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Local versus foreign banks: A home market advantage in loan syndications

Tram Vu, Viet Do *, Michael Skully

Department of Banking and Finance, Monash Business School, Monash University

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ABSTRACT

This paper investigates the contract terms of local versus foreign bank lead loan syndications to test two opposing theories: the home market advantage gained by closer geographical proximity and soft information from existing banking relationships, versus the hold-up problem where banks exploit their information advantage at the borrower's expense. The home market advantage was supported with domestic banks informationally superior to their foreign counterparts. Loans arranged by the former carry lower interest rates, have longer maturities, and are less likely to require collateral. These results are robust after controlling for the non-randomness of the lender–borrower matching process.

1. Introduction

This paper investigates local versus foreign bank lead loan syndications to test the impact of two opposing theories: the home market advantage gained by closer geographical proximity and soft information from existing banking relationships, versus the 'hold-up' problem where banks use their soft information advantage and offer their clients more expensive, less attractive facilities.

Asymmetric information between the borrower and lender is the source of adverse selection and moral hazard in modern banking (Diamond, 1984). The classical theories suggest that reduced asymmetric information will benefit borrowers. For example, lower asymmetric information can reduce lenders' exposure to credit risk, as well as reduce monitoring costs, which in turn leads to more favourable loan terms. Bharath et al. (2011) show that borrowers with an existing bank relationship pay 10 to 17 basis points less on their loans, and have fewer collateral requirements. They attribute these effects to reduced asymmetric information due to the soft information obtained from the borrower's existing relationship. Berger and Udell (1995) also report that previous banking relationships strongly reduce interest charges as well as collateral requirements. Petersen and Rajan (1994) and Cole (1998) both find existing relationships increase the availability of credit to borrowers.[1]

Geographical distance may also reduce asymmetric information. Sufi (2007) and Knyazeva and Knyazeva (2012) argue that distance can be used as proxy for the bank's ability to acquire soft information, and so banks geographically closer to the borrower tend to offer lower loan spreads and less restrictive non-price terms. The closer the distance, the more likely banks are able to gather private information about the borrower. Distance can also lower the costs of monitoring and verifying soft information (Berger, Miller, Petersen, Rajan & Stein, 2005; Bushman & Wittenberg-Moerman, 2012; Dass & Massa, 2011; Petersen & Rajan, 2002; Sufi, 2007). Overall, these studies suggest that existing lending relationships and closer geographical

* Corresponding author at: Department of Banking & Finance, Monash Business School, Monash University, Room 4.19, Building H, Caulfield East, Victoria 3145, Australia. Tel.: +61 3 9903 4584; fax: +61 3 9903 2422.
E-mail addresses: Tram.Vu@monash.edu (T. Vu), Minh.Do@monash.edu (V. Do), Michael.Skully@monash.edu (M. Skully).

[1] In line with the prior literature, we focus on lead banks' information advantage as opposed to non-lead banks. This is because the screening and monitoring responsibilities are typically delegated to lead banks which have the expertise to do so and are incentivized through fees earned on those services. For example, Dahiya et al. (2003) and Bharath et al. (2011) examined the role of relationship banking in loan syndications, where their relationship variable was constructed with a focus on lead banks. Bharath et al. (2011) further highlighted the role of lead banks by arguing that non-lead banks view a previous relationship between the lead bank and borrower as a credible signal of lead bank commitment and therefore reduced moral hazard. Ahn and Choi (2009) reported that bank monitoring increases with lead bank reputation, but is insignificantly related to number of lenders, which may indicate a less active role of non-lead banks.

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distance between the borrower and lender translate into more favourable loan terms.

The opposing view is that such lenders with an informational advantage may exploit their power by charging a higher loan price, often known as the hold-up problem. With relationship lending, the lender may exercise rent extraction over the borrower's private information and so charge an above-cost interest rate (Greenbaum et al., 1989; Rajan, 1992; Sharpe, 1990). Schenone (2010) reports that for pre-IPO firms, interest rates decrease when the lending relationship commences, but then increase as the relationship deepens. This is because it allows lenders to 'lock in' their client borrowers. Borrowers located closer to their lending bank may similarly be 'informationally captured' via higher interest rates. This is particularly true for those smaller and more opaque borrowers with informational asymmetries (Agarwal & Hauswald, 2010; Degryse & Ongena, 2005; Degryse & Van Cayseele, 2000; Hauswald & Marquez, 2006).

Given the above discussion, the literature remains undecided as to whether existing banking relations and closer proximity (as proxies for soft information gathering) allow lenders to reward their clients better rates and conditions, or instead use their position to charge more. We contribute to this debate by addressing the following research question: Does the information advantage of domestic banks over foreign banks affect their terms in syndicated loans?

We pose this question in the context of Australian loan syndications.[2] There are a number of key differences in the characteristics of the Australian market compared to its US counterpart. Unlike prior US studies, the Australian market structure offers many advantages in respect to its big four local banks[3] dominating local syndications, a strong presence of foreign bank lead loan syndications, the domination of the big four on local banking, the lack of an active non-bank presence in loan syndications, and a poor secondary market for bank loans. First, the four major banks' dominance in local lead syndications is important in that these lead institutions are very similar in terms of size, complexity and risk exposure among themselves and their foreign bank competitors.[4] This means our results are less likely to be driven by institutional specific characteristics. Second, the strong presence of foreign bank lead syndications also provides the opportunity in Australia to test them against local lead facilities. Third, the big four's 80% control of the local banking system means that almost all potential loan syndication customers in Australia will have had some level of relationship with a big four bank. Fourth, the lack of non-bank (hedge funds and investment banks) participation in Australian loan syndications also removes the need to control for their differences in business exposures as well as isolates any impact that these participants might otherwise cause. Finally, a poor secondary market for loan syndicate participations means that the lead and participating banks must effectively hold these loans to maturity. This ensures that any prior relationships are continued and strengthened and that more care would be taken before making such a commitment.

Given the prior literature, we argue that a home market advantage may exist for the domestic banks due to ongoing banking relationships and closer geographical proximity. While proximity may apply to domestic banks in other countries, the concentrated banking sector and lack of a secondary market for loan sales in Australia further bolster the idea that Australian banks, through their prior relationship banking, are better information producers than foreign banks in this market. Given Australia is a country rich in natural resources, the domestic banks may have also earned superior knowledge in lending to resources firms. We conjecture that the domestic banks possess an information advantage over foreign banks due to their dominating involvement with local business borrowers, as well as their closer geographical proximity, and so will offer more favourable syndicated loan terms.

We examine these matters using endogeneity-corrected regressions on a sample of 305 Australian syndicated loan facilities originated between 1992 and 2010. Our research design addresses the non-randomness of the borrower–lender matching process. A certain type of borrowers (often smaller and more opaque) may have a higher tendency to source funds from the domestic banks rather than foreign lenders, due to the former's local knowledge and existing relationships. This non-random choice between a domestic and a foreign lead bank is controlled via the treatment effect and instrumental variable models.

Our results support the view that reduced information asymmetries represent a home market advantage and so allow domestic banks to charge their borrowers lower loan spreads. As for the non-price terms, loans led by domestic banks are associated with longer maturities and are less likely to be secured than those led by foreign banks. All in all, soft information is found to add value even in the current state of modern banking developments where informational barriers have been remarkably lessened.

This study makes several important contributions to the literature. First, we show that the origin of lead banks is an important factor in determining syndicated loan contract terms. While others such as Ross (2010) and McCahery and Schwienbacher (2010) consider lead bank identity, this study is the first to explore the relevance of the lead bank's origin. Second, we contribute to the debate about the effect of soft information on borrower welfare, and find support for the classical banking theory. Our results indicate that soft information helps reduce asymmetric information thereby benefiting the borrower.[5] Third, this study adds to the foreign banking literature which has emphasised their competitive disadvantages when entering into a new foreign market, such as unfamiliarity with the host country's business culture, social differences, regulatory environments, and information network.[6] Though not testing these challenges directly, our results do suggest that foreign banks fare worse than domestic banks in lending to domestic borrowers. Fourth, we contribute to a much under-researched Australian syndicated loan market. While this market is responsible for about a quarter of Australian non-financial borrowers' debt raisings, to our best knowledge, this is the first in-depth study of the domestic syndicated loan market. The findings of this paper are not only applicable to the Australian market but can be generalised to many other non-US markets with high market concentration and strong reliance on relationship banking. The Canadian market, for example, is dominated by six major domestic banks with a similar market structure. Other markets with a similar degree of concentration and relationship banking focus include (but are not limited to) the United Kingdom, Ireland, Switzerland, New Zealand, South Africa, most of the Scandinavian countries, and some Asian countries such as Singapore, Thailand, and Sri Lanka (Beck et al., 2007).[7]

The remainder of the paper is organised as follows. Section 2 provides a background on the Australian syndicated loan market. A model is developed in Section 3 to control for the non-random choice of lead arrangers (i.e., domestic versus foreign). Section 4 presents a description of the data sources and variables. The descriptive statistics and multivariate regression estimates are presented and discussed in Section 5, while Section 6 concludes the study.

[2] Our question could be answered using bilateral loans, but unfortunately, we do not have access to such data. Dealscan does provide data for US bilateral loans but the same search criteria for Australia produce only syndicated loans.

[3] Australia & New Zealand Banking Group Ltd., Commonwealth Bank of Australia, National Australia Bank Ltd., and Westpac Banking Corporation.

[4] Domestic banks outside the top four (i.e., Australian regional banks) are negligible in this market, as are any non-banks.

[5] Support has been found for the classical banking theory by Petersen and Rajan (1994), Berger and Udell (1995), Cole (1998), Petersen and Rajan (2002), Berger, Miller, et al. (2005), Berger, Espinosa-Vega, et al. (2005), Sufi (2007), Bharath et al. (2011), Dass and Massa (2011), and Bushman and Wittenberg-Moerman (2012).

[6] See, for instance, Zaheer (1995), Zaheer and Mosakowski (1997), Miller and Parkhe (2002), and Portes and Rey (2005).

[7] Beck et al. (2007) measured banking concentration as the fraction of assets held by the three largest banks in each country. All countries listed here have a concentration ratio between 0.54 and 0.86.

2. Australian syndicated loan market

The Australian syndicated loan market has grown rapidly in terms of market size. From just over AUD12 billion in 1993, new Australian syndicated loans peaked in 2007 with 207 deals totalling about AUD200 billion. It also plays a key role in the Australian debt market. Unlike the large and very liquid US corporate bond market, the Australian corporate bond market has been almost non-existent.[8] This means syndicated finance is virtually the only domestic option for corporations to raise large amounts of debt. Yet, to our knowledge, there has only been limited work on the Australian syndicated loan market. As the prior literature has focused on the US market, their results may not be applicable to many smaller and more concentrated markets such as Australia.

Besides the discernible difference in size and depth of US corporate bond market, US syndicated loan participations tend to be subsequently traded in a highly liquid secondary market. Dealscan reports over USD400 billion worth of loans, or about 40% of the US loan market, were traded in the U.S. in 2010. In contrast, the traded volume of Australian syndicated loans in the equivalent time period was only USD9 billion or nearly 8% of total market size. So Australian syndicated loans are not actively traded. The liquid secondary market for US syndicated loans means that participating lenders can reduce their risk exposure more easily than a traditional 'buy-and-hold' approach. This in turn attracts smaller banks and non-bank financial institutions. Maskara (2010) noted that US non-bank lenders such as investment banks, finance companies, and insurance firms, actively participate in syndicated loans but, due to their higher risk tolerance, tend to select riskier facilities. Such characteristics however are lacking in the Australian syndicated loan market.

Table 1 presents the top 15 league table of the Australian syndicated loan market as of December 2012, based on lead arranger roles available from Dealscan. The Australian domestic banks lead about half of new syndications, in dollar terms, and represent the top four lead arrangers. Given their dominating presence, we are motivated to explore whether their proximity to domestic borrowers, hence potential informational advantage, will have an impact on the price, maturity, and collateral requirements of syndicated loans made to Australian business, as compared to those originated by competing foreign banks.

3. Model

We examine the informational advantage of domestic lead banks in lending to domestic borrowers by testing whether loans led by the domestic banks are contracted differently from those led by foreign lead arrangers, with respect to both price and non-price terms. Any differences would suggest that Australian banks possess a home market advantage. An issue within debt contracting research is the potential endogeneity between the key dependent variable and the independent variable of primary interest. In our case, it is between loan price and the binary choice of having a domestic versus a foreign bank as lead arranger. The use of a dummy variable for a domestic bank lead arranger in an Ordinary Least Squares (OLS) regression does not address the non-randomness of lender–borrower matching. In other words, a certain type of borrowers may be more likely to have their loans syndicated by the domestic banks than other banks. Effectively, unobserved borrower and lender characteristics may influence the choice of lenders and make it an endogenous factor to the borrower–lender matching process. We propose to address this issue by using two statistical techniques, namely, the treatment effect model and instrumental variable models.

Table 1
The top 15 league table of the Australian syndicated loan market 1992–2012.
This table presents the top 15 league table of the Australian syndicated loan market as of December 2012, based on the amount of new Australian syndicated loans arranged by lead banks between 1992 and 2012.
Source: Compiled by the authors from Dealscan.

Rank	Lead bank	Amount (AUD mil)
1	Westpac Banking Corp	969,976.30
2	Australia & New Zealand Banking Group Ltd	930,308.13
3	Commonwealth Bank of Australia	904,761.51
4	National Australia Bank Ltd	858,565.48
5	Royal Bank of Scotland Plc	569,270.93
6	Deutsche Bank AG	535,010.82
7	Citi	483,164.34
8	BNP Paribas SA	423,281.42
9	Mizuho Financial Group Inc.	389,412.54
10	JP Morgan	379,889.50
11	UBS AG	368,462.45
12	Bank of America Merrill Lynch	363,295.57
13	HSBC Banking Group	352,140.30
14	Mitsubishi UFJ Financial Group Inc.	344,347.51
15	Sumitomo Mitsui Financial Group Inc.	343,009.11

3.1. Treatment effect model

The endogeneity issue between a continuous dependent variable (*SPREAD*) and a binary regressor (*DOMESTIC*) has been addressed in the finance literature using the two-step treatment effect model originally proposed by Maddala (1983).[9] The primary regression without a treatment effect is expressed as follows:

$$SPREAD_i = \alpha_1 + \beta_1 DOMESTIC_i + \gamma_1 X_i + \varepsilon_i \quad (1)$$

where the subscript *i* indexes the loan tranche. The dependent variable $SPREAD_i$ represents the interest rate on a loan, expressed in basis points as a margin above the domestic floating benchmark, i.e. bank bill swap rate. The key independent variable *DOMESTIC* is a binary variable which takes a value of 1 if the loan is led by a domestic bank and zero otherwise. X_i is a vector of control variables including borrower characteristics, loan characteristics, and market conditions.

$DOMESTIC_i$ is taken as the endogenous binary regressor because the choice of having a syndicated loan led by the domestic banks, not foreign banks, may be affected by unobserved borrower and lender factors, and hence is the outcome of an unobserved latent variable $DOMESTIC_i^*$. Simply put, smaller and more opaque businesses, who benefit most from relationship banking, are more likely to borrow from the domestic banks. $DOMESTIC_i^*$ is estimated as a linear function of an instrument variable *FORSALES*, the exogenous covariates W_i and a random component u_i, as expressed in the following equation:

$$DOMESTIC_i^* = \alpha_2 + \beta_2 FORSALES_i + \gamma_2 W_i + u_i \quad (2)$$

where *FORSALES*, calculated as the ratio of a borrower's foreign sales to domestic sales, serves as a proxy for the borrower's foreign exposure. The higher the exposure, the more likely it will source funding from a foreign bank (potentially one with a strong business base in the same foreign country), hence the less likely it will use a domestic bank as lead arranger. The observed outcome is,

$$DOMESTIC_i = \begin{cases} 1, & \text{if } DOMESTIC_i^* > 0 \\ 0, & \text{otherwise.} \end{cases}$$

[8] See Black et al. (2012) for a comprehensive review of the Australian corporate bond market.

[9] Some examples of studies using the treatment effect model include Fang (2005), Ross (2010), and Bharath et al. (2011).

The assumption is that ε_i and u_i are bivariate normal with mean zero and covariance matrix:

$$\begin{bmatrix} \sigma^2 & \rho_\sigma \\ \rho_\sigma & 1 \end{bmatrix}.$$

Maddala (1983) proposed the application of this treatment effect through a maximum likelihood and two-step estimation, where Eqs. (1) and (2) are estimated simultaneously.

3.2. Instrumental variable model

The instrumental variable model is also a two-step procedure. It differs from the treatment model in its assumption and estimation. While the treatment effect model assumes the error terms of the lead bank choice model and the loan spread model follow a bivariate normal distribution, the instrumental model requires that the instrument(s) used to explain the binary choice of lead arranger should not be correlated with loan price. Bharath et al. (2011) emphasised that since both of these assumptions are untestable, their results complement each other. Hence we use both models for robustness.

In terms of estimation, while the treatment model estimates Eqs. (1) and (2) simultaneously, the instrumental variable model does this in two separate steps. Similar to the treatment model, we use *FORSALES* as instrument for the first stage Probit model, alongside the exogenous regressors, and estimate the fitted value of $DOMESTIC_i$. In the second stage, we estimate Eq. (1) with the fitted value $DOMESTIC_i^*$ among the exogenous regressors.

4. Data and variables

This section discusses the sources of data, the variables, and the sampling procedure.

4.1. Data sources

Our study utilises a number of data sources. Data on individual loan terms are obtained from the Euromoney Institutional Investor PLC's Dealogic and Thomson Reuters' Loan Pricing Corporation Dealscan. These two databases provide information about loan characteristics such as spread, fee, tranche size, secured status, maturity, loan type, and loan purpose. We then merged data from these two databases to maximise our sample size. Borrower characteristics, such as firm size, leverage, tangible assets (plant, property and equipment), and current ratio, are from Aspect Huntley's FinAnalysis. The macroeconomic factors including term premium and credit spread are calculated using Datastream.

4.2. Sample selection

We downloaded all Australian loans originated between 1992 and 2010 from Dealscan and Dealogic. We then merged data from the two databases based on six key variables: deal active date, borrower name, deal size, tranche size, maturity, and number of lenders. This helps increase significantly the Australian loan sample size which is often subject to missing data compared to the US market. A loan observation must have available price information (i.e., spread margin) to be included in the final sample. The Australian financial year ends on 30th June for most companies. This means that if a loan is made within the first half of calendar year t, it is matched with borrower characteristics reported in year $t-1$. However, if a loan is made in the second half of calendar year t, it is matched with borrower characteristics reported at the end of mid-year t. Essentially, our sample includes loans made to listed borrowers with available financial information on FinAnalysis. We exclude loan tranches borrowed by banks and non-bank financial firms (GICS = 40).[10] In addition, we retain only tranches with BBSW or BBSY or LIBOR as a base rate.[11] A loan tranche must also have other non-price terms (maturity, tranche size) and borrower information (asset size, leverage, current ratio, PPE) to be included in our analysis. Our final sample consists of 305 Australian syndicated loan facilities originated between 1992 and 2010.

4.3. Variables

Our first dependent variable, *SPREAD*, captures the interest spread above the benchmark rate for a given loan tranche, without consideration for fees. Most previous US syndicated loan studies examined the All-in-Spread-Drawn (AISD) as a proxy for loan price, which is the sum of interest rate and annual fee. We divert from this standard proxy of loan price because Australian syndicated loan data are not as complete as that of the US.[12] We use Spread Margin as a proxy for loan price as it significantly increases our sample size, but again acknowledge that this variable does not account for any fees.

Australian syndicated loans are also priced off various benchmark rates, unlike the U.S., where all loans are priced as a spread above LIBOR. The most popular benchmark rate used in Australia is the bank bill swap rate. Where loans are priced off LIBOR, we convert the LIBOR-based loan spreads to bank bill swap rate using Bloomberg basis swap data. For example, a loan originated on 13 March 2003 to Telstra Corp Ltd. has a spread margin of 50 basis points over LIBOR, term to maturity 10 years, and USD denomination. Given the USD basis swap from LIBOR to bank bill swap rate, for a 10-year contract on 13 March 2003, was found to be 4.75 basis points on Bloomberg, the loan price of 50 basis points above LIBOR was converted to 54.75 basis points above bank bill swap rate.[13]

In addition to the spread, other dependent variables are loan maturity (*LNMAT*), measured as the natural logarithm of number of months, and secured status (*SECURED*), a binary variable coded 1 for secured loans and zero for unsecured loans. Dennis et al. (2000) documented that the secured status as recorded in Dealscan is subject to missing information problem. To treat missing information as an unsecured loan creates bias, while its exclusion significantly reduces the sample size. Following Dennis et al. (2000), we overcome this issue by creating a fitted value of the *SECURED* variable for tranches with missing collateral information via a two-step estimation. First, the binary variable *SECURED* is regressed on all borrower characteristics among tranches with available information on secured status using a Probit model. The estimated coefficients are then used to calculate a fitted value of *SECURED* for tranches with missing collateral information. If the fitted value is greater than 0.5, *SECURED* is taken to be 1 for that loan tranche; if the fitted value is less than 0.5, *SECURED* is taken to be zero.

[10] Dealscan reports 6 categories under the Broad Industry Group classification: banks, corporates, government, media/communication, non-bank financial institutions, and utilities. Our sample excludes those loans made to borrowers in the government and financial (bank and non-bank) sectors.

[11] Where loans are priced off LIBOR, we search on Bloomberg for a relevant basis swap and convert the LIBOR-based interest rate to bank bill swap based interest rate (see explanation in Section 4.3).

[12] The number of loans with reported Spread Margin is about 2.5 times those with reported AISD.

[13] Our sample consists of both AUD-denominated loans and USD-denominated loans. For the latter group, the tranche amount has been converted into AUD by Dealscan, and the LIBOR-based spread margin converted into bank bill swap rate using our technique as described here. There are also a small number of USD loans priced off US Treasury rate, HKD loans priced off HIBOR, and EUR loans priced off EURIBOR. We have had to exclude these, either because Bloomberg does not have basis swap for these base rates, or because the several extra steps required may render the conversion unreliable.

The control variables include tranche size (*LNTRANCHE*), measured as the natural logarithm of AUD converted tranche amount, revolving loan dummy (*REVOLVER*), and various loan purpose dummies. The control borrower characteristics are natural logarithm of borrower's total assets (*LNASSETS*), availability of a public debt rating dummy (*RATED*), financial leverage ratio (*LEVERAGE*), current ratio (*CURRENT*), asset tangibility (*PPE*), and various borrower industry dummies. The market-wide risk premiums are represented by annual credit spread (*CREDITSPREAD*) and term premium (*TERMPREMIUM*), in a similar manner to previous debt contracting work. These variables and their definitions can be found in Appendix 1.

5. Results

5.1. Descriptive statistics

Table 2 presents the distribution of our loan sample across time, borrower industry, and loan purpose. Before 1996, the number of syndicated loans in our sample is relatively small. Both the number and volume of loans peaked around 2006, 2007 and 2008. The effect of the global financial crisis can be seen with a drop in loan number and volume in 2009 and 2010. In terms of loan purpose, debt repayment is the most popular, followed by working capital and acquisition and leveraged buyout purposes. Australian syndicated loan borrowers are concentrated in the materials (GICS 15) and industrial (GICS 20) business.

Table 3 presents the descriptive statistics for the key loan terms and borrower characteristics. Overall, the average loan tranche is priced at 105 basis points above the domestic bank bill swap rate, and has a maturity of 44 months and tranche size of AUD553 million. 12% of the final sample are loans with collateral requirements, while 36% are revolving credit facilities. 45% of the borrowers have a public rating on outstanding debt. An Australian syndicated loan borrower, on average,

Table 3
Descriptive statistics for key loan terms and borrower characteristics.
This table presents the descriptive statistics (including mean, median, standard deviation, minimum, and maximum) for the key loan terms and borrower characteristics. Loan terms include spread margin in basis points, maturity in months, secured status, facility size in AUD million, and loans being revolving facilities. Borrower characteristics include availability of credit ratings, leverage ratio, current ratio, asset size in AUD billion, plant, property and equipment ratio, and foreign sales ratio. The composition of these ratios is listed in Appendix 1.

Variable	All loans (N = 305)				
	Mean	Median	Std. dev.	Min	Max
Loan characteristics					
Spread margin	105.27	85.00	71.93	15.00	344.50
Maturity (months)	44.37	36.00	25.99	6	180
Secured dummy	0.12	0.00	0.32	0.00	1.00
Tranche amount (AUD million)	552.88	237.50	1863.19	0.30	20,000
Revolver dummy	0.36	0.00	0.48	0.00	1.00
Borrower characteristics					
Rated dummy	0.45	0.00	0.50	0.00	1.00
Leverage	0.56	0.57	0.15	0.26	0.96
Current ratio	1.25	1.10	0.72	0.17	4.90
Total assets (AUD billion)	6.74	2.04	12.03	0.02	78.84
Plant, property & equipment ratio	0.79	0.86	0.23	0.23	1.00
Foreign sales ratio	0.37	0.00	1.21	0.00	9.95

Table 2
Distribution of sample loan facilities.
This table presents the number of loan facilities arranged by domestic banks and foreign banks across years (Panel A), the loan amount across years (Panel B), number of loan facilities by purpose (Panel C), and number of loan facilities by borrower industry (Panel D).

Panel A: Number of facilities by year

	Domestic lead	Foreign lead	All
1992	1	0	1
1993	0	1	1
1994	1	0	1
1995	0	3	3
1996	2	2	4
1997	3	9	12
1998	11	6	17
1999	9	2	11
2000	10	7	17
2001	15	9	24
2002	16	4	20
2003	14	6	20
2004	17	0	17
2005	20	9	29
2006	37	2	39
2007	36	2	38
2008	29	6	35
2009	11	2	13
2010	3	0	3
Total	**235**	**70**	**305**

Panel B: Loan amounts (AUD mil) by year

	Domestic lead	Foreign lead	All
1992	323	0	323
1993	0	5	5
1994	205	0	205
1995	0	150	150
1996	700	530	1230
1997	85	4063	4148
1998	1656	628	2284
1999	2028	1483	3512
2000	3878	908	4786
2001	7940	1760	9700
2002	4196	824	5020
2003	7089	1396	8484
2004	5117	0	5117
2005	4150	536	4687
2006	14,374	630	15,004
2007	24,677	105	24,782
2008	15,731	55,861	71,592
2009	7076	145	7221
2010	380	0	380
Total	**99,604**	**69,024**	**168,628**

Panel C: Number of facilities by purpose

	Domestic lead	Foreign lead	All
Acquisitions	48	0	48
Repayment	111	15	126
Working Cap	51	18	69
Other	25	37	62
Total	**235**	**70**	**305**

Panel D: Number of facilities by borrower GICS

	Domestic lead	Foreign lead	All
GICS = 10	21	14	35
GICS = 15	51	20	71
GICS = 20	51	14	65
GICS = 25	21	9	30
GICS = 30	35	3	38
GICS = 35	19	5	24
GICS = 45	4	0	4
GICS = 50	8	3	11
GICS = 55	25	2	27
Total	**235**	**70**	**305**

Table 4
Key loan and borrower characteristics — Univariate tests between domestic led and foreign led loans.
This table presents the univariate tests for the mean and median of key loan terms and borrower characteristics. Loan terms include spread margin in basis points, maturity in months, secured status, facility size in AUD million, and loans with revolving facilities. Borrower characteristics include availability of credit ratings, leverage ratio, current ratio, asset size in AUD billion, plant, property and equipment ratio, and foreign sales ratio. The composition of these ratios is listed in Appendix 1

Variable	Domestic led loans (N = 235)		Foreign led loans (N = 70)		*t*-Stat for difference in sample means (*z*-stat for Wilcoxon's rank-sum test)
	Mean (median)	Std. dev.	Mean (median)	Std. dev.	
Loan characteristics					
Spread margin	98.70 (80.00)	64.92	127.31 (98.5)	88.68	−2.51** (1.81*)
Maturity (months)	43.55 (36.00)	25.57	47.10 (55.5)	27.34	−0.97 (1.45)
Secured dummy	0.11 (0.00)	0.31	0.16 (0.00)	0.37	−1.05 (1.15)
Tranche amount (AUD million)	423.84 (250.00)	564.31	986.06 (125.00)	3737.32	−1.25 (−3.74***)
Revolver dummy	0.41 (0.00)	0.49	0.21 (0.00)	0.41	3.30*** (−2.96***)
Borrower characteristics					
Rated dummy	0.46 (0.00)	0.50	0.41 (0.00)	0.50	0.67 (−0.67)
Leverage	0.56 (0.55)	0.15	0.56 (0.57)	0.15	0.03 (−0.22)
Current ratio	1.28 (1.11)	0.75	1.14 (1.06)	0.62	1.50 (−1.07)
Total assets (AUD billion)	6.83 (2.57)	10.29	6.47 (1.47)	16.69	0.17 (−4.44***)
Plant, property & equipment ratio	0.77 (0.84)	0.23	0.87 (0.99)	0.21	−3.51*** (4.07***)
Foreign sales ratio	0.33 (0.00)	0.83	0.50 (0.00)	2.03	−0.69 (−2.29**)

* Represents significance at the 10% level.
** Represents significance at the 5% level.
*** Represents significance at the 1% level.

has a leverage ratio of 0.56, a current ratio of 1.25, a PPE ratio of 0.79, total assets value of AUD6.74 billion, and foreign sales 37% of domestic sales.

5.2. Univariate analysis

In this section, we explore the difference in loan and borrower characteristics between domestic and foreign bank led loans through univariate tests. 65% of our sample (235 of 305 tranches) are loans led by at least one of the four largest domestic banks.

Without controlling for borrower characteristics, loan characteristics and market conditions, the univariate *t*-tests in Table 4 indicate that loans led by domestic banks carry a lower spread compared to those by foreign banks. The difference of about 30 basis points is statistically significant at the 5% level. Preliminary evidence suggests that domestic banks may offer lower loan spreads due to their informational advantage or home market advantage. The univariate tests show no difference in maturity and collateral likelihood between the two groups. Domestic bank loans however are smaller in size and more likely to be revolving loans. Another distinct difference is that borrowers with foreign bank led loans have a higher foreign sales ratio (0.5), i.e., a higher foreign exposure, than domestic bank borrowers (0.33).

5.3. Loan spreads

As stated in the methodology discussion, an OLS regression with a simple dummy for domestic lead arranger does not account for the non-randomness of lender–borrower matching. This means that some types of borrowers may be more likely to syndicate through domestic banks while others prefer foreign banks. In other words, some unobserved borrower and lender characteristics may influence the choice of lender, making the *DOMESTIC* dummy potentially an endogenous variable, hence result in biased OLS estimates. We address this issue by using both the treatment effect and instrumental variable models (Table 5). These models are estimated via two steps. The first stage is estimation of the matching Eq. (2), where we regress the probability of having a domestic bank led loan, on all exogenous determinants, including borrower characteristics, borrower industry dummies, loan characteristics, and macroeconomic factors. Eq. (2) is estimated simultaneously under the treatment model (column 1) and independently using Probit for the instrumental variable model (column 3). This is to control for the selectivity bias where unobserved borrower and lender factors may affect the decision to choose a domestic or foreign bank to lead loan syndications. Both models require an exogenous instrument variable as an additional regressor that has explanatory power for the choice variable, but no association with the dependent variable (loan spreads). As previously highlighted in Section 3, we use the foreign sales ratio (*FORSALES*) as the exogenous instrument. We argue that borrowers with a higher foreign sale ratio often have more exposure to the international market and hence are more likely to obtain loans from foreign banks.

Both columns 1 and 3 of Table 5 show that *FORSALES* has a significant negative relationship with the probability of using a domestic bank (as opposed to foreign bank) as syndicated loan lead arranger. This is consistent with our conjecture that firms more exposed to international markets are more likely to borrow from foreign banks. Combined with prior evidence that *FORSALES* has no significant explanatory power for loan spreads, this confirms the validity of our instrument.

The second stage results for the instrumental variable and treatment effect models are presented in columns 2 and 4 of Table 5, respectively. After accounting for the endogeneity of the *DOMESTIC* dummy, we find support for our prediction that loans led by domestic banks are associated with lower interest spreads. The *DOMESTIC* dummy has a negative and significant coefficient −95.95 at the 1% level in the treatment effect model, while its coefficient is larger in magnitude −153.08 but only significant at the 10% level in the instrumental variable model. The treatment effect model, indicates that loans led by the domestic banks are priced 96 basis points lower than those led by foreign banks.

The control variables obtain coefficients consistent with those reported in the literature. On average, loans with a longer term to maturity carry higher spread margins. We also find loan spreads to be lower for larger loans and for borrowers with public debt ratings. Both term premium and credit spread are found, as expected, to have a significant positive impact on loan interest rates.[14]

[14] Our results remain robust when we replaced credit spread and term premium with year dummies among the control variables.

Table 5
Instrumental variable and treatment effect estimations of loan spread margin.
This table presents the output for the instrumental variable estimation (columns 1–2) and treatment effect estimation (columns 3–4) of Australian syndicated loan spread margins, according to the regression below:

$$SPREAD_i = \alpha_1 + \beta_1 DOMESTIC_i + \gamma_1 X_i + \varepsilon_i$$

where the first stage is: $DOMESTIC_i^* = \alpha_2 + \beta_2 FORSALES_i + \gamma_2 W_i + u_i$.
SPREAD is measured as the loan interest rate expressed in basis points as a margin above the local bank bill swap rate. *DOMESTIC* is a binary variable, coded one if there is at least one of the four largest domestic banks among the lead arrangers, and zero otherwise. The instrument used for *DOMESTIC* is *FORSALES* (borrower's foreign sales divided by domestic sales). The exogenous determinants in X_i and W_i include *LNMAT* (natural logarithm of loan maturity in months), *SECURED* (dummy coded one for loans with collateral and zero otherwise), *LNTRANCHE* (natural logarithm of tranche dollar size), *REVOLVER* (dummy coded one for revolving loans, zero otherwise), *RATED* (dummy coded one for borrowers with a public debt rating, zero otherwise), *LEVERAGE* (borrower's leverage ratio), *CURRENT* (borrower's current ratio), *LNASSETS* (natural logarithm of borrower's total assets), *PPE* (borrower's plants, properties, and equipment), *CREDITSPREAD* (yield difference between long-term corporate bond and long-term government bond), and *TERMPREMIUM* (yield difference between 10-year and 1-year Australian government bonds). The *F*-test and χ^2 test are for joint significance of all explanatory variables, while *rho* is the estimated correlation between the two error terms of two equations in the treatment effect estimation. All variables are defined in Appendix 1. The standard errors are corrected for clustering at the deal level.

	Instrumental variable		Treatment effect	
	DOMESTIC (1)	*SPREAD* (2)	*DOMESTIC* (3)	*SPREAD* (4)
DOMESTIC	–	−153.082*	–	−95.946***
	–	(80.973)	–	(21.306)
LNMAT	−0.092	23.835***	−0.046	19.372***
	(0.175)	(8.465)	(0.154)	(5.946)
SECURED	−0.627*	25.707	−0.689**	25.625
	(0.361)	(29.316)	(0.342)	(16.694)
LNTRANCHE	−0.026	−9.806*	−0.023	−10.088***
	(0.105)	(5.487)	(0.089)	(3.528)
REVOLVER	0.169	−6.808	0.317	−9.938
	(0.262)	(15.393)	(0.240)	(9.869)
RATED	−0.306	−24.937	−0.396	−28.657**
	(0.315)	(19.147)	(0.252)	(12.142)
LEVERAGE	0.851	29.491	−0.749	4.364
	(0.875)	(54.467)	(0.801)	(42.212)
CURRENT	0.370*	9.495	0.048	1.693
	(0.200)	(14.628)	(0.210)	(9.655)
LNASSETS	0.280***	0.359	0.289***	−1.253
	(0.103)	(7.743)	(0.082)	(2.690)
PPE	−1.012	−56.220	−0.964	−34.219
	(0.693)	(44.900)	(0.625)	(29.449)
CREDITSPREAD	0.052	10.878*	0.099	9.584**
	(0.130)	(6.546)	(0.106)	(4.753)
TERMPREMIUM	−0.373*	10.971	0.072	18.356**
	(0.203)	(13.669)	(0.238)	(8.941)
FORSALES	−0.211**	–	−0.155**	–
	(0.105)	–	(0.065)	–
Constant	−5.549**	174.900	−5.487**	221.064**
	(2.776)	(153.177)	(2.163)	(91.660)
Purpose dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	253	253	305	305
Adj R-squared	0.308	–	–	–
F-stat	–	3.482***	–	–
rho	–	–	–	0.846***
Chi-squared	85.08	–	–	164.7
Probability > $\chi^2(1)$	0.000	–	–	0.000

* Represents significance at the 10% level.
** Represents significance at the 5% level.
*** Represents significance at the 1% level.

Table 6
Instrumental variable and treatment effect estimations of loan maturity.
This table presents the output for the instrumental variable estimation (columns 1–2) and treatment effect estimation (columns 3–4) of Australian syndicated loan maturities, according to the regression below:

$$LNMAT_i = \alpha_1 + \beta_1 DOMESTIC_i + \gamma_1 X_i + \varepsilon_i$$

where the first stage is: $DOMESTIC_i^* = \alpha_2 + \beta_2 FORSALES_i + \gamma_2 W_i + u_i$.
LNMAT is calculated as the natural logarithm of loan maturity in months. *DOMESTIC* is a binary variable, coded one if there is at least one of the four largest domestic banks among the lead arrangers, and zero otherwise. The instrument used for *DOMESTIC* is *FORSALES* (borrower's foreign sales divided by domestic sales). The exogenous determinants in X_i and W_i include *SECURED* (dummy coded one for loans with collateral and zero otherwise), *LNTRANCHE* (natural logarithm of tranche dollar size), *REVOLVER* (dummy coded one for revolving loans, zero otherwise), *RATED* (dummy coded one for borrowers with a public debt rating, zero otherwise), *LEVERAGE* (borrower's leverage ratio), *CURRENT* (borrower's current ratio), *LNASSETS* (natural logarithm of borrower's total assets), *PPE* (borrower's plants, properties, and equipment), *CREDITSPREAD* (yield difference between long-term corporate bond and long-term government bond), and *TERMPREMIUM* (yield difference between 10-year and 1-year Australian government bonds). The *F*-test and χ^2 test are for joint significance of all explanatory variables, while *rho* is the estimated correlation between the two error terms of two equations in the treatment effect estimation. All variables are defined in Appendix 1. The standard errors are corrected for clustering at the deal level.

	Instrumental variable		Treatment effect	
	DOMESTIC (1)	*LNMAT* (2)	*DOMESTIC* (3)	*LNMAT* (4)
DOMESTIC	–	1.325**	–	0.780***
	–	(0.643)	–	(0.141)
SECURED	−0.625*	0.065	−0.304	−0.067
	(0.360)	(0.266)	(0.357)	(0.133)
LNTRANCHE	−0.038	0.095*	0.060	0.052*
	(0.103)	(0.052)	(0.077)	(0.031)
REVOLVER	0.194	−0.202	−0.137	−0.103
	(0.259)	(0.137)	(0.242)	(0.090)
RATED	−0.269	−0.261	−0.427	−0.185
	(0.311)	(0.171)	(0.260)	(0.114)
LEVERAGE	0.857	−0.406	0.405	−0.085
	(0.879)	(0.473)	(0.758)	(0.334)
CURRENT	0.367*	−0.145	0.298	−0.025
	(0.200)	(0.108)	(0.188)	(0.064)
LNASSETS	0.275***	−0.064	0.287***	−0.021
	(0.102)	(0.070)	(0.083)	(0.028)
PPE	−1.109*	1.243***	−0.751	0.941***
	(0.660)	(0.349)	(0.583)	(0.227)
CREDITSPREAD	0.052	−0.065	0.151	−0.095**
	(0.129)	(0.065)	(0.110)	(0.048)
TERMPREMIUM	−0.352*	−0.063	−0.494***	−0.063
	(0.200)	(0.102)	(0.182)	(0.069)
FORSALES	−0.196*	–	−0.327***	–
	(0.101)	–	(0.076)	–
Constant	−5.494**	2.768**	−8.102***	2.962***
	(2.775)	(1.355)	(2.303)	(0.888)
Purpose dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	253	253	305	305
Adj R-squared	0.307	–	–	–
F-stat	–	2.328***	–	–
rho	–	–	–	−0.736***
Chi-squared	85.47	–	–	136.5
Probability > $\chi^2(1)$	0.000	–	–	0.000

* Represents significance at the 10% level.
** Represents significance at the 5% level.
*** Represents significance at the 1% level.

5.3.1. Exclusion restriction of the instrument

In choosing an appropriate instrument, we must satisfy two important conditions. First, the instrument should determine the choice of lead bank. Second, it should not affect loan spreads directly. If either of the conditions is not met, the exclusion restriction is violated. Lennox et al. (2011) highlighted that the results from the treatment effect model and instrumental variable model can be very sensitive especially when the exclusion restriction is violated. Our instrument *FORSALES*, calculated as the ratio of a borrower's foreign sales to domestic sales, proxies for the level of foreign exposure,

hence the likelihood of choosing a domestic or foreign bank to lead a syndicated loan. A borrower with a higher international exposure should have better connections with foreign banks, and therefore should be more likely to choose a foreign bank as lead arranger on its syndicated loan.[15] We indirectly test the validity of our instrument by regressing loan spreads against a vector of loan characteristics, borrower characteristics, macroeconomic conditions and *FORSALES*.[16] The coefficient for *FORSALES* is found to be insignificant, indicating that *FORSALES* does not affect loan spreads even after controlling for the major determinants of loan spreads.

In addition, the results from the first stage in both treatment effect model and instrumental variable model (columns 1 and 3 of Table 5, respectively) show that the probability of obtaining a domestic bank led loan is lower for firms with a higher foreign exposure. In summary, *FORSALES* is insignificant in explaining loan price, but significantly negative at the 5% level in explaining the choice of lead bank, which satisfies the exclusion restriction hence validates the choice of our instrument.

5.4. Maturity

This section explores any differences (if any) in maturity between domestic and foreign bank led loans. Flannery (1986) predicts a linear relationship between credit quality and loan maturity. His argument is that if the debt issuance transaction cost is sufficiently high, quality borrowers would use term to maturity as a signal to convey their unobservable quality by accepting shorter-term loans. This is consistent with the adverse selection theory and has been documented by Berger, Espinosa-Vega, Frame and Miller (2005). They show that loan maturities increase when informational asymmetries become a less severe problem and so borrowers' signalling incentives are weakened. Gottesman and Roberts (2004) find that loan yields are lower for shorter-term loans, suggesting that good quality borrowers are willing to accept shorter maturities in exchange for lower borrowing costs.

Within the Australian setting, domestic banks are deemed to have more soft information about domestic borrowers, through either existing relationships or geographical proximity, which provides them with a certain level of informational advantage over foreign banks. This may diminish borrowers' need to signal quality through debt maturity. Hence we expect loans led by domestic banks to carry a longer term to maturity compared to loans led by foreign banks. This is examined through both instrumental variable and treatment effect models where loan maturity (*LNMAT*) is the dependent variable. The results are presented in Table 6. Columns 1 and 3 of Table 6 display the result of the first stage. Similar to previous findings, *FORSALES* exhibits a negative significant coefficient which confirms its negative influence on the likelihood of obtaining loans led by domestic banks. The main results (second stage) are presented in columns 2 and 4. The *DOMESTIC* dummy has a positive and significant coefficient in both models, providing support for our prediction that domestic banks, with an informational advantage over foreign banks, are able to offer longer-term loans to domestic borrowers.

Table 7
Instrumental variable and treatment effect estimations of loan secured status.
This table presents the output for the instrumental variable estimation (columns 1–2) and treatment effect estimation (columns 3–4) of Australian syndicated loan secured status, according to the regression below:

$$SECURED_i = \alpha_1 + \beta_1 DOMESTIC_i + \gamma_1 X_i + \varepsilon_i$$

where the first stage is: $DOMESTIC_i^* = \alpha_2 + \beta_2 FORSALES_i + \gamma_2 W_i + u_i$.
SECURED is coded one for loans with collateral and zero otherwise. *DOMESTIC* is a binary variable, coded one if there is at least one of the four largest domestic banks among the lead arrangers, and zero otherwise. The instrument used for *DOMESTIC* is *FORSALES* (borrower's foreign sales divided by domestic sales). The exogenous determinants in X_i and W_i include *LNMAT* (natural logarithm of loan maturity in months), *LNTRANCHE* (natural logarithm of tranche dollar size), *REVOLVER* (dummy coded one for revolving loans, zero otherwise), *RATED* (dummy coded one for borrowers with a public debt rating, zero otherwise), *LEVERAGE* (borrower's leverage ratio), *CURRENT* (borrower's current ratio), *LNASSETS* (natural logarithm of borrower's total assets), PPE (borrower's plants, properties, and equipment), *CREDITSPREAD* (yield difference between long-term corporate bond and long-term government bond), and *TERMPREMIUM* (yield difference between 10-year and 1-year Australian government bonds). The *F*-test and χ^2 test are for joint significance of all explanatory variables, while *rho* is the estimated correlation between the two error terms of two equations in the treatment effect estimation. All variables are defined in Appendix 1. The standard errors are corrected for clustering at the deal level.

	Instrumental variable		Treatment effect	
	DOMESTIC (1)	*SECURED* (2)	*DOMESTIC* (3)	*SECURED* (4)
DOMESTIC	–	−2.214**	–	−0.334*
	–	(0.918)	–	(0.180)
LNMAT	−0.090	−0.018	−0.179	−0.028
	(0.176)	(0.169)	(0.182)	(0.024)
LNTRANCHE	−0.006	0.069	0.042	−0.004
	(0.104)	(0.139)	(0.116)	(0.015)
REVOLVER	0.166	0.377	0.113	0.021
	(0.263)	(0.329)	(0.259)	(0.047)
RATED	−0.369	0.063	−0.695*	−0.051
	(0.308)	(0.375)	(0.394)	(0.049)
LEVERAGE	0.494	−0.353	−0.087	−0.161
	(0.878)	(1.023)	(1.043)	(0.207)
CURRENT	0.335*	−0.124	0.367*	−0.041
	(0.195)	(0.344)	(0.195)	(0.036)
LNASSETS	0.336***	−0.364	0.366***	−0.050***
	(0.100)	(0.396)	(0.111)	(0.014)
PPE	−0.931	0.182	−0.050	0.200
	(0.672)	(0.763)	(1.083)	(0.133)
CREDITSPREAD	0.082	0.094	0.122	0.013
	(0.128)	(0.118)	(0.126)	(0.021)
TERMPREMIUM	−0.417**	−0.088	−0.309	0.021
	(0.208)	(0.229)	(0.242)	(0.033)
FORSALES	−0.222**	–	−0.221**	–
	(0.108)	–	(0.095)	–
Constant	−7.313***	5.221	−9.358***	1.341***
	(2.614)	(6.079)	(2.591)	(0.439)
Purpose dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	253	231	305	305
Adj R-squared	0.295	–	–	–
F-stat	–	–	–	–
rho	–	–	–	0.584**
Chi-squared	84.70	181.0	–	149.8
Probability > $\chi^2(1)$	0.000	0.000	–	0.000

* Represents significance at the 10% level.
** Represents significance at the 5% level.
*** Represents significance at the 1% level.

5.5. Collateral

This section investigates any differences in the collateral requirements between domestic and foreign bank led loans. As with maturity, collateral requirements have been documented in the literature following adverse selection and moral hazard arguments. Adverse selection suggests that collateral helps mitigate the ex

[15] We thank an anonymous referee for suggesting potential relevance of the syndicate underwriting method (firm commitment versus best efforts) to choice of lead banks. Unfortunately, this information is not disclosed or reported by any loan database. Interviews with local bankers suggest that underwriting method does not necessarily drive the choice between domestic and foreign lead banks. Typically, the style of syndication is a commercial negotiation between lenders and borrowers that usually revolves around the cost of providing the underwriting. This research therefore does not include the underwriting method as an explanatory variable of lead bank choice.

[16] The results of this OLS test are available from the authors upon request.

Table 8
Treatment effect and IV estimation of All-in-Spread Drawn on the entire sample, and OLS estimation of SPREAD on the matched sample.
This table presents the output for the treatment effect estimation (column 1) and instrumental variable estimation (column 2) of Australian syndicated loan spread margins. The dependent variable for models (1) and (2) is *AISD*, measured as the loan interest rate plus annual fees expressed in basis points as a margin above the local bank bill swap rate. The regression is as follows:

$$AISD_i = \alpha_1 + \beta_1 DOMESTIC_i + \gamma_1 X_i + \varepsilon_i$$

Column 3 displays the OLS result for estimating *SPREAD* (measured as the loan interest rate expressed in basis points as a margin above the local bank bill swap rate) on 140 matched observations.

$$SPREAD_i = \alpha_1 + \beta_1 DOMESTIC_i + \gamma_1 X_i + \varepsilon_i.$$

DOMESTIC is a binary variable, coded one if there is at least one of the four largest domestic banks among the lead arrangers, and zero otherwise. The exogenous determinants in X_i include *LNMAT* (natural logarithm of loan maturity in months), *SECURED* (dummy coded one for loans with collateral and zero otherwise), *LNTRANCHE* (natural logarithm of tranche dollar size), *REVOLVER* (dummy coded one for revolving loans, zero otherwise), *RATED* (dummy coded one for borrowers with a public debt rating, zero otherwise), *LEVERAGE* (borrower's leverage ratio), *CURRENT* (borrower's current ratio), *LNASSETS* (natural logarithm of borrower's total assets), *PPE* (borrower's plants, properties, and equipment), *CREDITSPREAD* (yield difference between long-term corporate bond and long-term government bond), and *TERMPREMIUM* (yield difference between 10-year and 1-year Australian government bonds). The *F*-test and χ^2 test are for joint significance of all explanatory variables, while *rho* is the estimated correlation between the two error terms of two equations in the treatment effect estimation. All variables are defined in Appendix 1. The standard errors are corrected for clustering at the deal level.

	Dependent variable: *AISD*		Dependent variable: *SPREAD*
	Treatment model (1)	IV model (2)	OLS model (3)
DOMESTIC	−122.110***	−124.523***	−19.036*
	(33.196)	(42.667)	(10.058)
LNMAT	18.512***	32.496***	10.110
	(6.662)	(9.690)	(8.958)
SECURED	42.732*	19.837	50.317***
	(24.503)	(45.632)	(17.031)
LNTRANCHE	−6.473	−5.115	−2.521
	(4.401)	(4.574)	(4.522)
REVOLVER	6.345	3.429	−29.374**
	(17.345)	(15.170)	(12.799)
RATED	1.190	−5.585	−20.339
	(16.737)	(22.168)	(15.205)
LEVERAGE	39.421	−3.050	82.631**
	(67.205)	(79.200)	(35.619)
CURRENT	10.879	0.530	6.278
	(11.946)	(20.452)	(8.951)
LNASSETS	−1.366	−10.734*	−15.875***
	(2.545)	(5.908)	(4.484)
PPE	−52.388	−61.228	57.131
	(40.284)	(53.503)	(36.168)
CREDITSPREAD	13.675**	18.520**	7.407
	(6.416)	(9.216)	(5.437)
TERMPREMIUM	34.476	45.403***	0.788
	(21.951)	(14.553)	(9.550)
Constant	203.427	201.509	268.340**
	(128.288)	(168.273)	(104.284)
Purpose dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	194	157	140
Adj R-squared	–	0.174	0.460
F-stat	–	5.31***	6.627***
rho	0.950***	–	–
Chi-squared	231.4	–	–
Probability > $\chi^2(1)$	0.000	–	–

* Represents significance at the 10% level.
** Represents significance at the 5% level.
*** Represents significance at the 1% level.

ante information asymmetries between borrowers and lenders (Besanko & Thakor, 1987; Bester, 1985; Bester, 1987; Chan & Kanatas, 1985). Meanwhile, based on moral hazard, loan collateral helps align interest between borrowers and lenders, and so prevents the former from shirking on current projects or engaging in excessively risky investments. Furthermore, the use of collateral also produces incentives for lenders to monitor more efficiently, hence reducing the information gap between borrowers and lenders (Rajan & Winton, 1995).

We argue that the informational advantage possessed by domestic banks over foreign banks will enable the former to provide more unsecured loans, consistent with both adverse selection and moral hazard theories. Both instrumental variable and treatment effect are used to examine this, where the dependent variable is the *SECURED* dummy. The results are presented in Table 7. The coefficients on *DOMESTIC* in the second-stage estimations (columns 2 and 4) are negative and significant, which supports our expectation that loans led by the domestic banks are less likely to be secured than those led by foreign banks.

5.6. Robustness tests[17]

In this section, we test for the robustness of our results regarding the relevance of lead bank origin to loan spreads. The first test uses an alternative measure of loan price, All-in-Spread Drawn, while the second test further addresses the potential selection bias in the choice of lead bank.

To maximise our sample size, we examined *SPREAD* as the loan price proxy in the previous regressions, and so there was no consideration for loan fees. In contrast, most prior US literature has used All-in-Spread Drawn (*AISD*), a loan price measure that captures both interest rate and annual fees. Our first robustness test re-estimates the treatment effect and instrumental variable models of loan price using *AISD*, as shown in columns 1 and 2 of Table 8 respectively.

As expected, with *AISD* as a proxy for loan price, our sample size drops from 305 to 157 observations for the instrumental variable model and to 194 for the treatment effect model. Importantly, the coefficients for the domestic bank dummy remain negative and significant at the 1% level for both model specifications. This result reinforces our previous finding that loans led by domestic banks carry a lower price (even after controlling for loan fees) than foreign bank led loans.

The second robustness test presented in this section further addresses the potential selection bias in the choice of lead bank. It is possible that firms borrowing from domestic lead banks may possess some different characteristics from those funded by foreign lead banks, which are not controlled for in the regressions. For instance, those who choose to borrow from domestic banks may generally be less risky borrowers, then, the observed lower loan price for this group could simply reflect a lower level of (possibly unobservable) risk. While our existing methodology (instrumental variable and treatment models) may address this concern to some extent, the marked difference in sample size (235 domestic led loans versus 70 foreign led banks) may drive the results.

We therefore also use a two-step selection method. First, we estimate the likelihood of a particular firm choosing to borrow from a domestic lead bank, as a function of all borrower characteristics (e.g., industry, size, asset tangibility, leverage, and foreign currency exposure) and loan characteristics (e.g., purpose, maturity, and loan size). The estimates from this model are then used to calculate the propensity score for each of the 305 observations in the whole sample. For each of the 70 foreign led loans, we select a domestic

[17] We thank an anonymous referee for suggesting these robustness tests.

led loan with the closest propensity score.[18] In other words, this process allows us to select 70 domestic led loans most similar to 70 foreign led loans in terms of both borrower characteristics and loan characteristics. We then estimate an OLS model on loan spreads for the 140 matched loans to check for robustness. The OLS result is presented in column 3 of Table 8. After controlling for various layers of borrower and loan characteristics, the coefficient of the *DOMESTIC* dummy remains negative but only weakly significant at 10% (with *p*-value of 0.061). Nonetheless, this once again provides support for our previous finding that domestic led loans carry lower spreads than foreign led loans.

6. Conclusions

This paper investigated whether a home market advantage exists in the Australian syndicated loan market and, if so, its impact on the price and non-price terms of Australian syndicated loans. The results showed that a home market advantage is at work for the Australian domestic banks in originating loan syndications. With closer geographical proximity to and existing relationships with their domestic borrowers, Australian domestic banks offered more favourable syndicated loan terms, including lower spreads, longer maturities, and lower collateral incidence, than their foreign counterparts. Our study also addressed the non-randomness of the lender–borrower matching process, where certain borrowers (often with higher international exposure) are more likely to borrow from foreign banks, potentially due to existing business connections. Our results are robust across both instrumental variable and treatment effect models.

This study makes several important contributions to the literature. We first enrich the extant literature on loan term determinants by showing that the origins of lead banks matter. Our evidence reinforces the values added by soft information in modern banking, but does not support the view that superior information may exacerbate the hold-up problem. It also sheds light on the competition between domestic and foreign banks in providing credit to domestic borrowers. Finally, the work also contributes to the very limited understanding of the Australian syndicated loan market.

Our findings have potential implications for borrowers, lenders, and policy makers. For domestic borrowers, they highlight that existing banking relationships with domestic banks lead to better loan contract terms. For foreign banks seeking to enter the Australian market, the absence of strong relationships with domestic borrowers may prompt them to compete more for transactions-based business. For Australian policy makers, the level of bank competition and its impact on customers has been raised in numerous occasions. Our results however show that, at least in the syndicated loan market, banks appear to be competitive, as the largest Australian banks do not seem to exploit their superior information at the expense of domestic borrowers.

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[18] If two or more foreign led loans have the same domestic led loan as their nearest neighbour, we also choose the next best domestic led loan to create a matched sample.

Appendix 1. Variable description

Variable	Definition	Source of data
Variable of interest		
DOMESTIC	A binary variable, coded one if there is at least one of the four largest domestic banks among the lead arrangers, and zero otherwise.	Dealscan, Dealogic
Loan characteristics		
SPREAD	Spread is measured as the loan interest rate expressed in basis points as a margin above the local bank bill swap rate.	Dealscan, Dealogic
AISD	Loan interest rate plus annual fees expressed in basis points as a margin above the local bank bill swap rate.	Dealscan, Dealogic
LNMAT	Natural logarithm of loan maturity measured in months.	Dealscan, Dealogic
SECURED	A binary variable, coded one for secured loans and zero for unsecured loans.	Dealscan, Dealogic
LNTRANCHE	Natural logarithm of the tranche amount measured in Australian dollar.	Dealscan, Dealogic
REVOLVER	A binary variable, coded one if the loan is a revolving credit facility and zero otherwise.	Dealscan, Dealogic
Borrower characteristics		
LEVERAGE	Leverage ratio = TD/(TA + MV − CEQ) where TD is the total debt, TA is the total assets, MV is the market value at fiscal year-end, and CEQ is the common equity.	FinAnalysis
CURRENT	Current ratio = ACT/LCT where ACT is the total current assets and LCT is the total current liabilities.	FinAnalysis
PPE	Asset tangibility ratio = PPE/TA where PPE is the value of properties, plants and equipment and TA is the total assets.	FinAnalysis
LNASSETS	Natural logarithm of the borrower's total assets.	FinAnalysis
RATED	A binary variable, coded one if the borrowing firm has an S&P public debt rating at loan origination, and zero otherwise.	Dealscan, Dealogic
FORSALES	Foreign sales divided by domestic sales	FinAnalysis
Macroeconomic factors		
TERMPREMIUM	The yield difference between 10-year and 2-year Australian government bonds, computed for the loan year.	Datastream
CREDITSPREAD	The yield difference between long-term corporate bond and long-term government bond, computed for the loan year.	Datastream

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