The Informativeness of Mandatory Cash Flow Forecasts in Financially Distressed Firms

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Abstract

We study the informativeness of mandatory disclosure of cash flow forecasts to bond holders of financially distressed firms. Exploiting a unique data set from Israel, spanning the period from 2010 to 2017, we utilize a propensity score matching approach to estimate the bond price reaction to mandatory cash flow forecasts in treated vs. non-treated firms. We find that bond holders of distressed firms perceive the cash flow forecasts as credible and informative, and react positively to higher forecasts. These results are robust to different specifications of the matching procedure, to first time cash flow forecasts and to the inclusion of various fixed effects. These results are in contrast with prior findings regarding voluntary forecasts, which were found to be less reliable in financially distressed firms (Rogers and Stocken, 2005). Consistent with prior literature, we find that the results are driven by non-investment grade bonds, and that the bond reaction is not reversed in subsequent periods. Moreover, forecasts estimated from a naïve model do not yield any bond reaction, suggesting that management forecasts convey relevant information that cannot be easily obtained from other sources. Other components of the cash flow forecast do not seem to convey additional information to bond holders. Finally, conditioning on firms undergoing reorganization, we find that firms with cash-flow forecast disclosure, in the year in which reorganization commenced, were associated with between 11 to 15 percent higher recovery rates relative to reorganizations that commenced in years with no forecast disclosure. which is consistent with the regulation objectives of signaling early warnings and preceding onset of bankruptcy procedures. Overall, our paper contributes to the literature on the provision of financial information to bond holders by showing that forward-looking information that is regulated and disclosed mandatorily provides useful information to bond holders of companies that are in financial distress.

Keywords: *management forecasts; cash flow forecasts; mandatory disclosure; bond market; informativeness; financial distress.*

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1. Introduction

This paper investigates the informativeness of mandatory cash-flow forecasts to bond holders of financially distressed firms. Prior studies provide support for the relevance of accounting information to bond holders (e.g., Easton, Monahan & Vasvari, 2009; Givoly, Hayn & Katz, 2017), emphasizing the motivation for investigating bond (vs. stock) reaction to accounting data by the different payoff structure of bonds relative to equity. These studies find that the increase in the relevance of accounting information to bond holders, is pronounced especially for risky bonds and with respect to information conveying bad news. Yet, accounting research on the bond market is far from being close to the in-depth research that exists on equity markets. This paper adds to the growing literature looking at the relevance of accounting information to debt market. More specifically, our research responds to the call in Lok and Richardson (2011) to identify and investigate relations between accounting information and credit markets in "settings where the information attribute is of primary relevance to the credit market" (p. 499). Such is this unique setting from Israel, where financially distressed firms with publicly traded bonds are required to disclose cash flow forecasts.

There are several advantages to our setting. First, corporate bonds in Israel are traded on a centralized exchange, offering high liquidity, lower spreads and lower trading costs relative to the corporate bond market in the U.S. and around the world, where corporate bonds are mostly traded on over the counter (OTC) markets (Abudy and Wohl, 2017). Thereby, we are able to observe bond market reaction directly from bonds returns rather than from derivatives on bonds (i.e., CDS), as done by much of the previous literature on U.S. data (e.g., Callen et al., 2009; Shivakumar et al., 2011; Griffin, 2014; Chiu et al., 2018). Second, our setting focuses on forward looking information, which has been found to be more important than other types of accounting information (see, e.g., Beyer et al., 2010 for equity prices, Shivakumar et al., 2011 for CDS). Furthermore, previous studies using U.S. data focus on forward looking information that is disclosed voluntarily, raising concerns of selection bias, while our setting offers forward looking information that is disclosed mandatorily and is regulated by the Israel Securities Authority. [1]

Moreover, our setting focuses on distressed firms, a subset of firms where, on the one hand, prior research documents stronger reactions of bond holders to management forecasts

[1] The Israel Securities Authority (ISA) is the national securities regulator of Israel. Source: https://www.isa.gov.il/sites/ISAEng/ABOUT/Pages/Role-of-the-ISA.aspx

(Shivakumar et al., 2011), but on the other hand, some studies suggest that management forecasts are less informative with respect to firms that are in financial distress. Because distressed firms may bias their forecasts upward, investors anticipate this, and discount the information (Rogers and Stocken, 2005; Kitagawa and Shuto, 2017). One final advantage of our setting is that financially distressed firms are required to disclose cash flow forecasts. The use of cash flow forecasts, relative to earnings forecasts or other quality measure forecasts used in the existing literature, has several advantages: cash flow statements are less prone to earnings manipulation (Wasly & Wu, 2006; Dechow, 1994), and cash flows are relatively more important than earnings with respect to maintaining the viability of financially distressed firms (Lee, Glasscock & Park, 2016). Moreover, Palepu (1987), Healy and Palepu (1990), and DeAngelo et al. (1996) suggest that accounting decisions by managers of highly leveraged firms in financial distress may reflect partially an attempt to conserve cash, indicating that cash flows are the primary concern in distressed firms. Lastly, the accuracy of management cash flow forecasts, as opposed to other qualitative forecasts, can be easily verified through actual cash flow realizations.

We searched the financial statements of bond issuing firms on the Tel-Aviv stock exchange, and extracted 440 firm-year mandatory management projected cash flows, from 2010 to 2017, that are disclosed in annual financial statements. We perform a propensity score matching procedure to deal with concerns regarding functional form misspecification, and match treated firms with mandatory forecasts disclosure to similar non-treated firms without forecasts.

We hypothesize that, while prior studies suggest that voluntary forecasts by distressed firms are biased (Rogers and Stocken, 2005), in our setting they will be more relevant and reliable since, inter alia, the forecasts in our setting are regulated, detailed and include cash flows rather than earnings. Estimating a short window bond price reaction to mandatory cash flow forecasts in treated vs. matched non-treated firms, we find that bond holders of distressed firms perceive the cash flow forecasts as credible and informative and react positively and significantly to higher forecasts. These results are robust to different specifications of the matching procedure, to first occurrence of cash flow forecasts and to the inclusion of various fixed effects. Consistent with prior literature (Easton et al., 2009; Shivakumar et al., 2011), we find that the results are driven by non-investment grade bonds, and that the bond reaction does not reverse in the post- period.

We then perform a falsification test and estimate whether forecasts produced from a naïve model yield any bond reaction. We find no reaction to such forecasts, suggesting that management forecasts convey relevant information that cannot be obtained elsewhere. This result is particularly interesting given Givoly, Hayn and Lehavy (2009) finding that analysts' cash flow forecasts do not convey additional information relative to a naïve model that estimates cash flows from analysts' earnings forecasts.

Additionally, we estimate whether other components of the cash flow forecast, from financing and investing activities, convey additional information to bond holders. We do not find that these components are informative to bond holders. Yet, we do observe that current changes in cash flows from financing and investing activities convey additional information.

Finally, conditioning on firms entering reorganization, we find that firms with a cash flow forecast disclosure in the year in which the reorganization commenced were associated with between 11 to 15 percent higher recovery rates. This result is consistent with the regulation's objective of signaling early warnings and preceding onset of bankruptcy procedures, which manifests into actual mitigation of the reorganization procedure outcome.

Overall, we show that forward-looking information that is regulated and disclosed mandatorily provides useful information to bond holders of firms in financial distress.

The remainder of this paper is organized as follows: Section 2 describes the institutional background. Section 3 reviews the literature and develops our main hypotheses. Section 4 describes our sample, data, variables, and descriptive statistics. Section 5 presents the research design and the empirical findings. Section 6 provides our conclusion.

2. Institutional Background

Commencing in 2008, the Israel Securities Authority (ISA) has required companies listed on the Tel-Aviv Stock exchange that have bonds held by the public to disclose, in their periodic financial statements[2], cash flow forecasts for the upcoming two years in the event that they have so-called "warning signals" indicating financial difficulties.

The Israeli corporate bond market developed dramatically in the 2000s, with the aggregate market cap of corporate bonds increasing from $6 billion in 2003 to $73 billion in 2009

[2] See ISA Annual Report for 2008, http://www.isa.gov.il/download/isafile_4543.pdf.

(Abudy and Wohl 2017). One of the reasons for the development of the Israeli bond market was a local reform in the retirement savings system that relaxed limitations on corporate bond investing by long term saving institutions. The increase in potential demand induced the issuance of corporate public bonds, causing firms to increase their leverage ratios substantially (Sasi Brodesky 2017). In light of the global credit crisis in 2008, many firms encountered difficulties in repaying their debt.

This ISA's mandatory disclosure constitutes one aspect of dealing with financial distress – transparency. Thus, it attempts to bring to investors' attention the risk of liquidity, or lack thereof, that the investee might be facing in future debt payments at an early stage of financial distress.

ISA requires companies to disclose cash flow forecasts in the event that the following two conditions are met:

1. The company has traded bonds held by the public. Traded bonds held solely by institutions were excluded from the disclosure regulation. Prior literature suggests that bond holders are more sophisticated than stock-holders; therefore, public financial information may be less informative in the bond market. The ISA regulation, on the other hand, was aimed at companies with traded bonds held by the public — i.e., by unsophisticated investors who do not have other channels to receive financial information (companies with bonds held by institutional investors solely were exempt from this regulation).

2. The company is facing financial distress, identified by so-called "warning signals," which include one or more of the following: equity deficit; negative working capital and ongoing negative cash flow from operations; or "emphasis of matter" paragraph in the auditors' report, drawing attention to the firms deteriorating financial condition. According to an interview we held with a senior official in ISA, these warning signals were selected on the basis of backward induction, i.e., identifying ex post early signs from firms that ended up in bankruptcy, or went through reorganization of their debt. We note that these financial warning signals are also part of the O-Score model for predicting bankruptcy (Ohlson 1980).

One can raise a concern about firms trying to manipulate accounting information to avoid "warning signals" and disclosure of cash flow forecasts. Indeed, Gopalan, Martin and Srinivasan (2019) find that firms distort their financial statements to avoid or precede bankruptcy rules that are based on accounting measures of net worth. Yet, our setting includes varied warning signals from different financial statements as well as from the auditor's report, which would make it more difficult for firms to manipulate their status. Moreover, we observe cases where ISA cancelled attempts made by firms to manipulate financial statements to avoid "warning signals" (for example, a firm that changed its accounting policy with regard to a classification in the cash flow statements, immediately prior to the regulation coming into effect, which artificially increased the firm's operating cash flow and flipped it from negative to positive). Thus, although it is apparent that manipulating financial statements to avoid disclosing cash flow forecasts is usually possible, it is muted in our setting.

Another important aspect that characterizes our setting, as mentioned above, is the fact that the disclosure of cash flow forecasts is regulated. The literature discusses the vagueness and biases that characterize voluntary disclosure. Yet, unlike the typical voluntary forecast disclosure, the ISA regulates and enforces the cash flow forecast: firms are required to disclose if the realization of their cash flow deviated significantly from the initial forecast; firms are required to include detailed cash inflows and outflows on a "solo" basis; and firms are prohibited from including cash flows from subsidiaries or other affiliated entities, if the likelihood of receiving such flows is not high. Moreover, we find cases where the ISA required firms to include or adjust their forecasts, including a case (that ended up in court) of a firm that was penalized for disclosing overly optimistic forecasts. On the other hand, distressed firms would not want to disclose overly conservative forecasts since that might precipitate the process of bankruptcy. Therefore, our setup suggests that firms have limited ability to bias their forecasts.

Consequently, the mandatory cash flow forecasts in our setting, aimed at financially distressed firms with public debt in a developed debt market, is a unique setup for testing the value relevance of management forecasts to debt markets.

3. Prior Literature and Hypothesis Development

Theoretical and empirical studies demonstrate that corporate disclosures are one of the channels that correct market failures arising from asymmetric information and incentive problems, and such disclosures tend to mitigate the inefficient allocation of resources in capital markets. (See Healy and Palepu, 2001 and Beyer et al., 2010, for a review.) Beyer at al. (2010) show that, among the various corporate disclosures (i.e., earning announcements, pre-earning announcements, management forecasts, analyst forecasts and SEC filings), management forecasts are the most important accounting-based information that explain quarterly return variance.

Management forecast disclosure is the most common disclosure identified with voluntary disclosures. Therefore, the first strand of literature we focus on sheds light on the characteristics of firms that, at their own discretion, choose to disclose forecasts. Ajinkya and Gift (1984) find that managers issue forecasts when they think that investors have inaccurate expectations about future earnings. Coller and Yohn (1997) finds that firms disclose forecasts when information asymmetry among investors is high. Wasley and Wu (2006) examine voluntary cash flow forecasts disclosed by management in their Form 8-K filings. They find that management generally issues cash flow forecasts to signal good news in their companies' cash flows and to mitigate the negative impact of bad news with respect to their earnings. Recent literature on management forecasts exploits advanced technological tools to study overall forward looking statements that comprise both quantitative and qualitative data. Muslu et al. (2015) and Boznic et al. (2017) use textual analyses to derive voluntary forward-looking information. Muslu et al. (2015) find that firms tend to make more forward-looking disclosures, in their management disclosure and analysis (MD&A) section of annual reports, when their stock prices have low informational efficiency, i.e., when their stock prices poorly reflect future earnings information.. They find that greater levels of forward-looking MD&A disclosures help improve, yet are unable to completely mitigate, the low informational efficiency of stock prices for such firms. Bozanic, Roulstone & Buskirk (2017) suggest an enhanced proxy for voluntary forward-looking information, distinguishing between management earnings forecasts and other qualitative and quantitative information. They find that in times of uncertainty, management is more likely to make qualitative, rather than quantitative, voluntary forward-looking disclosures.

The second strand of literature focuses on the credibility of management forecasts and its information content to investors. Rogers & Stocken (2005) examine the credibility of management forecasts — they find that management's incentives to bias/misrepresent the forecasts varies as a function of investors' ability to detect the misrepresentation; for example, if there is a high probability that management would be legally sued, the likelihood of bias in the forecasts will be diminished. Kato et al. (2009) examine management forecasts in Japan, where the Tokyo Stock Exchange strongly encourages firms to disclose sales and net income forecasts. The authors argue that since, *de facto*, most firms disclose those forecasts, they are effectively mandated, but nevertheless they find that firms have considerable latitude over the numbers they release. Kato et al. find that initial forecasts are systematically upward biased, and are especially biased in firms that are small, with low performance, have insider ownership and a history of prior optimism. They also find that the forecasts are more informative when the stock market perceives them to be more credible (e.g., high-performance companies, or firms with prior non-optimistic forecasts).

The above-mentioned papers focus on the relationship between the stock market and forward looking information, delineating the informativeness of forecasts for equity holders. In addition, a number of relatively recent papers examine the informativeness of forecasts to debt holders. Shivakumar et al. (2011) document that credit markets react significantly to management forecasts, using Credit Default Spreads ("CDS"), and that this result is driven by firms with poor credit ratings and in times of uncertainty (i.e., during the 2008 credit crisis). Kim et al. (2018) suggest that firms with CDS face a demand to enhance forward looking disclosure from stock investors, suggesting the opposite causality between CDS and forecasts (i.e. of a demand rather than a supply driven disclosure). Finally, Kitagawa and Shuto (2021) use data from Japan, similar to the data used in Kato et al. (2009), to examine the relation between firms' forecasts and the cost of debt. They find that positive forecast innovations (i.e., forecasts that predict increases in earnings) are negatively related to bond yield spread. Yet, they find that these results are weaker for firms with high default risk, suggesting that investors perceive the upward bias of these firms and discount the earnings forecasts news.

In sum, the existing literature suggests that the decision of management to issue disclosure forecasts emphasizes the endogenous nature of voluntary forward-looking disclosure, with firms having latitude over the timing of disclosure, the information selected to be disclosed

(earnings, cash-flows, qualitative, etc.), the form of disclosure (i.e., range of forecasts versus exact point forecast), or the time horizon of forecasts (quarterly/annually/other). In our setting, firms are mandated to disclose cash flow forecasts, where the timing, form and content are specified *a priori*. Moreover, the forecasts are regulated and enforced by ISA, both *ex-ante* and *ex-post*. Hutton et al. (2003) suggest that projections are more credible when they are "specific enough to be compared with subsequent realizations." Rogers & Stocken (2005) assert that, although the forecasts of firms in financial distress are not credible, the ability to disclose biased forward-looking information varies with the ability of the market to detect misrepresentation. We would therefore reasonably expect the cash flow forecasts in our setting to be credible. Moreover, the regulation, aimed at bond holders of firms in financial distress, is designed to alleviate their credit risk concern. Bond investors are more sensitive to accounting information when the firm is in financial distress (Easton et al., 2009; Lok and Richardson, 2011; Givoly, Hayn and Katz, 2017). Thus, we conjecture that cash flow forecasts would convey relevant and reliable information to bond holders.

We examine our hypothesis that mandatory information disclosed by firms in financial distress is credible and therefore informative to bond investors by estimating the bond market reaction to the cash flow forecasts. Since cash flow forecasts are bundled with earnings announcements, we will estimate the response coefficient to forecast news in firm-year observations of firms with forecasts (i.e., treated firms) relative to year-firm observations without cash flow forecasts (i.e., non-treated firms), while controlling for earning news. In order to overcome endogeneity concern that emanates from functional form misspecification (FFM)[3], we perform a propensity score matching (PSM) between treated and un-treated observations. Moreover, we perform a falsification test to ensure that the bond reaction is driven by the information content of the forecasts and not by other unobservable (such as qualitative information that is disclosed in the report that we cannot identify and quantify), which is done by estimating bond reaction to forecasts estimated using a naive model (i.e., a mathematical model that estimate market expectation of future cash flows, based on previous

[3] The concern in functional form misspecification is that significant differences between explanatory variables that estimate treatment and outcome variables, between treatment and control observation sabotage the relation between the variables. Thus, violating the zero conditional mean assumption and causing coefficient estimates to be biased. In Section 5, we demonstrate that this concern exists in our data as well. Matching observations of treated firms to untreated firms with similar explanatory variables prevents us from making assumptions about the functional form of the relation between variables. See Shipman et al. (2017) for the use of PSM in accounting research to alleviate FFM concerns.

reported cash flows). This estimation is similar in spirit to Givoly, Hayn and Lehavy (2009), who estimate analysts' cash flow forecasts relative to naïve model-produced forecasts.

4. Data and Descriptive Statistics

We collected mandatory management projected cash flows that are included in annual financial statements, commencing in 2010 and concluding in 2017.[4] Utilizing a web scraping tool, together with a manual search of financial statements, we initially identify 440 firm-year observations of cash flow forecasts that belong to 157 distinct firms.[5] Panel A of Table 1 describes the distribution of firms with forecasts by industry,[6] indicating that the forecasts are concentrated in the real-estate and holding & Investment industries. This is not surprising since it is consistent with the high representation of these industries in the Israeli bond market. Panel B of Table 1 describes the number of management forecasts per firm, where 157 firms disclosed one annual cash flow forecast over our research period but only 11 firms disclosed seven annual cash flow forecasts over the period of 2010 to 2017. Panel C describes the distribution of CF forecasts over the sample period, distinguishing between inflows vs. outflows of CF forecasts. The year 2012 was the peak year, with 95 firms disclosing management cash flow forecasts; 50 of these firms predicted net inflows of cash for the upcoming year, whereas 45 firms predicted net outflows of cash.

[Insert Table 1 Here]

We then combine the cash flow forecasts data with financial data of Israeli firms, with and without forecasts, from the World-Scope database. We complement missing data from the

[4] Although the law was promulgated in 2008, we excluded years 2008-2009 since initially there was a lack of clarity as to the precise nature of the disclosure requirement; in 2010, ISA published a "clarification guidance" that set forth a coherent unified disclosure of cash flow forecasts.

[5] Firms that were in financial distress were not easily identifiable since ISA requires distress signs to be checked in both the consolidated financial statement and the solo financial statements of firms, but databases of financial statements include only consolidated data. In order to overcome the concern that we would not identify all firms with cash flow forecasts, we employed a web scraping tool and extracted all the annual financial statements from the Tel-Aviv stock exchange website (maya.tase.co.il). Through this process, we downloaded 4430 annual files. With the downloaded financial statements in hand, we now had the capacity to perform textual searches to identify firms that disclosed cash flow forecasts. We then searched for "cash flow forecasts" and related phrases in all the downloaded files; this search result yielded 1299 financial statements that were suspected to have cash flow forecasts. We manually opened each file in further pursuit of the collection of the disclosure of cash flow forecasts. After eliminating 759 observations that did not include cash flow forecasts, we identified 440 annual observations of cash flow forecasts that belong to 157 distinct firms. We then further eliminated dual companies and firms from the Insurance and Banking sectors and were left with 422 observations that belong to 151 firms.

[6] Industry classification was performed according to the Tel-Aviv stock exchange sub-industry.

Super-Analyst Database.[7] Trading data of bonds was derived from the Tel-Aviv stock exchange website. We then construct our TREATED variable, which is an indicator that takes the value one if a firm-year observation had mandatory cash flow forecasts Included in the annual financial statement, and zero otherwise. We exclude cross listed firms, as well as firms from the banking and insurance industry; we also limit our data to companies that had trading data of bonds available, as well as other financial information, and truncated three observations with extreme values. Panel A of Table 2 describes our treated and control groups, which is comprised of 278 treated observations and 919 non-treated observations.

[Insert Table 2 Here]

Panel A of Table 2 presents descriptive statistics of our data, distinguishing between treated and non-treated observations. Treated observations are significantly smaller, as indicated by the natural log of total assets (SIZE), they are significantly more leveraged, they are less profitable as indicated by their return on assets (ROA) and they incur losses more frequently than non-treated firms. Appendix A provides further details on the variables. These differences between the treated and non-treated firms suggest that indeed there is a treatment assignment bias. We therefore perform a propensity score matching (PSM) to make comparisons among similar firms. The PSM procedure proceeds as follows: First, we create a sample of firm-year observations that disclosed mandatory projected cash flows, that is comparable on observed covariates (change in net income; change in operating cash flow; loss; leverage; size; industry and year) to a sample of firm-year observations that did not receive the treatment. The propensity score was estimated using a Probit model and the matching procedure was performed using a one-to-one match, without replacement and with a caliper of 0.15.[8] We evaluate the quality of the matched sample by examining the residual differences of the covariates between the treated and matched control. As indicated from Panel B of Table 2, it is apparent that the differences between the groups are indeed mitigated.

[7] World-Scope covers the majority of Israeli companies, one of the main advantages of World-Scope relative to the Israeli data vendor Super-Analyst, is that world scope provides the financial data that were filed in the firms' original financial statements, whereas Super-Analyst provides restated numbers. For this research purposes it is useful to have the original numbers and not the restated ones. Yet, in order to avoid losing observations we complement the World-Scope data with Super-Analyst data.

[8] This matching specification are commonly used in accounting literature (see Shipman et al. 2017). Yet, we perform additional robustness tests to ensure that alternative specifications do not change our inference.

5. Methodology and Empirical Findings

5.1 Bond Response to Mandatory Cash Flow Forecasts

We begin by estimating the bond response to the information conveyed in the cash flow forecasts, while controlling for earnings news that are disclosed concurrently. More specifically, we estimate the following regression model[9]:

(Eq. 1)

$$WA\_CABR(-5+5)_{i,t} = \beta_0 + \beta_1 CH\_PCF\_OPER_{it} + \beta_2 CH\_NI_{it} + \beta_3 LOSS_{it} + \beta_4 LEVRAGE_{it} + \beta_5 SIZE_{it} + \varepsilon_{it}$$

Where $WA\_CABR(-5+5)_{i,t}$ is the value-weighted average of cumulative abnormal bond return of firm i, at an 11-day window around earnings announcement[10] date t (day zero). As discussed above, since the cash flow forecasts are bundled with the annual report, the forecast disclosure date and earning announcement date coincide. Abnormal bond returns are calculated using the matching portfolio model following Bessembinder et al. (2009), separately for each series of bonds. As in Bessembinder et al., 12 matching portfolios are created by classifying bonds into six major rating categories and then segmenting each of these categories into intermediate and long-term indices based upon time to maturity. These 12 indices of daily returns are value-weighted and used as the expected bond return for a matched bond in our sample. The abnormal daily bond return is the difference between the bond return and the expected return of the matched portfolio. We then accumulate the 11-day abnormal return around the earnings announcement for each bond and calculate the weighted

[9] Although, it seems appropriate to employ a diff-in-diff methodology for this setup, to compare differences in the pre and post regulation period in treated vs. control firms, there are two main issues with employing such an approach in our setting, that pertain mainly to the parallel trend assumption: first, a major regulatory change occurred prior to our mandatory cash flow forecast regulation (i.e., IFRS adoption which was implemented in 2007) and that had effect on the informativeness of accounting information regardless of the cash forecast disclosure requirement (see, De George, E. T., Li, X., & Shivakumar, L. (2016) for a review of the IFRS adoption literature). Second, the sensitivity of accounting information to bond holders come into effect when firms are in financial distress (e.g., Lok and Richardson, 2011), such financial difficulties arise in 2008. Moreover, the development of the Israeli bond market took place in the prior years 2003 -2009 (Abudy and Wohl, 2017). Thus, such major changes in accounting information and the development of the Israeli bond market at the pre regulation period prevent us from employing a diff-in-diff approach.

[10] Note, that Israeli firms do not report early announcements therefore, we refer to the financial statement's publication date as the earnings announcement date. With regard to our event window, it is important to note that although the Israeli bond market is quite liquid, it is still a bond market which requires a longer event window relative to stock markets. Longer event windows in bonds event studies are common in the literature, see for example Easton et al. (2009), who employ an even longer window.

average of all bonds of the firm around the earnings announcement date. Our main independent variable is $CH\_PCF\_OPER_{it}$, which is the difference between the cash flow forecasts from operation for time t+1 (as disclosed at time t) and actual cash flows from operation at time t ($\text{PCF\_OPER}_{i,t+1} - \text{OCF}_{i,t}$), deflated by lag of total assets. Assuming random walk, the market expects future operating cash flows ("OCF") to be similar to current cash flows: $E(OCF_{i,t+1}) = \text{OCF}_{i,t}$, and therefore any difference between the projected OCF to the current OCF ($\text{PCF\_OPER}_{i,t+1} - \text{OCF}_{i,t}$) is the surprise that is conveyed in the forecasts (or change in expectation with regard to operating cash flows for t+1). For non-treated matched firms, that do not disclose forecasts, the surprise is zero and therefore $CH\_PCF\_OPER_{it}$ for non-treated firms is zero.[11] According to our first hypothesis, if the cash flow forecast conveys additional information, controlling for the current earnings surprise, β_1 should be positive and significant. On the other hand, if management forecasts are biased, or are estimated by management using a naïve model extrapolated from current and/or prior financial outcomes, i.e., the forecasts do not convey reliable and relevant news, we would expect β_1 to be insignificant. Other independent variables control for earnings surprise (change in net income, CH_NI) in both treated and non-treated matched firms, firm size and leverage ratio, which is a proxy for firms' financial difficulties. The regression includes year and industry fixed effects to account for other industry-specific, constant over time attributes. Standard errors are clustered by firm.

Panel A of Table 3 reports the results. In Column 1, the estimated coefficient on CH_PCF_OPER is 0.05 (t-statistic of 2.46), indicating a statistically significant bond reaction to the cash flow forecasts. In terms of economic significance, a one percent increase in the cash flow forecasts from operation, deflated by lagged total assets, increases the 11-day (-5+5) cumulative abnormal bond return by 5 percent. That is similar in magnitude to the earnings response coefficient that was reported by Easton et al. (2009). All other coefficients are consistent with the literature but are insignificant, perhaps suggesting that the matching process is effective in mitigating differences in these observable covariates between the treated and non-treated matched sample.[12]

[11] Examining an alternative measure of CH_PCF_OPER for non-treated firms, while assuming random walk with a trend, does not change our results.

[12] We acknowledge that the R2 of our regressions is quite low, yet, it is comparable to prior literature (see for example Easton et al. (2009) who estimate the effect of analyst forecasts error on short window bond returns in table 5 Panel B, and report R2 between 0.008 to 0.039). Wooldridge (2012) notes that "In the social sciences,

We next examine whether the market reaction to the cash flow forecasts includes a reaction to current surprise in cash flows. Therefore, we estimate Eq. 1 substituting the earning surprise CH_NI into its components: cash flow surprise CH_PCF and accruals surprise CH_ACC.

(Eq. 2)

$$WA\_CABR(-5+5)_{i,t} = \beta_0 + \beta_1 CH\_PCF\_OPER_{it} + \beta_2 CH\_ACC_{it} + \beta_3 CH\_OPCF_{it} + \beta_4 LOSS_{it} + \beta_5 LEVRAGE_{it} + \beta_6 SIZE_{it} + \varepsilon_{it}$$

CH_PCF_{it} is the change in operating cash flows in time t relative to t-1, scaled by lag of total assets. CH_PCF_{it} represents the news in current operating cash flows. $CH_ACC_{it}$is the change in accruals at time t relative to t-1, scaled by lag of total assets. Accruals are calculated following the literature (see, for example, Cohen and Zarowin, 2010) and are the difference between net income and operating cash flows. Results in Column 2 of Table 3-Panel A demonstrate that the estimated coefficient on current cash flow surprise CH_OPCF is 0.031 (t-statistic of 1.76) indicating, that cash flows are more relevant than accruals to debt holders. Yet, the estimated coefficient on the forecast surprise remains economically and statistically significant.

We next examine the bond reaction to the first time that a firm discloses cash flow forecasts. Results reported in Columns 3 and 4 of Table 3-Panel A include 176 observations, of which 88 are firms that disclosed forecasts for the first time, and the other 88 are firms with matched non-treated observations. The estimated bond response coefficient to the forecasts' news increases by 52% in Column 3 compared to Column 1, and by 62% in Column 4 compared to Column 2. This is consistent with our conjecture that the response to first time forecasts is stronger than subsequent forecasts.

[Insert Table 3 Here]

5.2 Bond Response to Cash Flow Forecasts Estimated from a Naïve Model

Cash flow forecasts disclosed by management could be driven by a naive model that does not convey additional information beyond prior cash flows and other financial data. If that is the

low R-squares in regression equations are not uncommon" moreover he emphasizes that "using R-squared as the main gauge of success for an econometric analysis can lead to trouble" (Pg. 39).

case, the results in Section 6.1 would not be driven by changes to market expectation regarding future cash flows in light of the management's mandatory forecasts, but rather would reflect changes in expectation that the market would observe regardless of the forecasts.

To test this argument we perform a falsification test and replace the surprise in the cash flow forecast $CH\_PCF\_OPER_{it}$ in Eq.1 and Eq.2 with a surprise that is based on a naïve model: $CH\_NAIVE\_PCF\_OPER_{it}$. In our naïve model, the expected operating cash flows $E(NAIVE\_OCF_{t+1})$ is modelled based on the assumption that operating cash flows follow a random walk with a trend: $E(NAIVE\_OCF_{t+1}) = OCF_t + \delta$, The trend δ is calculated based on the average changes in operating cash flows in prior years (of minimum one year and maximum 6 years): $\delta = \frac{1}{6}\sum_{t=-5}^{t=0}(OCF_t - OCF_{t-1})$. $CH\_NAIVE\_PCF\_OPER_{it}$ is then calculated similar to $CH\_PCF\_OPER_{it}$, and is the difference between, the naïve model's expected cash flow forecasts and current operating cash flows$\left(E(NAIVE_OCF_{t+1}) - \mathrm{OCF}_{i,t}\right)$, scaled by lag of total assets.

Panel B of Table 3 reports the results of this estimation. The coefficient on $CH\_NAIVE\_PCF\_OPER_{it}$ is statistically insignificant in any of the specifications. Thus, cash flow forecast surprise based on a naïve model expectation clearly does not yield any bond response, which supports our results set forth in Section 5.1 above that the management cash flow forecasts convey additional information that cannot be otherwise obtained.

5.3 Management Forecasts in Speculative vs. Non-speculative Bonds

Speculative (non-investment grade) bonds have been found to be more sensitive to earnings news (see, for example, Even-Tov 2017; Shivakumar et al. 2011; Easton et al. 2009). Therefore, we estimate whether our results are driven by, or are more pronounced for, firms with non-investment grade bonds. Following the literature, we introduce the variable $\mathrm{SPECULATIVE}_{i,t}$ which is an indicator that takes the value one if the average bond rating of firm i at time t is equal to, or below, BBB-, and zero otherwise. We re-estimate Eq.1 and Eq.2 separately for speculative and non-speculative observations, both in the treated and the non-treated matched firms. Results reported in Table 4 show that the average bond response to the cash flow forecasts of treated vs. non-treated firms with speculative bond ratings is significantly positive, with a coefficient of 0.63 (and t-statistic of 2.49) in the first

specification, of Eq. 1, and a coefficient of 0.072 (t-statistic of 2.86) in the second specification, of Eq.2. Yet, the bond response of firms with non-speculative rated bonds is insignificant. Therefore, it is apparent that, our results are driven by speculative firms, consistent with the asymmetric payoffs to debt holders.

[Insert Table 4 Here]

5.4 Components of Projected Cash-Flows from Finance and Investment Activities

The cash flow forecasts mandated by the ISA extend beyond requiring forecasts of operating activities, and apply to forecasts of finance and investing activities as well. Livnat and Zarowin (1990) demonstrate that the disaggregation of cash flow components conveys additional information to stockholders above and beyond earnings, accruals and operating cash flows. Therefore, we estimate whether other components of cash flow forecasts, from finance and investing activities, convey additional information to bond holders as well. Table 5 reports the results, revealing that cash flow forecasts of financing and investing activities do not, in fact, convey additional information. Yet, unexpected cash flows from financing (investing) activities are negatively (positively) associated with bond market reaction. Our results suggest that for debt holders of companies in financial distress (vs. stockholders, as documented by Livnat and Zarowin, 1990), unexpected cash flows from finance activities are perceived as bad news due to the likelihood that such funds are raised with new debt that will have priority over the debt held by existing bond holders. In contrast, unexpected cash flows that are derived from investment activities is viewed as good news for debt holders who are concerned about the viability of their debt collection. However, we note that a deeper understanding of these results would require disaggregating the cash flow from financing and investment activities into their various components (i.e., equity issuance; debt issuance; dividends, etc.).

[Insert Table 5 Here]

5.5 Post-Announcement Effect

In this subsection, we examine whether the market fully responds to news conveyed in the cash flow forecasts. Accounting literature documents the phenomena of post-earnings announcement drift, where there is a delay in market reaction to earnings news (see Taylor

2011 and Fink 2021, for a literature review). Other papers document an opposite result of overreaction to earnings news, followed by a reversal in abnormal returns (see, for example, Bathke et al. 2016). Both contradict the efficient market hypothesis. Only one paper addresses this issue with regard to bond markets – Wei et al. (2012) finds that post-earnings announcement drift in bond prices is driven by negative earnings news; they do not find significant response to positive earnings news. Wei at el. conclude that their results are consistent with the bond asymmetric payoff function. Thus, we re-estimate our main results on a post-window of +6+20 days (i.e., before the announcement of the first quarter reporting, in order to make sure that the bond response is not driven by new information revealed in the announcement of first quarter earnings). Consistent with Wei et al. (2012), we conjecture that good news in cash flow forecasts would not exhibit post-earnings announcement drift or reversal. The results reported in Table 6 show that the post-earnings announcement returns are not statistically different than zero, though they are positive in all specification. Thus, it is apparent that the bond market fully responds to good news conveyed in the operating cash flow forecasts at the announcement day and, more importantly, the response is not an overreaction that is followed by a reversal in the post-period.

[Insert Table 6 Here]

5.6 Recovery Rates in Treated vs. Non-Treated Observations

The requirement of the Israel Securities Authority (ISA) to disclose management cash flow forecasts was driven by the global financial crisis of 2008, when many companies with public debt encountered difficulties in repaying their debt, resulting in many incidents of default in Israel. One of the purposes of the ISA in requiring the cash flow forecasts was to induce companies with "warning signals" to discuss their difficulties internally (by the board of directors) and inform bond investors about cash inflows that are expected to be available to the firm in repaying upcoming bonds payments as early as possible – before the onset of default. Ultimately, the purpose of the regulation was to prevent bankruptcies and increase recovery rates in cases of reorganization (because of early planning, presumably). Therefore, we estimate whether companies that went through reorganization and disclosed cash flow forecasts had higher recovery rates relative to companies, mainly in prior periods, that did not disclose cash flow forecasts. We manually collect data on defaults between 2010 to 2018 from firms' current reports and annual reports, available at the Tel-Aviv stock exchange

website, and identify firms that went through debt restructurings, as well as the date that firms began the negotiation process with bond holders. Additionally, we collect the date at which firms' debt settlement was approved by the court. We obtain data of recovery rates from Sasi-Brodesky (2017) for debt settlements that were initiated between 2008 to 2017.[13] We merge the debt reorganization and recovery rates data with our treated and control observations in accordance with the year that the debt settlement began. We find 25 firms that disclosed cash flow forecasts in the year that their reorganization commenced, and 62 firms that had their debt reorganization begin in a year without cash flow forecasts. We estimate whether bonds recovery rates were higher in firms with cash flow forecasts. Table 7 reports the results, and reveals that treated firms are associated with between 11 to 15 percent higher recovery rates of their bonds. Although we cannot infer causality from this test it is consistent with the regulation's objective of signaling early warnings and preceding onset of bankruptcy procedures, which manifests into actual mitigation of the reorganization procedure outcome[14].

[Insert Table 7 Here]

5.7 Robustness Tests

We perform several robustness tests to ensure that our main results in Section 6.1 are not driven by the specific choice model. We perform the regressions on our treated non-treated observations before matching and find similar results. We change the matching procedure and prevent treated firms from being matched to the same firm in different periods (when cash flow forecasts were not disclosed by them) and find that the results remain qualitatively similar. We winsorize continuous variables at 1% and 99% of their distribution, in addition to the truncation of extreme observations, to ensure that our results are not driven by outlier extreme observations, and we find similar results. We add firm fixed effects for the first specification - on all matched firms (Column 1 and 2 of Table 3, Panel A) and do not find changes in our results. We replace cumulative abnormal bond returns with raw returns to ensure that the matching process of Bessembinder et al. (2009) does not affect our results, and again find similar results.

[13] The number of reorganizations during the estimation period is small - includes 51 reorganizations, we therefore include observation of debt reorganization prior to 2010 – in 2008 and 2009 and add 36 additional reorganizations.

[14] A conversation we held with a former senior official in the Israeli Security Authority strengthen this line of reasoning, stating that prior to the mandatory disclosure of cash flow forecasts, debt holders that were concern about the financial difficulties of their firm did not have a concrete information to act upon.

6. Concluding Remarks

This research studies the informativeness of mandatory cash-flow forecasts to bondholders of financially distressed firms. We utilize, a unique setting from Israel, where financial distressed firms with publicly traded bonds are required to disclose cash flow forecasts. Motivated by prior literature regarding the sensitivity of bond holders to accounting information (Easton et al., 2009; Shivakumar et al., 2011; Lok and Richardson, 2011; and Givoly Hayn and Katz, 2017), we examine mandatory disclosure of forecasts that are regulated, detailed and pertain to cash flows rather than easier to manipulate earnings. We estimate the short window bond reaction to mandatory cash flow forecasts in treated vs. matched non-treated firms, and find that bond holders of distressed firms perceive the cash flow forecasts as credible and informative, and react positively and significantly to higher forecasts, that is in contrast to voluntary forecasts disclosed by distress firms (e.g., Rogers and Stocken, 2005). These results are robust to different specifications of matching procedure, to first occurrences of cash flow forecasts and to various fixed effects. Consistent with prior literature we find that the results are driven by non-investment grade bonds and that the bond reaction does not reverse in the subsequent periods.

Moreover, we find that forecasts produced from a naïve model do not elicit any bond reaction, suggesting that management forecasts convey relevant information that cannot be inferred from existing data.

We also find that components of the cash flow forecast that relate to, financing and investing activities do not appear to convey additional reliable information to bond holders. Finally, conditioning on firms entering into reorganization, we find that firms with cash-flow forecast disclosures in the year that reorganization commenced were associated with between 11 to 15 percent higher recovery rates. That is consistent with the regulation's objective of signaling early warnings and preceding onset of bankruptcy procedures, which manifests into actual mitigation of the reorganization procedure outcome. Overall, our paper contributes to the literature of financial information to bond holders, by demonstrating that soft forward-looking information that is regulated and disclosed mandatorily provides useful information to bond holders in financial distress.

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Table 1

Descriptive statistics of mandatory management cash-flow forecasts before screening

Panel A – Distribution of Forecasts by Industries

Industry	Total number of forecasts	Percent
Real-Estate & Construction	229	52%
Investment & Holding	97	22%
Commerce & Services	38	9%
Manufacturing	33	7%
Others	43	10%
Total	**440**	**100%**

Panel B – Number of management cash-flow forecasts per firm

Number of forecasts per firm	Number of firms	Percent
1	157	36%
2	101	23%
3	72	16%
4	48	11%
5	29	7%
6	19	4%
7	11	2%
8	3	1%
Total	**440**	**100%**

Panel C – Distribution of forecasts per year

Year	Total number of forecasts	Percent
2010	57	12.95%
2011	55	12.50%
2012	95	21.59%
2013	72	16.36%
2014	61	13.86%
2015	46	10.45%
2016	28	6.36%
2017	26	5.91%
Total	**440**	**100.00%**

Notes: The table reports the distribution of management mandatory cash flow forecasts between 2010 to 2017. Panel A describes the distribution of forecasts by industries. Panel B describe the number of forecasts per firm. Panel C describes the distribution of forecasts by year.

Table 2: Descriptive Statistics

Panel A: Treated vs. Control Before Matching

	Treated=1			Treated=0			
Variable	**N**	**Mean**	**Std**	**N**	**Mean**	**Std**	**Diff**	**T-stat**
Financial Variables								
ROA	284	-0.0346	0.1494	921	0.0229	0.0721	-0.0575***	(-8.82)
CH_NI	284	0.0056	0.2316	921	-0.0269	1.0116	0.0325	(0.54)
OCF_OA	284	-0.0050	0.0832	921	0.0244	0.1271	-0.0294***	(-3.66)
CH_OCF	284	-0.0159	0.1928	920	-0.0068	0.1227	-0.00911	(-0.94)
ACC_OA	284	-0.0296	0.1520	921	-0.0014	0.1376	-0.0281***	(-2.94)
CH_ACC	284	0.0215	0.2773	920	-0.0201	1.0542	0.0417	(0.66)
LOSS	284	0.6092	0.4888	932	0.2167	0.4122	0.392***	(13.42)
LEVERAGE	284	0.9433	0.5774	937	0.7469	0.4807	0.196***	(5.74)
SIZE	284	13.877	1.8028	937	14.4164	1.6614	-0.540***	(-4.7)
Forecasts Variables								
NAIVE_PCF	284	0.0038	0.1159	919	0.0319	0.1571	-0.0281***	(-2.79)
CH_NAIVE_PCF	284	0.0088	0.0633	919	0.0072	0.0468	0.00157	(0.45)
NAÏVE_FE	266	0.0134	0.167	884	-0.0047	0.1644	0.0181	(1.56)
PCF_FE	273	-0.0077	0.0665					
PCF_OPER	284	0.0054	0.0667					
PCF_FINAN	284	-0.0599	0.1587					
PCF_INVEST	284	0.0298	0.1003					
PCF_OTHER	284	0.0319	0.0907					
PCF_TOTAL	284	0.0343	0.1242					
CH_PCF_OPER	284	0.0104	0.0981	939	0			
CH_PCF_FINAN	283	-0.0501	0.1972	939	0			
CH_PCF_INVEST	283	0.0491	0.1592	939	0			
Bonds Variables								
WA_CABR(-5+5)	284	0.0048	0.0360	939	0.0005	0.0257	0.00433**	(2.25)
WA_CABR(+6+20)	284	0.0055	0.0593	939	-0.0018	0.0340	0.00735***	(2.63)
SPECULATIVE	284	0.7218	0.4489	939	0.3269	0.4693	0.395***	(12.55)
Recovery_Rate	25	.5799	.2220	62	.45845	.2281	0.121**	(2.26)
Months_in_Restructure	25	17.39	12.87	62	19.49	16.46	-2.098	(-0.57)

Panel B - Treated vs. Control After Matching

	Treated=1			Treated=0				
variable	N	Mean	Std	N	Mean	Std	Diff	T-stat
Financial Variables								
ROA	227	-0.0142	0.1346	227	-0.0081	0.0861	-0.006	(-0.57)
CH_NI	227	0.0024	0.2258	227	0.0035	0.0963	-0.001	(-0.07)
OCF_OA	227	-0.0020	0.0854	227	0.0094	0.1237	-0.011	(-1.15)
CH_OCF	227	-0.0068	0.0990	227	-0.0052	0.1215	-0.0016	(-0.16)
ACC_OA	227	-0.0122	0.1479	227	-0.0176	0.1254	0.0054	(0.42)
CH_ACC	227	0.0092	0.2400	227	0.0087	0.1443	0.0005	(0.03)
LOSS	227	0.5154	0.5009	227	0.5154	0.5009	0	0
LEVERAGE	227	0.8930	0.4225	227	0.8598	0.8944	0.0332	(0.51)
SIZE	227	14.1429	1.8020	227	14.0213	1.7126	0.122	(0.74)
Forecasts Variables								
NAIVE_PCF	227	0.0034	0.1075	227	0.0180	0.1483	-0.0146	(-1.2)
CH_NAIVE_PCF	227	0.0054	0.0462	227	0.0086	0.0439	-0.0032	(-0.76)
NAÏVE_FE	216	0.0197	0.1746	209	-0.0174	0.1357	0.037**	(2.44)
PCF_FE	219	-0.0075	0.0661					
PCF_OPER	227	0.0078	0.0668					
PCF_FINAN	227	-0.0424	0.1170					
PCF_INVES	227	0.0269	0.1051					
PCF_OTHER	227	0.0236	0.0662					
PCF_TOTAL	227	0.0420	0.0842					
CH_PCF_OPER	227	0.0098	0.0986	227	0			
CH_PCF_FINAN	226	-0.0424	0.1671	227	0			
CH_PCF_INVEST	227	0.0519	0.1510	227	0			
Bonds Variables								
WA_CABR(-5+5)	227	0.0045	0.0343	227	-0.0012	0.0372	0.0056*	(1.68)
WA_CABR(+6+20	227	0.0051	0.0635	227	-0.0074	0.0573	0.0125**	(2.20)
SPECULATIVE	227	0.6740	0.4698	227	0.4934	0.5011	0.181***	(3.96)

Notes: The table reports the descriptive statistics of the forecasts variables; other financial variables and bond data variables, between treated and non-treated observations. Appendix A provides a detail description of the variables . In Panel A we describe the non-matched sample and in Panel B we describe the matched sample, performed using propensity score matching. Treated gets 1 if the firm-year observation disclosed the mandatory cash-flow forecasts and zero otherwise. We include in the table only observations with bonds trading data available. The data spans from 2010 to 2017. The last two columns report the mean differences and T-statistics in parentheses. Extreme observation were truncated. ***, **, and * indicate a significance level of 0.01, 0.05, and 0.10, respectively.

Table 3 - Abnormal Bond Returns and Projected Cash Flows from Operations

Panel A: Management Forecasts

	Dependent variable: WA_CABR(-5+5)			
	Entire Matched Sample		**First Occurrence of PCF**	
	(1)	(2)	(3)	(4)
CH_PCF_OPER	0.0503**	0.0598***	0.0770*	0.0971***
	(2.46)	(2.98)	(1.96)	(2.62)
CH_NI	0.00872		0.00842	
	(0.72)		(0.34)	
CH_ACC		0.00793		0.00642
		(0.66)		(0.28)
CH_OPCF		0.0311*		0.0592
		(1.76)		(1.44)
LOSS	-0.000769	-0.000586	-0.00135	-0.00222
	(-0.29)	(-0.22)	(-0.25)	(-0.43)
LEVERAGE	-0.00730	-0.00738	-0.0242	-0.0243
	(-0.93)	(-0.94)	(-1.05)	(-1.07)
SIZE	-0.000671	-0.000654	-0.00146	-0.00146
	(-0.66)	(-0.64)	(-0.94)	(-0.94)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Clustering by firm	Yes	Yes	Yes	Yes
_cons	0.0111	0.0114	0.0386	0.0425
	(0.65)	(0.66)	(1.15)	(1.24)
N	454	454	176	176
adj. R^2	0.017	0.020	0.051	0.058

Panel B: Naïve Model Forecasts

	Dependent variable: WA_CABR(-5+5)			
	Entire Matched Sample		**First Occurrence of PCF**	
	(1)	(2)	(3)	(4)
CH_NAIVE_PCF_OPER	0.00939	-0.00170	0.0258	0.0114
	(0.14)	(-0.02)	(0.24)	(0.11)
CH_NI	0.00777		0.00766	
	(0.71)		(0.35)	
CH_ACC		0.00746		0.00737
		(0.67)		(0.34)
CH_OPCF		0.0212*		0.0316
		(1.70)		(1.08)
LOSS	-0.000243	-0.0000436	0.0000260	-0.0000626
	(-0.09)	(-0.02)	(0.00)	(-0.01)
LEVERAGE	-0.00744	-0.00742	-0.0253	-0.0253
	(-0.91)	(-0.91)	(-1.09)	(-1.08)
SIZE	-0.000926	-0.000983	-0.00157	-0.00171
	(-0.84)	(-0.89)	(-0.95)	(-1.03)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	No	No
Clustering by firm	Yes	Yes	Yes	Yes
_cons	0.0135	0.0146	0.0392	0.0422
	(0.74)	(0.81)	(1.23)	(1.31)
N	454	454	176	176
adj. R^2	0.008	0.008	0.032	0.028

Notes: The table reports the estimation results from Eq. 1, in column 1 and 3 and from Eq. 2 in column 2 and 4.

Eq. 1:

$$WA\_CABR(-5+5)_{i,t} = \beta_0 + \beta_1 CH\_PCF\_OPER_{it} + \beta_2 CH\_NI_{it} + \beta_3 LOSS_{it} + \beta_4 LEVRAGE_{it} + \beta_5 SIZE_{it} + \varepsilon_{it}$$

Eq. 2:

$$WA\_CABR(-5+5)_{i,t} = \beta_0 + \beta_1 CH\_PCF\_OPER_{it} + \beta_2 CH\_OCF_{it} + \beta_3 CH\_ACC_{it} + \beta_4 LOSS_{it} + \beta_5 LEVRAGE_{it} + \beta_6 SIZE_{it} + \varepsilon_{it}$$

The dependent variable $WA\_CABR(-5+5)_{i,t}$ is the value weighted average of the cumulative abnormal bond return of firm-year traded bonds at an 11 day window around earnings announcement. In Panel A the independent variable of interest is CH_PCF_OPER which is the forecasts news. Assuming random walk in cash flows, CH_PCF_OPER for treated firms is calculated as the difference between management mandatory operating cash flow forecasts and the current reported operating cash flows, deflated by lag of total assets. For non-treated firms CH_PCF_OPER is zero. In Panel B we substitute CH_PCF_OPER with $CH\_NAIVE\_PCF\_OPER$ which is forecasts news using expected forecasts that are calculated using a naïve model that assumes random walk with a trend. Appendix A provides a detail description of all variables. Treated gets 1 if the firm-year observation disclosed the mandatory cash-flow forecasts and zero otherwise. In column 1 and 2 227 treated observation are included matched to 227 non-treated observations, using a propensity score matching. In column 3 and 4 we include 88 first occurrence of cash flow forecast by firm, matched with its non-treated observation. T-stat clustered by firms are reported in parentheses. ***, **, and * indicate a significance level of 0.01, 0.05, and 0.10, respectively.

Table 4: Management Forecasts in Firms with Speculative vs. Non speculative Bonds

	Dependent variable: WA_CABR(-5+5)			
	Speculative		**Non-Speculative**	
	(1)	(2)	(3)	(4)
CH_PCF_OPER	0.0635**	0.0718***	-0.0162	-0.000443
	(2.49)	(2.86)	(-0.67)	(-0.02)
CH_NI	0.0128		-0.0572	
	(0.92)		(-1.27)	
CH_OPCF		0.0331		-0.0211
		(1.59)		(-0.52)
CH_ACC		0.0119		-0.0601
		(0.88)		(-1.33)
LOSS	-0.000297	-0.000141	-0.00215	-0.00213
	(-0.06)	(-0.03)	(-1.09)	(-1.05)
LEVERAGE	-0.00768	-0.00779	0.00801	0.0118
	(-0.95)	(-0.96)	(0.77)	(1.20)
SIZE	-0.00140	-0.00138	-0.00124	-0.00114
	(-0.67)	(-0.67)	(-1.22)	(-1.19)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Clustering by firm	Yes	Yes	Yes	Yes
_cons	0.0185	0.0188	0.0142	0.0106
	(0.64)	(0.65)	(0.83)	(0.66)
N	265	265	189	189
adj. R^2	0.010	0.009	0.003	0.025

Notes: The table splits our matched sample into firm-year observations with an average speculative rated bonds i.e. Speculative=1, in column 1 and 2, and non-speculative rated bonds i.e. Speculative=0, In columns 3 and 4. Speculative is an indicator variable that receives one if the average bonds' rating of firm i at time t is equal or below BBB-, and zero if it's is above. In column 1 and 3 we report the estimation results from Eq. 1, and in column 2 and 4 we report the estimation results from Eq. 2:

Eq. 1:

$$WA\_CABR(-5+5)_{i,t} = \beta_0 + \beta_1 CH\_PCF\_OPER_{it} + \beta_2 CH\_NI_{it} + \beta_3 LOSS_{it} + \beta_4 LEVRAGE_{it} + \beta_5 SIZE_{it} + \varepsilon_{it}$$

Eq. 2:

$$WA\_CABR(-5+5)_{i,t} = \beta_0 + \beta_1 CH\_PCF\_OPER_{it} + \beta_2 CH\_OCF_{it} + \beta_3 CH\_ACC_{it} + \beta_4 LOSS_{it} + \beta_5 LEVRAGE_{it} + \beta_6 SIZE_{it} + \varepsilon_{it}$$

The dependent variable $WA\_CABR(-5+5)_{i,t}$ is the value weighted average of the cumulative abnormal bond return of firm-year traded bonds at an 11-day window around earnings announcement. The independent variable of interest is CH_PCF_OPER which is the forecasts news. Assuming random walk in cash flows, CH_PCF_OPER for treated firms is calculated as the difference between management mandatory operating cash flow forecasts to the current reported operating cash flows, deflated by lag of total assets. For non-treated firms CH_PCF_OPER is zero. Appendix A provides a detail description of all variables. Treated gets 1 if the firm-year observation disclosed the mandatory cash-flow forecasts and zero otherwise. T-stat clustered by firms are reported in parentheses. ***, **, and * indicate a significance level of 0.01, 0.05, and 0.10, respectively.

Table 5 - Abnormal Bond Returns and Components of Projected Cash Flows from Operations Finance and Investment Activities

	Dependent variable: WA_CABR(-5+5)			
	Operating	Finance	Investment	All Activities
	(1)	(2)	(3)	(4)
CH_PCF_OPER	0.0598***	0.0486***	0.0575***	0.0752**
	(2.98)	(2.73)	(3.02)	(2.47)
CH_PCF_FINAN		-0.0195		0.00103
		(-1.37)		(0.05)
CH_PCF_INVEST_OTHER			0.0201	0.0284
			(1.33)	(1.20)
CH_AC	0.00793	0.00838	-0.00434	0.00854
	(0.66)	(0.69)	(-0.56)	(0.75)
CH_OPCF	0.0311*			0.0136
	(1.76)			(0.74)
CH_CF_FINAN		-0.0445**		-0.0314*
		(-2.05)		(-1.77)
CH_CF_INVEST			0.0356*	0.0176
			(1.68)	(1.06)
LOSS	-0.000586	-0.000499	-0.00180	-0.000360
	(-0.22)	(-0.18)	(-0.73)	(-0.14)
LEVERAGE	-0.00738	-0.00718	-0.00659	-0.00699
	(-0.94)	(-0.99)	(-0.93)	(-0.98)
SIZE	-0.000654	-0.00102	-0.000942	-0.000894
	(-0.64)	(-1.02)	(-0.93)	(-0.88)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Clustering by firm	Yes	Yes	Yes	Yes
_cons	0.0114	0.0197	0.0172	0.0172
	(0.66)	(1.12)	(0.99)	(0.98)
N	454	452	454	452
adj. R^2	0.020	0.046	0.034	0.044

Notes: The table reports in column 1 the estimation results from Eq. 2:

Eq. 2:

$$WA\_CABR(-5+5)_{i,t} = \beta_0 + \beta_1 CH\_PCF\_OPER_{it} + \beta_2 CH\_OCF_{it} + \beta_3 CH\_ACC_{it} + \beta_4 LOSS_{it} + \beta_5 LEVRAGE_{it} + \beta_6 SIZE_{it} + \varepsilon_{it}$$

In Column 2 and 3 we add to Eq.2 the current and forecast news in other components of cash flows: from financing and investment activities. Column 4 reports the results of Eq.2 while including current and forecast news from all three components of cash flows from operating, investing and finance activities. The dependent variable $WA\_CABR(-5+5)_{i,t}$ is the value weighted average of the cumulative abnormal bond return of firm-year traded bonds at an 11-day window around earnings announcement. Appendix A provides a detail description of all variables. Treated gets 1 if the firm-year observation disclosed the mandatory cash-flow forecasts and zero otherwise. T-stat clustered by firms are reported in parentheses. ***, **, and * indicate a significance level of 0.01, 0.05, and 0.10, respectively.

Table 6 – Post-announcement Bond Returns

	Dependent variable: WA_CABR(+6+20)			
	Entire Matched Sample		**First Occurrence of PCF**	
	(1)	(2)	(3)	(4)
CH_PCF_OPER	0.0213	0.0350	0.0235	0.0550
	(0.54)	(0.89)	(0.33)	(0.67)
CH_NI	-0.0991		-0.154	
	(-1.36)		(-1.47)	
CH_ACC		-0.100		-0.157
		(-1.38)		(-1.53)
CH_OPCF		-0.0669		-0.0743
		(-1.04)		(-0.72)
LOSS	-0.0112	-0.0110	-0.0170	-0.0184
	(-1.48)	(-1.48)	(-1.38)	(-1.49)
LEVERAGE	-0.0121	-0.0123	-0.0171	-0.0173
	(-1.61)	(-1.63)	(-0.54)	(-0.55)
SIZE	-0.00143	-0.00141	-0.00403	-0.00413*
	(-0.64)	(-0.63)	(-1.62)	(-1.66)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Clustering by firm	Yes	Yes	Yes	Yes
_cons	0.0261	0.0265	0.0655	0.0716
	(0.77)	(0.78)	(1.36)	(1.44)
N	454	454	176	176
adj. R^2	0.101	0.103	0.180	0.186

Notes: The table reports the estimated regressions reported in Panel A of Table 3 but for the post announcement period i.e. the independent variable $WA\_CABR(+6+20)_{i,t}$ is the value weighted average of the cumulative abnormal bond return of firm-year traded bonds at a 15 day window after the announcement of the bundled forecasts. Appendix A provides a detail description of all variables.
T-stat clustered by firms are reported in parentheses. ***, **, and * indicate a significance level of 0.01, 0.05, and 0.10, respectively.

Table 7 – Bond Recovery Rates in Treated Firms

	Dependent variable: Recovery_Rate_i			
	(1)	(2)	(3)	(4)
TREATED	0.121**	0.146**	0.116**	0.114*
	(2.26)	(2.60)	(2.04)	(1.99)
CASH_OA			-0.328	-0.333
			(-1.53)	(-1.54)
LEVERAGE			-0.00000295	-0.00000337
			(-0.33)	(-0.37)
SIZE			0.0127	0.0126
			(0.98)	(0.97)
Speculative			-0.310	-0.301
			(-1.35)	(-1.30)
Months_in_Restructure				-0.000551
				(-0.33)
Industry FE	No	Yes	Yes	Yes
Clustering by Firm	Yes	Yes	Yes	Yes
_cons	0.458***	0.522***	0.702**	0.709**
	(15.94)	(9.76)	(2.38)	(2.38)
N	87	87	87	87
adj. R^2	0.046	0.054	0.075	0.064

Notes: The table reports the bond recovery rates in treated vs. non-treated firms. The dependent variable Recovery_Rate_i is the average recovery rate of firms' i traded bonds, in firms that went through reorganization between 2010 to 2017. Recovery_Rate data was calculated and provided by Sasi-Brodesky (2017). TREATED is an indicator that receives 1 if the firm that went through reorganization disclosed cash flow forecasts at the year that reorganization began and receives 0 otherwise. CASH_OA are the total cash flows of firm i at the year that reorganization began, deflated by lag of total assets. Months_in_Restructure are the number of months between the date that restructure began to the date that the restructure was approved by the court. Appendix A provides a detail description of other variables. T-stat clustered by firms are reported in parentheses. ***, **, and * indicate a significance level of 0.01, 0.05, and 0.10, respectively.

Appendix A: Variables Definition

Variable Name	Description
$TREATED_{i,t}$	An indicator that gets 1 if firm i at time t disclosed projected cash flows, and gets zero otherwise.
$\mathrm{ROA}_{i,t}$	Return on assets is the net income scaled by lag of total assets.
$\mathrm{CH\_NI}_{i,t}$	Change in net income in time t relative to t-1, scaled by lag of total assets.
$\mathrm{OCF\_OA}_{i,t}$	Operating cash flows of firm i at time t, scaled by lag of total assets.
$\mathrm{CH\_OCF}_{i,t}$	Change in operating cash flows in time t relative to t-1, scaled by lag of total assets.
$\mathrm{ACC\_OA}_{i,t}$	Accruals are the total accruals of firm i at time t, calculated as the difference between net income and operating cash flows, scaled by lag of total assets.
$\mathrm{CH\_ACC}_{i,t}$	Change in accruals in time t relative to t-1, scaled by lag of total assets
$\mathrm{LOSS}_{i,t}$	An indicator that gets 1 if the net income of firm i at time t are negative, and gets zero otherwise.
$\mathrm{LEVERAGE}_{i,t}$	Total liabilities over total assets
$\mathrm{SIZE}_{i,t}$	Natural log of total assets
$\mathrm{NAIVE\_PCF}_{i,t+1}$	A naïve model used to calculate projected operating cash flows for t+1. Assuming random walk, the expected operating cash flows $E(NAIVE\_OCF_{t+1})$ is modelled based on the assumption that operating cash flows follow a seasonal random walk with a trend: $$E(NAIVE\_OCF_{t+1}) = OCF_t + \delta$$ The trend δ is calculated based on the average changes in operating cash flows in prior years (up to the last 6 years): $$\delta = \frac{1}{6}\sum_{t=-5}^{t=0}(OCF_t - OCF_{t-1})$$ $\mathrm{NAIVE\_PCF}_{i,t+1}$ is $E(NAIVE\_OCF_{t+1})$ scaled by lag of total assets.
$\mathrm{CH\_NAIVE\_}PCF_{i,t+1}$	The changes in the navie projected operating cash flows relative to current operating cash flows ($\mathrm{NAIVE\_PCF}_{i,t+1} - \mathrm{OCF}_{i,t}$), scaled by lag of total assets.
$FE\_\mathrm{NAÏVE\_PCF}_{i,t+1}$	Forecast error of naïve projected operating cash flows is the difference between firms' i realized cash flows at time t+1 and projected cash flows from the naïve model for time t+1, disclosed at time t ($\mathrm{OCF}_{i,t+1} - \mathrm{NAIVE\_PCF}_{i,t+1}$), deflated by lag of total assets.
$\mathrm{PCF\_OPER}_{i,t+1}$	The projected cash flows from operating activities of firm i for time t+1, as disclosed mandatorily by management at time t, deflated by lag of total assets.
$\mathrm{FE\_PCF\_OPER}_{i,t+1}$	Forecast error of projected operating cash flows is the difference between firms' i realized cash flows at time t+1 and projected cash flows from mandatory anagement disclosure for time t+1, disclosed at time t ($\mathrm{OCF}_{i,t+1} - \mathrm{PCF\_}OPER_{i,t+1}$), deflated by lag of total assets.
$\mathrm{PCF\_FINAN}_{i,t+1}$	The projected cash flows from finance activities of firm i for time t+1, as disclosed mandatorily by management at time t, deflated by lag of total assets.
$\mathrm{PCF\_INVES}_{i,t+1}$	The projected cash flows from investing activities of firm i for time t+1, as disclosed mandatorily by management at time t, deflated by lag of total assets.
$\mathrm{CH\_PCF\_OPER}_{i,t+1}$	The difference between the projected cash flow from operation for time t+1

	and cash flows from operation at time t ($\text{PCF\_OPER}_{i,t+1} - \text{OCF}_{i,t}$), deflated by lag of total assets.
$\text{CH\_PCF\_FINAN}_{i,t+1}$	The difference between the projected cash flow from finance for time t+1 and cash flows from finance at time t ($\text{PCF\_FINAN}_{i,t+1} - \text{FCF}_{i,t}$), deflated by lag of total assets.
$\text{CH\_PCF\_INVEST}_{i,t+1}$	The difference between the projected cash flow from investimg for time t+1 and cash flows from investing at time t ($\text{PCF\_INVEST}_{i,t+1} - \text{ICF}_{i,t}$), deflated by lag of total assets.
$\text{FIRST\_OCCUR}_{i,t}$	An indicator variable that gets 1 for firm's first occurrence of projected cash flow disclosure.
WA_CABR(-5+5)	Value weighted average of cumulative abnormal bond return at an 11 day window around earnings announcement date (day zero). Abnormal bond returns are calculated using the matching portfolio model following Bessembinder et al. (2009), separately for each series of bond. As in Bessembinder et al. (2009) 12 matching portfolios were created by classifying bonds into six major rating categories (AA- or above, A+, A, A-, between BBB+ to BB, below BB), and then segmenting each of these categories into intermediate and long-term indices based upon time to maturity (below 3 years or equal and above 3 years). These 12 indices daily returns are value weighted and used as the expected bond return (EBR) for a matched bond in our sample. The abnormal bond return (ABR) for bond b of firm i at day d is calculated as the difference between the bond return (BR) and the expected return of a matched portfolio: $ABR_{bid} = BR_{bid} - EBR_{p,d}$ We than accumulate the 11-day abnormal return of bond b of firm i, around earnings announcement day t: $\text{CABR}(-5+5)_{bit} = \sum_{d=-5}^{5} ABR_{bid}$ We calculate the weighted average of all bonds of firm i that traded around earnings announcement date t $\text{WA\_CABR}(-5+5)_{it} = \sum_{b=1}^{n} W_b * \text{CABR}(-5+5)_{bit}$
WA_CABR(+6+20)	Weighted average of cumulative abnormal bond return at +6+20 days after earnings announcement date. See detailed explanation above.
$\text{SPECULATIVE}_{i,t}$	An indicator that receives one if the average bonds' rating of firm i at time t is equal or below BBB-, and zero if its is above. Bond that are not rated received a speculative rate.
BANKRUPT	Gets 1 if the firm went bankrupt (similar to Liquidation under Ch. 7 of the U.S. bankruptcy code), or if the firm went through debt settlement under paragraph 350 of the Israeli corporate law (similar to reorganization under Ch. 11 of the U.S. bankruptcy code); and 0 otherwise.
Recovery_Rate_i	Average recovery rate of firms' i traded bonds, in firms that went through reorganization. Recovery rate was calculated following Sasi-Brodesky (2017).
Months_in_Restructure	The number of months between the date that restructure began to the date the restructure was approved by the court.