# Is it Worthwhile to Augment the Legal Protection of Public Debt Placed by Private Companies?

by

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EFM classification codes: 150, 750, 550, 230.

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## Abstract

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## 1. Introduction

A considerable proportion of publicly traded corporate bonds comprises bonds of private firms (firms whose equity is non-listed or 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' publicly traded bonds can serve as a standard 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 firms' traded bonds (private bonds, hereafter) is that in private firms corporate governance standards are typically weaker than in companies whose common stocks are publicly traded. 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 may be tightened to protect more adequately investors in private bonds. 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 are charged 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 other duties, 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 firms who list their stock on the exchange.

The purpose of the study is twofold. First, to study the valuation effects of the amendment. If a more public-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.[1] 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, paying special attention to private firms issuing bonds for the first time, prior to and following the regulatory change. We also examine exit from the private bonds market (private bonds that were redeemed early) before and after Amendment 17 enactment.

We find that existing private bonds appreciated considerably on the amendment proposal, manifesting a cumulative abnormal return of more than 3% on average. Evidently, improving private firms' corporate governance, essentially making it more

[1] Note, however, the findings of Klock Maxwell and Mansi (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) are more relevant in our setting.

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 bond 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,[2] 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 proposed by the Israeli Securities Authority (Israeli SEC) on May 4, 2009, was ratified by the Israeli Knesset 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

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

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. 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.

### 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 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 decrease bond value. Lin et al. (2009)

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. (2009). 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. (2009), 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 firm's corporate governance more public-friendly. Thus, we suggest

***Hypothesis 1:*** existing private bonds' market values would increase upon the amendment proposal and possibly also along its legislation process.

Several cross-sectional sub-hypotheses can be developed. First, and perhaps most obvious, when firm's leverage is relatively high, agency-type behavior becomes more worrisome, and the relief afforded by Amendment 17 is probably more welcome. Consequently:

***Hypothesis 1****a:* Private bond's price response to the amendment is more positive the higher is the private firm's financial leverage.

Second, the more profitable is the private company, all other things equal, the less worried are public bondholders about its corporate governance or about agency problems leading to insolvency. Accordingly:

***Hypothesis 1****b:* Private bond's price response to the amendment is moderated (less positive) the more profitable is the private firm.

Third, since information on private firms is usually less transparent and scarcer than information about public firms, Amendment 17's protection should provide special assurance to bondholders of private firms with less public information. If smaller private firms are less reviewed by the media, than

***Hypothesis 1****c:* Private bond's price response to the amendment is more positive for smaller firms.

Last, it is interesting to examine the effect of family ownership on the response to the amendment. Ellul et al. (2009)'s evidence portray family firms as relatively responsible and caring for firm survival. Thus, improving corporate governance, i.e. Amendment 17, should not increase much private bond's value. In contrast, Boubakri and Ghouma (2010) argue that when firms are controlled by families, the coordination of bondholders' expropriation becomes easier and perhaps more likely. Hence, private bonds of family firms should appreciate more following Amendment 17. Given the mixed results of previous research, we will examine the effect of family control without a stated hypothesis.

## 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.) find that increased creditors' rights is associated with increased private debt to GDP ratio.

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 greater, 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. Given the alternative of bank 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 2****a:* New private bonds' issues decrease in number and volume after the Amendment proposal,

And,

***Hypothesis 2****b:* 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 2****c:* 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.[3]

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.

## 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 May 2009, and was finally legislated on August 2011.) After excluding

[3] 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.

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 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,[4] and eight firms that had confounding events, i.e. major other news, in the "event window" (the period from A-10 to A+10). Our final Hypothesis 1 test subsample comprises 36 firms.

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) as having superior statistical properties (higher power, for example), 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.

Firm-specific data serves us in tests of our sub-hypotheses 1a through 1c. These data are collected from the company annual reports available on the Maya section of

[4] We require that the bond traded in at least 120 of the 200 trading days in parameter estimation period (the period of A-210 to A-11, where A is the proposal announcement date).

TASE web site. We collect data on firm's size (Total Assets), Return on Assets (ROA), leverage (debt to total assets ratio), and the structure of the control group (family or non-family). In this context, it is noteworthy that our ownership data is relatively accurate because in Israel Article 24 in the Appendix of firm's annual reports details the ultimate ownership and the total holdings of the control group. Thus, for example, if some companies, foreign or local, have holdings in a firm that belongs to our sample, Article 24 reveals the ultimate owner behind each holding company, say a specific family, and details all other holdings of that family in the firm.

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

Table 1 presents some descriptive statistics for the 36 private bond firms that serve us to test our hypotheses on the price effect of Amendment 17. The average total assets of a private bond firm is 943 million New Israeli Shekel (NIS hereafter) which is about 250 million US Dollars, yet the median is only 381 million NIS (about 100 million US Dollars). The sample firms are, in general, profitable and financially healthy. The mean (median) ROA is 9.45% (6.29% respectively), and the mean (median)

financial leverage, defined as firm's short- and long-term debt divided by total assets, is 62% (59%). Finally, 64% of the sample firms are family-controlled.

Table 1 also provides some statistics on the private bonds of these 36 firms. On average there are 1.2 bond issues per private firm (median is 1). The mean market value of these bonds at 2008's end is 86 million NIS, and their mean monthly volume of trade in 2008 is 4.7 million NIS.

(Insert Table 1 about here)

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.

To evaluate the price response we employ a Dimson-like version of the market model:

(1) $R_{i,t} = a_i + b_{1i} R_{M,t} + b_{2i} R_{M,t-1} + e_{i,t}$ ,

where $R_{i,t}$ is bond i return on day t, $R_{M,t}$ ($R_{M,t-1}$) is the corporate bonds market return on day t (day t-1,respectively), $e_{i,t}$ is an idiosyncratic residual term, and $a_i$, $b_{1i}$ and $b_{2i}$ are parameters. Our methodology resembles closely the standard market model methodology. It just adds the market lagged return as an explanatory variable to the standard market model, in order to capture more accurately the market dependence (true "beta") of less actively traded securities. This methodology appears appropriate for our study because some of our sample bonds are not actively traded on each day. Recall that we exclude from the sample bonds that trade in less than 60% of the days in the

parameter estimation periods. Thus, our bonds are relatively liquid and the one-lag version of the Dimson methodology may suit them well.[5]

For each private bond i we compute the parameters of equation (1) in days A-210 through A-11 relative to the Amendment proposal announcement (day A). Then, in each day of the window A-10 through A+10 we compute the abnormal return of bond i, as:

$$(2) \qquad AR_{iT} = R_{i,T} - (A_i + B_{1i} R_{M,t} + B_{2i} R_{M,t-1}),$$

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, $R_{M,T}$ is corporate bond market return on day T of the event window, and $A_i$, $B_{1i}$ and $B_{2i}$ are the parameters of equation (1) estimated over the parameter estimation period. In addition, we compute the Cumulative Abnormal Return (CAR) of each bond as:

$$(3) \qquad CAR_i(T_b, T_e) = \sum_{T=Tb}^{T=Te} AR_{iT},$$

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.

Table 2 describes the private bonds price reaction to the proposal of Amendment 17. 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 proposal. On 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.

[5] As robustness tests, we will report results of employing the standard market-model and the simple net of market methodologies as well.

(Insert Table 2 about here)

In Table 2 we see that all mean ARs from three days before to three days after the amendment proposal are positive, indicating a positive response to the amendment. On day A-1, one day before the amendment proposal, we observe the largest positive response, 1.54% on average. At the bottom of the table we provide some summary and test statistics. The mean CAR(-1,1), CAR(-3,3) and CAR(-5,5) are all positive and significantly different from zero – see the p-value column. In all these windows the proportion of bonds with positive CARs exceeds 70% 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 May 4, 2009. Private bonds prices appreciated on average by more than 3% in response to Amendment 17 proposal. This finding supports Hypothesis 1 of the study.

We conduct various robustness tests. First, we compute excess returns using two other methodologies: the classic market model methodology (equation 1 without the lagged market return term), and the net of market methodology (whereby $AR_{iT} = R_{iT} - R_{Mt}$). The classic market model methodology yielded a mean CAR(-5,5) of 3.93% whereas the net of market methodology yields a CAR(-5,5) of 3.15%. Both these estimates are highly statistically significant and compare well with Table 2 estimated CAR(-5,5) of 3.24%.

Second, we examine two more key steps in Amendment 17 legislation process: its proposal to the Knesset by the Ministry of Justice, and its final ratification by the Knesset. The aggregate CAR(-5,5) on both these events is statistically insignificant. This suggests that the main reaction to the amendment occurred at its proposal by ISA.

The public must have believed that as usual ISA (the Israeli SEC) would be successful in convincing legislators about the need and usefulness of the amendment.

To test sub-hypotheses 1a through 1c we run a cross-sectional regression of firm's CAR(-5,5) on four firm characteristics: total assets, financial leverage, profitability (approximated by ROA), and a dummy variable that equals 1 if the firm is controlled by a family (and equals 0 otherwise). We run the regressions on 33 observations only because for three private firms we could not find the end of 2008 financial reports.[6] Hypothesis 1a suggests that the coefficient of leverage is positive; Hypothesis 1b proposes that the coefficient of ROA is negative; and Hypothesis 1c predicts that the coefficient of total assets is negative.

Table 3 presents the regression results. The coefficient of leverage is positive and significant at the 10% level and the coefficient of ROA is negative and significant at the 1% level. However, the coefficients of total assets and the family-control dummy are statistically insignificant. A parsimonious regression of CAR (-5,5) on leverage and ROA slightly improves the coefficients' significance and increases the Adjusted-$R^2$ to 0.17.

(Insert Table 3 about here)

The finding that bonds of higher leverage firms appreciated more in response to the amendment proposal supports Hypothesis 1a. Possibly, for firms with high leverage, the potential destructive effect of agency self-serving behavior of firm owners is larger because irresponsible agency-behavior might tip high leverage firms over into the

[6] These three firms drifted into financial distress during the Great Global Recession of 2008. Hence, they did not publish the 2008 annual reports. Interestingly, if we omit these three firms from Table 2, the mean (median) CAR(-5,5) on the amendment proposal becomes 3.50% (4.44% respectively).

financial distress zone. Perhaps also the proximity to financial distress itself tempts some high leverage private firm owners into agency behavior. In any case, the partial protection provided by Amendment 17 probably alleviates public bondholders agency fears, and this relief is more pronounced in the more sensitive segment of higher leverage firms. Consequently, the prices of bonds of high leverage private firms increase relatively more upon the amendment proposal.

The interpretation of the positive coefficient of ROA follows a similar vein. Bondholders in high profitability (ROA) firms can tolerate agency behavior of firm owners because in such firms there are slim chances that agency behavior would lead to insolvency. Protecting public bondholders in relatively profitable firms via Amendment 17 is prudent, yet its effect on assuring debt payoffs by these private firms is relatively modest. Consequently, the prices of bonds of high profitability firms increase relatively less upon the amendment proposal.

The insignificant coefficient of total assets in Table 3 is inconsistent with Hypothesis 1c. This hypothesis assumes that there is more information about large private firms because these firms naturally attract media and analysts attention. If larger firms are more transparent, bondholders fears of agency behavior are quelled because public opinion and the media protect against owners' self-serving behavior. Thus, for larger firm bondholders the extra protection provided by Amendment 17 would be milder. Our empirical tests do not uphold this hypothesis. Perhaps in the sector of private firms the differences in information transparency between small and large firms are slighter.

Finally, the coefficient of the family-firm dummy variable is statistically insignificant. This is not surprising because existing literature is divided over the

potential effect of family firms. Studies such as Boubakri and Ghouma (2010) suggest that family firms facilitate agency behavior, hence the protection provided by Amendment 17 would be more welcome by bondholders of family-firms. On the other hand, studies such as Ellul et al. (2009) highlight the responsible behavior of families striving to secure the future of their firms. If family-firms are more responsible, the protection provided by Amendment 17 is less crucial. Our insignificant result might indicate that both above theses have some value. The fact that our sample is small might also contribute to the statistical insignificance because when the sample is small and there are contradicting forces it is difficult to discern which argument is more pertinent.

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

The second 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).[7] Interestingly also, it (the drop) starts immediately after the amendment proposal. Apparently, the amendment deters some private firms from issuing public debt, thus

[7] 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.

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 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 strongly 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 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.

## 6. Summary and Conclusions

We examine the effects of a law-reform in Israel that imposed a set of minimum corporate governance standards on private 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 private firms, private bonds in our terminology, appreciated on average by more than 3% around Amendment 17 proposal date. 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 US findings via an event study.

Perhaps more novel and significant 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 firm 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. This result is not surprising because private firms have an alternative. They can cancel plans of issuing bonds to the public, and substitute into (that is use instead) bank loans or other non-public privately placed debt.

The ultimate result of crippling the private bond market was probably not a deliberate intention of Amendment 17 lawmakers. As such, our study adds 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. These nontrivial costs leave us pondering on whether or not such regulation is prudent.

## 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 May 4, 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 these 36 firms and their traded bonds.

Characteristics of private firms and their public bonds (n=36)

| | Mean | Median |
|---|---|---|
| Total assets at 2008 end (in million NIS) | 949 | 381 |
| Return on assets in 2008 (ROA) | 9.45% | 6.29% |
| Financial leverage at 2008 end (total debt / total assets) | 62% | 59% |
| Ownership structure at 2008 end (1=family; 0=non-family) | 0.64 | 1 |
| Number of bond issues per private firm | 1.2 | 1 |
| Market value of bonds at 2008 end (in million NIS) | 86 | 56 |
| Monthly volume of trade in 2008 (in million NIS) | 4.7 | 3.0 |

**Table 2:** Private bonds' price response to the proposal of Amendment 17

The table reports the mean abnormal return (AR) and the mean cumulative abnormal return (CAR) for the public bonds of 38 private firms around the proposal of Amendment 17 by the Israeli Securities Authority (Israeli SEC) on May 4, 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 Dimson-type version of the market model methodology (with contemporaneous and one-day lagged market returns), using the General Corporate Bond Index as the market index and parameter estimation in days A-210 to A-11. 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 (two-sided tests).

| Day | AR | CAR | Day | AR | CAR |
|---|---|---|---|---|---|
| A-10 | 0.13% | 0.13% | A+1 | 0.06% | 3.10% |
| A-9 | -0.24% | -0.11% | A+2 | 0.44% | 3.54% |
| A-8 | -0.33% | -0.44% | A+3 | 0.59% | 4.13% |
| A-7 | 0.44% | 0.01% | A+4 | -0.05% | 4.07% |
| A-6 | 0.75% | 0.75% | A+5 | -0.08% | 3.99% |
| A-5 | 0.12% | 0.88% | A+6 | -0.10% | 3.89% |
| A-4 | -0.25% | 0.63% | A+7 | -0.48% | 3.41% |
| A-3 | 0.17% | 0.80% | A+8 | -0.50% | 2.91% |
| A-2 | 0.34% | 1.14% | A+9 | -0.01% | 2.90% |
| A-1 | 1.54% | 2.69% | A+10 | 0.24% | 3.14% |
| A | 0.35% | 3.04% | | | |

| Window | Mean CAR | Z-statistic | p-value of the mean | Median CAR | Proportion of positive CARs | p-value of proportion positive |
|---|---|---|---|---|---|---|
| A-1 to A+1 | 1.95% | 4.35 | 0.0001 | 0.90% | 75% | 0.004 |
| A-3 to A+3 | 3.50% | 5.09 | 0.00001 | 2.98% | 72% | 0.012 |
| A-5 to A+5 | 3.24% | 4.00 | 0.0003 | 2.04% | 72% | 0.012 |

**Table 3**: The impact of firm and bond characteristics on private bonds' response to Amendment 17 proposal

The table summarizes regressions of CAR(-5,5), the cumulative excess return from 5 days before the amendment proposal to 5 days after it, on various firm characteristics. Leverage is total debt divided by total assets; ROA is gross profits divided by total assets; Dum_Family is a dummy variable that equals 1 when a family controls the firm (and equals 0 otherwise); and LnTotalAssets is the natural logarithm of firm's total assets in thousand NIS. *t*-statistics, corrected for heteroskedasticity using the White method, appear in parentheses below the coefficients. *, **,and *** mark statistically significant coefficients at the 10%, 5%, and 1% level, respectively (one-sided tests).

| Explanatory Variable | Regression | Parsimonious regression |
|---|---|---|
| Leverage | 0.069* | 0.073** |
| | (1.6) | (1.8) |
| ROA | -0.124*** | -0.116*** |
| | (-2.6) | (-2.8) |
| Dum_Family | 0.009 | |
| | (0.6) | |
| LnTotal Assets | 0.001 | |
| | (0.1) | |
| Number of observations | 33 | 33 |
| Adjusted $R^2$ | 0.12 | 0.17 |

**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%<br>(0.27) | 13.8% | -7.6%<br>(0.02) |
| Post-amendment 2012-2014 | 11.47% | 2.04%<br>(0.75) | 13.8% | -7.6%<br>(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%<br>(0.06) | 12.5% | -20.8%<br>(0.005) |