private bonds were exceptionally high (about 30%), the response appears less vexing. This is because the 3% decline in yield accounts only for one-tenth of the initial yield spread.

We conduct various robustness tests. First, since in both Table 2 and 3, the mean abnormal returns are predominantly positive from the beginning of the event window (day A-10), it can be argued that the response started before day A-10. To address this criticism, we calculate $CAR(-20,11)$ and $CAR(-30,11)$ using our net of market methodology. For the ISA proposal announcement (Table 2), we estimate a mean $CAR(-20,-11)$ of 0.13%, and a mean $CAR(-30,-11)$ of -0.05%, indicating no response prior to day A-10. For the MOJ proposal announcement (Table 3), we assess a mean $CAR(-20,-11)$ of 1.31% and a mean $CAR(-30,-11)$ of -0.55%, both statistically insignificant.

Second, we examine two more key steps in Amendment 17's legislation process: its first (in principle) approval by the Knesset, and its final-version ratification by the Knesset. The mean aggregate $CAR(-10,2)$ on these events is 0.37%, economically and statistically insignificant. This suggests that the main reaction to the amendment occurred at its two proposal events (by ISA and by MOJ). The public must have believed that, as usual, the ISA and MOJ would be successful in convincing legislators about the need and usefulness of the amendment.

4.3. Refined Estimates of the Response

The previous-section estimates of the response to the amendment proposal may suffer from some methodological and statistical weaknesses. First, since we focus on just two event dates (the dates of the amendment proposal), individual bonds' abnormal returns may not be independent. This would bias our Z-scores and statistical significance inference. Second, the net of market methodology employed in tables 2 and 3 assumes that our 36 bonds have on average the same risk as the Corporate Bonds Market Index, an assumption that may be flawed.

To evade this legitimate criticism we construct an equally weighted portfolio of our 36 bonds, and consider the period from 10 days before the original ISA amendment proposal to 10 days after the MOJ formal amendment proposal. In this period, extending over 214 trading days, we run the following regression:

$$(3) \quad R_{P,t} = a_p + b_{1p} R_{M,t} + b_{2p} R_{M,t-1} + b_{3p} \text{DUM_ISA}_t + b_{4p} \text{DUM_MOJ}_t + e_{p,t} ,$$

where $R_{P,t}$ is the 36 bonds' portfolio return on day t , $R_{M,t}$ ($R_{M,t-1}$) is the Corporate Bonds Market Index return on day t (day $t-1$, respectively), DUM_ISA_t is a dummy variable that equals 1 on days A-10 through A+2 (and equals 0 otherwise) relative to the ISA proposal, DUM_MOJ_t is a dummy variable that equals 1 on days A-10 through A+2 (and equals 0 otherwise) relative to the MOJ proposal, $e_{p,t}$ is an idiosyncratic residual term, and a_p , b_{1p} , b_{2p} , b_{3p} and b_{4p} are parameters. This methodology forms a portfolio in order to solve the problem of dependent individual bonds' abnormal returns, and adjusts the risk of our portfolio relative to General Corporate Bonds Index by allowing a

relative risk measure ("beta") different from one.⁹ Most importantly, in regression (3) the coefficients of DUM_ISA (and DUM_MOJ) estimate the daily abnormal return of the portfolio in the period from day A-10 to day A+2 relative to the ISA (MOJ) amendment proposal.

The fitted portfolio return regression is

$$(4) \quad R_{P,t} = 0.0009 + 0.80 R_{M,t} + 0.05 R_{M,t-1} + 0.0033 \text{ DUM_ISA} + 0.0016 \text{ DUM_MOJ}$$

(2.5) (5.1) (0.5) (4.4) (1.9)

where robust t-statistics (adjusted for heteroscedasticity) are presented in parentheses below the coefficients. Two findings are noteworthy. First, the aggregate "beta" of our 36 bonds portfolio, which can be approximated by the sum of the coefficients of $R_{M,t}$ and $R_{M,t-1}$, is 0.85, less than 1. This finding is not surprising because as we reported previously the mean duration (2.5 years) of our private bonds is lower than the mean duration of a large sample of comparable public bonds (3.0 years). Anyway, this result illustrates the importance of the risk adjustment procedure suggested in equation (3).

Second, the coefficient of DUM_ISA, 0.0033, implies that the average cumulative response of private bonds to Amendment 17's original proposal by the ISA is 4.29%, 0.0033 times 13. (We multiply by 13 because DUM_ISA extends over 13 days.) Similarly, our revised estimate of the response to the amendment proposal by the MOJ is 2.08% (0.0016 times 13). The sum of the ISA and MOJ responses, 6.37%, is economically and statistically significant. It is also probably our more precise estimate of private bond prices' mean response to the amendment, better than our previous-section estimate of 7.71%.

⁹ We add the market lagged return as an explanatory variable to the regression, in order to capture more accurately the market dependence (true "beta") of less actively traded securities. This methodology appears appropriate because a few of our sample bonds are not actively traded on each day.

Another possible methodology-based criticism might argue that the returns of private firm bonds should be compared to the returns of matched public firm bonds. Amendment 17 treats only private bonds, hence similar public bonds might be an ideal control.

For each of the 36 private bonds in our proposal abnormal returns analysis (Tables 2 and 3) we seek a matching public bond. The matched public bonds is required to fill 3 criteria: 1) same industry classification as the private bond (based on Tel Aviv Stock Exchange industry classifications); 2) the total assets of the public firm on 2008 year end is between 50% and 150% of that of the private bond; and 3) public firm's leverage (debt divided by total assets) is between 75% and 125% of that of the private bond. Using this procedure we find proper matches for only 26 private bonds.

Next, we construct a portfolio of 26 private-firm bonds, and a portfolio of 26 matching public-firm bonds. Portfolio returns are equally-weighted, and in general we follow the portfolio-based methodology described earlier in this section.

The fitted regression for the 26 private bond portfolio is:

$$(5) \quad R_{P,t} = 0.0008 + 0.81 R_{M,t} + 0.03 R_{M,t-1} + 0.0037 DUM_ISA + 0.0019 DUM_MOJ$$

(2.0) (4.9) (0.1) (5.5) (1.8)

These regression coefficients resemble closely the coefficients in equation (4), where we used all our 36 private bonds. For example, in equation (4) the aggregate beta is 0.85 and in (5) above it is 0.84. Thus, the 26 private bonds of our matched sample analysis appear to represent well our full private bonds sample. Interestingly, based on DUM_ISA and DUM_MOJ coefficients in equation (5), the abnormal returns associated with the amendment are 7.28%.

The fitted regression for the 26 public bond portfolio is:

$$(6) \quad R_{P,t} = 0.0015 + 0.75 R_{M,t} + 0.02 R_{M,t-1} + 0.0021 \text{DUM_ISA} - 0.0005 \text{DUM_MOJ}$$

(3.6) (5.0) (0.2) (1.5) (-0.6)

The regression coefficients of DUM_ISA and DUM_MOJ are statistically insignificant. Thus, it is arguable that these public bonds do not react to the amendment. This result is plausible since Amendment 17 is not imposed on public bonds.

Nevertheless, if we sum the coefficients of DUM_ISA and DUM_MOJ in equation (6), it can be argued that public bonds achieved an abnormal return of 2.08% (13 times 0.0016) in the period surrounding Amendment 17 announcements dates. Thus, a conservative measure of Amendment 17's impact is 5.2%, computed as 7.28% (the estimated private bonds abnormal return) minus 2.08% (the matched public bonds abnormal return). This 5.2% abnormal return figure established in our opinion a lower bound on the effect of Amendment 17 on private bonds prices.

4.4. Cross-sectional Evidence

Hypothesis 1a proposes that the bond's price increase would depend on the bond's yield spread. Bonds with higher yield spreads belong to firms that are more risky and closer to insolvency. For such private firms agency behavior of the firm owners can rapidly deteriorate the firm into financial distress and bankruptcy. Thus, the restraints imposed by Amendment 17 should increase the market value of bonds with higher yield spreads the most.

For each firm in our 36 firms sample we run an analogous regression to equation (3), where the dependent variable is the firm's private bond return. This regression assesses bond *i*'s cumulative abnormal return (CAR_{*i*}) around the ISA amendment proposal and around the MOJ proposal. Then, we sum the cumulative abnormal return

around the ISA proposal and the cumulative abnormal return around the MOJ proposal, and run a cross-sectional regression of this sum on the bond's yield spread on the eve of the amendment proposal.

The fitted regression model is:

$$(7) \quad \text{CAR}_{(\text{ISA}+\text{MOJ})i} = 0.016 + 0.159 \text{ YIELD_SPREAD}_i + e_i ,$$

(0.5) (2.3)

where $\text{CAR}_{(\text{ISA}+\text{MOJ})i}$ is the sum of the two amendment proposal CARs, CAR of bond i in days -10 to 2 relative to the amendment proposal by ISA and the respective CAR around the amendment proposal by MOJ, YIELD_SPREAD_i is the yield spread of bond i on March 19, 2009, 11 trading days before the first amendment proposal, and t -statistics adjusted for heteroscedasticity are shown below the coefficients.

In the above regression, the coefficient of yield spread is positive and statistically significant. Evidently, the higher is the pre-amendment-proposal yield spread of the bond, the stronger is its positive response to the amendment. Bonds with higher yields probably are more sensitive to possible agency behavior of firm's owners. Thus, the protection against agency behavior offered by Amendment 17 is bigger for bondholders of higher yield-spread bonds, and these higher yield bonds appreciate the most.

In sum, the various tests of Hypothesis 1 summarized in this section appear to support it. Legislation that improves corporate governance increases the market value of bonds, probably via restricting possible improper agency behavior by private firms' owners. The evidence portrays Amendment 17 as benefactor to the public. However, other, perhaps unintended, effects of legislation need also be examined.

5. The Effect of Amendment 17 on Private Bonds' Issuance and Delisting

The second major hypothesis that we test in this study is that Amendment 17 depresses the private bonds' market. Imposing strict corporate governance requirements on private firms that issue public debt dissuades private firms contemplating to issue bonds and discourages private firms that have already issued public debt. According to Hypothesis 2, the stiffening of regulation encourages substitution out of the private bonds market. Specifically, following the amendment, less private bonds are issued, less private firms join the market (= less debt IPOs by private firms), and more private firms leave the market before bond maturity.

Table 4 examines bonds' issuing activity on TASE during 2005-2015. Panel A reports yearly statistics as to total bonds' issuing volume, private bonds' issuing volume, number on firms issuing bonds and number of private firms issuing bonds. We also compute and show the share of private firms in bond issuance activity. On average, during 2005-2015, non-financial and non-government Israeli firms issued on TASE 16.3 billion NIS of bonds yearly. Of this total, 1.5 billion NIS yearly were bond issues by private firms. Thus, private bonds accounted on average for 9.3% of bond issuance volume on TASE.

(Insert Table 4 about here)

Panel B of Table 4 provides subperiod comparisons that serve to test Hypothesis 2a. We examine three 3-year subperiods: the pre-amendment period (2006-2008), the amendment legislation period (2009-2011), and the post-amendment period (2012-2014). In each period we compute and document the share of private bonds in total bond issuing volume and the proportion of private firms among all bond-issuing firms.

The share of private bonds in total bond issuing decreases from 9.43% in the pre-amendment period to 7.80% in the amendment legislation period, and then increases to 11.47% in the post-amendment period. Evidently, as far as issuing volumes are concerned, the evidence rejects Hypothesis 2a. Bond issuing activity of private firms has not decreased in volume following Amendment 17 enactment.

The second test of Hypothesis 2a focuses on the ratio of private firms that issued bonds to all (public and private) firms that issued bonds, within each period. The proportion of private firms among bond issuing firms decreases from 21.4% in the pre-amendment period to 13.8% in the amendment legislation period – see Panel B. In the post-amendment period, the proportion of private firms among bond issuing firms is 13.8% as well (same as in the amendment legislation period). The drop in the proportion of private firms among bond issuers is statistically significant at the 5% level (see Panel B).¹⁰ Interestingly also, it (the drop) starts immediately after the amendment proposal. Apparently, the amendment deters some private firms from issuing public debt, thus reducing the proportion of private firms among issuers. This evidence is consistent with Hypothesis 2a.

On reconsideration, Table 4 results offer a more intricate than expected picture of the response to the amendment. On one hand, Amendment 17 hurt the private firms, thus the proportion of private firms among bond issuers declined considerably (by more than a third) following the amendment. However, on the other hand, the private firms that continued to issue bonds offered relatively large bond issues, leading to our finding that the proportion of private bonds in total bond issuing volume did not decline. The increase in average issue size is consistent with Hypothesis 2a, as it suggests that private

¹⁰ We test the difference in proportions using a null hypothesis of equal proportions against the alternative of a lower proportion after the amendment proposal, using the standard Z test-statistic.

firms were reluctant to issue, and only when their financing needs became relatively large they succumbed. In sum, overall it appears that Table 4's evidence weakly supports Hypothesis 2a.

It is even more difficult to test and infer about Hypothesis 2b. Hypothesis 2b predicts a voluntary exodus of private firms from the public bonds market, i.e., an increased frequency of early redemptions of private bonds following Amendment 17 enactment. We find that in the pre-amendment period (2005-2008) none of the private bonds was redeemed early, while in post-amendment period (2012-2015) 13 private bonds were redeemed early. This evidence appears to support Hypothesis 2b.

However, we cannot ignore the fact that interest rates in the post-amendment period (2012-2015) were much lower than in the pre-amendment period (2005-2008), encouraging early redemption of bonds in the post-amendment period. Thus, the increase in the number of early redemptions in the post-amendment period does not reliably indicate a causal effect of Amendment 17's adoption. We need to employ more elaborate models of bonds' early redemption propensity before any conclusion can be reached, and given the small sample size we are sceptic about the chance that a more-sophisticated analysis would yield any conclusive result.

Table 5 presents evidence that inquires Hypothesis 2c. We examine bond IPOs on TASE by private and public firms during the 2005-2015 period. Panel A reports yearly statistics on all bonds' IPO volume, private bonds' IPO volume, number of firms with a bonds' IPO, and number of private firms with a bonds' IPO. We also compute and show the share of private firms in the bonds' IPO activity. On average, during 2005-2015, non-financial and non-government Israeli firms had bond IPOs on TASE amounting 1598 million NIS yearly. Of this total, 453 million NIS yearly were bond

IPOs by private firms. Thus, private bond IPOs accounted on average for 28.3% of bond IPO volume on TASE. Panel A also reveals that the bond IPO market in Israel was especially strong in 2005-2007, just before the Great Global Recession of 2008.

(Insert Table 5 about here)

Panel B of Table 5 provides subperiod comparisons that serve to test Hypothesis 2c. The methodology resembles the one used in the analysis of total bond issuing activity in Table 4. We examine two subperiods: the pre-amendment period (2005-2008), and the amendment legislation and post-amendment period (2009-2015). In each period we compute and document the share of private bonds in total bond IPO volume and the proportion of private firms among all bond-IPO firms. Relative to Table 4, the main difference is the unification of the amendment legislation and post-amendment periods. This is done because the number of bond IPOs in each of these periods is small (22 and 23 IPOs, respectively), and because in Panel A both periods appear similar. The unification of these periods should increase the statistical power of our tests.

The share of private bonds in the total bonds' IPO market volume decreases from 25.9% in the pre-amendment period to 14.1% in the combined amendment legislation and post-amendment period. We test the statistical significance of this difference using the standard difference in proportions test, where the null hypothesis is equal shares in both periods and the alternative hypothesis is a lower private firms' share after the amendment proposal. Using a one-sided test, we are able to reject the null hypothesis (p-value of 0.06). The share of private bond IPOs in total bonds IPO volume manifested an economically and statistically significant drop following Amendment 17's proposal. This evidence is consistent with Hypothesis 2c.

Even stronger support of Hypothesis 2c is offered by the second test of Table 5, focusing on the proportion of bond IPO firms that are private. The share of private firms in firms offering bonds for the first time decreases from 33.3% before the amendment proposal to 12.5% after it. This drop in the share of private firms is statistically significant at the 1% level – see Panel B. Apparently, the amendment deters some private firms from entering the public debt market, sharply reducing the proportion of private firms among first-time bond issuers.

On reflection, the fact that we find stronger support for Hypothesis 2c than for hypotheses 2a and 2b is plausible. For if Amendment 17 discourages private firms from issuing public debt, the effect should be stronger and more distinct for private firms that have not yet entered the market. Those firms can substitute bank or other privately negotiated debt in place of the public debt they might have contemplated. In comparison, private firms that have already issued public bonds (veteran private bond firms) may be captives of the public bond market, i.e., cannot exit it immediately. This is because these veteran private bond firms may lack readily available funds to redeem their bonds before maturity or have exhausted their other sources of debt financing.

Finally, we examine the 2009-2015 period for further specific amendments or regulation referring to private bonds, and found none. This increases the likelihood that the decline in private bonds' issuance activity that we document is due to Amendment 17.

6. Summary and Conclusions

We examine the effects of a law-reform in Israel in 2011 that imposes a set of minimum corporate governance standards on privately held firms that issue publicly traded bonds. This legislation intends to protect public bondholders against possible agency behavior (i.e., expropriation) by private firms' owners. The law-reform, Amendment 17 to the Corporate Law, demanded private firms that issue public debt to appoint two independent external directors to their Board of Directors, to establish an Audit Committee where these external directors will have a majority vote, and to bring related party transactions to the approval or dis-approval of the Audit Committee. The Audit Committee is obliged to reject related-party transactions that risk firm's solvency.

We find that already-trading bonds of privately held firms, private bonds in our terminology, appreciated on average by more than 5% around Amendment 17's two proposal dates. This response is consistent with the cross-sectional type evidence of existing studies in the US (e.g. Anderson et al., 2004, and Ashbaugh-Skaife et al., 2006) demonstrating that better corporate governance reduces firm's cost of debt. In this respect, our contributions are extending research outside the US economy and verifying existing findings via an event study.

Perhaps more novel are our findings regarding the effect of Amendment 17 on private bonds' issuing activity. Amendment 17, which fortifies the protection of public bondholders of private bonds, has potentially dual effects on the private bonds market. On one hand, it increases public investors' demand for private bonds, thus boosting the private bonds market. On the other hand, the stiffening of regulation might discourage private firms and reduce supply of private bonds. Which effect dominates? Some previous studies

researching increased creditor rights find that the demand side rules (e.g. Djankov et al., 2007), while others show that the supply side dominates (Acharya et. al, 2011).

We find that in our sample the supply side overpowers demand. Following Amendment 17 proposal, private firms become more reluctant to issue public debt, and public bonds' IPOs by private firms decrease sharply. The ultimate result of crippling the private bond market is probably not a deliberate intention of Amendment 17 lawmakers. Thus, our study appears to add another block to the series of studies on the unfortunate unplanned consequences of formal regulation.

Future studies should further explore the complex question of how to protect investors in publicly traded bonds of private firms. Legislation such as Amendment 17 has some definite costs that we document in this study. Alternative solutions might have costs as well.

Appendix A: A List of the Private Bond Firms in Our Sample

| Firm name | First calendar year as a private bond firm | The way it became a private bond firm | The number of bond offerings by the firm in the years 2005-2015 | The total notional value of the bond issues, in million NIS | Trading status or exit reason |
|---------------------------------------|--|---------------------------------------|---|---|-------------------------------|
| Adama Agricultural Solutions | 2011 | Stock delisting | 0 | 0 | Still trading |
| Adama Holding | 2006 | IPO | 1 | 200 | Exited before bond maturity |
| Afik Hayarden Holdings | 2006 | IPO | 2 | 166 | Exited before bond maturity |
| Albar Mimunit Services | 2008 | IPO | 8 | 1,986 | Still trading |
| Alliance Tire Company | 2007 | Stock delisting | 0 | 0 | Exited before bond maturity |
| Almog Yam Suf Holdings | 2006 | IPO | 3 | 126 | Bonds matured |
| Ameris Holdings | 2007 | IPO | 1 | 143 | Exited before bond maturity |
| Amos Hadar Properties and Investments | 2007 | IPO | 1 | 48 | Bonds matured |
| Ampa Capital | 2005 | IPO | 1 | 50 | Bonds matured |
| Ampa Capital Car Lease | 2006 | IPO | 1 | 33 | Exited before bond maturity |
| Aspen Real Estate | 2009 | Stock delisting | 1 | 50 | Exited before bond maturity |
| B.S.R. Projects | 2011 | Stock delisting | 0 | 0 | Exited before bond maturity |
| Binyan Mortgage Bank | 2014 | Stock delisting | 0 | 0 | Exited before bond maturity |
| British - Israel Investments | 2011 | IPO | 1 | 587 | Exited before bond maturity |

Appendix A (continued)

| Firm name | First calendar year as a private bond firm | The way it became a private bond firm | The number of bond offerings by the firm in the years 2005-2015 | The total notional value of the bond issues, in million NIS | Trading status or exit reason |
|---------------------------------------|--|---------------------------------------|---|---|-------------------------------|
| Clal Finance | 2011 | Stock delisting | 0 | 0 | Exited before bond maturity |
| Clal Industries | 2014 | Stock delisting | 0 | 0 | Exited before bond maturity |
| Club 365 | 2006 | IPO | 2 | 146 | Exited before bond maturity |
| Deadland Towers | 2007 | IPO | 1 | 107 | Exited before bond maturity |
| Danirco | 2006 | IPO | 1 | 48 | Exited before bond maturity |
| Darban Investments | 2010 | Stock delisting | 3 | 338 | Still trading |
| Delek – Belron International | 2000 | IPO | 0 | 0 | Exit reason unknown |
| Delek Petroleum | 2008 | IPO | 1 | 266 | Exited before bond maturity |
| Direct I.D.I. Holdings | 2010 | Stock delisting | 0 | 0 | Bonds matured |
| Duisburg Holding | 2004 | Stock delisting | 0 | 0 | Exited before bond maturity |
| Eldan Transportation | 2015 | IPO | 1 | 658 | Still trading |
| El'ezra Holdings | 2007 | IPO | 3 | 591 | Still trading |
| Elran (D.D.) Real Estate | 2013 | Stock delisting | 0 | 0 | Still trading |
| Euro – Globe | 2006 | IPO | 1 | 40 | Bonds matured |
| Euro -Trade Real Estate International | 2007 | IPO | 1 | 65 | Exited before bond maturity |
| Europort | 2007 | IPO | 1 | 57 | Exited before bond maturity |
| Exom | 2007 | IPO | 1 | 42 | Exited before bond maturity |

Appendix A (continued)

| Firm name | First calendar year as a private bond firm | The way it became a private bond firm | The number of bond offerings by the firm in the years 2005-2015 | The total notional value of the bond issues, in million NIS | Trading status or exit reason |
|--|--|---------------------------------------|---|---|-------------------------------|
| Findon Urban Lofts | 2006 | IPO | 1 | 26 | Exited before bond maturity |
| Gadot Biochemical Industries | 2010 | Stock delisting | 0 | 0 | Exited before bond maturity |
| Gindi Investments 1 | 2006 | IPO | 4 | 304 | Still trading |
| Giron Development and Building | 2010 | Stock delisting | 3 | 399 | Still trading |
| Global Knafaim Leasing | 2010 | IPO | 3 | 388 | Still trading |
| Globus Max | 2007 | IPO | 1 | 55 | Bonds matured |
| Gmul Real Estate for Tenants | 2007 | IPO | 1 | 96 | Bonds matured |
| Goal Partners | 2013 | Stock delisting | 0 | 0 | Bonds matured |
| Hanan Mor Group Holdings | 2006 | IPO | 1 | 40 | Stock listing |
| Heftziba Hofim | 2006 | IPO | 1 | 138 | Exited before bond maturity |
| Hot-Telecommunication Systems | 2013 | Stock delisting | 0 | 0 | Still trading |
| IDB Development | 2009 | Stock delisting | 0 | 0 | Stock listing |
| Ispro the Israel Properties Rental Corp. | 2006 | Stock delisting | 1 | 253 | Still trading |
| Isralom Properties | 2010 | Stock delisting | 0 | 0 | Exited before bond maturity |
| Japanauto Holdings | 2006 | IPO | 1 | 148 | Exited before bond maturity |
| Katzir Fund Debenture for Investments | 2006 | IPO | 1 | 40 | Exited before bond maturity |

Appendix A (continued)

| Firm name | First calendar year as a private bond firm | The way it became a private bond firm | The number of bond offerings by the firm in the years 2005-2015 | The total notional value of the bond issues, in million NIS | Trading status or exit reason |
|--|--|---------------------------------------|---|---|-------------------------------|
| Klir Chemicals – Manufacturing & Marketing | 2005 | IPO | 1 | 39 | Stock listing |
| Lenox Investments | 2007 | IPO | 1 | 38 | Bonds matured |
| Lito Group | 2013 | Stock delisting | 0 | 0 | Still trading |
| Lito Real Estate | 2006 | IPO | 1 | 24 | Bonds matured |
| Mendelson Infrastructures & Industries | 2005 | IPO | 3 | 236 | Stock listing |
| Mirland Development Corporation | 2007 | IPO | 1 | 244 | Still trading |
| Mizrachi & Sons Investments Group | 2005 | Stock delisting | 0 | 0 | Bonds matured |
| Neocity Group for Investments and Holdings | 2007 | IPO | 1 | 189 | Stock listing |
| Neot Hapisga Modi" in Ilit | 2006 | IPO | 1 | 47 | Exited before bond maturity |
| Ocif Eastern Europe | 2004 | IPO | 0 | 0 | Exited before bond maturity |
| Overland Direct | 2007 | IPO | 1 | 97 | Bonds matured |
| Polar Investments | 2011 | Stock delisting | 0 | 0 | Still trading |
| Regency Jerusalem Hotel | 2013 | IPO | 1 | 84 | Still trading |
| S. Shlomo Holdings | 2009 | Stock delisting | 6 | 2,615 | Still trading |
| SH.I.R. Shlomo Real Estate | 2007 | IPO | 3 | 390 | Still trading |
| Shapir Europe Projects | 2007 | IPO | 1 | 95 | Exited before bond maturity |
| Space-Communication | 2000 | IPO | 0 | 0 | Stock listing |

Appendix A (continued)

| Firm name | First calendar year as a private bond firm | The way it became a private bond firm | The number of bond offerings by the firm in the years 2005-2015 | The total notional value of the bond issues, in million NIS | Trading status or exit reason |
|-------------------------|--|---------------------------------------|---|---|-------------------------------|
| Stern Group | 2007 | IPO | 1 | 24 | Bonds matured |
| Tadbik | 2010 | Stock delisting | 0 | 0 | Bonds matured |
| Tempo Beverages | 2010 | IPO | 2 | 232 | Still trading |
| Ten – Petroleum Company | 2007 | IPO | 3 | 216 | Still trading |
| Terrace Investments | 2006 | IPO | 1 | 38 | Exited before bond maturity |
| Vitania | 2008 | IPO | 3 | 302 | Stock listing |
| Y. RSY | 2007 | IPO | 1 | 67 | Still trading |

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Table 1: Descriptive statistics of Hypothesis 1 test subsample

Amendment 17 to the Israeli Corporate Law was proposed on April 5, 2009. For studying its valuation effects we use the subsample of all private bonds that actively traded on the Tel Aviv Stock Exchange at the end of 2008 and that did not have confounding events in the two weeks before and two weeks after the amendment proposal. The table outlines descriptive statistics for 34 of the 36 relevant private firms and their traded bonds. (We could not find the financial reports of two firms.)

| Characteristics of private firms and their public bonds (n=34) | | |
|--|-------|--------|
| | Mean | Median |
| <u>Private firms</u> | | |
| Total assets at 2008 end (in million NIS) | 1,218 | 420 |
| Return on assets in 2008 (ROA) | 8.70% | 5.95% |
| Financial leverage at 2008 end (total debt / total assets) | 59% | 57% |
| Ownership structure at 2008 end (1=family; 0=non-family) | 0.65 | 1 |
| Number of bond issues per private firm | 1.2 | 1 |
| <u>Private bonds</u> | | |
| Duration (in years) | 2.5 | 2.2 |
| Yield to Maturity | 32% | 25% |
| Yield Spread (over government bonds) | 31% | 24% |
| Market value of bonds at 2008 end (in million NIS) | 89 | 56 |
| Monthly volume of trade in 2008 (in million NIS) | 5.9 | 4.0 |

Table 2: Private bonds' price response to the original proposal of Amendment 17 by ISA

The table reports the mean abnormal return (AR) and the mean cumulative abnormal return (CAR) for the public bonds of 36 private firms around the proposal of Amendment 17 by the Israeli Securities Authority (Israeli SEC) on April 5, 2009. Each private firm is represented by one bond return, i.e., when a private firm has several public debt issues, its representative bond return is the value-weighted return of its bonds. The event window extends from day A-10 to day A+10, where A is the announcement day. We employ a net of market methodology, using the General Corporate Bond Index as the market index. The lower part of the table presents the mean and median CARs for selected windows, the Z-statistics of the mean CARs and their p-values, the percentage of bonds with positive CARs, and the p-value of the null hypothesis that negative and positive CARs are equally frequent (one-sided tests).

| Day | AR | CAR | Day | AR | CAR |
|------|--------|-------|------|--------|-------|
| A-10 | 0.38% | 0.38% | A+1 | 0.48% | 4.54% |
| A-9 | 0.01% | 0.39% | A+2 | 0.29% | 4.83% |
| A-8 | 0.57% | 0.96% | A+3 | -0.33% | 4.50% |
| A-7 | 0.56% | 1.53% | A+4 | 0.44% | 4.95% |
| A-6 | -0.28% | 1.24% | A+5 | -0.42% | 4.52% |
| A-5 | 0.48% | 1.73% | A+6 | 0.06% | 4.59% |
| A-4 | 0.31% | 2.03% | A+7 | -0.38% | 4.21% |
| A-3 | 0.85% | 2.88% | A+8 | 0.35% | 4.56% |
| A-2 | 0.36% | 3.24% | A+9 | -0.01% | 4.55% |
| A-1 | 0.49% | 3.72% | A+10 | 0.12% | 4.67% |
| A | 0.34% | 4.07% | | | |

| Window | Mean CAR | Z-statistic | p-value of the mean (one-sided test) | Median CAR | Proportion of positive CARs | p-value of proportion positive (one-sided test) |
|--------------|----------|-------------|--------------------------------------|------------|-----------------------------|---|
| A-10 to A+10 | 4.67% | 2.82 | 0.002 | 2.50% | 64% | 0.03 |
| A-10 to A+2 | 4.83% | 3.23 | 0.001 | 2.37% | 69% | 0.006 |

Table 3: Private bonds' price response to the formal MOJ proposal of Amendment 17

The table reports the mean abnormal return (AR) and the mean cumulative abnormal return (CAR) for the public bonds of 36 private firms around the formal proposal of Amendment 17 by the Ministry of Justice (MOJ) and Israeli Securities Authority (ISA) on January 26, 2010. Each private firm is represented by one bond return, i.e., when a private firm has several public debt issues, its representative bond return is the value-weighted return of its bonds. The event window extends from day A-10 to day A+10, where A is the announcement day. We employ a net of market methodology, using the General Corporate Bond Index as the market index. The lower part of the table presents the mean and median CARs for selected windows, the Z-statistics of the mean CARs and their p-values, the percentage of bonds with positive CARs, and the p-value of the null hypothesis that negative and positive CARs are equally frequent (one-sided tests).

| Day | AR | CAR | Day | AR | CAR |
|------|--------|-------|------|--------|-------|
| A-10 | 0.22% | 0.22% | A+1 | 1.06% | 2.63% |
| A-9 | 0.07% | 0.29% | A+2 | 0.25% | 2.88% |
| A-8 | -0.03% | 0.26% | A+3 | -0.33% | 2.55% |
| A-7 | 0.32% | 0.58% | A+4 | 0.30% | 2.85% |
| A-6 | 0.17% | 0.75% | A+5 | 0.13% | 2.98% |
| A-5 | 0.25% | 0.99% | A+6 | -0.11% | 2.87% |
| A-4 | 0.11% | 1.11% | A+7 | -0.07% | 2.80% |
| A-3 | -0.09% | 1.02% | A+8 | 0.00% | 2.80% |
| A-2 | 0.12% | 1.14% | A+9 | 0.15% | 2.95% |
| A-1 | 0.18% | 1.33% | A+10 | 0.15% | 3.10% |
| A | 0.25% | 1.58% | | | |

| Window | Mean CAR | Z-statistic | p-value of the mean (one-sided test) | Median CAR | Proportion of positive CARs | p-value of proportion positive (one-sided test) |
|--------------|----------|-------------|--------------------------------------|------------|-----------------------------|---|
| A-10 to A+10 | 3.11% | 2.15 | 0.016 | 0.76% | 61% | 0.07 |
| A-10 to A+2 | 2.88% | 2.63 | 0.004 | 0.38% | 58% | 0.12 |

Table 4: Public and private bonds issuance activity on the Tel-Aviv Stock Exchange

Panel A: Yearly statistics

| Year | Total yearly bond issues on TASE (in million NIS) | Private bond issues (in million NIS) | Share of private bonds in total bond issuance | Number of firms issuing debt | Number of private firms issuing debt | Share of private firms |
|------|---|--------------------------------------|---|------------------------------|--------------------------------------|------------------------|
| 2005 | 7,009 | 392 | 5.59% | 56 | 6 | 10.71% |
| 2006 | 9,859 | 1,197 | 12.14% | 65 | 17 | 26.15% |
| 2007 | 26,445 | 2,026 | 7.66% | 111 | 22 | 19.82% |
| 2008 | 4,536 | 628 | 13.84% | 20 | 3 | 15.00% |
| 2009 | 17,856 | 730 | 4.09% | 55 | 8 | 14.55% |
| 2010 | 19,211 | 1,549 | 8.06% | 103 | 15 | 14.56% |
| 2011 | 18,168 | 2,029 | 11.17% | 74 | 9 | 12.16% |
| 2012 | 12,140 | 675 | 5.56% | 42 | 4 | 9.52% |
| 2013 | 21,473 | 3,199 | 14.90% | 93 | 14 | 15.05% |
| 2014 | 18,484 | 2,104 | 11.38% | 89 | 13 | 14.61% |
| 2015 | 24,102 | 2,182 | 9.05% | 70 | 10 | 14.29% |

Panel B: Subperiod comparisons

| Subperiod | Share of private bonds in total proceeds from bond issuance | Difference relative to the pre-amendment subperiod (one-sided p-value) | Proportion of Private firms in bond issuing firms | Difference relative to the pre-amendment subperiod (one-sided p-value) |
|---------------------------------|---|--|---|--|
| Pre-amendment 2006-2008 | 9.43% | NR | 21.4% | NR |
| Amendment legislation 2009-2011 | 7.80% | -1.63% (0.27) | 13.8% | -7.6% (0.02) |
| Post-amendment 2012-2014 | 11.47% | 2.04% (0.75) | 13.8% | -7.6% (0.02) |

Table 5: Debt IPOs by private and public firms on the Tel-Aviv Stock Exchange

Panel A: Yearly statistics

| Year | Total bond IPOs, in million NIS | Private bond IPOs, in million NIS | Share of private bonds in total bond IPOs | Number of firms with bond IPOs | Number of private firms with bond IPOs | Share of private firms |
|------|---------------------------------------|--|---|--------------------------------------|---|------------------------------|
| 2005 | 4,270 | 329 | 7.71% | 24 | 4 | 16.67% |
| 2006 | 3,327 | 1,197 | 35.96% | 41 | 17 | 41.46% |
| 2007 | 6,962 | 1,819 | 26.13% | 59 | 19 | 32.20% |
| 2008 | 802 | 628 | 78.29% | 5 | 3 | 60.00% |
| 2009 | 1,028 | 0 | 0.00% | 4 | 0 | 0.00% |
| 2010 | 1,059 | 362 | 34.14% | 12 | 3 | 25.00% |
| 2011 | 888 | 0 | 0.00% | 3 | 0 | 0.00% |
| 2012 | 401 | 0 | 0.00% | 2 | 0 | 0.00% |
| 2013 | 814 | 0 | 0.00% | 5 | 0 | 0.00% |
| 2014 | 1,510 | 200 | 13.23% | 6 | 1 | 16.67% |
| 2015 | 1,500 | 450 | 30.00% | 8 | 1 | 12.50% |

Panel B: Subperiod comparisons

| Subperiod | Share of private bonds in total proceeds from bond IPOs | Difference relative to the pre-amendment subperiod (one-sided p- value) | Proportion of private firms in all firms with a bond IPOs | Difference relative to the pre-amendment subperiod (one-sided p- value) |
|---|--|--|--|--|
| Pre- amendment 2005-2008 | 25.9% | NR | 33.3% | NR |
| Amendment legislation and post- amendment 2009-2015 | 14.1% | -11.8% (0.06) | 12.5% | -20.8% (0.005) |