The Impact Of Soft Information And Institutional Quality On Foreign Bank Efficiency

Chan, Sok Gee ; Aktan, Bora; Burton, Bruce; Koh, Eric H. Y.

Published in:
International Review of Economics and Finance (IREF)

DOI:
10.1016/j.iref.2021.01.017

Publication date:
2021

THE IMPACT OF SOFT INFORMATION AND INSTITUTIONAL QUALITY ON FOREIGN BANK EFFICIENCY – EVIDENCE FROM ASEAN-5 COUNTRIES

Sok-Gee Chan, Department of Finance and Banking, Faculty of Business and Accountancy, University of Malaya 50603 Kuala Lumpur, Malaysia E-mail: sokgee@um.edu.my

Bora Aktan, Department of Economics and Finance, College of Business Administration, University of Bahrain, Email: gbora@uob.edu.bh

Bruce Burton, School of Business, University of Dundee, Scotland, UK Email: b.m.burton@dundee.ac.uk

Eric H.Y. Koh, Department of Finance and Banking, Faculty of Business and Accountancy, University of Malaya 50603 Kuala Lumpur, Malaysia E-mail: erickoh@um.edu.my

Abstract. This paper provides evidence regarding the impact of soft information on foreign bank efficiency in the ASEAN-5 market in the years following the Asian crisis. The analysis presented here develops previous literature by disaggregating soft information into five difference types and examining whether institutional quality (proxied for by host-country economic risk stability index) mitigates the impact. Using a three-stage estimation process we find that soft information does indeed affect foreign banks' efficiencies in an identifiable manner, but host-country institutional quality acts so as to significantly lessen the effect.

Keywords: foreign bank efficiency; soft information; institutional quality; ASEAN-5; Data Envelopment Analysis; Generalized Method of Moments

JEL Codes: G15; G21; G34

THE IMPACT OF SOFT INFORMATION AND INSTITUTIONAL QUALITY ON FOREIGN BANK EFFICIENCY – EVIDENCE FROM ASEAN-5 COUNTRIES

Abstract. This paper provides evidence regarding the impact of soft information on foreign bank efficiency in the ASEAN-5 market in the years following the Asian crisis. The analysis presented here develops previous literature by disaggregating soft information into five difference types and examining whether institutional quality (proxied for by host-country economic risk stability index) mitigates the impact. Using a three-stage estimation process we find that soft information does indeed affect foreign banks' efficiencies in an identifiable manner, but host-country institutional quality acts so as to significantly lessen the effect.

Keywords: foreign bank efficiency; soft information; institutional quality; ASEAN-5; Data Envelopment Analysis; Generalized Method of Moments

JEL Codes: G15; G21; G34

1. Introduction

Foreign ownership of banks in ASEAN-5 nations[1] was liberalized in the aftermath of the 1997 Asian Financial crisis, providing opportunities for overseas institutional expansion in largely untapped markets.[2] This change preceded a 48% increase in the proportion of foreign banks operating in the region between 1998 and 2009,[3] yet little is known about the impact of relational structures across borders on the efficiency gains achieved by such activities. This gap in understanding is potentially substantive given that, as Claessens (2017) notes, emerging and developing countries are becoming more important in global financial flows via both banks' direct presence and increased levels of cross-border transactions. In this context, Berger et al.'s (2000) theory of global advantage argues that foreign banks with superior technology and banking practices can gain market share and earn higher profits most rapidly in developing economies. Critical to this potential is the issue of "soft information" and the attendant reliance on relationship banking that is required to facilitate effective host-home country arrangements (Berger et al., 2000). In such contexts, the extent of home/host nation similarity across a range of socio-economic criteria can affect foreign banks' operational and performance efficiency in identifiable ways, thus affecting business expansion potential (Berger et al. 2000). We focus on the five aspects of "soft information" most commonly employed in the extant literature: geographic (e.g. Berger et al. 2005); cultural (Chang et al. 1998); economic growth differential (Dass and Massa 2011); governance (Sufi 2007); and financial freedom (Chou and Shen 2014).

The present study provides novel insights regarding the impact of soft information on foreign banks' performance in the ASEAN-5 group after the 1997 Asian financial crisis, given the important role ascribed to inward investment by global institutions in attempts to re-build the

economies concerned. However, we deliberately avoid the years immediately following the crash, so that event-specific turbulence does not influence the evidence, whilst ensuring that a time-span sufficiently long to permit robust conclusion to be drawn is investigated. On this basis, the period of study chosen for the empirical work is 2001 to 2013. As in much of the recent literature (e.g. LaPlante and Paradi 2015; Depren and Depren 2016) we measure banks' performance based on an efficiency measure that relates resource allocation decisions to given output levels.

This is the first study that examines the impact of soft information on bank efficiencies across the ASEAN-5 region over a lengthy post-crash period. It also represents the first exploration of soft information that disaggregates the factor into - and simultaneously investigates the effect of - differences in geographic distance, culture, growth, governance and financial freedom. This approach is adopted to permit identification of specific influences on foreign banks' performance in developing economies. The other key contribution in the paper is the analysis of the extent to which institutional quality (assessed via host country economic stability) can mitigate against the negative impact of soft information on foreign banks' performance. This approach permits a comprehensive analysis of the factors that affect non-domestic bank efficiencies in emerging markets, potentially offering insights about the viability of cross-border banking activities in untapped markets characterized by high information asymmetry and imperfect competition. The remainder of the paper is structured as follows. Section 2 reviews key studies on foreign bank efficiencies including the role of soft information, before Section 3 outlines the method and data employed in the study. Section 4 presents and discusses the results while Section 5 concludes.

2. Literature Review

Foreign banks are generally more efficient than domestic banks in emerging economies because they have superior technology and higher service quality as well as more robust operational and risk management practices (Havrylchyk 2006; Molyneux et al. 2013). Titko et al. (2014) emphasize the radical changes taking place in domestic banking sectors over in recent years in the wake of extensive globalization, not least the increased levels of competition from foreign financial institutions. In this context, Claessens et al. (2001) argue that the strong performance of foreign banks in developing countries is partly a function of host country practices, policies and market inefficiencies, consistent with the global advantage hypothesis (Demirgüç-Kunt and Huizinga 2000; Claessens et al. 2001; Hasan and Marton 2003; Micco et al. 2007; Berger et al. 2009).

Whilst foreign banks have been reported as having relatively high efficiencies in central Europe and Latin America (Claessens et al. 2001), Central and Eastern Europe (Kasman and Yildirim 2006) and emerging Asian economies such as Malaysia (Sufian 2008), Thailand (Okuda and Rungsomboon 2006) and Taiwan (Chiu et al. 2013), studies in developed countries[4] suggest that foreign banks are less efficient. This evidence has been attributed to a lack of domestic market knowledge (Sturm and Williams 2008), higher entry barriers (Sturm and Williams 2010) and a paucity of short-term funding sources (Kosmidou et al. 2007).

As suggested by Pasiouras and Kosmidou (2007), foreign banks' performance depends on a range of internal and external factors including banks' specific characteristics, financial market structure and macroeconomic conditions. In line with this reasoning, empirical studies have shown that

foreign bank profits increase with net interest margins, fees (Williams 1998) and higher home country GDP per capita[5], but fall in the face of high levels of local bank incumbency (Sturm and Williams 2008). Of particular relevance to the present study, foreign banks may face - and have to adapt to – a range of "soft information" issues related to differences (or "distances") in management strategies, client traits, local market peculiarities and business platforms that in turn reflect heterogeneity in cultural, language, governance and regulatory matters (Berger et al. 2005). A lack of familiarity with local markets, allied to difficulties in applying home country strategies to emerging market economies, can adversely affect foreign banks' ability to access potential profit gains (Clarke et al. 2005; Okuda and Rungsomboon 2006). Indeed, these issues are now widely portrayed as representing substantive barriers to foreign banks entering emerging markets (Miller and Parkhe 2002; Vu et al. 2015), with institutional ability to overcome the challenges provided by intangible information disparities a critical determinant of growth outcomes in the developing world (Mian 2006).

In terms of institutional quality, Lensink et al. (2008) assert that robust governance practices help mitigate against the impact of host country information asymmetries; both higher home country institutional quality and higher home-versus-host country similarities are shown to contribute to higher foreign bank efficiency. While Lensink et al.'s work is the first to incorporate institutional quality in an examination of foreign bank efficiencies, a number of more recent studies have focussed explicitly on the impact of ownership types on bank performance in the years since the global financial crisis. For example, Lin et al. (2016) report that higher levels of state ownership in banks in 12 Asian countries were associated with greater efficiency in environments where financial freedom rose after the crisis, with domestic ownership having the opposite effect. In a

study of the issues across a wider sample of more than 80 nations between 2003 and 2012, Doan et al. (2018) find that foreign-owned banks with relatively high dispersion in ownership were generally less efficient in developed countries, with rises in overseas ownership generating improvements in diversification benefits in emerging nations. The study also indicates that financial freedom - a soft information factor - is important, suggesting its importance in any analysis of foreign bank performance. In one of the first studies to focus exclusively on sub-Saharan Africa, Pelletier (2018) report that domestic banks perform poorly relative to global and emerging-market institutions, with the difference being attributable to both operational efficiencies and reduced funding costs. An alternative (single nation) approach is employed in a study by Curi et al. (2015) that explores the extent to which a single business model is appropriate for Luxembourg's banking sector in the post-crisis world. The authors find that no single, unique model is identifiable, although those that emphasise strategies relating to asset, income and funding outcomes perform strongly. The evidence in the study also suggests that while branch-network models were preferable before the financial crisis, in the years since subsidiaries have outperformed their branch-based counterparts. A country specific approach is also employed by Kamarudin et al. (2019) who find lower efficiencies around revenue generation for domestic Islamic banks in Malaysia than for similar overseas-based institutions. Whilst the prior analyses have employed a range of methodologies and research frames, we extend the scope of the literature in two ways. First, we investigate home and host country similarities via decomposition into soft information components and, second, we assess the propensity of host country institutional quality to enhance foreign bank efficiency by reducing the former's impact.

3. Data and Method

3.1 *Bank efficiency estimation*

Foreign bank efficiency is measured here using data envelopment analysis (DEA). DEA's ability to capture the effectiveness of bank resource management in achieving a given level of financial output provides a stronger basis for drawing inferences regarding outcomes than does traditional financial ratio analysis (Zhu 2004). The DEA efficiency score can be easily accommodated into the second stage of the estimation process because it is estimated based on linear programming techniques and therefore does not suffer from the i.i.d problem. We assume variable returns to scale (VRS) and adopt an input-oriented DEA estimation approach for both cost and profit efficiencies. VRS was considered appropriate here as it permits consideration of the market imperfections, government regulations and financial constraints potentially existing within ASEAN-5 banking sectors (Banker et al. 1984). Cost efficiency measures a bank's ability to achieve a given output level at minimal cost (Depren and Depren 2016). Cost efficiency for N firms (i=1,…,N) is defined as the firm's objective to minimize cost by using a vector of *p* inputs $x_i = (x_{i1},...,x_{ip}) \notin \Re_{p++}$ given the price of inputs $w_i = (w_{i1},...,w_{ip}) \notin \Re_{p++}$ to produce a vector of *q* outputs $y_i = (y_{i1},...,y_{ip}) \notin \Re_{q++}$. The cost efficiency for *j*th firm can therefore be estimated using Equation (1).

$$
\begin{aligned}
&Min \sum_{p} w_{pj} x_{pj} \\
&s.t. \sum_{i} \lambda_i y_{iq} \geq y_{jq} \forall q \\
&\sum_{i} \lambda_i x_{ip} \leq x_{jp} \forall p \\
&\sum_{i} \lambda_i = 1; \lambda_i \geq 0; \mathrm{i} = 1,..., \mathrm{N}
\end{aligned}
\qquad (1)
$$

The cost efficiency for the *j*th bank is given by the ratio of minimum costs to actual costs as shown in Equation (2).

$$0 \le CE_j = \frac{\sum_p w_{pj} x^*_{pj}}{\sum_p w_{pj} x_{pj}} \le 1 \qquad (2)$$

Profit efficiency has traditionally been more widely accepted as providing a meaningful indicator of firms' operational propensities than has cost efficiency because it incorporates both expenses and revenues (Chan et al. 2014). However, banks in practice have a certain degree of control over the pricing of deposits and loans, reflecting power in the deposit-taking and loan-granting markets (Humphrey and Pulley 1997). We therefore employ an alternative profit function estimate of profit efficiency scores where Alternative Profit Efficiency (APE) for the j_{th} bank is given by:

$$\begin{aligned} &Max\ R_j - \sum_p w_{jp} x_{jp} \\ &s.t. \sum_i \lambda_i R_i \ge R_j \\ &\sum_i \lambda_i y_{iq} \ge y_{jq} \forall q \\ &\sum_i \lambda_i x_{ip} \le x_{jp} \forall p \\ &\sum_i \lambda_i = 1; \lambda_i \ge 0; \mathrm{i} = 1,..., \mathrm{N} \end{aligned} \qquad (3)$$

where R is the revenue of the j_{th} bank and the APE for the j_{th} bank is given by:

$$0 \le APE_i = \frac{R_j - \sum_p w_{jp} x_{jp}}{\sum_q R^*_j - \sum_p w_{jp} x^*_{jp}} \le 1 \qquad (4)$$

The selection of inputs and outputs for the analysis is based on the intermediation approach. The intermediation approach assumes that banks act as financial intermediaries, transferring funds

between savers and borrowers via inputs of: (1) personnel costs, (2) fixed assets, and (3) deposits that produce: (1) loans, (2) investments and (3) off-balance sheet items. [6]

3.2 *Second stage estimation*

Following Berger and Mester (1997), in equation (5) we employ the system GMM two-step estimation approach to correct for endogeneity and multi-collinearity problems in the lagged dependent variables. Sargan's test of restriction over-identification is then used to ensure the validity of the instrumental variables, before the second order autocorrelation test is employed to check for serial correlation in the error-terms. The five measures of soft information captured by the β_2 variable are outlined in the next section of the paper.

$$eff_{ijt} = \beta_0 + \beta_1 eff_{ijt-1} + \beta_2 diff_{jt} + \beta_3 \ln assets_{ijt} + \beta_4 roe_{ijt} + \beta_5 eta_{ijt} + \beta_6 \inf_{jt} + \beta_7 \ln gdphost_{jt} + \varphi_t (year)_t + \varepsilon_{ijt} \quad (5)$$

where:
eff_{ijt} = cost efficiency ($cost_{ijt}$) or profit efficiency ($profit_{ijt}$) score of i^{th} bank for country j^{th} at time t; $diff_{ijt}$ = soft information which refers to geographical distance (*lndist)*, economic differences (*lngdpd)*, cultural similarities (*culturalsim)*, governance differences (*governancedist*), and financial freedom differential (*financialdist)* of i^{th} bank for country j^{th} at time t, respectively; ln$assets_{ijt}$ = natural logarithm of total asset of i^{th} bank for country j^{th} at time t; roe_{ijt} = return on equity of i^{th} bank for country j^{th} at time t; eta_{ijt} = equity to total asset ratio of i^{th} bank for country j^{th} at time t; inf_{jt} = inflation rate of country j^{th} at time t; $lngdphost_{jt}$ = natural logarithm of gross domestic product per capita (base year = 2005) of country j^{th} at time t; $cost_{ijt-1}$ = preceding year's cost efficiency score of i^{th} bank for country j^{th} at time t; ε_{ijt} = error-terms of i^{th} bank for country j^{th} at time t.

Next we replace $cost_{ijt}$ in Equation (5) with $profit_{ijt}$ so as to identify the impact of soft information on profit efficiency for the sample banks. $\varphi_t (year)_t$ is a year dummy included to control for cross-sectional correlation. In the third stage of estimation, we allow interaction with host country economic risk stability index data to examine the latter's mediating impact on bank performance (Equation 6).

$$eff_{ijt} = \beta_0 + \beta_1 eff_{ijt-1} + \beta_2 diff_{jt} + \beta_3 \ln assets_{ijt} + \beta_4 roe_{ijt} + \beta_5 eta_{ijt} + \beta_6 \inf_{jt} + \beta_7 \ln gdphost_{jt} + \beta_8 econ * diff_{jt} + \varphi_t (year)_t + \varepsilon_{ijt} \quad (6)$$

A central premise of the present study is that high host country institutional quality can mitigate against the impact of soft information. Equation (6) permits investigation of the extent to which a more stable economic risk environment enhances foreign banks' ability to overcome these disadvantages. As discussed above, this issue is important given the obvious advantages for non-domestic investors in situations where host nation economic stability counteracts the uncertainty associated with substantive levels of soft information (Vu et al. 2015). Specifically, in equation (6) a positive β_8 outcome would suggest that a foreign bank's "soft information disadvantages" can be mitigated in such contexts.

3.3 *Soft information*

The term "soft information" refers to host- versus home-country differences in geography, economic growth, culture, governance and financial freedom (Berger et al. 2005). The existence of non-trivial incongruity in soft information affects resource allocation because it raises informational, agency and enforcement costs (Lensink et al. 2008) as well as increasing the extent of information asymmetry (Mian 2006). The present study follows the convention of international trade theory (see, for example, Ghemawhat 2007) and employs, *inter alia*, geographical distance as well as a composite index reflecting whether the two countries are contiguous (contig), share a common language (comlang), and have ever had a colonial link (col).[7] As shown in equation (7), the cultural similarities variable *"culturalism"* reflects the simple average of the three latter components.

$$Culturalism = \frac{\sum_{i=1}(contig_i + comlang_i + col_i)}{n} \quad (7)$$

Three other types of soft information are included in the analysis. First, larger differences in GDP growth rates may enhance foreign bank efficiencies in emerging markets (Clarke et al. 2005). According to Clarke et al., foreign banks are better able to enhance profitability and efficiency in underdeveloped and growing markets due to their superiority in terms of technology and knowledge. Second, governance differences (both legal and institutional aspects) can hamper foreign bank efficiency because of pervasive unfamiliarity and the specific adjustments required by local legislation and institutional setup (Galindo et al. 2003). Here, we use equation (8) - which reflects Lensink et al.'s (2008) governance difference index - using six indicators obtained from the World Bank Governance Indicator database: (1) Voice and Accountability; (2) Political Stability and Absence of Violence; (3) Government Effectiveness; (4) Regulatory Quality; (5) Rule of Law; and (6) Control of Corruption.

$$Governancedist = \sqrt{\sum_{i=1...6}(\text{Host Country}_i - \text{Home Country}_i)^2} \quad (8)$$

Finally, in a development of prior methodology in the area, we introduce a home- versus host-country financial freedom distance index based on the Heritage Foundation's Economic Freedom (HFEF) data. Whilst a range of alternative measures have been employed to capture this operational characteristic, Chortareas et al. (2013, p.1225) point to the appropriateness of the HFEF index because of both its role as a modern version of the "banking efficiency" data examined in earlier studies and its consistency in outcomes with related economic measures. The HFEF index

is based on four indicators: business freedom; trade freedom; investment freedom; and financial freedom, as set out in equation (9):

$$Financialdist = \sqrt{\sum_{i=1..4} (\text{Host Country}_i - \text{Home Country}_i)^2} \qquad (9)$$

3.4 *Host country institutional quality*

Host country institutional quality is an important determinant of resource allocation efficiency. If, as previous studies suggest (e.g. Färe et al. 1994), stronger host country institutional setup enhances economic stability (facilitating execution of plans and raising efficiency levels), it could potentially play an important role in weakening the impact of soft information. We therefore employ institutional quality as a mediating variable in this study, measuring it via the economic risk stability index obtained from the PRS Group Country Online database. Host country economic stability enhances predictability of return on investment - and is thus favoured by foreign investors – while also reflecting the potential distortion of price stability controls on market activity arising from economic risk (Färe et al. 1994). Higher stability in economic risk in a bank's host country provides significant discretion to foreign banks in terms of resource allocation decisions, improving their efficiency level; in contrast, institutional framework weaknesses impose additional informational, agency and enforcement costs (Mian 2006). The banking reforms that occurred in the aftermath of the global financial crisis accelerated changes in emerging economies' institutional quality. This development furthered financial liberalization (Lin et al. 2016) and so our study captures not just financial freedom, but also investment freedom, with government's role in improving bank performance and in attracting foreign banks to the nations concerned incorporated as well.

3.5 *Control variables*

Our model employs the standard set of control variables in banking performance literature (see, e.g., To and Tripe 2002; Williams 2003; Kosmidou et al. 2007). This group includes bank-specific factors such as equity to total assets – to measure capital strength – ("eta"); natural log of bank size ("lnasset") and return on equity ("roe"). As the present study involves cross-country analysis, controlling for differences in economic environment is vital. We therefore include inflation ("inf"), real gross domestic product ("lngdp") and banking crisis ("crisis") variables. The latter is a dummy that takes value of 1 for banks which experienced the financial crisis according to World Bank criteria and 0 otherwise. In other words, our control variables capture both bank-specific and economic environment factors (Pelletier, 2018).

The descriptive analysis of the variables used in the second-stage estimation (see Table 2), reveals a much higher cultural similarity score for foreign banks in Singapore (similarity score of 43.59 compared to a sample average of 13.90, with no other country achieving 17 or more) than elsewhere amongst the ASEAN-5 group. This pattern may provide an operational advantage for foreign banks located in Singapore as strong cultural similarities improve communication and information dissemination practices (Berger et al., 2005; Okuda and Rungsomboon 2006; Sufian 2007; Dass and Massa 2011) and enhance the ability of foreign banks to fully exploit local opportunities (Clarke et al. 2005). In terms of real GDP, banks in the Philippines performed notably badly compared to the rest of the group (average difference in lngdp of 11.115 v.v. 13+ in the other four nations). This finding may be a manifestation of the evidence (also reflected in Table 2) that the distance at which foreign banks operate in the Philippines is relatively short, suggesting a preponderance of foreign banks from neighbouring countries with similar economic growth levels.

As per the logic of Clarke et al. (2003), this may serve as a disadvantage for foreign banks operating within Philippine borders.

Table 2 also reveals that both governance distance between host and home country is narrower in Singapore than elsewhere in the region. This evidence points to relatively minor variability in standards, which should in turn contribute to better management of funds by lowering the degree of information asymmetry (LaPorta et al. 2000). In contrast, the *financialdist* data suggests that levels of disparity in financial freedom between host and home country are relatively large for foreign banks operating in Singapore, potentially exposing overseas investors to significant repatriation risk (Cardenas et al. 2004). It should be noted, however, that Table 2 also indicates a level of economic risk stability in Singapore that is markedly higher than in other ASEAN-5 countries (*econ* = 45.5 versus 36.3 - 40.4), potentially providing overseas' investors with a pull factor in terms of investment return predictability (Lensink et al. 2008).

4. Results

Error! Reference source not found.s 3 and 4 summarize the results of tests regarding the impact of the five types of soft information. The table presents results for five models (1-5) where differences in economic/GDP growth, geographical distance, culture, governance and financial freedom respectively are employed as independent variables ("x" in the table). In both tables we label the cost efficiency and profit efficiency models with suffixes "c" and "p" respectively. The dependent variables - estimated cost and profit efficiency scores - are based on the DEA model. One of the key contributions of the paper is modelling the potential mediating role of host country institutional quality (proxied for by the economic risk stability index) and the variable "Econ * x"

is used to capture this effect.[8] Table 3 presents the results for models where only the *x* and *Econ* * *x* variables are employed. The evidence from the full models, incorporating the six control variables set out in the previous section and with coefficient estimates generated by a system GMM (with two-step estimation to correct for heteroscedasticity) is provided in Table 4.[9] Inspection of Table 3 reveals that cost efficiency is negatively related to the *lngdp*, *lndist* and *financialdist* variables (although only significant at the 10% level). The profit efficiency results indicate a less pervasive influence of the soft information types, with only one result (a positive coefficient for *financialdist*) significant at 5%. However, the results relating to the *Econ* * *x* variable are significant at this level in eight out of ten cases. Importantly, given the aims of the paper, in each case the interaction term was positive, suggesting that host country institutional strength acts as a strong mitigating force in the presence of any pervasive risk arising from soft information.

The evidence in Table 4 regarding the impact of each of the five soft information factors in the full model is consistent with that shown in Table 3, whilst the interacting effect of host country institutional quality is again significant in each case. Inspection of the output from Model 1 reveals that higher GDP growth differences reduce both profit and cost efficiencies. The first of these results suggests that foreign banks with higher home- versus host-country economic growth differences are less able to exploit profit opportunities in the presence of substantive information asymmetry. From a cost efficiency point of view, the findings are indicative of resource allocation issues which themselves might be driven by sub-optimal transaction execution behaviour and higher levels of loan losses (Lensink and Hermes 2004).[10] However, stronger host country institutional quality significantly mitigate the negative effects for both profit and cost efficiencies relating to GDP differences as indicated by the coefficients for the interaction term (*Econ * x)*.

Inspection of the results for Model 2 reveals that greater geographic distances worsens efficiency, significantly so for cost efficiency (Model 2c). This finding is consistent with the notion (see Berger et al. 2005; Dass and Massa 2011; Chou and Shen 2014; Vu et al. 2015) that foreign banks' lack of familiarity with local business contexts leads to the incurring of non-trivial costs of communication, coordination, monitoring and information gathering, as well as lower engagement levels, when physical estrangement is a major issue. Similarly, closer geographical distance has been argued as having the potential to reduce levels of host- versus home-country information asymmetry, which in turn improves efficiency (Sufi 2007; Knyazeva and Knyazeva 2012). However - and as with Model 1 - the interaction term is significant with both cost and profit efficiencies, thus pointing to the potential importance of host country institutional quality in lessening the effect of this particular type of soft information.

The results for Model 3 indicate that cost efficiencies are significantly enhanced where cultural similarities exist (x coefficient = 0.467, significant at 5%). This evidence is consistent with a range of arguments put forward regarding such benefits, including the exploitation of opportunities for local business leveraging (Clarke et al. 2003), achievement of market similarities (Ford 1989) and better understanding of stakeholder needs (Holden and Burgess 1994; Chou and Shen 2014). Once again, in both cost and profit cases high levels of host country institutional quality lead to higher levels of efficiency; the coefficients in models 3c (cost efficiency) and 3p (profit efficiency) are significant at the 5% and 1% levels respectively. The evidence in Model 4 suggests that governance differences enhance efficiencies. Whilst this result appears somewhat counter-intuitive in terms of the purported role of soft information, it is consistent with the notion put forward by LaPorta et al. (2000) that poor governance in emerging countries can be offset by 'better' governance standards

366 in developed nations. Robust governance at home means stronger government effectiveness, a
367 higher degree of civil service independence, more effective regulation and higher political stability
368 that can counteract weaknesses in host environments (Lensink et al. 2008). However, the result is
369 also supportive of the assertion that a lack of effective governance standards on the ground can
370 provide exploitable opportunities for rent extraction (Ernst 2002). In this case, the result regarding
371 the interaction variable provides a means of distinguishing between the two competing rationales.
372 As the *Econ * x* variable is again positive and highly significant, it would appear that the notion of
373 offsetting governance weaknesses in situ is the primary driver of the findings, demonstrating the
374 benefits achievable for foreign banks operating in situations where home country governance and
375 host country institutional standards are robust (Elyasiani and Rezvanian 2002; Molyneux et al.
376 2013). Finally, Model 5 shows the impact of financial freedom index differences, i.e. to the extent
377 to which home and home-country legal setups vary. A higher level of financial freedom difference
378 worsens cost efficiencies, consistent with the contention in Galindo et al. (2003) and Chou and
379 Shen (2014) that regulatory differences in banking activities, entry requirements, diversification
380 ease and supervisory authority independence raise monitoring costs and cause resource
381 misallocation. In contrast, the *x* coefficient value is positive for profit efficiency, providing the
382 only case in which impact directionality differs across the two efficiencies. The evidence relating
383 to profit suggests that foreign banks are able to earn large returns in developing economies even
384 when host country legal frameworks are less than robust. This argument is consistent with Berger
385 et al.'s (2000) theory of global advantage and the notion that superiority in terms of technology
386 and banking practices allows banks from developed nations to expand market shares and charge
387 higher prices in emerging economies by taking advantage of the relative lack of restrictions on
388 financial institutional conduct. Despite the variability in bank performance that reflects differences

across soft information factors, we note the role of country stability in enhancing bank performance. The variation in bank efficiency may be due to the different bank strategies caused by diversity in customer preferences, information quality and production methods (Doan et al. 2018). Notwithstanding the variation in efficiency impact, and as with all other soft information types, good host country institutional quality was found to enhance both cost and profit efficiency to a significant extent, with the *Econ * x* variable highly significant in each case. This result is consistent with Lin et al. (2016) who suggest that stronger economic environments result in more competitive policies - which in turn raise operational efficiency.

5. Conclusion

This paper has provided new evidence regarding the potentialities for foreign banks in ASEAN-5 nations in the years following the Asian crisis. The results relating to efficiency impacts suggest that soft information pertaining to foreign bank operations, e.g. differences in economic growth levels and geographic remoteness hinder the full realization of such opportunities. In four out of five cases, cost efficiencies were significantly positively related to the extent of host/home country variation in the soft information variable employed. The same was true for profit efficiencies for three out of the five measures (although with less pervasive significance) and with an exception relating to financial freedom differences where the evidence suggested that weaknesses in host environments provided opportunities for significant returns to be earned). However, the most important contribution of the study arises in the form of evidence that in every case (i.e. irrespective of the type of measure employed and for both cost and profit efficiencies) the impact of soft information is mitigated by robust institutional frameworks (assessed here via economic risk stability). These findings have a number of potential implications for practitioners and public

policy debates. Whilst the former group may be aware of the general tendency for operational efficiencies to be hindered by host- / home-country heterogeneity, the evidence suggests that robust host country institutional frameworks might not just offset pressures on cost and profit performance, but may in fact provide the basis for significant cross-border operational success. Regulators in emerging economies should be aware of the apparent potential attraction of foreign bank investment that (substantive and observable) strengthening of institutional frameworks might lead to. Such development should in turn encourage competition, increase foreign trade flows and accelerate overall levels of economic development (Athukorala 2003). From a home country bank's point of view, the most important implication of the evidence is that access to accurate and reliable information regarding a potential host country's risk profile is highly valuable, and financial institutions might usefully be prepared to pay a non-trivial premium to access such data and - where possible - establish proprietorial rights over it.

References

1) Athukorala, P-C. 2003. "Foreign Direct Investment in Crisis and Recovery: Lessons from the 1997–1998 Asian Crisis." *Australian Economic History Review* 43(2): 197-213.
2) Banker, R. D., A. Charnes, and W.W. Cooper. 1984. "Some Models for Estimating Technical and Scale Inefficiencies in Data Envelopment Analysis." *Management Science* 30(9): 1078–1092.
3) Berger, A.N., G.R. Clarke, R. Cull, L. Klapper, L. and G.F. Udell. 2005. "Corporate Governance and Bank Performance: A Joint Analysis of the Static, Selection, and Dynamic Effects of Domestic, Foreign, and State Ownership." *Journal of Banking & Finance* 29(8–9): 2179–2221.
4) Berger, A. N. and L.J. Mester. 1997. "Inside the Black Box: What Explains Differences in the Efficiencies of Financial Institutions?" *Journal of Banking & Finance* 21(7): 895–947.
5) Berger, A. N., R. DeYoung, H. Genay and G. Udell. 2000. "Globalisation of Financial Institutions: Evidence from Cross-Border Banking Performance." *Brookings – Wharton Papers on Financial Services* (3): 23–158.
6) Berger, A. N., L.F. Klapper and R. Turk-Ariss. 2009. "Bank Competition and Financial Stability." *Journal of Financial Services Research* 35(2): 99–118.
7) Berger, A. N., N.H. Miller, M.A. Petersen, R.G. Rajan, and J.C. Stein. 2005. "Does Function Follow Organizational Form? Evidence from the Lending Practices of Large and Small Banks." *Journal of Financial Economics* 76(2): 237–269.
8) Bin, C.H. 2003. "FDI in the financial sector: The experience of ASEAN countries over the last decade, Monetary Authority of Singapore.
9) Cárdenas, J., J.P. Graf and P. O'Dogherty. 2004. "Foreign Bank Entry in Emerging Market Economies: A Host Country Perspective." *CGFS Publications, Bank for International Settlements, 22:1-29.*
10) Chan, S-G., M.Z.A. Karim, B.M. Burton and B. Aktan B. 2014. "Efficiency and Risk in Commercial Banking: Empirical Evidence from East Asian Countries." *European Journal of Finance* 14(12): 1114-1132.
11) Chang, C. E., I. Hasan and W.C. Hunter. 1998. "Efficiency of Multinational Banks: An Empirical Investigation." *Applied Financial Economics* 8(6): 689–696.
12) Chiu, Y.H., Z. Luo, Y.C. Chen, Z. Wang and M.P. Tsai. 2013." A Comparison of Operating Performance Management between Taiwan Banks and Foreign Banks based on the Meta-Hybrid DEA Model". *Economic Modelling* 33: 433–439.
13) Chortareas, A., C. Girardone and A. Ventouri. (2013). "Financial Freedom and Bank Efficiency: Evidence from the European Union." Journal of Banking & Finance 37(4) :1223-1231
14) Chou, H.H. and C.H. Shen. 2014. "Foreign Bank Expansion and the Follow-the-Customer Hypothesis. *Journal of Multinational Financial Management* 25–26: 95–109.
15) Claessens, S. 2017. "Global banking: recent developments and insights from research." Review of Finance 21(4): 1513-1555.
16) Claessens, S., A. Demirgüç-Kunt and H. Huizinga. 2001. "How does Foreign Entry affect Domestic Banking Markets? *Journal of Banking & Finance* 25(5): 891–911.
17) Clarke, G., R. Cull, M.S.M. Peria and S.M. Sánchez. 2003. "Foreign Bank entry: Experience, Implications for Developing Countries, and an Agenda for Further Research." *World Bank Research Observer* 18: 25–59.

18) Clarke, G., R. Cull, M.S.M. Peria and S.M. Sánchez. 2005. "Bank Lending to Small Businesses in Latin America: Does Bank Origin Matter?" *Journal of Money, Credit, and Banking* 37(1): 83–118.
19) Curi, C., A. Lozano-Vivas and V. Zelenyuk. (2015). "Foreign bank diversification and efficiency prior to and during the financial crisis: Does one business model fit all?" Journal of Banking & Finance 61(S1): S22-S35.
20) Dass, N., M. Massa, M. 2011. "The Impact of a Strong Bank–Firm Relationship on the Borrowing Firm." *Review of Financial Studies* 24: 1204–1260.
21) Demirgüç-Kunt, A., H. Huizinga. 2000. "Financial Structure and Bank Profitability." *Policy Research Working Paper Series 2430*. The World Bank, New York.
22) Depren, S.K. and O. Depren. 2016. "Measuring Efficiency and Total Factor Productivity using Data Envelopment Analysis: An Empirical Study from Banks of Turkey". *International Journal of Economics and Financial Issues* 6(2): 711-717.
23) DeYoung, R. and D.E. Nolle. 1996. "Foreign-owned Banks in the U.S.: Earning Market Share or Buying it?" *Journal of Money, Credit and Banking* 28(4): 622–636.
24) Doan, A.T., K.L. Lin, and S.C. Doong. 2018. "What drives bank efficiency? The interaction of bank income diversification and ownership". International Review of Economics & Finance 55: 203-219.
25) Elyasiani, E. and R. Rezvanian. 2002. "A Comparative Multiproduct Cost Study of Foreign-owned and Domestic-owned US Banks." *Applied Financial Economics* 12: 271–284.
26) Ernst. D. 2002. "Global Production Networks and the Changing Geography of Innovation Systems. Implications for Developing Countries." *Economics of Innovation and New Technology* 11(6): 497-523.
27) Färe, R., S. Grosskopf, S. and C.A.K. Lovell, C. A. K. 1994. *Production Frontiers*. Cambridge: Cambridge University Press.
28) Ford, D. 1989. One More Time: What Buyer-Seller Relationships are all about. Pp. 813-836 in: Research in Marketing: An International Perspective, *Proceedings of the 5th IMP conference*, September. D.T. Wilson, S.L. Han and G.W. Holler, eds. 1989. Ohio: Penn State University Press, OH, 813–836.
29) Galindo, A., A. Micco and C. Sierra, C. 2003. "*Better the Devil that you know: Evidence on Entry Costs Faced by Foreign Banks*." Research Department Publications 4313, Washington DC: Inter-American Development Bank.
30) Ghemawhat, P. 2007. *Differences across Countries: The CASE Distance Framework*. Boston, Ma: Harvard Business Press.
31) Hasan, I. and K. Marton. 2003. "Development and Efficiency of the Banking Sector in a Transitional Economy: Hungarian Experience." *Journal of Banking & Finance* 27(12): 2249–2271.
32) Havrylchyk, O. 2006. "Efficiency of the Polish Banking Industry: Foreign versus Domestic Banks." *Journal of Banking & Finance* 30(7): 1975–1996.
33) Holden, N. J. and M. Burgess. 1994. *Japanese-led Companies: Understanding How to Make Them Your Customers*. London: McGraw-Hill.
34) Humphrey, D.B. and L. Pulley. 1997. "Banks' Responses to Deregulation: Profits, Technology, and Efficiency." *Journal of Money, Credit, and Banking* 29(1): 73–93.
35) Kasman, A and C. Yildirim, 2006. "Cost and Profit Efficiencies in Transition Banking: The Case of New EU Members." *Applied Economics* 38(9): 1079–1090.

36) Knyazeva, A. and D. Knyazeva. 2012. "Does Being Your Bank's Neighbor Matter?" *Journal of Banking & Finance* 36(4): 1194–1209.
37) Kosmidou, K., F. Pasiouras and A. Tsaklanganos. 2007. "Domestic and Multinational Determinants of Foreign Bank Profits: The Case of Greek Banks Operating Abroad." *Journal of Multinational Financial Management* 17(1): 1–15.
38) LaPlante, A.F. and J.C. Paradi. 2015. "Evaluation of Bank Branch Growth Potential using Data Envelopment Analysis." *Omega*, 52(April): 33-41.
39) LaPorta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny. 2000. "Investor Protection and Corporate Governance". *Journal of Financial Economics*, 58 (1-2), 3-27.
40) Lensink, R and N. Hermes. 2004. "The Short-Term Effects of Foreign Bank Entry on Domestic Bank Behaviour: Does Economic Development Matter?" *Journal of Banking & Finance* 28(3): 553–568.
41) Lensink, R., A. Meesters, and I. Naaborg. 2008. "Bank Efficiency and Foreign Ownership: Do Good Institutions Matter?" *Journal of Banking & Finance* 32(5), 834–844.
42) Lin, K.L., A. T. Doan, and S. C. Doong. (2016). "Changes in ownership structure and bank efficiency in Asian developing countries: The role of financial freedom." *International Review of Economics and Finance* 43: 19-34.
43) Mayer, T. and S. Zignago. 2011. "Notes on CEPII's Distances Measures: The GeoDist Database." CEPII Working Paper 2011- 25 (December). Paris: CEPII.
44) Mian, A. 2006. "Distance Constraints: The Limits of Foreign Lending in Poor Economies." *Journal of Finance* 61(3): 1465–1495.
45) Micco, A., U. Panizza and M. Yañez. 2007. "Bank Ownership and Performance. Does Politics Matter?" *Journal of Banking & Finance* 31(1): 219–241.
46) Miller, S. R. and A. Parkhe. 2002. "Is there a Liability of Foreignness in Global Banking? An Empirical Test of Banks' X-efficiency." *Strategic Management Journal* 23(1): 55–75.
47) Molyneux, P., L.H. Nguyen and R. Xie. 2013. "Foreign Bank Entry in South East Asia." *International Review of Financial Analysis* 30(December): 26–35.
48) Okuda, H. and S. Rungsomboon. 2006. "Comparative Cost Study of Foreign and Thai Domestic Banks in 1990–2002: Its Policy Implications for a Desirable Banking Industry Structure." *Journal of Asian Economics* 17(4): 714–737.
49) Pasiouras, F. and K. Kosmidou. 2007. "Factors Influencing the Profitability of Domestic and Commercial Banks in the European Union." *Journal of Banking & Finance* (21): 222–237.
50) Pelletier A. 2018. "Performance of foreign banks in developing countries Evidence from sub-Saharan African banking markets." Journal of Banking and Finance 88: 292-311.
51) Sarafidis, V., T. Yamagata, and D. Robertson. 2009. "A test of cross section dependence for a linear dynamic panel model with regressors." Journal of econometrics 148(2): 149-161.
52) Sathye, M. 2001. "X-efficiency in Australian Banking: An Empirical Investigation." *Journal of Banking & Finance* 25(3): 613–630.
53) Sturm, J. E. and B. Williams. 2008. "Characteristics Determining the Efficiency of Foreign Banks in Australia." *Journal of Banking & Finance* 32(11): 2346–2360.
54) Sturm, J.E. and B. Williams. 2010. "What Determines Differences in Foreign Bank Efficiency? Australian Evidence." *Journal of International Financial Markets, Institutions & Money* 20(3): 284–309.

55) Sufi, A. 2007. “Information Asymmetry and Financing Arrangements: Evidence from Syndicated Loans.” *Journal of Finance* 62(2): 629–668.
56) Sufian, F. 2007. “The Efficiency of Islamic Banking Industry in Malaysia: Foreign vs domestic Banks.” *Humanomics* 23(3): 174–192.
57) Sufian, F. 2008. “Revenue Shifts and Non-Bank Financial Institutions’ Productivity: Evidence from Malaysia.” *Studies in Economics and Finance* 25(2): 76–92.
58) Titko, J, J. Stankevičienė and N. Lace. 2014. “Measuring Bank Efficiency: DEA Application.” *Technological and Economic Development of Economy* 20(4): 739–757.
59) To, H.M. and D. Tripe. 2002. “Factors Influencing the Performance of Foreign-Owned Banks in New Zealand”. *Journal of International Financial Markets, Institutions and Money* 12(405): 341–357.
60) Vu, T., V. Do and M. Skully. 2015. “Local versus Foreign Banks: A Home Market Advantage in Loan Syndications.” *International Review of Financial Analysis* 37(c): 29–39.
61) Williams, B. 1998. “Factors Affecting the Performance of Foreign-Owned Banks in Australia: A Cross-Sectional Study.” *Journal of Banking & Finance* 22(2): 197–219.
62) Williams, B. 2003. “Domestic and International Determinants of Bank Profits: Foreign Banks in Australia.” *Journal of Banking & Finance* 27(6): 1185–1210.
63) Zhu, J. 2004. *Quantitative Models for Performance Evaluation and Benchmarking: Data Envelopment with Spreadsheets and DEA Excel Solver*. Norwell, Massachusetts: Kluwer.

ENDNOTES

[1] Indonesia, Malaysia, the Philippines, Singapore and Thailand.
[2] See Bin (2003). As the author notes, the pace and extent of change amongst the five nations varied somewhat initially, with Malaysia imposing relatively more restrictive conditions (e.g. a 30% foreign ownership ceiling).
[3] Authors' calculation based on the Global Financial Development Database.
[4] For example: the United States (DeYoung and Nolle 1996; Chang et al. 1998); Australia (Sathye 2001; Sturm and Williams 2008; Sturm and Williams 2010); and the United Kingdom (Kosmidou et al. 2007).
[5] The higher GDP per capita implies higher financial sophistication in the home country (Sturm and Williams 2008).
[6] Details on the input measures are provided in Table 1. Both inputs and outputs are measured in US dollars, downloaded from the Bankscope database.
[7] We base this categorisation on the CEPII geo-distances database. For further details regarding this resource see, for example, Mayer and Signano (2011).
[8] For example, in Model 1c the dependent variable is cost efficiency and the soft information factor involved is GDP growth differences.
[9] We re-ran equations 5 and 6 using country fixed effects, but the results were very similar to those in the tables. The revised equation results would also be compromised because of a loss of degrees of freedom in the estimation, but they are available from the authors on request. As pointed out by Sarafidis et al. (2009), the inclusion of time dummies reduces the impact of any estimation bias caused by cross-sectional dependence in the error terms, while the GMM estimator assumes that the disturbances of error terms are cross-sectionally independent. We therefore included year dummies to capture common time-varying shocks (Blundell and Bond, 1998).
[10] Lower economic development levels also raise the direct costs of implementing new banking techniques (Lensink and Hermes 2004).