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Auditor Choice and Information Asymmetry: Evidence from International Syndicated Loans

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Auditor Choice and Information Asymmetry: Evidence from International Syndicated Loans

ABSTRACT

Analyzing a large sample of non-US public firms from 31 countries that obtain private loans, we find that loan syndicates that lend to borrowers that employ Big N auditors are larger and less concentrated and that the lead arrangers and largest investors of these syndicates are able to hold a lower proportion of the loan after issuance. Further analysis demonstrates that this effect exists only in countries with strong creditor rights and in those countries with high levels of societal trust, suggesting that both sound formal and informal institutional factors are prerequisites for lenders and borrowers to benefit from differential audit quality on loan syndicate structure efficiency. Furthermore, we find that the loan syndicate structure benefits for borrowers that employ Big N auditors are higher for borrowers with greater information asymmetry problems, but we do not find that Big N audits are able to address the information asymmetry and moral hazard issues between the lenders themselves.

JEL Classification: G01, M4, M49

Keywords: Big N Auditors, International Debt Markets, Loan Syndicate Structure, Creditor Rights, Trust

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1. Introduction

Information asymmetry between contracting parties affects the design of optimal debt-financing agreements (e.g., Leland and Pyle 1977; Diamond 1991; Aghion and Bolton 1992; Holmstrom and Tirole 1997). While concerns related to information asymmetry affect loan contract terms (such as the interest rate, loan size, and debt covenants), they may also affect loan ownership structure when loans involve multiple lenders (i.e., syndicated loans). This is because information asymmetry in syndicated loans exists, not only between the borrower and lenders, but also between (more informed) lead banks and (less informed) non-lead participant banks. Prior research shows that high quality auditors are able to reduce such information asymmetries and improve ownership structure efficiency of loan syndicates in the US (e.g., Kim and Song 2011).[1] There is, however, limited evidence of whether and how this effect exists in the global debt market, despite the fact that non-US borrowers represent a large portion of the total debt market.[2]

Our aim is to assess the extent to which the evidence related to the role of high quality audits in the US debt market, in particular the evidence pertaining to loan

[1] We follow prior studies and refer to increased loan "efficiency" throughout the paper to indicate 1) the ability for lead arrangers to hold a smaller portion of the loan, and 2) larger loan syndicate sizes, with both conditions arising from a decrease in information asymmetry between loan lead arrangers and other syndicate participants (see, e.g., Leland and Pyle 1977).

[2] Loan issuances in the syndicated loan market continue to grow and were approximately $2 trillion in 2013, with $700 billion made to US borrowers and $1.3 trillion made to non-US borrowers (Lee, Liu, and Stebunovs 2017).

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syndicate structure (e.g., Kim and Song 2011), can be generalized to other countries. Our interest in investigating international private lending markets stems from various potential differences from the US market. To the extent that differences between US and non-US markets shift the supply and demand of high quality auditors internationally, the ability of a borrower's auditor to effectively reduce information asymmetries between borrowers and lenders as well as between lenders in debt contracts may vary in an international sample (see, e.g., Chui, Lloyd, and Kwok 2002; Esty and Megginson 2003; Guedhami and Pittman 2006; Sufi 2007; Brunner and Krahnen 2008; Li, Qiu, and Wan 2011; El Ghoul, Guedhami, Pittman, and Rizeanu 2016).

First, the US has been shown to be unique in both the role of auditors and the lending market itself, and there are pertinent differences in other institutional factors which may lead to various levels of the supply of high quality audits. These differences, therefore, could lead to the choice of a borrower's auditor not necessarily being relevant in reducing information asymmetry between borrowers and lenders in loan syndicates. For example, creditors in the non-US market have significantly weaker power (see, e.g., Davydenko, Sergei, and Franks 2008), which makes auditors' assurance less relevant for creditors in influencing debt reorganization and restructuring than in the US (see, e.g., El Ghoul et al. 2016). In addition, auditors in the US market, especially Big N auditors, protect their reputation carefully because of the prevalence of litigation against auditors in the US, acting as an additional insurance to the users of financial statements and audit reports. For example, Baylis, Burnap, Clatworthy, Gad, and Pong (2017)

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document that debt contracts in their sample of US loans often contain clauses requiring a borrower's auditor to provide lenders with assurance of covenant compliance, opening auditors to increased liability from lenders and to related litigation risk in the US. It is, however, not necessarily the case, at least in terms of the magnitude of litigation risk and reputation concerns, that auditors in other countries will monitor loans to the same degree in the absence of the US litigation environment, leading to a lower level of implicit insurance coverage provided by auditors (see, e.g., Francis 2004; El Ghoul et al. 2016). Consistent with this view, the effect of Big N auditors on reducing information asymmetry and agency issues has been found to be weaker in the global market (DeFond and Francis 2005; Choi, Kim, Liu, and Simunic 2008). This finding in prior research may be partially attributable to the greater difficulty faced by non-US investors to recover damages if auditors fail to prevent negative audit outcomes in non-US countries (e.g., Guedhami and Pittman 2006; LaPorta, Lopez-de-Silanes, and Shleifer 2006). Taken together, the differences in litigation environments between the US and other countries worldwide likely represents an additional factor that differs the effect of auditors in the non-US debt market compared to the US.

Second, lead arrangers may use their private information either to exploit syndicate participants or to focus on credibly and accurately certifying loan quality. Therefore, the demand from other syndicate participants for high quality auditors to help monitor the borrowers depends on the level of information asymmetry and moral hazard issues among lenders. To the extent that institutional factors in local debt markets are associated with the information asymmetry and moral hazard issues among

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lenders in the non-US debt market, we predict that other syndicate participants' demand for high quality auditors and the importance of Big N auditors will be associated with the institutional environment across countries (e.g., Berger, Klapper, and Udell 2001; Hauswald and Marquex 2006).

In a cross-country setting, therefore, such a set of mixed effects shifts the interactions between (1) the cost of obtaining private information related to the risk of borrowers, (2) the cost of monitoring potential moral hazard issues related to other lenders, and (3) the cost of relying on third party assurance from high quality audits (e.g., Choi and Wong 2007). Together, these interactions leave unanswered whether the effect of auditors on debt contracting documented in the prior research using a single country setting (e.g., Kim and Song 2011) or in other international auditing studies without multiple lenders (e.g., El Ghoul et al. 2016) can be generalized to loan structure efficiency in global debt markets. In this study, we use a sample of international syndicated loans that involve multiple lenders to provide new evidence on (1) whether Big N auditors can help improve syndicate loan structure efficiency more than the non-Big N auditors in the non-US market; (2) whether and how auditors are able to mitigate both types of information asymmetries involved in syndicated loans (i.e., information asymmetry between borrowers and lenders and between lenders themselves). We also investigate how institutional factors, specifically creditor rights and social trust, affect the role of auditors in determining loan syndicate structure. Testing these relations in a cross-country setting allows us to shed more light on the institutional factors through which audits interact, where this is not feasible in a single country study.

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Analyzing a large sample of non-US public firms from 31 countries that obtain private loans, we first provide evidence that international loan syndicates lending to borrowers with Big N auditors have more bank participants and less concentrated structures. We also find that the lead arrangers of these loan syndicates are able to hold less of the loan after issuance. Next, we find that the loan syndicate structure benefits for borrowers that employ Big N auditors are higher for borrowers with greater information asymmetry, suggesting that high quality audits help reduce information asymmetry between borrowers and lenders. Meanwhile, in contrast to the prior studies on the US market, we do not find convincing evidence that Big N audits are able to address the information asymmetry and moral hazard issues between the lenders themselves (e.g., Ball et al. 2008; Kim and Song 2011).[3]

Furthermore, aside from establishing our baseline result, we find that the positive effect of Big N audits on loan structure disappears if a borrower is located in a country with weak formal or informal institutions (i.e., bad creditor rights and low societal trust). Taken together, our empirical results suggest that country-level debt-related legal protection and societal trust are prerequisites for auditors to play a role in increasing loan structure efficiency in the global debt market. While our main analysis focuses on the role of high quality auditors in improving loan syndicate structure

[3] Our results are robust to (1) excluding influential countries and the global financial crisis (GFC, hereafter) period; (2) using various different panel specifications that control for time invariant and slow-moving characteristics; (3) alternative measures of high quality auditors and (4) addressing omitted variable issues and the selection issue related to choosing Big N auditors. Although none of our robustness tests is individually able to rule out all concerns about endogeneity, given that our results hold in variety of analyses that use disparate techniques, it is unlikely that our results are purely driven by unobservable factors. We discuss these results in more detail in Sections 4 and 5.

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efficiency, these additional tests allow us to explore the extent to which this relation in the global market is affected by the information uncertainty of lenders and the different formal and informal institutional environments in borrowers' home countries.

We extend prior studies that explore the importance of auditor choice and debt contracting. These studies have largely focused on a small number of loan terms made between borrowers and lenders (e.g., interest rates and debt maturity), and hence say little about the potential impact of the interactions among multiple lenders in a syndicated loan worldwide (Gul, Zhou, and Zhu 2013; El Ghoul et al. 2016). Instead, the prior research that examines a richer set of loan characteristics, including how multiple lenders react to auditor choices, has mainly used US-only data (Pittman and Fortin 2004; Fortin and Pittman 2007; Kim and Song 2011; Minnis 2011; Chen et al. 2016).[4] Our study shows that the choice of Big N audits also matters for loan structure efficiency in the global market; but, more importantly, we also show that this effect is mainly driven by the reduced information asymmetry between borrowers and lenders, but not between lead arrangers and non-lead participants, which is different from the findings documented in the US market (e.g., Kim and Song 2011). Our evidence suggests that while hiring a Big N auditor improves syndicated loan structure efficiency, the information asymmetry and moral hazard issues among lenders are not fully addressed by choosing a Big N auditor.

We also provide additional insights into how country-specific characteristics, specifically creditor rights and social trust, affect the benefits of retaining a Big N

[4] One exception is Chin, Yao, and Liu (2014) based on the unique auditor data from Taiwan only.

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auditor. Although prior cross-country studies of Big N auditors find that formal institutions affect the benefits of choosing Big N auditors, and specifically shareholder rights (e.g., Francis, Khurana, and Pereira 2003; Choi and Wong 2007; Francis and Wang 2008; Gul et al. 2013), the literature has focused less on the potential effect of creditor rights (Claessens and Klapper 2005; Custodio, Ferreira, and Laureano 2013; El Ghoul et al. 2016). As a result, we add to the literature and explore how creditor rights affect the role of high quality auditing in loan structure efficiency that involves multiple lenders and whether some informal institutional factors also represent a precondition for realizing the benefits provided by high quality auditors in debt contracting. In addition, we also extend El Ghoul et al. (2016) and examine both formal and informal institutional factors and how they interact with the benefits of having Big N auditors on loan syndicate structure efficiency worldwide. Specifically, we provide evidence that the level of creditor rights and societal trust significantly affect the positive effect of auditors. Because of a lack of evidence on how the relation between auditors and loan structure efficiency interacts with country-level debt-related institutions and social norm characteristics in the extant cross-country research, we view our study as partially addressing the calls for more evidence on these issues from DeFond and Francis (2005) and Choi et al. (2008), among others, especially in a cross-county setting involving multiple types of outsiders.

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2. Background and Hypothesis Development

Syndicated loans are loans provided to a borrower by two or more banks. The lead arranger in a loan syndicate is responsible for performing due diligence before a loan is issued and for monitoring the compliance of the borrower with the contractual terms and the ongoing quality of any collateral included in the loan contract. The lead arranger will also typically act as an administrative agent on behalf of the other syndicate participants (i.e., collect payments, renegotiate the contract, etc.) (Altunbas, Gadanecz, and Kara 2006). As a result, when the costs of information collection and monitoring by lenders increase, the lead arranger charged with monitoring the borrower is required to retain a higher proportion of the loan than risk-optimal and the total number of loan participants decreases.

It is costly for a lead arranger to hold a large share of the loan and inefficient for a borrower to have a small syndicate size for several reasons. First, increased exposure to a single borrower restricts diversification of the lead arranger's loan portfolio (e.g., Ivashina 2009). Second, a smaller number of lenders makes it easier for borrowers to restructure loans and encourages borrowers to default strategically, resulting in lenders defensively pricing such loans to the detriment of high quality borrowers (Diamond 1991; Bolton and Scharfstein 1996). Therefore, lenders have an incentive to improve loan structure efficiency by achieving a lower concentrated ownership structure with a greater number of participants (Sufi 2007; Li et al. 2011).

Accounting information is a main source of public information in loan markets. Although lenders have an advantage in accessing borrowers' inside information,

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financial statements provide important information to lenders for evaluating a borrower's credit worthiness and default risk (e.g., Beaver 1966; Altman 1968; Ohlson 1980; Ball, Bushman and Vasvari 2008), and auditors play an important role in this process (Chen et al. 2016). Specifically, if publicly available financial reports contain high quality information, they can reduce ex ante information processing and adverse selection by enabling all lending participants to assess whether the potential borrowers have misled them about the true credit quality. Additionally, high quality financial reports continue to reflect the credit quality of borrowers over time and reduce concerns that lenders would be expected to exert high effort on ex post monitoring activities (Robin et al. 2017).[5] Both of them help lead banks achieve a lower concentrated ownership structure with a greater number of participants (Ball et al. 2008).

We argue that external audits contribute to the above mechanism in the following ways. First, high quality audits improve financial reporting reliability by providing an independent assessment of the conformity of the financial statements with generally accepted accounting principles (e.g., Abdel-khalik and Solomon 1988). In general, auditor monitoring can improve the quality of accounting earnings by minimizing the difference between a client's reported economic circumstances and the unobservable underlying economic situation of the client (e.g., Wallace 1980). More specifically, a financial statement user is more likely to consider a (perceived) high-

[5] We acknowledge that lenders may use a set of modified accounting numbers (Leftwich 1983; ElGazzar and Pastena 1990; Li, 2010; Dyreng, Vashishtha, and Weber 2017; Baylis et al. 2017), but this does not eliminate the demand for high quality financial reporting because these numbers are likely to be the starting point in contracting (e.g., Li 2016) and will be associated with the overall information environment of the firm (e.g., Kim, Song, and Zhang 2011).

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quality audit reliable because it reduces both intentional and unintentional reporting errors. The extant auditing literature suggests that Big N auditors provide higher quality audits and improve financial reporting quality (e.g., Chung and Lindsay 1988; DeFond and Jiambalvo 1993; Teoh and Wong 1993; DeFond, Francis, and Wong 2000; Krishnan 2003a).[6] One offered explanation for this documented effect is that Big N auditors are more likely to constrain aggressive earnings management and identify discrepancies related to financial reporting, thereby resulting in more credible financial statements (Becker, DeFond, Jiambolvo, and Subramanyam 1998; Francis, Maydew, and Sparks 1999; Krishnan 2003b). Because the information in audited financial statements is perceived to be of higher quality for Big N clients, the assessment of credit worthiness based upon these financial statements potentially utilizes higher quality inputs to the assessment of credit worthiness.

A second explanation is that Big N auditors are more likely to indicate early warnings of going-concern issues, and hence, play a greater monitoring role than non–Big N auditors (Francis and Krishnan 1999, 2002). For example, Menon and Williams (2016) document that debt contracts restricting borrowers from receiving a going concern opinion are more likely to have low credit quality and to be required to have a Big N auditor, consistent with Big N auditors playing a larger role in early warnings of going-concern issues. In the setting of debt contracting, more specifically, auditors are also required to check compliance with covenants. Recent studies show that the demand

[6] Early studies (e.g., DeAngelo 1981; Datar, Feltham, and Hughes 1991) argue that large, prestigious public accounting firms (Big N auditing firms) have incentives to protect their investment in reputation capital and are more likely than other auditors to supply a high-quality audit.

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for audit assurance of covenant compliance increases with loan syndicate size, suggesting that auditors indeed are expected to play a role in monitoring borrowers (see, e.g., Baylis et al. 2017). Auditors may increase their litigation risk by informing lenders directly that they have no knowledge of covenant default and a borrower was, in fact, in violation of a covenant. Therefore, we expect that Big N auditors provide more timely warnings of going concern opinions and more intensive monitoring on borrowers because they face higher litigation costs and reputation concerns, which in turn, reduces concerns that lenders alone are expected to exert high effort on ex post monitoring activities (Robin et al. 2017).

As discussed earlier, the majority of prior studies (e.g., Kim and Song 2011) show that factors (e.g., here high quality audits) that alleviate information asymmetry and agency costs can act as substitutes for the monitoring of lenders. This naturally suggests, therefore, that if market participants also have greater confidence in the financial reports of Big N clients in the global market (e.g., Francis and Wong 2008),[7] then the presence of Big N auditors will allow lead arrangers to hold a lower proportion of the loan, increase the number of loan participants, and will result in a less concentrated ownership structure.[8] This leads to our first hypothesis:

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[7] Consistent with this view, previous studies provide evidence that Big N auditors improve financial reporting quality and perform an external monitoring role using samples of non-US firms (e.g., Choi and Wong 2007; Francis and Wang 2008).

[8] We follow prior studies, such as Kim and Song (2011), and use the number of lenders as one of our measures of syndicate structure efficiency. An alternative view on the association between audit quality and the number of lenders suggests that poor auditing could lead banks to attempt to share high risk loans with more parties. It is also possible that lenders could use a diffuse syndicate to mitigate a possible strategic default from a client, occurring, for example, when a larger fraction of a loan is held by the lead

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HYPOTHESIS 1*a*: *Loans issued to firms with Big N auditors will be held by more syndicate members and will have a less concentrated ownership structure than those to firms with non-Big N auditors.*

HYPOTHESIS 1*b*: *In addition, for loans issued to firms with Big N auditors, the lead arranger and largest lender of these loans will hold a smaller proportion of the loan after issuance.*

In order to understand more fully the positive effect of high quality auditors on syndicate structures (H1) in a cross-country setting and extend the literature, we further discuss and test several economic mechanisms that may play a role in this relation and which require variation in country-level characteristics.

First, as discussed earlier, the positive Big N effect on loan structure may vary with formal institutional factors across countries. Lenders mainly rely on formal institutional factors, in particular creditor rights, to protect their interests. Extant research supports that the legal recourse available to lenders in the event of bankruptcy affects debt contracting because creditor rights legislation covers such decisive issues as who controls the insolvency process as well as who is able to take possession of the firm's assets (La Porta et al. 1997). For example, prior studies suggest that banks monitor more and provide lower cost re-contracting when they have strong legal rights and are able to rely on enforcement mechanisms (e.g., El Ghoul et al. 2016).[9] Similarly, although Big N auditors may have greater ability to provide timely information and

arranger. Therefore, we also examine whether high quality auditors lead to lower loan ownership concentration and lead arranger ownership, which mitigates concerns related to this alternative view.

[9] We note that there also exists a contra argument, namely that when creditor rights are weak lenders need to form concentrated syndicates to monitor borrowers. When creditor rights are strong, however, such monitoring is not needed because lenders have greater control over bankrupt borrowers' assets and cash flow. However, the findings in prior studies do not support this argument.

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detect problems, (e.g., identifying potential financial misstatements or going concern issues that increase default risk or the likelihood of debt covenant violation) (e.g., Chen et al. 2016; Robin et al. 2017), it may become irrelevant to lenders if the legal regime does not enable lenders to enforce their rights. In contrast, if lenders possess few legal rights or cannot rely on enforcement, then they will rely more on their own "trip wires" ex ante and less on the monitoring provided by auditors. Therefore, in the presence of strong creditor protection institutions, Big N audits that prevent excessive opportunism and ensure their clients' financial statements properly reflect the underlying transactions may become incrementally valuable. Specifically, we expect that the effect of high quality auditors on loan structure is concentrated in countries with strong creditor rights. Stated formally:

> **HYPOTHESIS 2a**. *The Big N effect on loan syndicate structure observed in H1 will be larger when creditor rights are stronger in the country of loan issuance.*

Second, we argue that the level of societal trust can positively affect the role of Big N auditors on syndicate loan structure efficiency. Trust among people within a society, as an informal institutional factor, is vital to information production and communication. The level of trust influences the extent to which private information is objectively produced, and openly and accurately shared (Zand 1972; Mayer and Gavin 2005). Consistent with this view, recent research has found that trust is the most important informal institutional factor that positively influences investors' perception

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and utilization of corporate disclosure (e.g., Pevzner, Xie, and Xin 2014).[10] These studies point to the notion that trust is crucial in establishing credibility in contracting relationships and that it is particularly critical when economic agents have limited ability to detect potential misbehavior or the cost of misbehavior is high. In the absence of trust between lenders and the auditors who provide third-party information quality assurance, it may be difficult, even for high quality auditors, to reduce the incentive of lenders to closely monitor borrowers themselves. To the extent that trust improves the perceived credibility of auditors' work, and hence increases the level of how much lenders rely on auditors' assurance on financial information, we predict that the positive effect of Big N audits on loan structure efficiency is concentrated in countries with greater societal trust.

An alternative view exists which suggests that Big N auditors may play a larger positive role in countries with low levels of trust. The argument is that first, in countries with a higher level of societal trust, lenders assign a lower probability to borrowers of behaving opportunistically and manipulating financial results. As a result, lenders perceive firms' financial reporting to be more reliable, leading to the presence of high quality auditors being less important. Second, if a group of lenders trust each other (in terms of the effort made by lead arrangers), information asymmetry among participants

[10] Other studies show that social trust promotes investment, trade, and economic growth, encourages financial development and investors' participation in the stock market, and facilitates venture capital investment, corporate financing, and cross-border mergers and acquisitions (Knack and Keefer 1997; Zak and Knack 2001; Guiso, Sapienza, and Zingales 2004, 2008; Bottazzi, Da Rin, and Hellman 2011; Ahern, Daminelli, and Fracassi 2015).

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becomes lower (e.g., Sufi 2007; Ball et al. 2008; Kim and Song 2011), which could lead to a smaller Big N effect on loan structure efficiency in high trust countries.

Formally, we state the hypothesis regarding societal trust in the alternative form as follows:

> **HYPOTHESIS 2b**. *The Big N effect on loan syndicate structure observed in H1 will not vary with the level of societal trust in the country of loan issuance.*

Note that these cross-sectional effects are not mutually exclusive. Finding evidence in support of these hypotheses would strengthen the plausibility of our baseline results.

3. Research Design and Sample Selection

Research Design

To examine the effect of high quality auditors on a borrower's loan syndicate structure, we follow Kim and Song (2011) and estimate the following OLS model at the deal level:[11]

$$Syndicate\ Structure = \alpha + \beta_1 Big\ N + \sum \beta_i Controls + \varepsilon \qquad (1)$$

[11] To make our study more comparable with prior studies investigating loan syndicate structure (e.g., Qian and Strahan 2007; Sufi 2007), we conduct our analysis using OLS. To mitigate the concern that using a discrete and non-negative variable (e.g., the number of lenders) as the dependent variable leads to incorrect inferences, we also check the robustness of our results using a negative Binominal regression (see, e.g., Rock, Sedo, and Willenborg 2000; Kim and Song 2011), and our inferences do not change. In addition, we also consider whether our results are robust in a GMM model that could more efficiently corrects heteroskedastic (and/or auto-correlated) errors. Furthermore, we repeat our analysis and run a weighted-least squares (WLS) regression that helps to address the disproportionate representation of countries as in Choi and Wong (2007). Our results hold with no change to our inferences (untabulated).

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where *Syndicate Structure* is a variable representing specific features of a loan syndicate. *Big N* is an indicator variable equal to one if the incumbent auditor of a borrower for the fiscal year immediately before the initiation of the syndicated loan is one of the Big Four (or previously Big Five or Big Six) auditors, which include Arthur Andersen, Coopers & Lybrand, Ernst & Young, Deloitte & Touche, KPMG, and PricewaterhouseCoopers (Price Waterhouse prior to July 1, 1998), and zero otherwise (Kim and Song 2011).[12] The approach taken in our research design for the measurement of *Syndicate Structure* is to consider a number of proxy measures for the characteristics of a loan syndicate most relevant to the testing of our hypotheses. Specifically, we characterize a loan syndicate by its size, concentration, and the proportions held by both the lead arranger and the largest lender. We then estimate the model in Equation (1) for each of these characteristics.

H1 predicts that β_1 will be positive when *Syndicate Structure* measures the natural log of the number of syndicate participants (*Log (Number of Lenders*)) and negative when *Syndicate Structure* measures the concentration of the syndicate (*Herfindahl Index*), the average percentage of the loan held by the lead arranger (*Lead*

[12] In an untabulated robustness check, we redefine Big N to include Big Four auditors only (i.e., Ernst & Young, Deloitte & Touche, KPMG, and PricewaterhouseCoopers) to mitigate concerns that our findings are driven by the relatively small, merged, or fraudulent auditors that were the predecessors of the Big Four auditing firms in the later sample period. We find similar results (with no change in inferences) using this alternative definition. In addition, to mitigate the concern that our measure of high quality auditors using a Big N indicator variable contains measurement error, particularly in a cross-country setting, we also define high quality auditors as industry specialists (instead of Big Four auditors) for auditors that have the largest market share (measured as the number of clients) in a certain industry. Our inference that high quality auditors improve loan structure efficiency does not change (untabulated).

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Arranger Share),[13] and the percentage of the loan held by the syndicate member who holds the highest proportion of the loan (*Largest Holder Share*).

We include a variety of control variables from prior literature found to be important determinants of syndicate structure, relating to information asymmetry, credit risk, and loan terms. First, we control for several key borrower-specific characteristics, such as firm size (*Size*), capital structure (*Leverage*), profitability (*Profitability* and *Loss*), tangibility (*Tangibility*), and bankruptcy risk (*Z-score*) that are associated with information asymmetry and the cost of debt (Bharath et al. 2008; Graham, Li, and Qiu 2008; Chen et al. 2016).

We also include controls for the other loan terms available to lenders (Gigler, Kanodia, Sapra, and Venugopalan 2009). Specifically, we include controls for the following characteristics: *Interest Spread* is the All-in-Drawn-Spread measure reported by Dealscan and is equal to the number of basis points over LIBOR, *Financial Covenants* is the number of financial covenants included in the loan agreement, *Maturity* is the natural log of number of months until loan maturity and is associated with the probability of default (Demiroglu and James 2010), and *PP Provision* is an indicator variable equal to one if a loan includes a performance pricing provision and has been found to be more likely included in contracts when adverse selection and moral hazard costs are higher (Asquith, Beatty, and Weber 2005). We also control for

[13] We follow Sufi (2007) and use two variables in order to categorize lenders as either lead arrangers ("*Lenders-Lead Arranger*") or non-lead arranger participants ("*Lenders-All Lenders*") from the Dealscan database. If the variable "*Lenders-Lead Arranger*" is populated, we categorize the lender listed as the lead arranger, and all other lenders are considered participants. If this variable is not available, then any lender designated as having a "Lead Role" in "*Lenders-All Lenders*" is designated as a lead arranger.

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whether the facility is an institutional loan (*Institutional Investor*), a revolver (*Revolver*), requires collateral (*Secured*), the size of the loan (*Loan Size*), the previous lending relationship (*Relationship*), and lead arranger reputation (*Bigbank*) (Beatty, Ramesh, and Weber 2002; Sufi 2007; Costello and Wittenberg-Moerman 2011; Chen et al. 2016).[14] Finally, we include country-level variables from the prior literature to control for macroeconomic and legal characteristics (e.g., La Porta et al. 1997): *LogGDP* representing the level of economic development and indicators variables for the type of legal systems (*UKlegal*, *Frlegal*, and *GElegal*). All variables are defined in Appendix. To mitigate the influence of outliers, we winsorize all continuous variables at the top and bottom 1 percent of their respective distributions. We include industry and year fixed effects and standard errors are robust to heteroskedasticity and clustered at the country level in all regressions (e.g., Gong, Ke, and Yu 2013).[15]

To examine H2a-b, we re-estimate Equation (1) for the subsamples based on three different variables. First, we use the creditor rights index from La Porta et al. (1998) to measure the level of legal risk in borrowers' countries. Second, we construct our measure of trust based on responses to the World Value Surveys (WVS). The survey was carried out in five waves in 1981-1984, 1989-1993, 1994-1998, 1999-2004, and

[14] Syndicated loans often bundle multiple facilities into one transaction. These different facilities have different contract terms but are syndicated as a single deal. We average variables that are measured at the facility level.

[15] Because we cluster standard errors at the country level, we automatically control for clustering at the lower level that is contained in a country (e.g., borrower-level) (Bertrand, Duflo, and Mullainathan 2004; Dinc 2005; Cameron and Miller 2011). Our main results, however, hold if we (i) cluster at the borrower or lead arranger-level (e.g., Ball et al. 2008), (ii) adopt two-way clustering (borrower and year, lead arranger and year, industry and year, or country and year) (Petersen 2009; Gow, Ormazabal, and Taylor 2010), or (iii) use Huber-White standard errors without clustering.

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2005-2008. Following prior studies (e.g., Pevzner et al. 2014; Ahern et al. 2015), we match the most recent value of trust to our borrowers in a given year.[16, 17] We partition the sample into "High" and "Low" groups based on the (annual) median values of one of the employed proxies. If the role of auditors in improving loan structure efficiency is more pronounced as information asymmetry between lenders and borrowers increases, creditor protection is stronger, or the level of societal trust becomes bigger (H2), we predict the magnitude of β_1 will be greater in the "High" group firms than the ones in the "Low" group. Untabulated results show that the proxies used in H2a-b are correlated; but the magnitudes are low (0.12).

Data Sources and Sample Selection

Our sample consists of all non-US firms that have bank loan data in the Loan Pricing Corporation Dealscan database. We collect loan data from the Dealscan database and accounting data from Compustat Global from 1996 to 2012.[18] The

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[16] We measure societal trust based on the following question from the WVS: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" We recode the response to this question to 1 if a survey participant reports that most people can be trusted (>50%), and 0 otherwise, and then calculate the mean of the response in each country year.

[17] Our proposed mechanism through which the positive Big N effect on loan structure works depends on the extent to which market participants trust the monitoring of Big N auditors; therefore, it is more appropriate to measure this variable based on an auditor's country. However, we are not able to identify whether the country of syndication is the country of the auditor using our data. Instead, we assume that the country of syndication is likely the same as the country of the auditor, which has been the empirical approach adopted in other cross-country studies of Big N auditors (e.g., DeFond, Francis, and Wong 2000; Choi and Wong 2007; Francis and Wang 2008) and measure social trust based on the borrower's country.

[18] Our results are not affected by including or omitting Korean, Japanese and Indian borrowers given the findings of Francis and Wang (2008) who point out that there may be potential miscoding of the auditor identification variable in these countries. Our results also continue to hold when (1) we exclude post-2006 years from the analysis, or (2) we use historical auditor data from Worldscope until 2009 in order to avoid measurement error stemming from the auditor identity miscoding in Compustat Global starting

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macroeconomic data are collected from the World Bank. We require non-missing data for accounting variables after merging with Compustat. We also require our sample observations to have the necessary data needed to calculate the concentration measures of a loan (holdings of each lender) and delete financial institutions borrowers (SIC codes from 6000 to 6999).[19] Following Sufi (2007), we conduct the analysis at the deal level, although our results are not affected if we repeat our analysis at the facility level (untabulated). Our final sample comprises 2,301 loans issued to borrowers from 31 countries.

Descriptive Statistics

Table 1 presents the sample distributions. Panel A provides the sample distribution by year, and Panel B provides the sample distribution by borrower country. Panel A reports a general increase in the number of loans over time, consistent with prior studies (Sufi 2007; Kim, Simunic, Stein, and Yi 2011). Panel B reports a geographically diverse distribution of borrowers globally. Table 2 Panel A presents descriptive statistics. Loan syndicates are comprised of an average of approximately 12 lenders. The average *Lead Arranger Share* is 15 percent, which is comparable with the value reported in Esty and Megginson (2003), and the largest syndicate investor

from 2005 (El Ghoul et al. 2016). In addition, because our sample period overlaps with the GFC, it is possible that our results may reflect crisis-specific behavior on the part of Big N auditors, borrowers, or lenders. Thus, we repeat our analyses after deleting observations from 2007 to 2008. We classify 2007 and 2008 as the crisis period following prior studies (e.g., Ryan 2008), and all results hold after omitting these observations.

[19] This requirement results in a large sample of borrowers from Taiwan. In our additional tests section, we provide evidence that our results are unaffected by excluding Taiwanese borrowers. In addition, requiring non-missing cost of borrowing data substantially reduces our sample size. Our results are not affected if we do not require non-missing cost of borrowing.

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(*Largest Investor Share*) holds, on average, 23 percent of the loan. The average interest spread (over LIBOR) is 114 basis points, and the average maturity of these loans is 55 months, a little bit larger than these reported in Ge et al. (2012). The majority of borrowers in our sample (76 percent) are audited by a Big N audit firm. Borrowers in our sample are domiciled in countries with a range of different legal regimes. Table 2 Panel B provides univariate evidence that Big N auditors are associated with larger syndicate sizes and are negatively correlated with the percentage of a loan held by the lead arranger, percentage of the loan held by the largest syndicate investor, and loan ownership concentration, all consistent with our predictions.

4. Empirical Results

Baseline Findings

Table 3, column (1) presents the results of the effect of borrowers employing Big N auditors on loan syndicate size. The coefficient on *Big N* is 0.12 and is statistically significant at less than the five-percent level (*t*-statistic = 2.12). This coefficient indicates that borrowers that employ a Big N auditor, holding all other variables at the sample mean, will have an average of approximately 13% more lenders in their loan syndicates.[20] Switching to ownership concentration (columns 2 through 4), the coefficient on *Big N* is -0.02, -2.17, and -3.24, for *Herfindahl Index*, *Lead Arranger Share*, and *Largest Investor Share*, respectively. These coefficients are

[20] 12.75% = exp(0.12) - 1, where 0.12 is the coefficient on Big N in Column (1). We use the natural log of the number of participants in the loan syndicate, *Log (Number of Lenders)*, as the dependent variable.

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statistically significant at less than the five-percent level (*z*-statistics = -2.33, -2.18, and -2.69, respectively).

Overall, these results suggest that borrowers that hire Big N auditors reduce the information asymmetry between syndicate members and there is a lower demand for the lead arranger to hold a larger fraction of the deal and overall ownership concentration is reduced. The economic magnitudes are also significant. For example, a borrower employing a Big N auditor decreases the holding of the lead arranger (*Lead Arranger Share*) by 2.17%, a decrease of approximately 12.47% relative to the sample mean of lead arranger ownership.[21] Note that our findings are similar when we use various proxies of syndicate structure which helps to mitigate the concern that our findings are purely driven by the conjecture that the participants ask the lead arranger to retain a larger fraction of the loan, leading to multiple participants with a smaller portion of the loan. The coefficients of the control variables are consistent with previous research using a US sample (Kim and Song 2011). For example, larger and more profitable firms are associated with syndicates that are larger and less concentrated, and loans with relationship banking are also larger and less concentrated.[22]

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[21] -12.47% = -2.17/17.40, where -2.17 is the coefficient on Big N in column (3), 17.40 is mean value of *Lead Arranger Shares* for non-Big N sample.

[22] Although we include a series of control variables that are found to affect the structure of loans, first, it is possible that some omitted but unobservable borrower characteristics drive the differences we find (e.g., borrower's country or other slow-moving firm characteristics); second, we also note that some lenders are more likely to ask for disclosure covenants or other requirements that could potentially be correlated with using a Big N auditor. To address those concerns, we have done the following to mitigate the concern that our results are driven by an omitted variable issue with no change to our inferences: (1) added borrower firm fixed effects; (2) included lead arranger fixed effects; or (3) controlled for the likelihood of a loan having disclosure covenants. For this last test, we conduct a principal component analysis to measure the likelihood of disclosure covenant inclusion using the set of determinant variables

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Interaction with Creditor Rights

Table 4 investigates the effect that creditor rights have on the relation between Big N auditors and loan syndicate structure (H2a). We find that the coefficients of *Big N* in the "High" groups continue to be statistically significant in the same direction as in Table 3, suggesting that the positive role of Big N auditors exists for borrowers located in countries with stronger formal institutional environment, creditor rights. However, and more importantly, we find that the coefficients of *Big N* are smaller across the "Low" groups compared to the "High" groups, and they are not all statistically significant. Overall, Table 4 provides evidence consistent with H2a and indicates that the positive effect of Big N auditors on lending structure is concentrated in countries where creditor-rights are stronger.

Interaction with Societal Trust

We hypothesize that the effect of Big N auditors and loan structure efficiency is stronger when the level of societal trust is higher (H2b). Consistent with this prediction, the results reported in Table 5 indicate that societal trust increases the effect of Big N auditors. Specifically, we find the coefficients on Big N are significant across all four specifications and keep the same signs as in Table 3 only for the borrowers in the "High" groups, where people generally trust each other more. Our results suggest

that significantly predict the usage of disclosure covenants following Table 3 of Carrizosa and Ryan (2017).

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that societal trust complements the role of high quality auditors in loan structure efficiency through the trust between lenders and auditors.[23]

5. Additional Analyses

Which Channels Matter?

Our baseline results show that Big N auditors improve syndicate structure in non-US markets, suggesting that Big N auditors reduce the negative impact of information asymmetry. As we argued in the previous section, information asymmetry in syndicated loans exists, not only between the borrower and lenders, but also between (more informed) lead banks and (less informed) non-lead participant banks. We first consider which type(s) of information asymmetry are likely to be reduced by Big N auditors. On the one hand, information asymmetry between lenders and borrowers is positively associated with the moral hazard in monitoring activities made by lenders. Sufi (2007) finds that the lead bank retains a larger share of the loan and forms a more concentrated syndicate if such information asymmetry is higher as the borrowers require more intense monitoring and due diligence. High-quality auditors can facilitate syndicated loan contracting by enhancing the credibility of borrowers in general, the reliability of borrowers' financial statements in particular, and hence decrease the concerns related to information asymmetry between borrowers and lenders.

[23] Our results are not affected if we focus on a subsample in which lead arrangers and borrowers are in the same country, although our testing power is significantly affected because the sample size is reduced by 25%.

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On the other hand, Kim and Song (2011) argue that auditor quality helps improve loan structure efficiency by alleviating information asymmetries between lead arrangers and non-lead participants in the US syndicate loan market. Ball et al. (2008) make similar arguments and posit that high quality financial information plays a similar role in alleviating information asymmetry. As a result, the positive association between Big N and loan structure efficiency could be explained by a reduction in information transparency between lead arrangers and non-lead syndicate participants.

If the first explanation holds, we expect that the benefits of employing a Big N auditor will be larger when information asymmetry between borrowers and lenders is higher. In contrast, if the presence of a non-US Big N auditor can alleviate information asymmetry between lead arrangers and non-lead participants in the global syndicated loan market, then we expect our results to be more pronounced for loans with more information asymmetry and moral hazard issues between lenders.

To test this first channel, we follow Brown and Hillegeist (2007) and use earnings volatility, measured as the standard deviation of return on assets (i.e., EBITDA divided by total assets) over the last five (at least three years of non-missing data) years for the borrowers, to proxy for the potential information asymmetry between insiders and outsiders, which in this case are the borrowers and lenders, respectively (e.g., Wittenberg-Moerman 2008). We use EBITDA to calculate earnings volatility because lenders typically use this adjusted GAAP number instead of net income in debt contracts (see, e.g., Demerjian and Owens 2016; Li 2016). We present these results in Table 6 and find that *Big N* is only significant and in the same direction as Table 3 for

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firms with high earnings volatility (above country annual median), the borrowers for which information asymmetry between insiders and outsiders is higher. This result provides evidence consistent with the positive effect of high quality auditors being driven by borrowers with higher information asymmetry.[24]

To test the second channel, we follow Ball et al. (2008) and use the reputation of lead lenders to measure the level of information asymmetry between lead arrangers and other participants.[25] More reputable arrangers, who are well known and experienced in the syndicated loan market, have greater ability to overcome moral hazard problems and information asymmetry between syndicate participants (Sufi 2007; Ivashina 2009).[26] We partition the sample into "High" and "Low" subsamples of information asymmetry between syndicate participants based on the median value of the product of negative one times the number of other loans leaded by the lead lender of the testing loan. If our predictions for the second channel hold, then our results will be concentrated for loans with less reputable lead arrangers, (i.e., "High" group).

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[24] Our results are not affected if we use firm size (*Size*), or firm age as alternative measures (e.g., Krishnaswami, Spindt, and Subramaniam 1999).

[25] Kim and Song (2011) use prior borrower-lender relationships and credit ratings. However, these two measures are highly associated with information asymmetry between borrowers and lenders (Sufi 2007; Chava et al. 2009), though they could also indirectly impact the information asymmetry among lenders.

[26] A factor limiting lead arranger moral hazard and information asymmetry between lead arrangers and other participants is the lead arranger's reputation. Because lead arrangers are responsible for ex ante due diligence, allocation of the loan to other syndicate members, and ex post monitoring; banks in the syndicate will often rely on the lead bank's reputation in making lending decisions (Ross 2010). Because the lead arrangers and syndicate participants are repeat players in the loan syndication market, if the lead arranger shirks in their due diligence and monitoring activities, it faces a credible threat of loss of reputation and future income (Pichler and Wilhelm 2001). Banks engaged as lead arrangers need to build trust with potential syndicate participants in order to retain substantial fee income from subsequent syndicated loan arranging activities.

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Table 7 shows that the coefficients on *Big N* are all significant in "Low" across all specifications instead. In contrast, we fail to find the effect of Big N is significant in the "High" groups. More importantly, and inconsistent with the prediction of this alternative channel, we find that the magnitude of the coefficient on *Big N* is larger in the subsample of more reputable lead arrangers ("Low" group). Although we cannot fully dispel the concern that our measures of information asymmetry between lenders may also capture general agency costs that are related to information asymmetry issues between borrowers and lenders, we find the correlation between the number of loans arranged by the lead arranger and *Earnings Volatility* is -0.046, suggesting that they capture related but different aspects of information asymmetry and agency problems. Taken together, the results in Table 3 are unlikely to be explained by the alternative view that high-quality audits directly alleviate non-lead participant lenders' concerns about information problems between lead lenders and other participants as documented in the US.[27]

Endogeneity Related to Auditor Choice

Having a Big N auditor may be an endogenous choice of the firm. First, there is an implicit assumption that the firm chooses its auditor and then the loan syndicate is formed. Alternatively, it is possible that lenders influence the choice of the auditor in the first place (e.g., Donovan, Frankel, Lee, Martin, Seo 2014; Menon and Williams

[27] We would expect to find the positive effect of Big N to be more pronounced for loans in countries with lower levels of societal trust (i.e., information asymmetry among lenders is greater if lenders are less likely trust with each other) if the second channel is true. We, however, fail to find supporting evidence for this explanation as documented in Table 5.

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2016).[28] This may lead to a potential reverse causality issue. We believe our results are less likely to be purely driven by this issue because we require that the incumbent auditor be engaged before the year in which a syndicate loan is initiated. Additionally, our results hold after we delete the observations in which a client changes its auditor in the year of, or the year prior to the loan issuance. Second, we include firm fixed effects in our regressions and the results are similar, suggesting that our findings are not purely driven by time-invariant factors.[29] We interpret these results with caution because we cannot completely rule out the possibility that both auditor choice and loan syndicate structure are influenced jointly by a set of common factors, leading to an omitted variable issue.

To further address firms' endogenous choice of Big N auditors, we conduct two different tests: First, we employ a matched-samples approach using propensity score matching (PSM). We match Big N and non-Big N borrowers using a logit regression for the choice of whether to employ a Big N auditor, including all firm and country level control variables from our main tests. We match Big N and non-Big N clients at the firm-year level. We present descriptive statistics of our sample firms before and after matching in Panel A1 of Table 8. Although the mean values of some variables are statistically different between Big N and non-Big N firms before PSM,

[28] There are several recent studies which report that lenders express preferences for larger auditors. For example, the UK Competition Commission Investigation of the Market for Statutory Audit Services, available at https://www.gov.uk/cma-cases/statutory-audit-services-market-investigation.

[29] As we discussed before, our results are also similar when we add lead arranger fixed effects or include an indicator variable for loans that have disclosure covenants.

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none are significantly different after matching.[30] These descriptive statistics provide support that the matching process is effective. We re-estimate equation (1) using our PSM sample and report the consistent results in Panel A2 of Table 8. The results suggest that our conclusions are not affected by the matching method.

Second, previous studies (e.g., Myers, Myers, and Omer 2003; Lennox and Pittman 2010; Ke, Lennox, and Xin 2015) argue that a company's choice to use a Big N auditor is more appropriately viewed as pre-determined, and therefore less endogenous, if the choice was made long ago.[31] Our results for *Big N*, therefore, are less likely to be affected by endogeneity bias in a sample of borrowers that have been audited by Big N auditors for a long duration compared to a sample that has been audited by Big N auditors for a short duration. We follow prior research and estimate our model (1) conditional on an indicator variable of shorter auditor tenure (*Short*). *Short* is an indicator variable equal to one if the auditor tenure is less than three years, and zero otherwise.[32] Consistent with the prior literature, we argue that *Big N* is more

[30] Alternatively, matching non-Big N auditors with Big N auditors at the firm-year level also yields similar results.

[31] For example, suppose that two firms sign debt contracts in 2004 and are audited by the same non-Big Four auditor. Further suppose that Firm A initially hired the auditor in 1994, whereas Firm B did not do so until 2003. It follows that any bias in the coefficient estimates arising from endogeneity is likely to be worse for Firm B because this auditor choice occurred shortly before its debt issuance. For example, Firm B may have been audited prior to 2003 by a Big N auditor, which may have resigned after concluding that Firm B had become a high-risk client because of its low accounting quality. Alternatively, Firm B may have dismissed its incumbent auditor in 2003 in favor of appointing a lower quality non-Big N auditor during a period with higher business risk. In either case, endogeneity is likely to be more serious for Firm B because there is a shorter lag between the choice of auditor and its decision to issue debt.

[32] To explore the sensitivity of our results to the two-year cutoff, we alternatively definite *Short* using cutoffs of two, four, or five years. Unreported results show that the effects of *Big N* on syndicate structure do not change.

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appropriately treated as exogenous when *Short* is equal to zero. If endogeneity does not bias the results for *Big N*, we would expect the *Big N* coefficient to be insignificant (significant) for the firms when *Short* is equal to one, and zero otherwise. We present the results in Panel B of Table 8 and find that the coefficient on *Big N* is significant when *Short* equals zero, but becomes insignificant when *Short* equals one, consistent with our prediction.

We also note that the ideal method to address the reverse causality issue would be to find a source of variation in the independent variable of interest that is exogenous with respect to the dependent variable. We could then use this exogenous source of variation in order to estimate causal treatment effects (e.g., Glaeser and Guay 2017). However, it is difficult to find such an exogenous variable in the setting of audit choice in general (e.g., Lennox, Francis, and Wang 2012). Therefore, while our findings are robust to the use of observable firm-specific control variables, firm fixed effects, alternative empirical specifications, and extensive robustness checks, we cannot absolutely rule out the possibility that our results could still be affected by endogeneity issues. Similarly, while we employ the empirical tools at our disposal, we acknowledge that we cannot completely disentangle the effect of audit quality from accounting quality.

6. Summary and Conclusions

In this study, we examine the effect of auditors on loan syndicate structure using a sample of international private loans. The multiparty nature of loan syndicates

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creates information asymmetry between borrowers and lenders as well as amongst the lenders themselves. Given the significant institutional (i.e., credit rights) and cultural differences (i.e., social trust) across countries, as well as the differences in international lending markets, we empirically examine whether Big N auditors around the world are able to reduce both of these types of information asymmetry, as has been found in US-only studies. We document that loan syndicates lending to borrowers with high quality auditors are larger and less concentrated using an international sample of borrowers from 31 countries. We also find that the loan lead arrangers and the largest loan investors hold a lower proportion of the loan after issuance. Our findings suggest that auditors play an important role in increasing lending efficiency by reducing information asymmetry between borrowers and lenders. However, we fail to find that high quality auditors are able to mitigate the concerns from information asymmetry between more informed lead arrangers and other less informed participants in the global market.

Our study adds to our understanding of the role of high quality auditing in the global audit market and the growing literature investigating the role of auditors in debt markets in an international setting. Our analysis indicates that the positive effect of Big N auditors exists only in countries with strong creditor rights and in those countries with high levels of societal trust, suggesting that both sound formal and informal institutional factors are prerequisites for lenders and borrowers to benefit from differential audit quality on loan syndicate structure efficiency. These findings are consistent with auditors offering an additional layer of protection in countries where lenders are more concerned about country-specific risks.

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Appendix: Variable Definitions

Variable Name	Definitions
Variables of Interest	
Lead Arranger Share	Average percentage share held by the lead arrangers of a loan syndicate.
Largest Investor Share	Percentage share held by the largest single syndicate member in a loan syndicate.
Herfindahl Index	Herfindahl-Hirschman Index (HHI) of the percentage shares in a loan syndicate.
Number of Lenders	Number of participants in a loan syndicate.
Log (Number of Lenders)	Natural log of the number of participants in a loan syndicate.
Big N	Indicator variable equal to one if the incumbent auditor of a borrower for the fiscal year immediately before the initiation of the syndicated loan is one of the Big Four (or previously Big Five or Big Six) auditors, which include Arthur Andersen, Coopers & Lybrand, Ernst & Young, Deloitte & Touche, KPMG, and PricewaterhouseCoopers (Price Waterhouse prior to July 1, 1998), and 0 otherwise.
Earnings Volatility	Classified as high if the earnings (earnings before interest and tax) volatility of the firm's earning volatility of previous eight quarters is above the annual country median, and low otherwise.
Creditor Rights	Classified as high if the creditor rights index from La Porta et al. (1998) is above the sample country (borrower) median, and low otherwise.
Societal Trust	Classified as high if the value of societal trust is above the sample country (borrower) median, and low otherwise. We code the response to the World Value Surveys (WVS) question *"Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"* to 1 if a survey participant reports that most people can be trusted and 0 otherwise and then calculate the mean of the response in each country year as the measure of societal trust (Pevzner, Xie, & Xin 2013).

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Appendix, continued

Variable Name	Definitions
Firm-level Variables[33]	
Size	The natural log of total assets in millions of US dollars, estimated in the year prior to entering into a loan contract.
Leverage	Long-term debt divided by total assets, estimated in the year prior to entering into a loan contract.
Profitability	EBIDTA divided by total assets, estimated in the year prior to entering into a loan contract.
Tangibility	Net PPE divided by total assets, estimated in the year prior to entering into a loan contract.
Z-score	Modified Altman's (1968) Z-score using the following formula: (1.2*working capital+1.4*retained earnings+3.3*EBIT+0.999*sales)/total assets. We exclude the Market-to-book component since not all firms have stock price information in the database.
Loss	Indicator variable equal to one if a firm reports a loss in the year prior to entering into a loan contract, and zero otherwise.
Facility-level Variables	
Interest Spread	The interest spread is the All-in-Drawn-Spread measure reported by Dealscan, and it is equal to the number of basis points over LIBOR. We divided the raw data by 100.
Financial Covenants	The number of financial covenants included in the loan agreement. We set it as zero if it is missing in the database.
Institutional Investor	An indicator variable equal to one if the loan's type is term loan B, C, or D (institutional term loans), and zero otherwise.
Revolver	An indicator variable equal to one if the loan is a revolver, and zero otherwise.
Loan Size	Natural log of amount borrowed in millions of dollars
Maturity	The natural log of months between the facility's issue date and the loan maturity date.
Secured	An indicator variable equal to one if the loan is backed by collateral, and zero otherwise.
PP Provision	An indicator variable equal to one if the loan contract includes a performance pricing provision, and zero otherwise.
Relationship	An indicator variable equal to 1 if at least one of the lenders had been a lender of the borrower's in the preceding three years, and zero otherwise.

[33] We convert all non-ratio variables reported by other currencies into US dollars based on the exchange rate from Compustat Global at the end of the corresponding fiscal year.

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Bigbank	An indicator variable equal to 1 if the lead arranger is one of the top 5 large banks (in loan numbers), and zero otherwise.

Appendix, continued

Variable Name	Definitions
Country-level Variables	
LogGDP	Natural log of country's GDP per capita in US dollars (benchmarked to 2010) from the year prior to entering into a loan contract from the World Bank.
UKlegal	An indicator variable equal to one if a country's legal regime is of United Kingdom origin, and zero otherwise (La Porta et al. 1998).
Frlegal	An indicator variable equal to one if a country's legal regime is of French origin, and zero otherwise (La Porta et al. 1998).
GElegal	An indicator variable equal to one if a country's legal regime is of German origin, and zero otherwise (La Porta et al. 1998).

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TABLE 1
Sample Distribution
Panel A: Year Distribution

Year	Number of loans	Year	Number of loans
1996	21	2005	232
1997	27	2006	203
1998	70	2007	178
1999	65	2008	174
2000	93	2009	207
2001	108	2010	206
2002	115	2011	121
2003	180	2012	2
2004	299	Total	2,301

Panel B: Borrower Country Distribution

Country	# of Deals	# of Borrowers	High Creditor Rights	High Societal Trust
Australia	104	99	1	1
Belgium	10	9	1	1
Brazil	16	16	0	0
Chile	9	8	1	0
Denmark	9	9	1	1
Finland	18	18	0	1
France	169	151	0	0
Germany	73	69	1	1
Greece	11	8	0	1
Hong Kong, China	209	191	1	1
India	137	121	1	0
Ireland	7	7	0	1
Israel	4	4	1	0
Italy	47	42	1	1
Japan	62	59	1	1
Korea, Rep.	12	10	1	1
Malaysia	26	23	1	0
Mexico	32	29	0	0
Netherlands	59	55	1	1
New Zealand	6	5	1	1
Norway	17	17	1	1
Philippines	27	25	0	0
Portugal	11	11	0	1
Singapore	47	46	1	0
South Africa	22	18	1	0
Spain	103	82	1	0

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Sweden	49	48	0	1
Switzerland	55	49	0	1
Taiwan	712	631	1	0
Turkey	10	9	1	0
United Kingdom	228	212	1	1
Total	2,301	2,081		

Panel A presents the annual distribution of observations; Panel B shows the borrower country distribution. See Appendix for the variable definitions.

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TABLE 2
Descriptive Statistics and Correlation Matrix
Panel A: Descriptive Statistics

Variable	**N**	**Mean**	**Std. dev.**	25%	Median	75%
Number of Lenders	2,301	12.33	9.17	6.00	10.00	16.00
Lead Arranger Share	2,301	15.63	16.90	6.00	10.50	18.89
Largest Investor Share	2,301	23.40	20.28	10.00	17.08	30.00
Herfindahl Index	2,301	0.18	0.20	0.07	0.12	0.21
Big N	2,301	0.76	0.43	1.00	1.00	1.00
Interest Spread	2,301	1.14	1.11	0.50	0.83	1.40
Financial Covenants	2,301	0.67	1.28	0.00	0.00	0.00
Institutional Investor	2,301	0.02	0.13	0.00	0.00	0.00
Revolver	2,301	0.48	0.50	0.00	0.00	1.00
Loan Size	2,301	3.99	2.79	1.61	4.60	6.21
Loan Size (in mil USD)	2,301	575.03	1335.48	5.00	99.46	500.00
Maturity	2,301	3.82	0.60	3.58	4.09	4.09
Secured	2,301	0.26	0.44	0.00	0.00	1.00
PP Provision	2,301	0.14	0.35	0.00	0.00	0.00
Relationship	2,301	0.74	0.44	0.00	1.00	1.00
Size	2,301	7.81	1.97	6.32	7.80	9.25
Size (in mil USD)	2,301	13,890.83	32,553.99	553.34	2,447.55	10,375.63
Leverage	2,301	0.58	0.17	0.47	0.58	0.69
Profitability	2,301	0.04	0.06	0.01	0.04	0.07
Tangibility	2,301	0.37	0.21	0.20	0.36	0.54
Z-score	2,301	1.29	0.81	0.76	1.16	1.70
Loss	2,301	0.14	0.35	0.00	0.00	0.00
LogGDP	2,301	9.77	0.93	9.54	10.06	10.36
Bigbank	2,301	0.56	0.50	0.00	1.00	1.00
UKlegal	2,301	0.34	0.47	0.00	0.00	1.00
Frlegal	2,301	0.22	0.41	0.00	0.00	0.00
GElegal	2,301	0.40	0.49	0.00	0.00	1.00

Panel A provides loan characteristics and firm characteristics. See Appendix for the variable definitions.

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Panel B: Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	*Lead Arranger Share*																								
2	*Largest Investor Share*	**0.82**																							
3	*Herfindahl Index*	**0.85**	**0.96**																						
4	*Log (Number of Lenders)*	**-0.53**	**-0.53**	**-0.49**																					
5	*Big N*	**-0.06**	**-0.10**	**-0.08**	**0.05**																				
6	*Interest Spread*	**0.23**	**0.30**	**0.28**	**-0.18**	**-0.10**																			
7	*Financial Covenants*	0.02	0.00	0.00	**-0.10**	**-0.05**	-0.02																		
8	*Institutional Investor*	-0.01	0.04	0.03	**0.05**	-0.02	**0.10**	-0.02																	
9	*Revolver*	**-0.15**	**-0.23**	**-0.20**	**0.21**	**0.09**	**-0.18**	**0.06**	0.02																
10	*Loan Size*	0.00	-0.03	-0.01	0.04	**0.10**	0.01	**-0.10**	0.04	**0.15**															
11	*Maturity*	-0.03	-0.02	-0.02	**-0.06**	-0.01	**0.06**	0.03	**0.07**	0.00	**-0.05**														
12	*Secured*	**0.12**	**0.15**	**0.13**	**-0.15**	-0.02	**0.12**	**0.23**	0.02	**-0.09**	**-0.09**	**0.14**													
13	*PP Provision*	**-0.09**	**-0.13**	**-0.10**	**0.26**	**0.06**	**-0.06**	0.04	**0.06**	**0.20**	**0.13**	**-0.06**	**-0.05**												
14	*Relationship*	**-0.16**	**-0.11**	**-0.10**	**0.18**	**0.01**	**-0.07**	**0.08**	**0.08**	**0.15**	-0.04	**-0.06**	0.03	**0.08**											
15	*Size*	**-0.24**	**-0.24**	**-0.20**	**0.42**	**0.05**	**-0.10**	**-0.27**	0.04	0.02	**-0.07**	**-0.05**	**-0.21**	**0.22**	**0.07**										
16	*Leverage*	**-0.05**	**-0.05**	**-0.05**	**0.12**	**-0.05**	0.03	**-0.15**	**0.05**	**0.12**	**-0.07**	**-0.02**	**-0.06**	**0.12**	**0.05**	**0.24**									
17	*Profitability*	-0.04	-0.03	-0.02	0.00	0.03	**-0.10**	**-0.11**	-0.02	**-0.05**	**0.12**	**0.02**	**-0.11**	**-0.06**	**-0.07**	**-0.08**	**-0.27**								
18	*Tangibility*	0.01	**0.04**	0.03	-0.03	0.00	**0.04**	0.00	-0.01	**-0.18**	**-0.09**	**0.09**	**0.10**	-0.04	**0.04**	**0.07**	**-0.13**	**-0.05**							
19	*Z-score*	-0.01	-0.03	-0.03	0.00	-0.03	**-0.13**	-0.04	0.00	**0.11**	**0.10**	**-0.07**	**-0.14**	**-0.05**	**-0.06**	**-0.19**	**-0.06**	**0.51**	**-0.35**						
20	*Loss*	0.03	0.03	0.03	-0.03	0.00	**0.14**	**0.08**	**0.09**	0.02	0.02	-0.02	**0.12**	**0.05**	0.01	0.01	**0.11**	**-0.64**	**0.06**	**-0.36**					
21	*LogGDP*	0.01	**-0.07**	-0.04	**0.07**	**0.26**	**-0.13**	**-0.07**	0.01	**0.31**	**0.22**	**-0.11**	**-0.08**	**0.16**	**0.09**	**0.13**	**0.06**	**-0.08**	**-0.22**	-0.01	**0.05**				
22	*Bigbank*	**-0.25**	**-0.25**	**-0.20**	**0.27**	**-0.02**	**-0.08**	**-0.13**	0.04	**0.09**	**0.05**	**-0.05**	**-0.23**	**0.13**	0.03	**0.43**	**0.09**	0.02	**-0.06**	0.01	**-0.05**	**0.09**			
23	*UKlegal*	0.03	**0.10**	**0.11**	**-0.05**	**0.04**	**0.21**	**-0.15**	-0.02	**-0.11**	**0.25**	-0.03	**-0.17**	-0.02	**-0.09**	0.00	**-0.13**	**0.16**	0.02	**0.07**	**-0.07**	**-0.08**	**0.16**		
24	*Frlegal*	**-0.09**	**-0.12**	**-0.10**	**0.21**	**0.01**	-0.02	**-0.18**	**0.11**	**0.09**	**0.05**	-0.01	**-0.11**	**0.17**	0.00	**0.32**	**0.25**	**-0.07**	**-0.06**	**-0.08**	0.04	0.03	**0.20**	**-0.38**	
25	*GElegal*	**0.05**	0.03	-0.01	**-0.13**	**-0.07**	**-0.16**	**0.33**	**-0.07**	-0.02	**-0.26**	0.03	**0.29**	**-0.15**	**0.09**	**-0.27**	**-0.08**	**-0.12**	**0.02**	-0.02	**0.05**	-0.01	**-0.32**	**-0.59**	**-0.43**

Panel B presents the Pearson correlation matrix. All variables are defined in Appendix. Correlations in bold are significant at the 5% level or less.

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TABLE 3 The Effect of Big N Auditors on Syndicate Structure

	(1)	(2)	(3)	(4)
	Log (Number of Lenders)	*Herfindahl Index*	*Lead Arranger Share*	*Largest Investor Share*
Big N	**0.12****	**-0.02****	**-2.17****	**-3.24*****
	(2.12)	**(-2.33)**	**(-2.18)**	**(-2.69)**
Interest Spread	-0.06**	0.02**	1.79**	2.32**
	(-2.28)	(2.22)	(2.20)	(2.50)
Financial Covenants	0.02	-0.01	-0.35	-1.25
	(0.79)	(-0.96)	(-0.54)	(-1.41)
Institutional Investor	-0.13	0.08**	1.98	9.62**
	(-1.03)	(2.32)	(0.84)	(2.27)
Revolver	0.21***	-0.05***	-3.24***	-5.53***
	(3.66)	(-6.30)	(-3.35)	(-6.73)
Loan Size	0.03	-0.01	-1.01	-1.30
	(0.58)	(-0.66)	(-0.77)	(-0.73)
Maturity	0.08**	-0.02***	-2.24***	-2.71***
	(2.14)	(-2.86)	(-2.73)	(-3.12)
Secured	-0.05	0.02**	1.66	2.65**
	(-0.77)	(2.10)	(1.08)	(2.21)
PP Provision	0.10***	0.01	0.96	1.05
	(2.92)	(1.35)	(1.06)	(0.96)
Relationship	0.27***	-0.03**	-4.93***	-2.81**
	(8.43)	(-2.04)	(-5.27)	(-2.05)
Size	0.11***	-0.02***	-1.74***	-2.05***
	(5.25)	(-3.16)	(-3.17)	(-4.14)
Leverage	0.00	-0.01	-2.26	0.48
	(0.02)	(-0.38)	(-0.67)	(0.16)
Profitability	0.70**	-0.14	-16.60*	-13.62
	(2.34)	(-1.47)	(-1.90)	(-1.37)
Tangibility	-0.18**	0.03*	2.77	4.71***
	(-2.24)	(1.75)	(1.32)	(2.68)
Z-score	-0.04	0.01	0.44	0.53
	(-1.24)	(0.96)	(0.79)	(0.80)
Loss	0.01	-0.01	-1.10	-0.67
	(0.15)	(-0.88)	(-0.99)	(-0.80)
LogGDP	-0.09**	0.02	2.36**	1.21
	(-2.19)	(1.35)	(2.33)	(1.15)
Bigbank	0.31***	-0.07***	-7.33***	-8.63***
	(5.11)	(-3.09)	(-3.58)	(-3.78)
UKlegal	0.17	0.02	-1.31	2.51
	(1.52)	(0.73)	(-0.56)	(1.24)
Frlegal	0.21***	0.00	-0.42	1.23
	(2.75)	(0.07)	(-0.26)	(0.79)
GElegal	0.26***	-0.02	-2.12	-0.62
	(3.28)	(-1.33)	(-1.32)	(-0.33)
Industry FE	Included	Included	Included	Included
Year FE	Included	Included	Included	Included
Observations	2,301	2,301	2,301	2,301
R-squared	0.341	0.231	0.229	0.276

Table 3 presents the results from the estimation of the following model:

$$Syndicate\ Structure = \alpha + \beta_1 Big\ N + \sum \beta_i\ Controls + \varepsilon$$

We regress the syndicate structure dependent variables on *Big N*, and loan-, firm- and country specific control variables. All variables are defined in Appendix. Firm-specific financial variables are winsorized at the 0.01 level. Regressions include an intercept term and industry and year fixed effects. Standard errors are heteroskedasticity robust and are clustered at the country level. *t*-statistics are reported in parentheses. ∗∗∗, ∗∗, ∗ denote significance at the 1%, 5%, and 10% levels, respectively.

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TABLE 4
The Effect of Big N Auditors on Syndicate Structure: Conditional Analysis on Creditor Rights

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log (Number of Lenders)		*Herfindahl Index*		*Lead Arranger Share*		*Largest Investor Share*	
	High	Low	High	Low	High	Low	High	Low
Big N	**0.14****	**0.01**	**-0.03****	**-0.00**	**-2.88****	**0.34**	**-3.80*****	**-0.43**
	(2.23)	**(0.10)**	**(-2.18)**	**(-0.03)**	**(-2.19)**	**(0.22)**	**(-2.64)**	**(-0.16)**
Interest Spread	-0.00*	-0.00*	0.00*	0.00***	0.02*	0.02**	0.02**	0.03***
	(-1.77)	(-1.78)	(1.82)	(3.06)	(1.85)	(2.43)	(2.10)	(2.80)
Financial Covenants	0.02	-0.01	-0.01	0.02	-0.42	0.77	-1.52*	1.45
	(0.95)	(-0.19)	(-1.24)	(0.94)	(-0.61)	(0.73)	(-1.81)	(0.84)
Institutional Investor	-0.20	0.25**	0.05	0.07*	1.92	-1.23	7.13	7.90
	(-1.07)	(2.29)	(1.17)	(1.96)	(0.45)	(-0.91)	(1.37)	(1.49)
Revolver	0.19***	0.33***	-0.05***	-0.05***	-2.86***	-5.70***	-5.40***	-6.20***
	(3.11)	(5.56)	(-5.59)	(-3.51)	(-2.91)	(-4.81)	(-5.95)	(-4.04)
Loan Size	0.04	-0.04	-0.02*	0.03	-0.72	-3.02**	-2.43**	4.17**
	(0.87)	(-0.47)	(-1.72)	(1.51)	(-0.51)	(-2.30)	(-2.17)	(2.18)
Maturity	0.10**	-0.03	-0.03**	-0.01	-2.40**	-1.03	-2.88***	-0.76
	(2.34)	(-0.75)	(-2.52)	(-1.07)	(-2.41)	(-1.00)	(-2.87)	(-0.53)
Secured	-0.07	0.12	0.03*	-0.02	2.20	-3.02	2.98**	-0.32
	(-0.85)	(0.95)	(1.90)	(-0.59)	(1.11)	(-1.64)	(2.00)	(-0.10)
PP Provision	0.10*	0.05	0.02	0.01	1.05	1.64	1.86	0.05
	(1.86)	(0.69)	(1.56)	(0.70)	(0.81)	(1.50)	(1.21)	(0.10)
Relationship	0.27***	0.23***	-0.03*	-0.05**	-4.95***	-5.38***	-2.46*	-4.96***
	(8.33)	(4.76)	(-1.67)	(-2.55)	(-4.93)	(-2.73)	(-1.65)	(-2.59)
Size	0.08***	0.22***	-0.02**	-0.03***	-1.50**	-2.91***	-1.80***	-3.13***
	(3.81)	(7.74)	(-2.28)	(-5.77)	(-2.25)	(-5.98)	(-2.95)	(-7.37)
Leverage	-0.01	0.13	-0.01	0.03	-2.57	-2.00	0.25	4.20
	(-0.04)	(0.34)	(-0.43)	(0.32)	(-0.65)	(-0.20)	(0.08)	(0.44)
Profitability	0.94**	0.41	-0.21**	-0.12	-22.85**	-12.39	-21.24**	-11.00
	(2.36)	(0.68)	(-2.18)	(-0.64)	(-2.18)	(-0.76)	(-2.19)	(-0.57)
Tangibility	-0.10	-0.29	0.02	0.01	1.60	3.11	4.08**	0.58
	(-1.20)	(-1.42)	(1.16)	(0.13)	(0.71)	(0.64)	(2.33)	(0.08)
Z-score	-0.04	0.01	0.01	0.01	0.37	1.19	0.61	1.14
	(-1.21)	(0.16)	(1.13)	(1.00)	(0.68)	(0.79)	(0.90)	(0.98)

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Loss	0.06	-0.13	-0.01	-0.02	-1.93	0.45	-1.17*	-1.01
	(1.13)	(-1.04)	(-1.47)	(-0.66)	(-1.63)	(0.12)	(-1.72)	(-0.29)
LogGDP	-0.09**	-0.08***	0.02	-0.00	2.44**	1.48	1.36	-1.33*
	(-1.98)	(-3.17)	(1.20)	(-0.25)	(2.18)	(1.09)	(1.12)	(-1.88)
Bigbank	0.33***	0.11**	-0.08***	-0.00	-7.84***	-2.30*	-9.47***	-1.24
	(4.34)	(2.06)	(-2.80)	(-0.05)	(-3.20)	(-1.73)	(-3.38)	(-0.73)
UKlegal	0.27	0.02	0.04	-0.15***	-0.62	-5.03	4.92	-16.01***
	(1.28)	(0.11)	(1.61)	(-3.68)	(-0.21)	(-1.28)	(1.43)	(-4.03)
Frlegal	0.30	0.13***	0.03	-0.02	1.05	-0.58	3.54	-0.57
	(1.63)	(2.79)	(1.18)	(-0.95)	(0.43)	(-0.27)	(1.04)	(-0.39)
GElegal	0.34*	0.27***	0.00	-0.06***	-1.18	-4.03	1.92	-3.68**
	(1.80)	(3.57)	(0.15)	(-3.70)	(-0.73)	(-1.28)	(0.60)	(-2.53)
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,906	395	1,906	395	1,906	395	1,906	395
R-squared	0.317	0.525	0.224	0.409	0.219	0.411	0.266	0.447

Table 4 presents the results from the estimation of the following model within high and low creditor rights subgroups:

$$Syndicate\ Structure = \alpha + \beta_1 Big\ N + \sum \beta_i\ Controls + \varepsilon$$

We regress the syndicate structure dependent variables on *Big N* as well as loan-, firm- and country specific control variables within high and low subgroups conditional on credit rights. All variables are defined in Appendix. Firm-specific financial variables are winsorized at the 0.01 level. Regressions include an intercept term and industry and year fixed effects. Standard errors are heteroskedasticity robust and are clustered at the country level. *t*-statistics are reported in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

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TABLE 5
The Effect of Big N Auditors on Syndicate Structure: Conditional Analysis on Societal Trust

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log (Number of Lenders)		*Herfindahl Index*		*Lead Arranger Share*		*Largest Investor Share*	
	High	Low	High	Low	High	Low	High	Low
Big N	**0.26*** **	**0.03**	**-0.05*** **	**-0.00**	**-5.34*** **	**-0.53**	**-6.60*** **	**-0.81**
	(3.50)	**(0.96)**	**(-2.66)**	**(-0.30)**	**(-3.03)**	**(-0.72)**	**(-3.38)**	**(-0.46)**
Interest Spread	-0.00***	-0.00	0.00***	0.00	0.03***	-0.00	0.03***	0.01***
	(-3.13)	(-0.51)	(3.52)	(0.35)	(3.04)	(-0.15)	(3.78)	(2.66)
Financial Covenants	-0.01	0.03*	0.01	-0.02*	1.03	-0.87	0.96	-2.10***
	(-0.19)	(1.68)	(0.76)	(-1.65)	(0.97)	(-1.30)	(0.64)	(-2.89)
Institutional Investor	-0.26	0.18	0.02	0.06	2.30	-1.25	3.22	8.85*
	(-1.27)	(1.45)	(0.40)	(1.59)	(0.40)	(-0.61)	(0.71)	(1.78)
Revolver	0.12	0.25**	-0.03***	-0.06***	-1.14	-3.67**	-3.79***	-6.44***
	(1.47)	(2.48)	(-2.85)	(-5.49)	(-0.95)	(-2.25)	(-3.59)	(-3.64)
Loan Size	0.02	0.06	-0.02***	0.03	-0.79	-4.92*	-2.28**	3.38
	(0.45)	(0.32)	(-2.66)	(0.43)	(-0.74)	(-1.78)	(-2.44)	(0.46)
Maturity	0.10**	0.07	-0.03	-0.02	-3.30**	-1.45	-2.60	-2.44
	(2.12)	(0.95)	(-1.57)	(-1.39)	(-2.28)	(-0.99)	(-1.60)	(-1.60)
Secured	-0.23***	0.01	0.04*	0.01	6.04***	-0.14	4.26**	2.25
	(-3.75)	(0.22)	(1.87)	(1.14)	(2.93)	(-0.12)	(2.21)	(1.56)
PP Provision	0.10	0.17***	0.02*	-0.01	1.36	-0.89	1.65	-1.80
	(1.50)	(6.42)	(1.91)	(-0.76)	(1.54)	(-0.82)	(1.44)	(-1.22)
Relationship	0.24***	0.23***	-0.03	-0.01	-4.99***	-3.96***	-3.12	-1.63
	(3.84)	(8.82)	(-1.25)	(-0.99)	(-3.02)	(-4.48)	(-1.33)	(-1.27)
Size	0.13***	0.11***	-0.02*	-0.02***	-2.34*	-1.85***	-2.48**	-2.63***
	(4.55)	(5.29)	(-1.96)	(-5.89)	(-1.94)	(-4.87)	(-2.47)	(-9.84)
Leverage	-0.11	0.25*	-0.03	-0.03	-3.67	-5.49**	-2.51	0.45
	(-0.57)	(1.78)	(-0.63)	(-0.82)	(-0.63)	(-2.23)	(-0.49)	(0.13)
Profitability	1.34***	0.44	-0.22	-0.17*	-31.86*	-12.15***	-17.67	-21.10**
	(3.17)	(1.61)	(-1.08)	(-1.94)	(-1.72)	(-2.77)	(-0.90)	(-2.25)
Tangibility	-0.16	-0.17*	0.04	0.04	0.97	3.08	6.07**	6.89**
	(-1.58)	(-1.69)	(1.15)	(1.47)	(0.25)	(1.14)	(2.25)	(2.14)
Z-score	-0.02	-0.06*	0.00	0.01**	0.49	0.63	-0.29	1.24*
	(-0.38)	(-1.81)	(0.14)	(1.99)	(0.49)	(0.89)	(-0.22)	(1.68)

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Loss	0.08	-0.05	-0.01	-0.00	-2.97*	-0.09	-1.63	0.27
	(1.44)	(-0.92)	(-0.38)	(-0.40)	(-1.67)	(-0.09)	(-0.96)	(0.30)
LogGDP	-0.18	-0.06***	0.11**	-0.00	8.96**	1.04**	7.49*	-0.27
	(-1.07)	(-3.35)	(2.38)	(-0.36)	(2.30)	(2.39)	(1.68)	(-0.59)
Bigbank	0.37***	0.31***	-0.09**	-0.07**	-10.04**	-5.89***	-9.94**	
	(3.51)	(3.20)	(-2.03)	(-2.18)	(-2.34)	(-3.56)	(-2.39)	
UKlegal	0.19	-0.13	0.03	0.03	-1.05	0.75	2.46	-0.85
	(1.51)	(-1.27)	(0.98)	(0.80)	(-0.40)	(0.30)	(1.00)	(-0.29)
Frlegal	0.11	-0.09	0.05*	0.03	3.07	2.82	5.33**	-2.58
	(1.36)	(-0.68)	(1.75)	(0.68)	(1.22)	(0.93)	(1.98)	(-0.90)
GElegal	0.25**		-0.02		-2.08		-0.13	
	(2.05)		(-0.51)		(-0.72)		(-0.04)	
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	987	1,314	987	1,314	987	1,314	987	1,314
R-squared	0.409	0.346	0.327	0.225	0.345	0.201	0.369	0.242

Table 5 presents the results from the estimation of the following model within high and low trust level subgroups:

$$Syndicate\ Structure = \alpha + \beta_1 Big\ N + \sum \beta_i\ Controls + \varepsilon$$

We regress the syndicate structure dependent variables on *Big N* as well as loan-, firm- and country specific control variables within high and low trust level subgroups. All variables are defined in Appendix. Firm-specific financial variables are winsorized at the 0.01 level. Regressions include an intercept term and industry and year fixed effects. Standard errors are heteroskedasticity robust and are clustered at the country level. *t*-statistics are reported in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

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TABLE 6
The Effect of Big N Auditors on Syndicate Structure: Conditional Analysis on Information Asymmetry between Borrowers and Lenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log (Number of Lenders)		*Herfindahl Index*		*Lead Arranger Share*		*Largest Investor Share*	
	High	Low	High	Low	High	Low	High	Low
Big N	**0.17*** **	**0.06**	**-0.04*** **	**-0.01**	**-3.65*** **	**-1.04**	**-4.99*** **	**-1.84**
	(3.63)	**(0.86)**	**(-2.96)**	**(-0.41)**	**(-3.46)**	**(-0.60)**	**(-3.31)**	**(-0.87)**
Interest Spread	-0.09***	-0.03	0.03**	0.01	2.65***	0.58	3.06***	1.46*
	(-2.89)	(-1.33)	(2.40)	(1.54)	(2.84)	(0.98)	(2.60)	(1.85)
Financial Covenants	0.01	0.03*	-0.01	-0.01	-0.16	-0.74	-1.25	-1.62*
	(0.23)	(1.77)	(-1.04)	(-1.28)	(-0.25)	(-1.11)	(-1.47)	(-1.82)
Institutional Investor	-0.11	-0.11	0.15***	-0.01	2.96	-0.51	16.44***	1.00
	(-0.66)	(-0.50)	(3.27)	(-0.36)	(0.70)	(-0.21)	(2.97)	(0.30)
Revolver	0.15**	0.26***	-0.05***	-0.05***	-2.52**	-3.91***	-4.71***	-6.10***
	(2.56)	(4.00)	(-4.95)	(-5.95)	(-2.33)	(-3.43)	(-3.89)	(-6.75)
Loan Size	0.04	0.00	-0.01	-0.02	-0.62	-1.02	-0.81	-2.08*
	(0.56)	(0.04)	(-0.35)	(-1.23)	(-0.35)	(-1.11)	(-0.41)	(-1.76)
Maturity	0.07**	0.08	-0.02*	-0.03*	-1.36	-2.93**	-2.04**	-2.87*
	(2.04)	(1.60)	(-1.89)	(-1.75)	(-1.47)	(-2.03)	(-2.02)	(-1.94)
Secured	0.06	-0.15*	0.01	0.03	-0.24	2.93	1.03	3.17*
	(1.02)	(-1.90)	(0.67)	(1.36)	(-0.16)	(1.26)	(0.73)	(1.65)
PP Provision	0.06	0.15***	0.02	0.01	1.91	0.28	1.62	0.73
	(1.12)	(3.19)	(1.50)	(0.62)	(1.42)	(0.23)	(1.04)	(0.59)
Relationship	0.23***	0.26***	-0.03	-0.02	-4.66***	-4.37***	-2.45	-2.11
	(4.67)	(5.52)	(-1.53)	(-1.15)	(-3.53)	(-3.18)	(-1.56)	(-1.19)
Size	0.12***	0.09***	-0.02***	-0.02**	-1.67***	-1.79***	-2.12***	-1.76***
	(4.89)	(5.19)	(-3.09)	(-2.51)	(-2.71)	(-2.92)	(-4.22)	(-2.80)
Leverage	0.13	-0.03	-0.01	-0.03	-2.91	-4.30	-0.26	-0.35
	(0.87)	(-0.21)	(-0.21)	(-0.70)	(-0.86)	(-1.07)	(-0.08)	(-0.07)
Profitability	0.72**	1.45*	-0.12	-0.49**	-9.77	-54.51***	-10.32	-51.24**
	(2.13)	(1.87)	(-1.08)	(-2.01)	(-1.17)	(-2.64)	(-0.88)	(-2.07)
Tangibility	-0.17	-0.29***	0.04	0.04	3.55	4.14	6.18**	5.96*
	(-1.39)	(-2.61)	(1.56)	(1.48)	(1.15)	(1.54)	(2.41)	(1.95)
Z-score	0.01	-0.11**	0.00	0.02**	-0.25	2.06*	0.15	1.86*

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	(0.15)	(-2.28)	(0.30)	(2.00)	(-0.30)	(1.95)	(0.15)	(1.80)
Loss	0.07	-0.04	-0.01	-0.02	-1.40	-2.01	-0.37	-3.15
	(1.39)	(-0.66)	(-0.43)	(-0.72)	(-1.27)	(-0.85)	(-0.25)	(-1.07)
LogGDP	-0.06	-0.09**	0.02*	-0.00	2.41**	1.44	1.94	-0.34
	(-1.51)	(-2.09)	(1.89)	(-0.25)	(2.24)	(1.51)	(1.62)	(-0.34)
Bigbank	0.27***	0.33***	-0.08***	-0.07**	-7.32***	-6.87***	-8.66***	-8.39***
	(4.29)	(4.24)	(-3.36)	(-2.54)	(-3.99)	(-2.66)	(-3.85)	(-3.10)
UKlegal	0.26**	0.13	-0.01	0.05**	-3.91	0.66	0.63	5.14***
	(2.03)	(1.00)	(-0.19)	(2.20)	(-1.35)	(0.30)	(0.21)	(2.59)
Frlegal	0.31***	0.19**	-0.02	0.02	-3.09	1.09	0.03	1.68
	(2.96)	(2.26)	(-0.78)	(1.07)	(-1.27)	(0.61)	(0.01)	(0.90)
GElegal	0.35***	0.22**	-0.05**	0.00	-5.16**	0.03	-2.53	1.07
	(4.50)	(2.08)	(-2.02)	(0.18)	(-2.43)	(0.01)	(-1.05)	(0.44)
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,179	1,122	1,179	1,122	1,179	1,122	1,179	1,122
R-squared	0.377	0.363	0.280	0.235	0.280	0.233	0.325	0.281

Table 6 presents the results from the estimation of the following model within high and low standard deviation of past ROA subgroups:

$$Syndicate\ Structure = \alpha + \beta_1 Big\ N + \sum \beta_i\ Controls + \varepsilon$$

We regress the syndicate structure dependent variables on *Big N* as well as loan-, firm- and country specific control variables within high and low subgroups conditional on standard deviation of past ROA. All variables are defined in Appendix. Firm-specific financial variables are winsorized at the 0.01 level. Regressions include an intercept term and industry and year fixed effects. Standard errors are heteroskedasticity robust and are clustered at the country level. *t*-statistics are reported in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

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TABLE 7:
Test of Alternative Channel: Information Asymmetry and Moral Hazard Issues among Lenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log (Number of Lenders)		*Herfindahl Index*		*Lead Arranger Share*		*Largest Investor Share*	
	High	Low	High	Low	High	Low	High	Low
Big N	**0.03**	**0.14*** **	**-0.01**	**-0.02***	**-0.99**	**-2.07** **	**-2.28**	**-3.17** **
	(0.53)	**(3.09)**	**(-0.64)**	**(-1.73)**	**(-0.66)**	**(-2.18)**	**(-1.37)**	**(-2.51)**
Interest Spread	-0.09***	-0.00	0.03***	0.00	2.97***	0.22	2.95***	1.27*
	(-3.38)	(-0.38)	(2.67)	(0.83)	(3.17)	(0.41)	(2.88)	(1.68)
Financial Covenants	0.05**	0.01	-0.02***	-0.00	-1.37**	-0.08	-2.67***	-0.37
	(2.36)	(0.32)	(-3.47)	(-0.07)	(-2.44)	(-0.21)	(-4.23)	(-0.73)
Institutional Investor	0.01	-0.05	0.04	0.08*	1.94	0.16	5.98	8.51*
	(0.04)	(-0.33)	(0.54)	(1.82)	(0.27)	(0.07)	(0.83)	(1.77)
Revolver	0.19***	0.25***	-0.05***	-0.04***	-3.86***	-2.48***	-5.23***	-5.70***
	(3.98)	(5.53)	(-3.94)	(-4.04)	(-2.98)	(-2.69)	(-3.73)	(-5.12)
Loan Size	0.06	0.02	-0.02	-0.01	-0.56	-1.84	-1.35	-1.27
	(0.80)	(0.48)	(-0.65)	(-0.89)	(-0.25)	(-1.52)	(-0.60)	(-0.86)
Maturity	0.10**	0.04	-0.04**	-0.01	-3.13**	-1.24*	-3.94***	-1.64*
	(2.19)	(1.07)	(-2.54)	(-1.53)	(-2.22)	(-1.84)	(-2.73)	(-1.95)
Secured	-0.08	-0.04	0.05***	-0.00	3.55**	0.36	5.38***	0.33
	(-1.63)	(-0.77)	(3.38)	(-0.25)	(2.33)	(0.36)	(3.36)	(0.25)
PP Provision	0.12	0.12**	0.01	0.01	0.67	0.02	0.18	0.57
	(1.21)	(2.46)	(0.29)	(0.57)	(0.25)	(0.02)	(0.07)	(0.44)
Size	0.08***	0.15***	-0.01**	-0.02***	-1.34***	-2.36***	-1.43***	-2.82***
	(4.73)	(10.16)	(-2.48)	(-6.63)	(-2.75)	(-8.03)	(-2.83)	(-7.56)
Leverage	-0.20	0.18	0.09	-0.09***	4.21	-7.33**	10.58*	-7.82**
	(-1.13)	(1.34)	(1.56)	(-2.60)	(0.82)	(-2.54)	(1.96)	(-2.20)
Profitability	1.32**	0.30	-0.20	-0.18	-24.32	-17.64**	-23.83	-12.59
	(2.18)	(0.69)	(-1.02)	(-1.47)	(-1.32)	(-2.08)	(-1.27)	(-1.01)
Tangibility	-0.13	-0.12	0.01	0.04	1.46	2.15	2.87	5.23*
	(-0.98)	(-1.06)	(0.12)	(1.33)	(0.36)	(1.02)	(0.67)	(1.81)
Z-score	-0.07	0.01	0.00	0.00	0.06	0.48	0.58	-0.14
	(-1.63)	(0.18)	(0.25)	(0.10)	(0.05)	(0.69)	(0.43)	(-0.15)
Loss	0.05	-0.04	-0.01	-0.01	-2.16	-0.45	-1.49	-0.40
	(0.58)	(-0.62)	(-0.52)	(-0.43)	(-0.92)	(-0.39)	(-0.57)	(-0.25)

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LogGDP	-0.11***	-0.09***	0.03*	0.01**	5.28***	1.34***	1.79	1.43**
	(-2.72)	(-3.70)	(1.84)	(2.10)	(4.22)	(3.16)	(1.28)	(2.08)
UKlegal	0.10	0.19*	0.03	0.01	0.65	-1.23	3.96	1.75
	(0.79)	(1.85)	(0.73)	(0.78)	(0.18)	(-0.81)	(1.06)	(1.06)
Frlegal	0.07	0.25**	0.02	0.01	3.08	-0.26	3.79	1.05
	(0.58)	(2.47)	(0.49)	(0.38)	(0.88)	(-0.17)	(1.09)	(0.62)
GElegal	0.27**	0.22**	-0.03	-0.01	-1.30	-0.78	-1.61	0.23
	(2.37)	(2.14)	(-0.98)	(-0.79)	(-0.39)	(-0.50)	(-0.47)	(0.14)
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,012	1,289	1,012	1,289	1,012	1,289	1,012	1,289
R-squared	0.294	0.313	0.265	0.217	0.223	0.216	0.294	0.250

Table 7 presents the results from the estimation of the following model within high and low Information Asymmetry subgroups according to the reputation of lead arrangers:

$$Syndicate\ Structure = \alpha + \beta_1 Big\ N + \sum \beta_i\ Controls + \varepsilon$$

We regress the syndicate structure dependent variables on *Big N* as well as loan-, firm- and country specific control variables within high and low subgroups conditional on the level of information asymmetry and moral hazard issues among lenders. All variables are defined in Appendix. Firm-specific financial variables are winsorized at the 0.01 level. Regressions include an intercept term and industry and year fixed effects. Standard errors are heteroskedasticity robust and are clustered at the country level. *t*-statistics are reported in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

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TABLE 8
Tests to Address Selection Bias on Auditor Choice

Panel A1: The Effectiveness of the Matching Process

	Big N	**Non-Big N**	**t-test for (1)=(2)**	**PSM Big N**	**t-test for (3)=(2)**
	(1)	(2)		(3)	
Size	7.862	7.644	**	7.70	
Leverage	0.578	0.598	**	0.591	
Profitability	0.041	0.038		0.038	
Tangibility	0.374	0.374		0.377	
Z-score	1.280	1.335		1.290	
Loss	0.143	0.141		0.151	

Panel A2: The Effect of Big N Auditors on Syndicate Structure

	(1)	(2)	(3)	(4)
	Log (Number of Lenders)	*Herfindahl Index*	*Lead Arranger Share*	*Largest Investor Share*
Big N	**0.13****	**-0.03****	**-2.60****	**-4.36*****
	(2.45)	**(-2.30)**	**(-2.02)**	**(-2.68)**
Controls	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included
Year FE	Included	Included	Included	Included
Observations	1,070	1,070	1,070	1,070
R-squared	0.411	0.280	0.284	0.325

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Panel B: The Effect of Short-Tenure Big N Auditors on Syndicate Structure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log (Number of Lenders)		*Herfindahl Index*		*Lead Arranger Share*		*Largest Investor Share*	
	Short =1	*Short* =0	*Short* =1	*Short* =0	*Short* =1	*Short* =0	*Short* =1	*Short* =0
Big N	0.03	0.14**	0.01	-0.03**	-0.12	-2.53**	-0.29	-3.91**
	(0.27)	(1.98)	(0.30)	(-2.31)	(-0.04)	(-2.17)	(-0.12)	(-2.45)
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	556	1,745	556	1,745	556	1,745	556	1,745
R-squared	0.385	0.362	0.308	0.242	0.320	0.238	0.341	0.288

Table 9 Panel A1 provides the statistics (mean values) of the variables before and after the PSM procedure. Panel A2 presents the results from the estimation of the following model where we match Big N firms to non-Big N firms and Panel B presents the results from the estimation of the following model by short and long periods:

$$Syndicate\ Structure = \alpha + \beta_1 Big\ N + \sum \beta_i\ Controls + \varepsilon$$

We regress the syndicate structure dependent variables on *Big N*, and loan- firm- and country specific control variables. All variables used in Panels A and B are defined in Appendix. Firm-specific financial variables are winsorized at the 0.01 level. Regressions include an intercept term and industry and year fixed effects. Standard errors are heteroskedasticity robust and are clustered at the country level. *t*-statistics are reported in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

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