"Policy initiatives and firms' access to external finance: Evidence from a panel of emerging Asian economies"

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Policy initiatives and firms' access to external finance: Evidence from a panel of emerging Asian economies[*]

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December 4, 2015

Abstract

This paper analyses the impact of policy initiatives co-ordinated by Asian national governments on firms' composition of external finance. Using a unique firm-level database of eight Asian countries- Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand over the period of 1996-2012 and a difference-in-differences approach, the results show a significant impact of policy initiatives on firms' choice to external finance. We find that firms increased their uptake of long-term debt, while decreased their short-term debt. We also document that less risky and more profitable firms are more significantly affected by the policy change than riskier and less profitable firms. Finally, we show that the improved access to external finance after the policy initiative helped firms to raise their investment spending.

Key words: External finance; Emerging Asia; Bond market policy initiatives; Financial constraints

JEL: C23, E44, G15, G32, O16

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1 Introduction

The 1997–98 Asian financial crisis prompted policymakers in Asia and the Pacific to initiate a series of reforms aimed at the development and strengthening of the regional bond markets. The most prominent initiative of Asian Bond Funds (ABF and ABF-2) was undertaken in two waves in 2003 and 2005. The main role of this policy intervention was to broaden investor participation and improve market infrastructure in order to expand the domestic bond markets. As post-ABF data become widely available and their Latin American counterparts seek to adopt similar programmes, it is important to examine the extent to which this program has been successful in meeting the above objectives. The present paper provides new evidence on corporate financial choices after the introduction of policy initiatives in Asia. More specifically, we ask whether these initiatives have led to better/improved access of firms to external finance compared to firms that operate in an economy that did not participate in this policy intervention.

There is evidence that the ABF encouraged expansion and liquidity in the Asian domestic bond markets by implementing several market reforms such as liberalising foreign exchange administration rules, tax reforms to exempt withholding tax of non-resident investors, improving regulatory framework for exchange traded funds, strengthening domestic market infrastructure and decreasing cross-border settlement risk, creating transparent and credible bond indices (Packer and Remolona, 2012). These reforms helped in expanding the domestic bond markets and their issuer base. The share of local currency bond markets increased substantially from 42.8% since the launch of the ABMI in 2003 to 54.5% in Q3 2008, thus improving market liquidity in the Asian markets (Spiegel, 2012)[1].

Comparing the issuance of long-term debt of participating firms in our sample with non-participating firms reveals a large wedge between the two groups: USD 66.89 billion for the former versus 2.91 billion for the latter. Even when making a before-after comparison, we can see that the average long-term debt of participating firms increased from USD 59.25 billion before the ABF to 72.44 billion after the ABF. However, it is not

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[1]Levinger et al. (2014) showed evidence that the corporate bond market capitalisation in Asia has reached to 24.2% of the region's GDP by 2012 from 16.7% in 2008. In terms of value, the amount of corporate bonds outstanding has almost tripled since 2008, amounting to USD 3.2 trillion by Q3 2013.

clear how much of this change stems from the policy change itself and how much is due from improvements in the general economic climate. A difference-in-differences model will tease out the regional bond development and policy influences. In order to separate the effects of this regional development from the effect of regional policy initiatives, we refer to Taiwan as a control. Taiwan saw similar development in its national bond market and is comparable to the other Asian economies, but it did not participate in the ABF, ABF2 or ABMI initiatives.

The identifying assumption for the research design is that economies that participated in the policy initiative and those that did not would have trended similarly in the absence of the policy change. The parallel trends assumption is supported by the institutional background of the Asian bond initiatives as well as graphical evidence[2]. Figure 1 graphs the evolution of bond market size in Asian markets over the sample period of 1996-2012. Panel A displays similar growth patterns of bond market size for both the control and treated groups until the end of the Asian financial crisis in 1999. However, from 1999 there is an upward trend in bond market size for the treated group and the gap between the control and treated group further widens after the introduction of ABF-2 at the end of 2004 (see the solid vertical line which indicates the introduction of the policy initiative). Panel B, which shows the evolution of corporate bond market, displays a similar pattern. It shows a widening gap between the control and treated group after the introduction of the policy initiatives. While, panel C shows that the control group (Taiwan) showed similar growth patterns over the years with majority of East Asian economies in terms of bond market development[3]. Figure 2 graphs the development of the banking sector in the treated and control group over the same period. The graph displays the growing trend of the banking sector in the treated group after the Asian financial crisis, while the growth in the control group almost remains constant throughout the period. The graphs described above confirm the parallel trends assumption in our data which suggests that

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[2]In the robustness section of the paper we present a placebo test to show that there are no underlying trends in the pre-policy period which can influence the treatment effect.

[3]Amongst the countries in our treated group, Korea has the largest bond market. Hence, in order to confirm that our results are not driven by Korea, we exclude this country from the treated group. We find that our results, reported in the robustness section, are both qualitatively and quantitatively similar to our main results including Korea.

in the absence of the policy change the two groups would have continued to track each other.

Much of the empirical investigation of firms' external finance considers how exogenous shocks affect firms' financing choices. Bris et al. (2014) shows that non-financial firms from euro countries with previously weak currencies considerably increased their debt financing after the introduction of the Euro. Leary (2009) highlights the impact of a market for certificates of deposit which led to increase in bank credit and firms' leverage. Sufi (2009) studies the impact of syndicated loan ratings introduced in 1995 on borrowing of firms that obtained a rating, finding that firms that are able to obtain a rating are able to use more debt, which also increases firms' asset growth, cash acquisitions, and investment in working capital. Further, Lemmon and Roberts (2010) show that the collapse of Drexel Burnham Lambert had a negative effect on firms' finance and investments, especially for those which were using high-yield debt financing. In the Asian context, recent work by Mizen and Tsoukas (2014) demonstrates that regional initiatives have been an important step towards greater bond issuance by firms in Asia, mostly by fostering market deepening and improving liquidity.

But it is not clear whether the demand for all types of external finance will increase proportionately. Some components of external finance may prove more attractive than others, and the demand for bank borrowing for example, may exceed demand for credit obtained through the sale of marketable debt or equity. Equally, short-term debt may be replaced by longer-term debt if short-term interest rates fall below the rates that are expected to prevail in the longer run. In addition, some types of firms may find that the credit constraints that they face on the supply side, from the markets and financial intermediaries, are relaxed less quickly than for other types of firms. Firms that were previously only able to obtain credit from banks, perhaps because they were too small to be listed on the stock exchange or to issue their own commercial paper or bonds, find that other forms of credit become more readily available.

In this paper we look at the financial health of the firm, reflected in the quality of its balance sheet. Then we consider different types of external finance such as short-

term or long-term debt and we construct ratios that measure firms' choice of external finance. Finally, we observe a unique policy experiment, namely the ABF initiative, which will be used to identify the effects of the policy change on firms' composition of external finance. Our empirical work is based on an assessment of the policy initiative on firms' access to external finance using an unbalanced panel of 7,436 Asian listed firms between 1996-2012. We merge data from different sources including Bondware, Bloomberg, Standard and Poor's Compustat Global database, Global Financial database and IMD World Competitiveness Yearbook.

Our paper contributes to the existing literature in three important ways. First, we analyse the role of the Asian Bond Funds (ABF and ABF2) and the Asian Bond Market Initiative (ABMI) in the composition of external finance. While previous studies identified that the regional initiatives in Asia had a greater and positive impact on firms' decisions to issue bonds in Asia (see Mizen and Tsoukas, 2014), we go one step further by examining the impact of these initiatives on firms' external finance using the difference-in-differences method.

Second, we exploit firm-level heterogeneity by considering whether firms that face financial constraints may be more or less likely to alter their composition of external finance. In doing so, we employ characteristics such as firms' profitability and coverage ratio as measures of financial constraints. These characteristics are likely to be critically important in influencing firms' access to financial markets and we intend to explore how the interplay between changes in financial health and the introduction of policy initiatives, affect the choice of external finance for more and less constrained firms.

Finally, we build on the extant literature of firms' investment spending (Fazzari et al., 1988; Almeida and Campello, 2007), by considering whether the policy intervention by the Asian regional governments has impacted on firms' investment spending. Hence, we explore the relationship between external finance and firm's investment spending before and after the policy initiative. We also allow for the fact that firms of different riskiness, with varying levels of profits might respond to the policy initiative disproportionately.

The rest of the paper is organized as follows. Section two provides a brief review

of the relevant literature. In section three, we present the data used in our empirical analysis along with summary statistics. We describe the econometric modelling strategy in section four, and we report the econometric results in section five. In section six we check the robustness of our findings and we provide concluding remarks in section seven.

2 Background literature

In the past, Asian bond markets have been identified as under-developed and illiquid. Minimum efficient scale, corruption and low level of bureaucracy, poor accounting standards (Eichengreen and Luengnaruemitchai, 2006), capital controls, taxation, limited availability of hedging instruments (Takeuchi, 2006) were some of the obstacles in developing the bond markets in Asia. However, since the 1990s many emerging countries in Asia have taken important steps to enhance their financial markets. Especially after the Asian crisis, the need to develop sound and more liquid bond markets to prevent further capital account crisis was realised and regional governments started contributing towards the development of local bond markets in Asia.

The most noteworthy policy intervention was undertaken by the Asia-Pacific policy-makers to allow bond markets to develop in two waves since 2003. The first phase of the Asian Bond Fund (ABF) initiative, namely ABF-1, was introduced in June 2003 and USD 1 billion were fully invested in dollar denominated bonds in the Executive Meeting of East Asia and the Pacific (EMEAP) central bank economies[4]. The second phase of this initiative was launched in December 2004 called ABF-2. In the second wave USD 2 billion were invested in domestic bonds issued by sovereign and quasi-sovereign issuers in eight local currency markets of the region, where the eight EMEAP central banks operate. These markets include China, Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand. The ABF-2 initiative was planned to improve size and liquidity in the Asian bond markets along with enhancing investor awareness and

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[4]EMEAP central banks include the Reserve Bank of Australia, People's Bank of China, Hong Kong Monetary Authority, Bank Indonesia, Bank of Japan, Bank of Korea, Bank Negara Malaysia, Reserve Bank of New Zealand, Bangko Sentral ng Pilipinas, Monetary Authority of Singapore and Bank of Thailand.

interest in Asian bonds. In our study, we will make use of this natural experiment to evaluate its influence on firms' choice of external finance.

A more detailed review of the financial systems in Asian countries is presented by Didier and Schmukler (2014). They highlighted that bond markets expanded by almost 57% in East Asia, 345% in China and 66% in India, during the 2000s relative to the 1990s. Despite of substantial growth between 2000 and 2009, private bond markets including corporate and financial institutions in Asian economies remain relatively small compared to G-7 economies. In contrast, the developments in the Asian bond market are still the highest among other developing countries. For instance, the bond markets in Eastern Europe and Latin America grew respectively at 28% and 32% of GDP, exceptionally lower than 56% in East Asia. The banking system in the East Asian economies increased by 47% between 1980-89 and 2000-2009, while in Eastern Europe, G-7 economies and Latin America increased by 25%, 20% and 5%, respectively during the same period. The structure of private credit and public credit have changed considerably across the world over the past two decades. In East Asian economies, private sector lending has increased from 44% to 72% of GDP, compared to 50% in the 1980s to 98% in the 2000s in other advanced economies. While, public sector lending accounts 10% and 13% of total claims by the banking sector in G-7 and East Asian economies during the 2000s. Thus, these financial trends overall highlight the fact that Asian economies are more developed compared to Eastern Europe and Latin America, due to rapid financial improvements in the region during the 2000s.

Moving to the literature which attempts to identify the main determinants of firms' choice of external finance, we note that there is a variety of firm-level and macroeconomic factors that influence firm financing. With respect to the firm-level characteristics, size, age, collateral, profitability and riskiness are highlighted as important factors affecting access to external finance by firms (see Bougheas et al., 2006). Business group affiliation (Shin and Park, 1999) and availability of credit information (Tang, 2009) are other factors affecting firms' choice of capital structure. At the macroeconomic level, monetary policy shocks (Kashyap et al., 1993), institutional differences and development of finan-

cial markets (Demirgüç-Kunt and Maksimovic, 2002; Fan et al., 2010) and higher costs and barriers to entry (Cetorelli and Strahan, 2006) are typically highlighted as important variables influencing firms' access to external finance.

The studies discussed above provide a useful background to explore the linkage between firms' access to external finance and Asian bond market initiatives. In addition, we also try to analyse the impact of debt availability on firms' investment spending in the post-policy period. In the following sections, we explain our data and empirical strategy.

3   Empirical methodology

3.1   The baseline model

To examine the impact of bond market policy initiatives on firms' access to external finance, we employ difference-in-differences methods [5]. More specifically, we evaluate the impact of the policy intervention by comparing differences in external finance composition before and after the policy change for firms in seven Asian economies that participated in this initiative (treatment) namely- Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand. We then compare these differences with comparable differences from a sample of firms in Taiwan (control), which did not participate in the policy initiative but faced similar trajectory in firms' financing activities.

The dependent variables capture measures of external finance and are based on the ratios of short-term debt to total debt (Bougheas et al., 2006) and long-term debt to total assets (Demirgüç-Kunt and Maksimovic, 1999)[6]. The former ratio refers to access to bank finance versus market finance, while the latter ratio is more related to access to bond financing, compared to total assets held by the firms. These ratios help to remove demand-side influences as increase in the demand of credit is likely to affect both

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[5]Several recent studies use this methodology to estimate the impact of minimum wages on employment (Card and Krueger, 1994; Leigh, 2003), the effect of grants and subsidies on exporting activity (Görg et al., 2008) and the role of the financial crisis in corporate investment (Duchin et al., 2010).

[6]Short-term debt is made up of the sum of bank overdrafts, short-term group and director loans, hire purchase, leasing and other short-term loans, but is predominantly bank finance. Long-term debt is made of bonds, mortgages, loans and similar debt, which represents debt obligations due more than one year from the company's balance sheet date or due after the current operating cycle.

numerator and denominator of the ratio, leaving the ratio unchanged (Bougheas et al., 2006). We estimate a baseline model of the following kind:

$$\frac{STD_{ijt}}{TD_{ijt}} = \alpha_0 + \alpha_1 Treat_j + \alpha_2 After_t + \alpha_3 Treat_j * After_t + \alpha_4 X_{ijt} + e_{ijt}, \qquad (1)$$

$$\frac{LTD_{ijt}}{TA_{ijt}} = \alpha_0 + \alpha_1 Treat_j + \alpha_2 After_t + \alpha_3 Treat_j * After_t + \alpha_4 X_{ijt} + e_{ijt} \qquad (2)$$

where $i = 1, 2, ..., $ N refers to the cross-section of units (firms in this case), in country j at time t. $\frac{STD_{ijt}}{TD_{ijt}}$ and $\frac{LTD_{ijt}}{TA_{ijt}}$ are the ratios of short-term debt to total debt and long-term debt to total assets, respectively. $Treat_j$ is a country dummy which takes value one if a country participates in the policy initiative and zero otherwise. $After_t$ is a time dummy which takes value one for the period 2005-2012 and zero otherwise[7]. The policy effect is given by the coefficient of the interaction term, $Treat_j * After_t$. The coefficient on the interaction term measures the difference in the choice of external finance between those firms that experience an anticipated policy change and those that do not. If the policy initiative has a crucial effect on access to finance with a considerable difference between the control and treated group, then it should have a significant coefficient value.

The models are estimated using difference-in-differences with firm fixed effects to control for unobserved heterogeneity at the firm-level. Country dummies are included in the model to control for country-level differences, while time dummies interacted with industry dummies are included in order to control for all time-varying demand shocks at the industry level (Brown and Petersen, 2009). We cluster standard errors at the firm level as the observations over time might be correlated within firms. Finally, X is a vector which includes other explanatory factors at both firm and country-level and e_{ijt} are the disturbance terms.

In vector X we use a number of firm-level and macro-economic variables which have been found to influence firms' choice of external finance. To begin with the firm-specific

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[7]By observing the treatment after 2005, we are mainly focusing on the impact of ABF-2 introduced at the end of 2004. ABF-2 initiative differs from the others as it involves the actual creation of local currency bond funds. The earlier ABF initiative had limited itself to dollar-denominated issues that are traded mostly in more developed international bond markets. ABF was important because it afforded the EMEAP central banks an opportunity to work together for building trust in order to foster cooperation and further develop financial markets in the region (Ma and Remolona, 2006).

characteristics, previous literature postulates that *size* is an important determinant of external financing. Firm size is measured as the natural logarithm of total assets (Mizen and Tsoukas, 2014). Larger firms have better access to external finance as they are less financially constrained, while smaller firms are more dependent on short-term bank financing (Bougheas et al., 2006).

Firms' *liquidity* is measured by the ratio of current assets to current liabilities. According to Ozkan (2001), liquidity of the firms is likely to have a mixed impact on access to external financing. Higher liquidity might encourage firms to have higher debt ratios due to increased ability to meet short-term obligations, implying a positive relationship between liquidity and external finance. While, firms with higher liquidity might also reduce their debt access exerting a negative impact on external finance. Following Bougheas et al. (2006), *gearing* is measured by total liabilities to shareholder's equity. González et al. (2007) show that more leveraged firms have fewer requirements of external financing.[8]

Following Mizen et al. (2012), the *expansion rate* of firms is measured by the ratio of investments to total assets. According to Datta et al. (2000), faster growing firms are more likely to issue bonds compared to firms with less opportunities for expansion. Also, firms with higher expansion rate are likely to undertake bond issuance earlier (Hale and Santos, 2008). Firm's *operating cycle* is calculated as the ratio of net sales to net fixed assets. Firms with higher operating cycle, depend more on short-term debt to finance the sales (Demirgüç-Kunt and Maksimovic, 1999). Finally, *cash flow* is measured by the ratio of earnings before extraordinary items plus depreciation and amortization to total assets (Almeida and Campello, 2010). Firms with higher levels of cash flow or higher cash surplus are expected to reduce their leverage (Demirgüç-Kunt and Maksimovic, 1999).

In addition to firm-level variables, we also control for other macro-economic factors in vector X such as GDP growth rate, legal regulation and balance of trade[9]. Among these factors, *GDP growth rate* and *balance of trade (scaled by GDP)* are measures of

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[8]On the contrary, Mizen and Tsoukas (2014) show that higher leveraged firms are more likely to issue corporate bonds.

[9]We also control for other additional controls such as stock market capitalisation, global liquidity indicator and a global financial crisis dummy. These results are given in section 6.5 and we confirm that our main results remain unchanged even after including other control variables.

general economic development. Better economic conditions might encourage firms to shift towards non-debt liabilities showing a negative effect on external finance. Firms in countries with higher levels of *legal regulation* are more likely to rely on external financing due to reduced information asymmetries resulting in higher growth (La Porta et al., 1998) and better working of financial contracts (Demirgüç-Kunt and Maksimovic, 1999).

3.2 Access to external finance and investment after the policy change

In this section, we explore the influence of external finance on firm's investment spending in the post-policy period[10]. One of the objectives of the Asian bond market initiatives is to provide alternative sources of financing for private and public investments to enterprises (Kawai, 2010). It is particularly interesting to examine the impact of long-term debt issued on firm's investment spending as the Asian Bond Fund initiatives are expected to expand long-term debt issuance. We argue that this is likely to have a positive effect on firms' investment spending. To test this hypothesis, the dependent variable of firm's investment spending (Inv) is measured as the ratio of annual capital expenditure to total assets (Duchin et al., 2010). The models are estimated as follows:

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\begin{aligned}
Inv_{ijt} = & \ \alpha_0 + \alpha_1 Treat_j + \alpha_2 After_t + \alpha_3 Lev_{ijt} + \alpha_4 Treat_j * After_t * Lev_{ijt} + a_5 Treat_j * \\
& After_t + a_6 After_t * Lev_{ijt} + a_7 Treat_j * Lev_{ijt} + \alpha_8 Q_{ijt} + \alpha_9 CF_{ijt} + e_{ijt},
\end{aligned} \tag{3}
$$

where Lev_{ijt} refers to the measures of external finance i.e. both short-term and long-term debt ratios, CF measures firm's cash flow and Q controls for firm's investment opportunities. The main variable of interest is the interaction term between leverage and the DD coefficient which is given by $Treat_j * After_t * Lev_{ijt}$, captures the impact of post-policy access to external finance on firms' investment expenses for the treated group. Due

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[10]We also explored the direct impact of the ABF policies on firms' investment spending and found a positive and significant impact, implying an increase in investment spending by firms after these policies were introduced.

to data unavailability on market value of assets (e.g. number of shares outstanding and stock price) in Global Compustat we are unable to construct Tobin's Q (see also Baum et al., 2011), but investment opportunities are controlled for in two ways. First, following Konings et al. (2003) and Bakucs et al. (2009), sales growth is used as a proxy for Tobin's Q. Second, time dummies interacted with industry dummies in all the specifications are used as an indirect way of controlling for investment opportunities (see Guariglia et al., 2012).

3.3   Accounting for firm-level heterogeneity

Intuitively, not all firms are expected to benefit equally from the above mentioned policy initiatives. Fazzari et al. (1988) highlight the importance of differences across firms in relation with financial constraints originating from the imperfections of the capital market. Due to asymmetric information firms facing higher costs of external finance are likely to be more financially constrained. Bris et al. (2014) find that larger firms in the Euro area benefited the most from financial integration. Consistent with this result, Gozzi et al. (2010) find that larger firms have better financing from international capital markets. Stiebale (2011) further stressed that financially constrained firms face difficulties in obtaining external finance. We also argue that firms that face financial constraints might be less well positioned to take advantage of the policy initiatives in Asia since these firms are more susceptible to information asymmetry effects. It is well known that there is little public information available for financially constrained firms and it is difficult for financial institutions to gather this information. Obtaining external finance is therefore likely to be particularly difficult and/or costly for them. We hypothesise, therefore, that financially unconstrained firms are more likely to reap the benefits of a policy change.

To test this hypothesis, we divide our firms into constrained and unconstrained groups using two main criteria: profits and coverage ratio. The former classification scheme is measured by the ratio of earnings before interest and taxes relative to total assets (Baker and Wurgler, 2002). Evidence shows that less profitable firms are more financially con-

strained (Livdan et al., 2009). Coverage ratio is measured as earnings before interest and taxes over total debt which measures project quality (Mizen and Tsoukas, 2012). Hence, this classification scheme captures firms' creditworthiness.[11] As the policy initiative might be related to unobserved within-firm changes, firms are divided into constrained and unconstrained categories using the pre-policy period of 1996-2004[12]. Firms are classified as constrained if their profits and coverage ratio are below the 50th percentile of the distribution in the pre-policy period.

Further, we investigate the differential impact of the influence of external finance on firms' investment spending across constrained and unconstrained firms. Theory predicts that firms with financial frictions accompanied with negative shocks to external finance might lack sufficient financial slack to fund profitable investment opportunities internally (Holmstrom and Tirole, 1997). These effects are stronger for constrained firms that face higher costs in raising external capital (Duchin et al., 2010).

4 Data and summary statistics

4.1 Data

The data for this paper are drawn from Dealogic Bondware, Bloomberg, Standard and Poor's Compustat Global, Global Financial database and IMD World Competitiveness Yearbook (WCY). Our data covers eight Asian economies namely Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand over the period 1996 to 2012[13].

Bondware is used to identify corporate bonds issued in international markets and to

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[11]Interest coverage was used by Guariglia (1999) as an indicator of financial constraints to identify differences in inventory investment.

[12]A firm is classified as constrained or unconstrained in the post-policy period of 2006-2012 using values of 2004, one year prior to the onset of the policy as firm variables are likely to be endogenous to the choices made by firms.

[13]We do not take into consideration China due to its disparities with other East Asian economies in terms of growth, capital account convertibility and restricted financial markets. Corporate savings in China are higher due to the domination of state-owned banks and restricted equity market, which favours the large firms by improving their retained earnings and profitability (Lin, 2009). In addition, the repressed financial system in China provides cheap capital (lower interest rates) which again favour large firms (Prasad, 2009).

assemble data relating to issue date, maturity date, outstanding amount and currency[14]. We use Bloomberg to categorise similar data for firms that issue bonds in the Asian domestic markets. The data thus, covers bond issues of firms denominated in local currency as well as in foreign currency, mainly US dollars.

Balance sheet and profit (loss) data are taken from Compustat Global, which provides market information on active and inactive companies throughout the world. Our initial sample included a total of 71,792 annual observations on 7,436 companies. Finally, the data for economic factors such as GDP growth rate, balance of trade (scaled by GDP) and legal regulation are drawn from the Global Financial database and IMD WCY database.

Following normal selection criteria, companies with incomplete records of explanatory variables and negative sales are excluded from the data. In addition, observations in the 1% from upper and lower tails of the distribution of the regression variables are excluded to control for the potential influence of outliers. Finally, the panel has an unbalanced structure with a total of 62,237 annual observations and 518 firms in Hong Kong SAR, 451 in Indonesia, 1,599 in Korea, 1,219 in Malaysia, 253 in the Philippines, 861 in Singapore, 1,745 in Taiwan, and 640 in Thailand that function between 1996 and 2012 for different sectors such as manufacturing, utilities, resources, services and financials.

4.2 Summary statistics

Table 1 shows summary statistics for all the variables, distinguishing between control and treated groups, as well as before and after the introduction of the policy initiative. We report values for the whole sample (column 1); treated and control groups (columns 2 and 3); before and after the policy initiative (columns 5 and 6). We also report p-values for the test of equality of means (columns 4 and 7). From columns 2 and 3 we find significant differences in the short and long-term debt issued across the two groups of economies. Further, columns 5 and 6 show the debt levels for pre- and post-policy periods. Regarding the short-term debt we are unable to observe any significant differences between the two time periods. On the other hand, long-term debt values

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[14]The definition of corporate bonds is in line with recent studies on Asian bond markets (see Mizen and Tsoukas, 2014) and includes all non-government long-term issues in a given currency.

show considerable improvement after the introduction of the policy and this difference is significant at the 5% level. With respect to other variables, we find that firms are larger, have higher levels of gearing, lower liquidity and expansion rate and higher investment spending in the treated group compared to the control group. As for country-specific variables, the treated group displays higher GDP growth, lower legal regulation and higher balance of trade compared to the control group. Moving to columns 5 and 6, all variables show significant differences before and after the policy with GDP growth being the only exception. Introduction of the policy, on average, helped in improving firm-level factors such as firm size, liquidity, expansion rate and operating cycle of firms.

Overall, two points can be highlighted from these preliminary statistics. First, there is a noticeable difference between the control and treated group in terms of both short and long-term debt issuances. Second, there is an increase in the level of long-term debt after the introduction of the policy initiatives. In addition, there is a notable improvement in the performance of firms highlighted by the firm-level characteristics after the policy initiative. In the following sections, a formal regression analysis framework tests the role of the policy initiative in firms' access to external finance.

5 Empirical results

5.1 The baseline model

Table 2 reports the results for the baseline model. The main variable of interest is the DD estimate, $Treat_j * After_t$, which signifies the impact of the policy initiatives on the treated group. We find evidence that the introduction of the ABF initiative had a important effect on the firms' choice of external finance. Firms' decreased their short-term debt, while increased their uptake of long-term debt. To ascertain the magnitude of the DD coefficient, we calculate percentage point effects by dividing the coefficient value (marginal effect) with the predicted probability of the model. We show that the introduction of the policy in the treated group led to a reduction in firms' access to short-term debt by 4.87% and an increase in firms' access to long-term debt by 11.96%. This

finding highlights the fact that policy initiative was beneficial for the firms in the treated group as it helped them to increase their access to long-term debt while reducing their short-term debt finance, compared to the firms in the control group. In other words, firms issued long-term debt that they would not have done in the absence of the policy change.

Our findings lend support to evidence presented in Mizen and Tsoukas (2014), who show that the policy initiatives of ABF, ABF-2 and ABMI had a significant effect on a firm's decision of bond issuance. We also support the findings of Shim (2012) that domestic corporate bond markets in emerging Asia experienced a rapid growth from 2005 to 2011 compared to other emerging markets, even during the global financial crisis. One of the factors affecting the rapid growth in corporate bond issuances is the functioning of credit rating agencies, which are established as a part of the government initiatives (Shim, 2012).

Focusing on firm-level factors, a significant coefficient on *firm's size* shows that larger firms have greater access to long-term debt and reduce their short-term debt. This confirms the finding by Bougheas et al. (2006) that size is an important determinant of access to bank and market debt. *Liquidity* of firms shows a negative impact on short-term debt while, a positive impact on long-term debt suggesting that firms with higher liquidity are likely to raise more long-term debt and reduce short-term debt. Ozkan (2001) show that higher liquidity of firms improve access to external finance. Moving to *gearing* of firms, it enters with the expected negative and positive signs on short and long-term debt ratios, respectively. This result is in line with González et al. (2007) for short-term debt as they confirm that more leveraged firms have less desire for external financing. On the other hand, firms with higher leverage are likely to issue more corporate bonds (Mizen and Tsoukas, 2014), resulting in an increase in access to long-term debt.

Expansion rate measured by investments to assets ratio shows a negative and positive effect on short and long-term debt ratios, respectively. This indicates that firms with higher investments are more likely to opt for long-term debt issuance. *Operating cycle* measured by sales to assets ratio attains a negative coefficient on long-term debt ratio

while a positive coefficient on short-term debt ratio. This confirms that firms depend more on short-term debt rather than long-term debt to finance their increasing sales. *Cash flow* enters with a negative coefficient on both long and short-term debt ratios which show that firms with substantial cash flow require less in terms of external finance.

Country-specific determinants include GDP growth, legal regulation and balance of trade. *GDP growth* is generally insignificant, but the *balance of trade* shows a positive effect on short-term debt and an insignificant effect on long-term debt. Improvement in the balance of trade, an indicator of economic health of a country, increases access to external financing in the form of short-term debt. Finally, *legal regulation* registers a positive effect on long-term debt ratio and a negative effect on short-term debt ratio. This implies that with an improvement in country's legal framework, firms are more likely to increase their long-term debt issuance rather than the short-term debt exposure.

5.2 Accounting for firm-level heterogeneity

In this section, we explore the link between the policy shift and firms' financing while taking into account firm-level heterogeneity. The results are reported in Table 3. Columns 1-2 provide results for firms with low and high profits, followed by low and high coverage ratios in columns 3-4 for short-term debt ratio. Similarly, results for the long-term debt ratio for different classification schemes are reported in columns 5-8. The estimation results provide evidence that constrained firms were mainly unaffected by the policy change. On the other hand, unconstrained firms reduced their access to short-term debt and increased their access to long-term debt after the policy initiative. In sum, we find that the policy initiative had an important impact on the choice of external finance, though its proportional effect was very heterogenous across constrained and unconstrained firms. One explanation for the above finding is related to the fact that that financially constrained firms typically face higher external financing costs (see Fazzari et al., 1988). Hence, they are less likely to have access to external finance as they face higher agency costs of borrowing from financial markets when compared with the cost of internal financing (Bernanke and Gertler, 1995).

In economic terms, after the introduction of the policy, unconstrained firms in the treated group reduced their access to short-term debt by around 9.45%-9.51%, while they increased their access to long-term debt by 18.25%-26.84%, compared to unconstrained firms in the control group. The test of equality for constrained and unconstrained firms also shows a significant difference at 5% level for both short and long-term debt ratios. Thus, unconstrained firms are able to reap more readily the benefits from the policy change, compared to their constrained counterparts.

5.3   The impact on investment spending

This section takes into account the role of firms' financing position in influencing the impact of the policy initiative on investment spending. Table 4 reports the results of post-policy firms' investment spending for different measures of leverage[15]. Column 1 summarises the results for short-term debt to total debt and in column 2 leverage is measured as long-term debt to total assets.

We find that the interaction term of leverage and DD is negative for firms' investment spending in column 1 and positive in column 2. These point estimates, which are statistically significant at the 1% level, indicate that as firms' access to short-term debt was reduced after the policy implementation, firms curtailed their investment spending using short-term debt. On the contrary, firms' increased access to total long-term debt after the policy helped them to spend more of long-term debt on their investment outlay. The magnitude of the interacted coefficients suggests that after the implementation of policy, firms reduced their investment spending using short-term debt by 10.04%, while increased their investment spending using long-term debt by 67.65%.

With respect to other control variables, both sales growth and cash flow have a positive and significant coefficient for investments in almost all the columns. This result is again in line with the empirical studies such as Fazzari et al. (1988) and Wei and Zhang (2008) which show that firms' cash flow per unit of capital is positively related to the rate of investment per unit of capital, even when a measure of Q is included as an explanatory

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[15]The term After*Lev has been omitted from the results due to very high correlation with other variables such as Treat*After*Lev and Lev.

variable of investment.

Overall, the results show that the growth of Asian domestic bond markets has helped firms to finance their investments by increasing their access to long-term debt. Levinger et al. (2014) show that the strong growth in Asia's corporate bond markets has made funds available for investment and expansion in recent years along with deepening of capital markets and diversification of financing sources.

5.4 Accounting for firm-level heterogeneity

Next, we explore the link between the policy change and firms' financing while categorising firms into financially constrained and unconstrained. Table 5 reports the results of the post-policy investment spending and leverage for constrained and unconstrained firms. The results indicate that the policy initiative did not have any significant impact on constrained firms' investment spending. On the contrary, unconstrained firms reduced their investment spending using short-term debt and increased their investment spending using long-term debt after the introduction of the policy. The economic interpretation is even more interesting since it suggests that unconstrained firms reduced their investment spending using short-term debt by 9.78%-12.67%, while they increased their investment spending using long-term debt by 88.50%-89.60%. However, the test of equality does not show a significant difference between the two groups for short-term debt ratio but it shows a significant difference between the groups at the 5% level for long-term debt ratio. In sum, we find once again that it is the unconstrained group of firms in the treated group that benefited the most from the policy initiative in comparison to the firms in the control group.

6 Robustness tests

6.1 Propensity score matching

To check the validity of our treated and control groups, we employ a propensity score matching technique. We use one to one matching technique of our firms without

replacement. This means that once an untreated firm has been selected to be matched to a given treated firm, that untreated firm is no longer available for consideration as a potential match for subsequent treated firms. Hence, each untreated firm is included in at most one matched set. Matching without replacement increases the efficiency of matching, compared to matching with replacement. However, despite theoretical differences several studies have provided evidence that the number of matches and the choice of matching with or without replacement has a minimum effect on treatment effect's bias and efficiency (Stuart, 2010). Matching is done using non-categorical variables such as firm size, liquidity, leverage, expansion rate, operating cycle and cash flow, using caliper 0.001 (Yörük, 2008)[16].

The results of the main variables of interest are reported in Table 6. The results in panel A confirm the significant and positive impact of the policy initiative on firms' access to long-term debt ratio and the negative impact on access to short-term debt ratio. Panel B validates that the policy initiative helped unconstrained firms to increase their access to long-term debt and reduce their short-term finance. Panel C shows that firms reduced their investment spending using short-term debt, while they increased their investment spending using long-term debt after the policy was introduced. Finally, in panel D we find that the relationship between external finance and investment spending is stronger for unconstrained firms compared to their constrained counterparts. Thus, we confirm that our results are robust to a matching technique, which also vindicates the validity of the control and treatment groups in our main models.

6.2   Using the ABF index as a measure of treatment

To further corroborate the accurate identification of the policy initiative on the treated group, we use an index as a measure of the treatment. Specifically, we use the Markit iBoxx ABF index which is designed to reflect the performance of the local currency denominated sovereign and quasi sovereign debt from 8 Asian countries/territories. The

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[16] Although not reported here, we also use caliper as 0.0001 for the propensity score matching method. In every procedure with calipers 0.001 and 0.0001, the propensity score and the coefficient estimate of almost all the control variables are statistically indifferent between the treated and control group.

index gives a broad coverage of the sovereign and sub-sovereign bond universe of the treated countries whilst upholding minimum standards of investability and liquidity[17].

The results shown in Table 7 confirm that our main findings are upheld. We continue to observe that firms reduced their access to short-term debt, while increasing their access to long-term debt in the post-policy period. Further, we find that firms reduced their investment spending using short-term debt while they increased their financing of investment spending using long-term debt. Thus, we can conclude that employing an index as a measure of treatment does not alter our results.

6.3 Addressing potential endogeneity concerns

This section considers an instrumental variable method (two-stage least squares 2SLS) to deal with the potential endogeneity of our explanatory variables and the bond market policy initiative. The identification of the policy initiative requires an exogenous variable which is correlated with the policy of bond market development but does not directly impact firms' access to external finance. As plausible exogenous instruments for the policy initiative, legal origin of a country as British, French and German origin are implemented. Legal origin has also been used as an instrument for financial development by Liberti and Mian (2010)[18]. La porta et al. (2008) show that a country's legal origins based on British, French, German, or Scandinavian legal origins have a statistically large impact on its level of financial development. Beck et al. (2003) further stress that legal traditions of a country affect the ability of a system to adjust to changing commercial requirements and encourages financial development of a country.

In addition to the policy initiative, it is also assumed that all control variables used in the model are endogenous and they are instrumented using their own values lagged twice. The validity and importance of the instruments for both the policy and other control variables are verified using a number a diagnostic tests. The results for these

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[17]The index history statistics starts on 31/12/2000 and covers a variety of markets with small (Hong Kong, Singapore) and large (Korea, China) bond markets. Using simple weights will skew the index in favour of larger markets and reduce the weight of smaller markets. Hence, the baseline weight of these indices is adjusted by the local bond market size, sovereign local debt rating and GEMLOC investability indicator.

[18]The data for legal origin are taken from La porta et al. (2008).

tests are reported at the foot of the tables[19].

Table 8 shows the results of the 2SLS model. The results validate a significant and positive impact of the policy initiative on firms' access to long-term debt ratio and a negative impact on access to short-term debt ratio, with a stronger effect on unconstrained firms. Further, the results show that with an increase in firms' access to long-term debt, their post-policy investment spending also increased, while post-policy investment declined for firms dependent on short-term debt. Finally, the link between leverage and post-policy investment is much stronger for unconstrained firms compared to their constrained counterparts. Other control variables maintain their significance and expected signs.

Overall, the diagnostic tests given in Table 9 do not specify any problems regarding the application of instruments used and provide a reliable robustness check to our main results.

6.4 Placebo tests

This section presents placebo tests as an additional robustness check. If homogeneity across time-periods is assumed then similar results should also hold prior to the treatment period. Following Imberman and Kugler (2012), the difference-in-differences is conducted for the pre-policy period of 1996-2004. Instead of the reform taking place after 2005, it is assumed that the reform took place from 2002-2004[20]. If there are any pre-existing trends, then there should be a significant impact of the policy on access to finance. This procedure checks if any underlying trends are influencing the results. If the results show insignificant effects of the policy on access to finance, then it proves the validity of the treatment effect.

Table 10 presents the results which demonstrate an insignificant impact of the policy initiative on both short-term and long-term debt ratios for both constrained and uncon-

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[19]In addition to the statistics reported at the tables of results, we also employed the Anderson Rubin chi-square test and obtained identical p-values as with Anderson Rubin F-test.

[20]Difference-in-differences tests for the pre-policy period are also performed using the reform period after 1999, 2002 and 2003. The results show almost similar results both quantitatively and qualitatively as 2002-2004 reform period.

strained firms. Further, the results of post-policy investment spending and leverage show an insignificant effect of firms' leverage on post-policy investment outlays for both constrained firms and their counterparts. In sum, the placebo test strengthens the validity of the empirical strategy and main results.

6.5   Additional control variables

While we have considered a wide set of explanatory variables in the main models, in this section we include additional control variables to ensure that our findings are not driven by omitted-variable bias. We include a dummy for the global financial crisis which takes value one for the period 2007-2010, and zero otherwise. We also control for other variables such as stock market capitalisation and global liquidity. The former is likely to be an important determinant of external financing as countries with larger stock markets help firms to increase long term credit and access to external finance (Demirgüç-Kunt and Maksimovic, 1999). The latter is measured by the cross-border credit growth in the Asia-Pacific region. We include this variable to capture the market reactions to quantitative easing and tapering by United States on emerging economies in terms of capital flows across borders. Thus, we try to disentangle the impact of the policy initiative on firms' external financing by controlling for these additional variables.

The results are reported in Table 11 and confirm that the policy did have a significant impact on firms' external financing. The results again confirm that firms increased their access to long-term debt and reduced their short-term debt. Further, firms increase their investment spending using long-term debt while they reduce their investment spending using short-term debt. Finally, we find that both these relationships are stronger for unconstrained firms compared to constrained firms.

6.6   Excluding Korea

In order to confirm that our main results are not driven by Korea, which has the largest bond market in our treated group, we remove it from our sample. The results are shown in Table 12 and we confirm our main findings are both qualitatively and

quantitatively very similar to our main results. Thus, we conclude that the inclusion of Korea in our sample does not bias our results in any way.

6.7   Alternative classification of firms

In our main empirical results, we classified our firms into constrained and unconstrained using the 50th percentile of the distribution in the pre-policy period. In order to confirm that our results are not driven by the way we divide our sample, we use a robust framework of classification schemes. Following Tsoukas (2011), we divide our firms into constrained and unconstrained firms using the 75th percentile as a cut-off point in the pre-policy period. Thus, constrained firms take value one if their profits and coverage ratio are below the 75th percentile of the distribution of all the firms in that particular year, and zero otherwise. Table 13 confirm that the policy helped unconstrained firms to expand their access to long-term debt and reduce their short-term debt much more compared to the financially constrained firms. In addition, unconstrained firms increased their investment spending using long-term debt much more compared to firms which financially constrained. While in terms of short-term debt, there is no significant difference between constrained and unconstrained firms with respect to their post-policy investment spending. Hence, we conclude that our results are robust to an alternative classification of firms.

7   Conclusion

After the Asian financial crisis of 1997-98, the need for developing local financial markets was realised in order to reduce over-dependence on a bank-dominated financial system and under-developed bond markets. Thus, in order to develop sound and more liquid bond markets, to prevent further capital account crises and the problem of 'original sin', Asian bond market initiatives were introduced in Asian economies[21]. Using a novel

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[21]The term 'original sin' was introduced by Eichengreen and Hausmann (1999) which means the inability of countries to borrow from abroad in their local currencies. It is a key factor of financial instability and possibility of default in a country.

panel dataset on eight Asian countries over a period of 1996 to 2012, we analyse the impact of the Asian bond market initiatives on firms' access to external finance. The results based on the difference-in-differences method suggest that firms' increased their access to long-term debt and reduced their short-term debts after the introduction of the ABF-2. With respect to the firm-level heterogeneity, the results show that the policy initiatives helped unconstrained firms to increase their corporate bond issuances and reduce their bank finance much more compared to their financially constrained counterparts. Next, we take into account the influence of firms' external finance on investment spending in the post-policy period. The results show that increased access to credit for firms in the form of total long-term debt had a positive impact on firms' investment spending. Finally, we find that with respect to long-term debt ratio, unconstrained firms are able to increase their post-policy investment spending much more compared to constrained firms due to their increased access to long-term debts after policy.

The results of this paper confirm the fact that the Asian bond market initiatives helped in expanding the Asian domestic financial markets. Development of the financial bond markets helped firms to achieve efficient financing for business needs, encouraging investment and growth (Levinger et al., 2014). However, the level of development is widely diverse between different ASEAN countries. These policy initiatives have helped in expanding the local sovereign bond markets in Asia but the progress in terms of corporate bond markets is still low. In the past, policies have contributed to the development of domestic sovereign bond markets but very few have focused on the corporate bonds. Thus, more progress is required for increasing diversified issuer base so that firms can receive funding from various sources without increasing shock volatility. When significantly advanced, corporate bond markets can also have a huge effect on investment and regional growth by supplying long-term funding.

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Figure 1: Size of bond markets for control and treated groups

(a) LCY bond market size (USD billion)
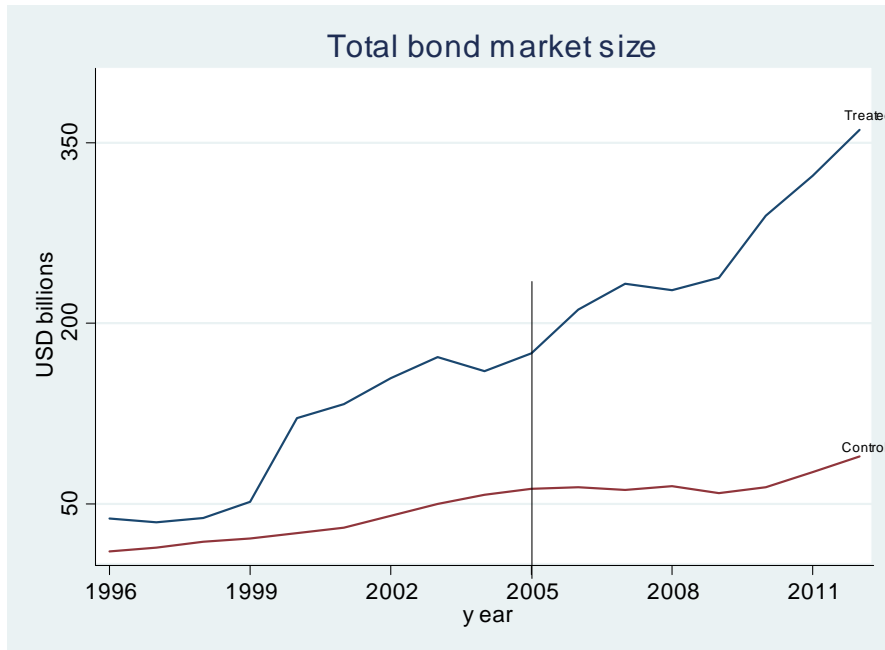
(b) LCY corporate bond market size (USD billion)
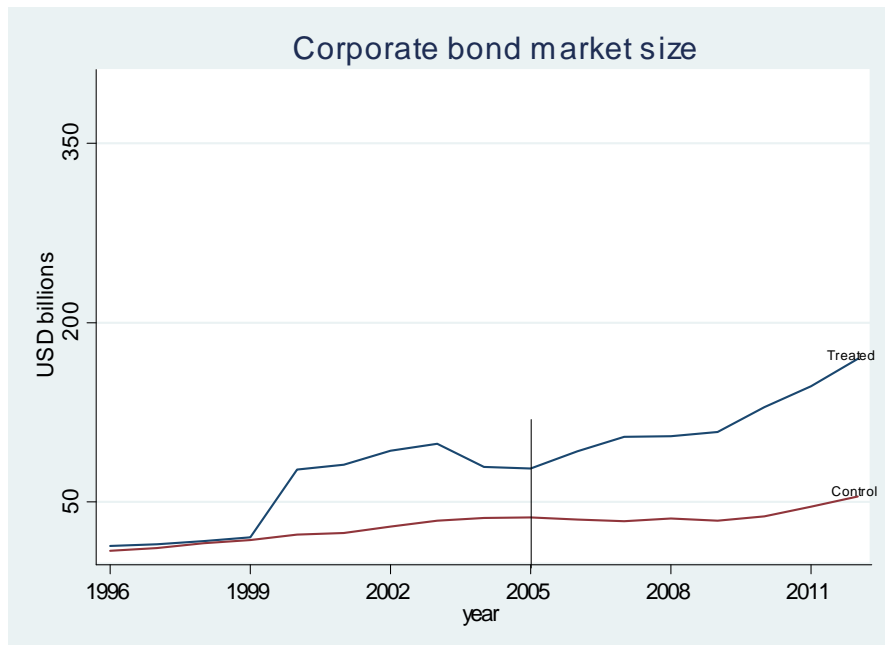
(c) Size of bond market by country
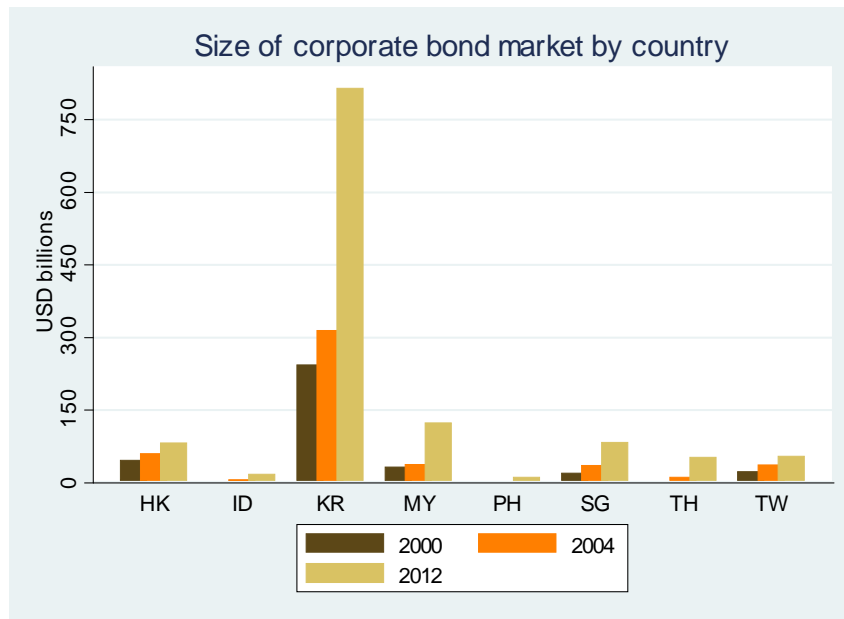
Figure 2: Banking sector development in treated and control groups
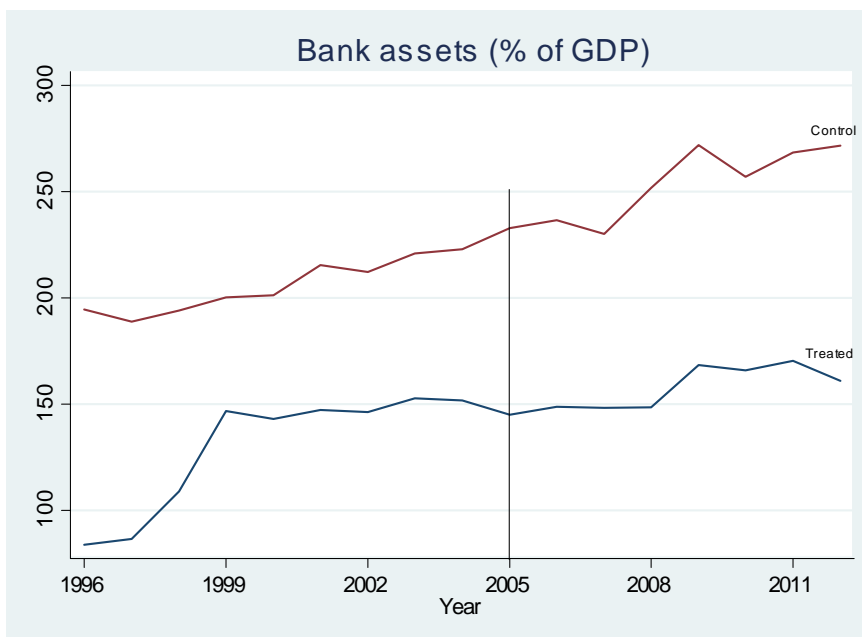
Table 1: Statistics for all explanatory variables

| Explanatory variables	Whole sample (1)	Treat (2)	Control (3)	p-value (4)	Before ABF-2 (5)	After ABF-2 (6)	p-value (7)
Short-term debt (in USD bn)	47.03	60.10	3.15	0.000	46.37	47.45	0.629
	(266.61)	(302.41)	(14.64)		(260.73)	(270.34)	
Long-term debt (in USD bn)	52.29	66.89	2.91	0.000	49.06	54.41	0.051
	(328.68)	(372.80)	(14.37)		(299.32)	(346.62)	
Firm size	8.41	8.42	8.37	0.127	8.17	8.56	0.000
	(3.11)	(3.43)	(1.59)		(3.10)	(3.11)	
Liquidity	2.12	2.07	2.27	0.000	1.92	2.25	0.000
	(1.89)	(1.93)	(1.77)		(1.67)	(1.99)	
Gearing	1.57	1.66	1.29	0.000	1.72	1.48	0.000
	(2.40)	(2.49)	(2.07)		(2.59)	(2.27)	
Expansion rate	0.48	0.47	0.49	0.001	0.47	0.48	0.033
	(0.35)	(0.36)	(0.33)		(0.35)	(0.35)	
Operating cycle	6.36	5.98	7.47	0.000	4.96	7.21	0.000
	(12.84)	(12.20)	(14.53)		(10.09)	(14.19)	
Cash flow	9.10	9.12	9.03	0.301	9.26	9.00	0.002
	(8.47)	(8.51)	(8.37)		(8.22)	(8.61)	
Investment spending	5.24	5.27	5.16	0.053	5.37	5.15	0.000
	(5.40)	(5.39)	(5.43)		(5.56)	(5.29)	
Tobin's Q	0.08	0.84	0.81	0.334	0.09	0.08	0.000
	(0.28)	(0.28)	(0.28)		(0.29)	(0.28)	
GDP growth	4.44	4.46	4.38	0.033	4.41	4.45	0.200
	(3.64)	(3.72)	(3.35)		(4.12)	(3.30)	
Legal regulation	5.50	5.06	5.63	0.000	5.91	5.26	0.000
	(3.64)	(0.52)	(1.98)		(1.71)	(1.77)	
Balance of trade	6.25	6.41	5.68	0.000	6.91	5.83	0.000
	(9.10)	(10.28)	(1.43)		(9.06)	(9.10)	
Observations	62,237	48,375	13,862		24,174	38,063	

Notes: The table presents sample means with standard deviations in parentheses. The p-values of test of equalities of means are reported. 'Treat' is a dummy that takes value one for the firms in countries which participated in the policy initiative of 2005, and zero otherwise. 'After' is a dummy that takes value one for the period from 2005-2012 and zero otherwise. Firm size: Log of total assets. Liquidity: Current assets/Current liabilities. Gearing: Total liabilities/Shareholder's equity. Expansion rate: Total investments/Total assets. Operating cycle: Net sales/Net fixed assets. Cash flow: Earnings before extraordinary items plus depreciation and amortization/Total assets. Investment spending: Capital expenditures/Total assets. Tobin's Q: Sales growth is used as a proxy. GDP growth: Annual percentage growth rate of GDP at market prices based on constant local currency. Legal regulation: An index of 0 to 10 based on a survey question of 'The legal and regulatory framework encourages the competitiveness of enterprises'. Balance of trade: Sum of exports and imports of goods and services measured as a share of GDP.

Table 2: Policy initiative and access to external finance

	Short-term debt to total debt	Long-term debt to total assets
	(1)	(2)
Treat*After	-3.110***	1.073***
	(-3.51)	(3.79)
Firm size	-5.614***	2.877***
	(-10.46)	(13.37)
Liquidity	-5.111***	0.354***
	(-19.77)	(5.89)
Gearing	-0.732***	1.209***
	(-6.06)	(15.21)
Expansion rate	-10.691***	4.534***
	(-7.17)	(7.85)
Operating cycle	0.141***	-0.031***
	(4.75)	(-4.00)
Cash flow	-0.105***	-0.081***
	(-3.83)	(-9.08)
GDP growth	-0.047	0.015
	(-0.70)	(0.59)
Legal regulation	-0.930***	0.415***
	(-3.23)	(4.35)
Balance of Trade	0.125**	0.014
	(2.53)	(0.82)
Predicted probability	63.80	8.97
N	42,117	46,061
R^2	0.074	0.109
No. of firms	5,912	6,100

Notes: In column 1 the dependent variable is the short-term debt to total debt, while in column 2 the dependent variable is the long-term debt to total assets. Country dummies and time dummies interacted with industry dummies are included in the models with fixed effects and standard errors clustered over firms. Robust t-statistics are reported in the parentheses. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*).

Table 3: Access to external finance and firm heterogeneity

	Short-term debt to total debt				Long-term debt to total assets			
	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat*After	-0.332	-6.096***	-0.756	-6.152***	0.417	1.619***	-0.279	2.131***
	(-0.26)	(-4.53)	(-0.64)	(-4.23)	(0.89)	(4.45)	(-0.54)	(6.75)
Firm size	-5.354***	-6.435***	-5.558***	-6.302***	2.870***	2.971***	2.907***	2.406***
	(-5.64)	(-7.88)	(-6.16)	(-7.84)	(7.13)	(9.42)	(7.30)	(9.25)
Liquidity	-5.344***	-5.204***	-6.770***	-4.564***	0.362***	0.419***	1.086***	0.229***
	(-11.93)	(-15.70)	(-12.07)	(-14.72)	(3.31)	(6.45)	(6.48)	(4.31)
Gearing	-0.325**	-1.320***	-0.330**	-1.448***	0.782***	1.722***	0.790***	1.727***
	(-2.23)	(-6.14)	(-2.39)	(-5.97)	(7.83)	(13.14)	(8.52)	(12.06)
Expansion rate	-7.825***	-11.527***	-9.455***	-10.954***	3.668***	4.953***	4.708***	3.716***
	(-3.42)	(-5.77)	(-4.25)	(-4.87)	(3.99)	(6.65)	(4.94)	(5.55)
Operating cycle	0.138***	0.135***	0.124***	0.147***	-0.038***	-0.027***	-0.047***	-0.030***
	(2.93)	(3.36)	(2.71)	(3.43)	(-2.86)	(-2.74)	(-2.81)	(-3.51)
Cash flow	-0.191***	-0.062	-0.173***	-0.090**	-0.016	-0.104***	0.001	-0.061***
	(-4.09)	(-1.61)	(-3.82)	(-2.36)	(-0.98)	(-9.12)	(0.04)	(-6.23)
GDP growth	-0.130	-0.021	-0.179*	0.098	0.013	0.014	0.028	-0.004
	(-1.23)	(-0.23)	(-1.90)	(1.02)	(0.30)	(0.46)	(0.63)	(-0.14)
Legal regulation	-1.618***	-0.395	-1.129***	-0.538	0.366**	0.391***	0.276	0.338***
	(-3.41)	(-1.09)	(-2.60)	(-1.40)	(2.03)	(3.68)	(1.52)	(3.40)
Balance of Trade	0.087	0.064	0.104	0.069	-0.017	0.032	-0.018	0.019
	(1.17)	(0.95)	(1.44)	(1.00)	(-0.61)	(1.62)	(-0.57)	(1.12)
Predicted probability	62.05	64.52	60.75	64.67	9.90	8.87	11.49	7.94
N	16,368	25,749	16,616	25,501	17,400	28,661	16,893	29,168
R^2	0.086	0.077	0.116	0.066	0.085	0.132	0.116	0.113
No. of firms	2,684	4,980	2657	4929	2,744	5,186	2658	5151
Test of equality								
p.value: Treat*After	0.002		0.004		0.042		0.000	

Notes: The p-value refers to the test of equality between constrained and unconstrained firms. Robust t-statistics are reported in the parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*). Also, see notes to Table 2.

Table 4: Post-policy investment and access to external finance

	Short-term debt to total debt	Long-term debt to total assets
	(1)	(2)
Treat*After*Lev	-0.523**	3.450***
	(-2.26)	(5.36)
Sales growth	0.820***	0.768***
	(8.74)	(8.65)
Cash flow	0.032***	0.037***
	(6.12)	(7.72)
Lev	-1.134***	5.002***
	(-4.90)	(5.20)
Treat*After	0.487**	-0.192
	(2.09)	(-1.22)
Treat*Lev	-0.071	-3.171***
	(-0.24)	(-2.91)
Predicted probability	5.21	5.10
N	39,300	42,926
R^2	0.054	0.053
No. of firms	5,675	5,861

Notes: The dependent variable is firm-level investment spending measured as the ratio of capital expenditures to total assets. 'Lev' is measured as short-term debt to total debt in column 1 and long-term debt to total assets in column 2. Robust t-statistics are reported in the parenthesis. Statistical significance is denoted at 1% (***), 5% (**) and 10% (*). Also, see notes to Table 2.

Table 5: Firm-level heterogeneity for post-policy investment and leverage

	Short-term debt to total debt				Long-term debt to total assets			
	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat*After*Lev	-0.470	-0.754**	-0.365	-0.572*	1.422	5.117***	1.553*	5.018***
	(-1.45)	(-2.10)	(-1.07)	(-1.69)	(1.47)	(5.42)	(1.87)	(3.89)
Sales growth	0.729***	0.794***	0.742***	0.775***	0.684***	0.741***	0.725***	0.689***
	(5.54)	(5.82)	(5.16)	(6.05)	(5.48)	(5.81)	(5.17)	(5.87)
Cash flow	0.016**	0.021***	0.018**	0.026***	0.022***	0.027***	0.022***	0.034***
	(1.96)	(2.78)	(2.20)	(3.50)	(2.89)	(3.89)	(2.90)	(5.06)
Lev	-1.967***	-0.650**	-1.920***	-0.673**	6.854***	3.357**	6.415***	3.869***
	(-4.79)	(-2.28)	(-4.80)	(-2.41)	(4.71)	(2.45)	(4.95)	(2.74)
Treat*After	0.126	0.772**	0.248	0.575*	-0.371	-0.111	-0.232	-0.165
	(0.37)	(2.26)	(0.73)	(1.70)	(-1.57)	(-0.49)	(-0.94)	(-0.79)
Treat*Lev	0.686	-0.295	0.605	-0.481	-3.220**	-3.002*	-4.014***	-1.654
	(1.42)	(-0.70)	(1.25)	(-1.18)	(-1.99)	(-1.88)	(-2.80)	(-0.90)
Predicted probability	4.20	5.95	4.34	5.85	4.10	5.77	4.19	5.67
N	15,715	23,585	15,914	23,386	16,707	26,219	16195	26731
R^2	0.051	0.068	0.058	0.064	0.050	0.065	0.058	0.062
No. of firms	2,542	4,588	2,513	4,556	2,594	4,787	2,513	4,769
Test of equality								
p.value: Treat*After*Lev	0.575		0.678		0.006		0.023	

Notes: The p-value refers to the test of equality between constrained and unconstrained firms. Robust t-statistics are reported in the parenthesis. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Table 4.

Table 6: Robustness: Propensity score matching

Panel 1:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After	-4.293***				1.379***			
	(-3.95)				(4.25)			
N	22,584				25,609			
R^2	0.093				0.119			

Panel 2:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After	-1.426	-6.770***	-0.320	-7.039***	0.470	1.681***	-0.053	1.982***
	(-0.84)	(-4.19)	(-1.57)	(-4.04)	(0.86)	(4.11)	(-0.09.)	(5.81)
N	8,707	13,877	8,650	13,934	9,561	16,048	9,000	16,609
R^2	0.103	0.110	0.134	0.096	0.111	0.157	0.126	0.139
Test of equality								
p.value: Treat*After	0.023		0.014		0.080		0.004	

Dependent variable: Investment spending

Panel 3:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After*Lev	−0.843**				4.578***			
	(-2.30)				(3.73)			
N	20,631				22,931			
R^2	0.059				0.057			

Panel 4:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After*Lev	-1.099**	-1.152**	-0.947	-1.002*	3.999**	6.480***	2.708	5.951**
	(-2.13)	(-1.97)	(-1.53)	(-1.90)	(2.16)	(3.64)	(1.51)	(2.50)
N	8,192	12,439	8,073	12,558	8,805	14,126	8,271	14,660
R^2	0.058	0.082	0.060	0.078	0.055	0.076	0.059	0.070
Test of equality								
p.value: Treat*After*Lev	0.952		0.952		0.332		0.276	

Notes: The Table reports regression results for propensity score matching technique. The remaining specifications, which are not reported for brevity, are identical to those in Tables 2 to 5. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Tables 2 and 4.

Table 7: Robustness: ABF index

Panel 1:	Short-term debt to total debt				Long-term debt to total assets			
ABF index*After	-0.168*				0.097***			
	(-1.67)				(2.59)			
N	26,887				29,117			
R^2	0.066				0.100			

Panel 2:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
ABF index*After	-0.146	0.060	-0.260*	0.057	0.061	0.034	0.122*	0.008
	(-0.90)	(0.39)	(-1.88)	(0.32)	(0.95)	(0.64)	(1.74)	(0.20)
N	9,896	16,991	9,909	16,978	10,464	18,653	10,031	19,086
R^2	0.083	0.068	0.117	0.054	0.077	0.124	0.127	0.110
Test of equality								
p.value: ABF index*After	0.342		0.165		0.865		0.107	

Dependent variable: Investment spending

Panel 3:	Short-term debt to total debt				Long-term debt to total assets			
ABF index*After*Lev	-0.004**				0.021***			
	(-2.12)				(4.06)			
N	26,019				28,162			
R^2	0.044				0.042			

Panel 4:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
ABF index*After*Lev	-0.004	-0.004	-0.003	-0.003	0.010	0.021***	0.009	0.006
	(-1.37)	(-1.41)	(-1.00)	(-1.15)	(1.16)	(2.82)	(1.16)	(0.63)
N	9,946	16,073	9,928	16,091	10,511	17,651	10,054	18,108
R^2	0.034	0.061	0.037	0.059	0.034	0.059	0.035	0.059
Test of equality								
p.value: ABF index*After*Lev	0.999		0.999		0.441		0.834	

Notes: The Table reports regression results for propensity score matching technique. The remaining specifications, which are not reported for brevity, are identical to those in Tables 2 to 5. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Tables 2 and 4.

Table 8: Robustness: IV regressions

Panel 1:	Short-term debt to total debt	Long-term debt to total assets
Treat*After	-3.426***	1.161***
	(-3.69)	(3.89)
N	32,555	35,776
R^2	0.071	0.104

Panel 2:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After	-0.410	-6.425***	-0.660	-6.095***	0.343	1.784***	-0.487	2.244***
	(-0.31)	(-4.60)	(-0.52)	(-4.08)	(0.69)	(4.72)	(-0.90)	(6.77)
N	12,253	19,428	12,601	19,130	13,069	21,829	12,837	22,124
R^2	0.080	0.075	0.112	0.062	0.081	0.126	0.110	0.103
Test of equality								
p.value: Treat*After	0.002		0.005		0.022		0.000	

Dependent variable: Investment spending

Panel 3:	Short-term debt to total debt	Long-term debt to total assets
Treat*After*Lev	-2.431	7.509***
	(-6.12)	(4.90)
N	18,051	24,289
R^2	0.020	0.022

Panel 4:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After*Lev	-0.623	-2.390***	0.523	-2.244***	2.368	4.918**	-1.083	8.141***
	(-1.60)	(-4.48)	(-1.11)	(-4.07)	(0.83)	(2.55)	(-0.42)	(4.01)
N	7,430	7,033	7,686	7,238	9,654	14,422	9,428	14,736
R^2	-0.140	0.029	-0.557	0.029	-0.760	0.023	-0.628	0.025
Test of equality								
p.value: Treat*After*Lev	0.007		0.017		0.459		0.005	

Notes: Robust z-statistics for IV(2SLS) regressions are reported in the parenthesis. The remaining specifications, which are not reported for brevity, are identical to those in Tables 2 to 5. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Tables 2 and 4.

Table 9: Robustness: IV diagnostic tests

Panel 1:	Short-term debt to total debt				Long-term debt to total assets			
Kleibergen-Paap	0.000				0.000			
Anderson-Rubin	0.000				0.000			
Stock-Wright	0.000				0.000			
Hansen J	0.778				0.698			
Panel 2:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Kleibergen-Paap	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Anderson-Rubin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Stock-Wright	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hansen J	0.693	0.562	0.456	0.361	0.624	0.841	0.811	0.898

Dependent variable: Investment spending

Panel 3:	Short-term debt to total debt				Long-term debt to total assets			
Kleibergen-Paap	0.000				0.000			
Anderson-Rubin	0.000				0.000			
Stock-Wright	0.000				0.000			
Hansen J	0.715				0.764			
Panel 4:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Kleibergen-Paap	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Anderson-Rubin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Stock-Wright	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hansen J	0.226	0.515	0.398	0.660	0.472	0.194	0.505	0.179

Notes: The Table provides diagnostic tests for IV regressions models reported in Table 8. The Kleibergen-Paap is a test of under-identification distributed as chi-square under the null of under-identification. The Anderson Rubin and Stock-Wright LM S statistic are weak-instrument-robust inference tests, which are distributed as F-test and chi-square respectively, under the null that coefficients of the endogenous regressors in the structural equation are jointly equal to zero, and the over-identifying restrictions are valid. Hansen J statistic is a test of the over-identifying restrictions, distributed as chi-square under the null of instrument validity.

Table 10: Robustness: Placebo test

Panel 1:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After			-0.467				-0.989*	
			(-0.26)				(-1.67)	
N			15,387				16,492	
R^2			0.097				0.096	

Panel 2:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After	-3.363	7.460*	-1.973	5.080	-0.399	-2.507***	-1.007	-1.446
	(-1.26)	(1.74)	(-0.84)	(1.19)	(-0.32)	(-2.69)	(-0.82)	(-1.56)
N	4,809	8,999	4,925	8,883	4,982	9,814	4,952	9,844
R^2	0.110	0.102	0.142	0.095	0.087	0.142	0.121	0.128
Test of equality								
p.value: Treat*After	0.032		0.149		0.180		0.764	

Dependent variable: Investment spending

Panel 3:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After*Lev			0.493				-0.531	
			(1.53)				(-0.67)	
N			13,145				14,049	
R^2			0.070				0.066	

Panel 4:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After*Lev	0.678	0.841	0.841	0.268	-2.438*	0.417	-1.567	2.641
	(1.28)	(1.42)	(1.54)	(0.46)	(-1.67)	(0.27)	(-1.31)	(1.25)
N	4,527	7,166	4,641	7,052	4,692	7,800	4,668	7,824
R^2	0.109	0.058	0.126	0.045	0.103	0.056	0.126	0.047
Test of equality								
p.value: Treat*After*Lev	0.841		0.478		0.174		0.084	

Notes: Table provides placebo test results. Robust t-statistics are reported in the parenthesis. The remaining specifications, which are not reported for brevity, are identical to those in Tables 2 to 5. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Tables 2 and 4.

Table 11: Robustness: Including additional control variables

Panel 1:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After	-3.640***				1.302***			
	(-4.05)				(4.64)			
N	37,922				41,673			
R^2	0.078				0.099			

Panel 2:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After	-0.920	-6.844***	-1.353	-6.907***	0.709	1.912***	-0.023	2.348***
	(-0.71)	(-5.02)	(-1.12)	(-4.71)	(1.51)	(5.28)	(-0.04)	(7.42)
N	14,310	23,612	14,488	23,434	15,289	26,384	14,764	26,909
R^2	0.088	0.082	0.120	0.068	0.075	0.124	0.112	0.108
Test of equality								
p.value: Treat*After	0.002		0.003		0.046		0.000	

Dependent variable: Investment spending

Panel 3:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After*Lev	-0.740***				3.796***			
	(-3.03)				(5.52)			
N	35,828				39,292			
R^2	0.046				0.045			

Panel 4:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After*Lev	-0.471	-0.933**	-0.520	-0.695*	1.565	4.571***	1.840**	3.517**
	(-1.37)	(-2.43)	(-1.42)	(-1.94)	(1.53)	(4.37)	(2.04)	(2.31)
N	13,928	21,900	14,064	21,764	14,872	24,420	14,344	24,948
R^2	0.033	0.065	0.035	0.062	0.034	0.062	0.035	0.060
Test of equality								
p.value: Treat*After*Lev	0.368		0.735		0.039		0.342	

Notes: Table provides test results using additional control variables. Robust t-statistics are reported in the parenthesis. The remaining specifications, which are not reported for brevity, are identical to those in Tables 2 to 5. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Tables 2 and 4.

Table 12: Robustness: Excluding Korea

Panel 1:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After		-3.429***				1.199***		
		(-3.58)				(3.94)		
N		34,850				38,570		
R^2		0.073				0.109		

Panel 2:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After	-0.436	-6.468***	-0.355	-6.728***	0.463	1.594***	-0.406	2.247***
	(-0.31)	(-4.51)	(-0.27)	(-4.30)	(0.92)	(4.06)	(-0.74)	(6.68)
N	14,135	20,715	14,274	20,576	15,123	23,447	14,545	24,025
R^2	0.084	0.079	0.112	0.068	0.081	0.140	0.113	0.121
Test of equality								
p.value: Treat*After		0.002		0.002		0.073		0.000

Dependent variable: Investment spending

Panel 3:	Short-term debt to total debt				Long-term debt to total assets			
Treat*After*Lev		-0.271				2.755***		
		(-1.07)				(3.81)		
N		32,777				36,231		
R^2		0.056				0.054		

Panel 4:	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After*Lev	-0.377	-0.417	-0.303	-0.415	0.525	3.336	0.533	3.892***
	(-1.07)	(-1.05)	(-0.80)	(-1.11)	(0.50)	(3.24)	(0.58)	(2.99)
N	13,599	19,178	13,662	19,115	14,550	21,681	13,938	22,293
R^2	0.051	0.069	0.060	0.067	0.049	0.066	0.059	0.063
Test of equality								
p.value: Treat*After*Lev		0.936		0.818		0.057		0.035

Notes: Table provides results excluding Korea. Robust t-statistics are reported in the parenthesis. The remaining specifications, which are not reported for brevity, are identical to those in Tables 2 to 5. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Tables 2 and 4.

Table 13: Robustness: Alternative classification schemes

Panel 1:	Short-term debt to total debt				Long-term debt to total assets			
	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After	-0.287	-10.113***	-1.962**	-8.053***	0.604*	2.075***	0.591	2.098***
	(-0.29)	(-4.74)	(-2.12)	(-3.39)	(1.73)	(4.00)	(1.55)	(6.15)
N	25,735	16,382	25,508	16,609	27,491	18,570	25,944	20,117
R^2	0.083	0.082	0.118	0.058	0.099	0.121	0.123	0.104
Test of equality								
p.value: Treat*After	0.000		0.017		0.019		0.003	

Dependent variable: Investment spending

Panel 2:	Short-term debt to total debt				Long-term debt to total assets			
	Profit		Coverage ratio		Profit		Coverage ratio	
	Low	High	Low	High	Low	High	Low	High
Treat*After*Lev	-0.503*	-1.347**	-0.660**	-0.688	2.064***	6.012***	2.739***	2.224
	(-1.90)	(-2.57)	(-2.36)	(-1.45)	(2.65)	(4.04)	(3.72)	(0.63)
N	24,643	14,657	24,359	14,941	26,329	16,597	24,802	18,124
R^2	0.053	0.074	0.057	0.068	0.051	0.072	0.055	0.064
Test of equality								
p.value: Treat*After*Lev	0.142		0.096		0.019		0.487	

Notes: Robust t-statistics are reported in the parenthesis. The remaining specifications, which are not reported for brevity, are identical to those in Tables 2 to 5. Statistical significance is denoted at 1%(***), 5%(**) and 10%(*). Also, see notes to Tables 2 and 4.

Table A1: Correlation matrix of explanatory variables

	Size	Liq.	Gearing	Exp. rt.	Op. cy.	CF	GDP gr.	LR	Trade	INV	Sales gr.
Size	1.000										
Liq.	-0.183	1.000									
Gearing	0.213	-0.314	1.000								
Exp. rt.	0.069	-0.193	0.001	1.000							
Op. cy.	-0.078	0.059	-0.032	-0.432	1.000						
CF	0.064	0.093	-0.158	0.123	-0.017	1.000					
GDP gr.	-0.095	0.022	-0.042	-0.028	0.034	0.049	1.000				
LR	-0.700	0.077	-0.113	0.113	0.048	-0.024	0.202	1.000			
Trade	-0.445	0.037	-0.033	-0.001	0.003	-0.024	0.077	0.335	1.000		
INV	0.093	-0.115	-0.015	0.306	-0.212	0.261	0.030	-0.029	-0.071	1.000	
Sales gr.	0.066	-0.048	0.022	-0.063	0.050	0.302	0.176	0.020	-0.044	0.144	1.000

Notes: Abbreviations: Size: Firm size Liq.: Liquidity. Gearing: gearing. Exp. rt: Expansion rate. Op. cy.: Operating cycle. CF: cash flow. GDP gr.: GDP growth. LR: Legal regulation. Trade: Balance of trade. INV: Investment spending. Sales gr.: Sales growth

Table A2: Definition of variables

Variables	Description	Source
Treat	A country dummy which takes value 1 if a country participates in ABF, ABF-2 or ABMI and 0 otherwise	Authors' interpretation
After	A time dummy which takes value 1 for years after 2005 and 0 otherwise	Authors' interpretation
Treat*After	The difference-in-difference (DD) coefficient measuring the policy effect	Authors' interpretation
Firm size	Natural logarithm of total assets	Compustat Global
Liquidity	Current assets/ Current liabilities	Compustat Global
Gearing	Total liabilities/ Shareholder's equity	Compustat Global
Expansion rate	Total investments/Total assets	Compustat Global
Operating cycle	Net sales/ Net fixed assets	Compustat Global
Cash flow	Earnings before extraordinary items plus depreciation and amortization/ Total assets (%)	Compustat Global
Investment spending	Capital expenditure/ Total assets	Compustat Global
Tobin's Q	Sales growth is used as the proxy	Compustat Global
GDP growth	Annual percentage growth rate of GDP at market prices based on constant local currency	Global Financial Database (GFD)
Legal regulation	It is a measure based on an index from 0 to 10. The survey question reads as "The legal and regulatory framework encourages the competitiveness of enterprises"	IMD WCY
Balance of Trade	Sum of exports and imports of goods and services measured as a share of GDP	GFD
Legal origin	A dummy takes value 1 based on country's legal origins as British, French, German	La porta et al. (2008)
Market capitalisation	Market capitalisation is the share price times the number of shares outstanding as a percentage of GDP	
Crisis	A time dummy which takes value 1 for years after 2007-2010 and 0 otherwise	Authors' interpretation
Global liquidity	Global cross-border credit in Asia-Pacific region (YOY %)	BIS

Notes: The Table provides the definitions of the variables used in the models.